



CEDEFOP

European Centre for the Development
of Vocational Training

**Real-time Labour Market Information on Skill Requirements:
Setting up the EU System for Online Vacancy Analysis (2017-2020)**

Insights from the Expert Workshop in the Landscaping Activity

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Camplus College Turro – Residenza Universitaria, Milan, Italy

Data obtained from online job vacancies (OJVs) is timely, abundant, cost-efficient and contains authentic descriptions of skills demand formulated by employers. Therefore, it is particularly suited to analyse the changes in skills demand in the labour markets and inform processes of critical importance (e.g. career guidance or development of VET systems).¹ However, the evidence from Eurostat (Community Statistics on Information Society² and European Labour Force Survey³) demonstrates a clear digital divide in Europe: north European countries display a more frequent use of the Internet/computer than south European countries. In countries where people are less prone to use the Internet in job search, firms are also less likely to use the Internet as a channel for OJVs.⁴ The Expert Workshop explored the relevance of online job-portals in recruitment and job-search in the 28 EU Member States in more detail.

Use of Online Job-portals in Recruitment and Job-search: Drivers and Relevance⁵

Arising from the ICE reporting and discussions at the Expert Workshop, the main drivers for the use of online job-portals/OJVs in recruitment and job-search are:

- **Digitalisation:** Internet penetration and technological advance facilitate the use of the Internet in all spheres of life, including recruitment and job-search. Digitalisation is also changing the nature of jobs and the corresponding skills requirements (e.g. automotive service technicians have to be able to use computerised diagnostic equipment for the growing number of electronic components controlling the steering systems; automotive retailers need their sales personnel to operate digital retail channels and engage their customers in a digital experience involving social media). Consequently, companies intensify their search behaviour of employers to satisfy the changing skills requirements. Furthermore, various digital tools for improving the matching the skills demand and supply are employed by the PES as well as private online job-portals. By using these new applications, operators of online job-portals attempt to complement their business model and become attractive for employers and job-seekers alike. However, not all digitalisation trends lead to increased use of online job-portals and enhance the skills content in OJVs. For example, the increased use of mobile phones for job-search limits the level of detail in OJVs due to the smaller screen space. Also, through the use of social media in recruitment and job-search the sources of OJVs are becoming more dispersed and the behaviour of companies and job-seekers is more difficult to observe.
- **Skills shortages arising from technological/sectoral transformation and/or economic growth/recovery:** employers are driven towards using new channels to find suitable labour, thus extending the radius of their search outside the usual area. Online job-portals seem to be being one of them. Additionally, the need to mobilise different target groups facilitates the setting up of specialised websites for those

¹ Vladimir Kvetan: Welcome to the Workshop (Cedefop); Emilio Colombo: Introduction to the Project: General Framework (CRISP); Christa Larsen: Introduction to the Expert Workshop (IWAK).

² CSIS: <http://ec.europa.eu/eurostat/web/microdata/community-statistics-on-information-society>.

³ EU-LFS: http://ec.europa.eu/eurostat/statistics-explained/index.php/EU_labour_force_survey_%E2%80%93_data_and_publication.

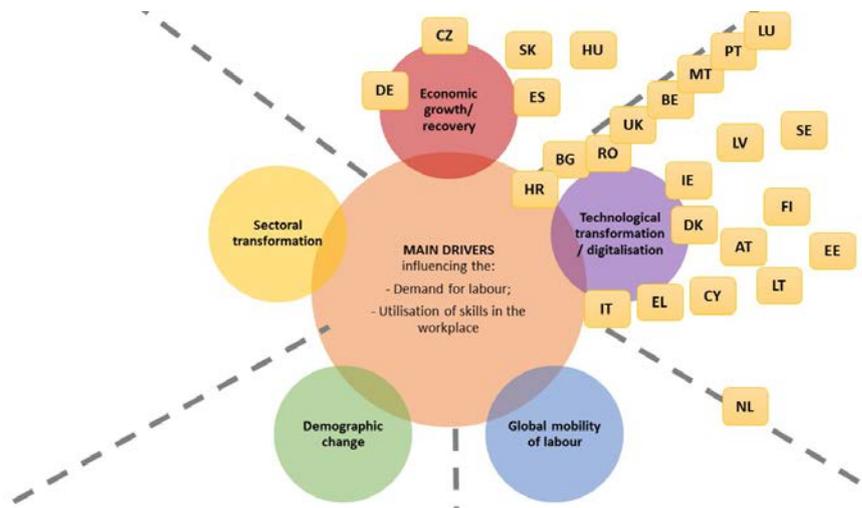
⁴ Emilio Colombo: Trends in the Use of the Internet in Job-search (CRISP).

⁵ Sigrid Rand: Contents from Country Reporting (IWAK); Working Groups with the ICEs, representatives of Cedefop and CRISP/IWAK to identify the main commonalities and differences between the online job-portal landscapes in the EU Member States.

target groups with traditionally lower employment levels (e.g. the elderly, disabled). Furthermore, through OJVs target groups can be easily mobilised in other regions (nationally) or countries (international labour mobility).

The majority of the International Country Experts (ICEs) identified technological transformation/digitalisation as the most relevant driver for using online job-portals in recruitment and job-search⁶, with the exception of CZ, DE, ES, HU and SK where the skills shortages arising primarily from economic growth/recovery were considered to influence the use of online job-portals/OJVs most. As digitalisation of different fields of economy and society is expected to deepen further, this assessment suggests a long-term trend leading towards the increased relevance of web-based recruitment and job-search.

Graph 1: ICE’s assessment of the share of job vacancies published as OJVs⁷



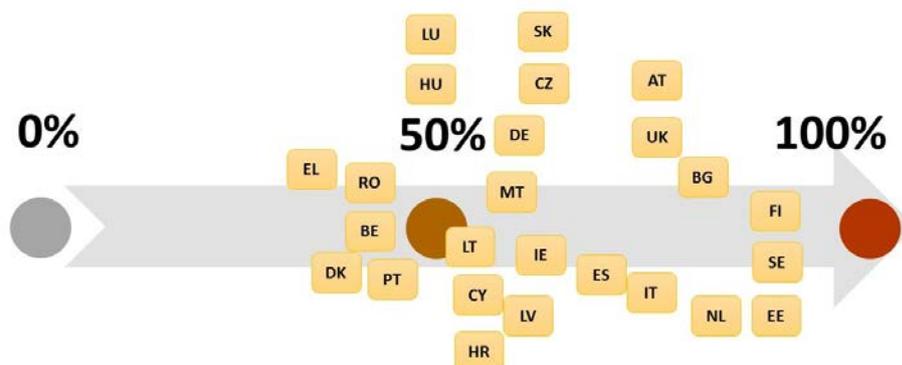
Source: IWAK/CRISP.

The ICEs assessed that the share of published vacancies available as OJVs ranged from less than 50% (BE, DK, EL, PT, RO) to nearly 100% (EE, FI, SE).

⁶ Based on their analysis of job-portal landscape for the country reporting and Working Group discussions, the ICEs estimated how relevant a picture the data attained by web-crawling will paint of their labour markets.

⁷ Graphs 1-4 reproduce the country positioning assessment undertaken by the ICEs at the Expert Workshop.

Graph 2: ICE’s assessment of the share of job vacancies published as OJVs



Source: IWAK/CRISP.

Based on this, we can expect a relatively good coverage of the labour market for the majority of the 28 EU Member States.

Patterns of Behaviour in the Use of Online Job-Portals

In most countries, the landscape of online job-portals is very dynamic due to mergers of online job-portal providers or their acquisition by publishing companies and temporary work agencies. Furthermore, different forms of collaboration between public and private actors as well as the increasingly blurring lines between online job-portals and social media are responsible for the changes in the landscape.⁸

It was confirmed that in all 28 EU Member States the use of OJVs differs greatly across⁹:

- **Economic sectors** (e.g. as a general tendency, a larger share of vacancies are published on online job-portals in the ICT sector as well as in education, healthcare and public administration¹⁰ and less in the construction or hospitality sector);
- **Size of the company** (as a rule, large companies are more prone to publish vacancies as OJVs than smaller ones. However, there is evidence that very large companies either publish OJVs selectively on online job-portals with the main aim to communicate brand values to current and potential employees or abstain from this altogether as they can rely on their own website and/or unsolicited applications);
- **Occupation** (in general, for occupations experiencing skills shortages arising from replacement or extension demand, e.g. nurses, engineers or IT experts, OJVs are published more frequently. However, first evidence suggests that in blue collar occupations with skills shortages OJVs are published less frequently as employers prefer recruitment paths that enable them to target the potential candidates more directly, e.g. word of mouth, contacts to VET schools);
- **Skills level of the job** (e.g. for white-collar jobs, OJVs are more frequently published than for blue-collar jobs).

⁸ Sigrid Rand: Contents from Country Reporting (IWAK)

⁹ Working Groups.

¹⁰ In most countries, there are legal regulations requiring the publication of jobs in public administration and in several instances specialised websites exist for these vacancies.

From the interplay of these factors, complex patterns influencing the behaviour of companies and – to a lesser extent – job-seekers emerge. The recruitment behaviour of companies is to a great extent influenced by the availability of labour that differs across sectors/occupations (in case of skills shortages, a variety of recruitment paths is used), the existence of a professional HR department in the company (greater familiarity with online job-portals as a recruitment path in large companies) and the willingness to dedicate resources to the recruitment for a certain position (more resources are spent on looking for suitable candidates for positions with specific skills sets rather than for easily replaceable labour; headhunting is used for jobs requiring very rare skills or high level skills and thus they are not posted as OJVs). In most countries, PES websites are used for advertising jobs with lower skill levels or blue-collar jobs. However, in the case of strong and innovative PES (e.g. FI, MT, NL) it can take on the lead in the digitalisation of recruitment and job-search efforts – mostly in collaboration with private actors.

Content and Format of OJVs¹¹

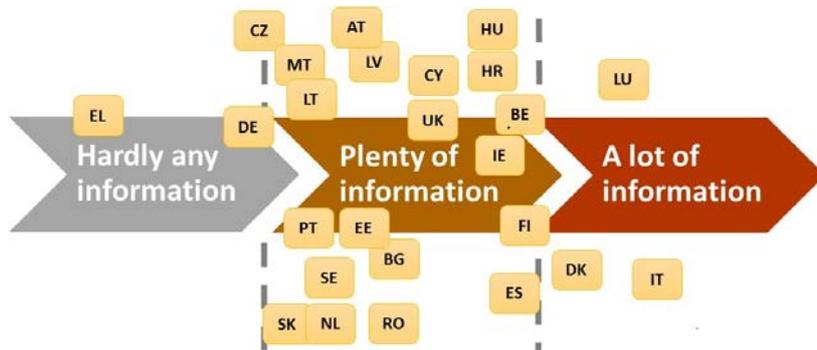
The OJVs on the PES websites tend to be highly structured, formalised and focused on requirements, while the OJVs on private portals are a lot more diverse both in terms of their format (e.g. companies' own OJVs following corporate design supporting employer branding) and content (richer descriptions and focus on behaviour personal attributes, soft skills). As a general tendency, large companies use OJVs for employer branding, i.e. for building up a reputation of the organisation as an employer. By shaping the perception of potential candidates of what is expected from them and what they are offered in return, companies can attract the right kind of talent. Furthermore, companies trying to attract applicants in sectors/occupations with skills shortages concentrate more on the career chances as well as benefits they are able to offer to potential candidates. Moreover, OJVs for white-collar jobs contain considerably more information on skills than those for blue-collar jobs.

Job-specific skills can be contained in different sections of the OJV, e.g. job title (e.g. competent and reliable plumber needed), description of the employer or working environment (e.g. team, company culture/'philosophy', description of the perks/benefits and career opportunities (sometimes formulated as questions, e.g. in Austria). Moreover, skills can be used for performing implicit discrimination (e.g. the description 'strong person' denoting a young male).

In the assessment of the ICEs, we can expect to find plenty of information on hard skills (e.g. programming languages) in OJVs in most countries (the only countries in which the OJVs are expected to contain less information are DE and EL due to the primacy of formal qualifications in recruitment in the case of the former and the traditionally very reduced format of OJVs in the case of the latter). In countries such as DK, IT and LU the information on hard skills is expected to be particularly rich.

¹¹ Sigrid Rand: Contents from Country Reporting (IWAK); Working Groups, ICEs' assessment.

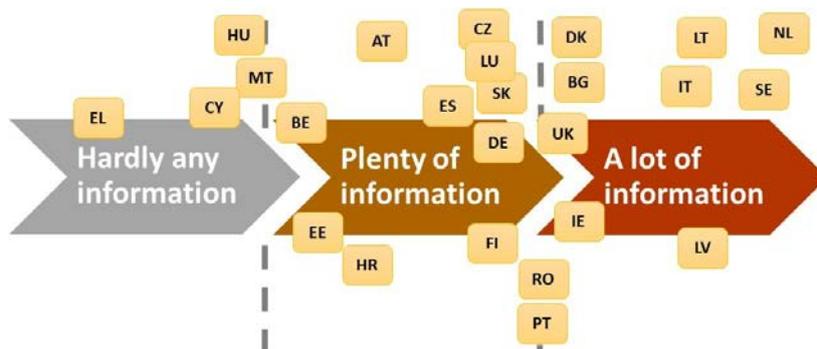
Graph 3: ICE’s assessment of the amount of information on hard skills (e.g. programming languages) in OJVs in their country



Source: IWAK/CRISP.

We can anticipate finding even more information on soft skills (e.g. communication, flexibility) in the OJVs in most countries. Here, CY, EL, HU and MT constitute notable exceptions as the ICEs expect to find hardly any information on soft skills in OJVs in their countries.

Graph 4: ICE’s assessment of the amount of information on soft skills (e.g. communication, flexibility) in OJVs in their country



Source: IWAK/CRISP.

Available Sources of Data and Information¹²

The results of the research process showed that in most countries the availability of official data as well as academic research was limited. While the project can draw upon a unique body of evidence that has been created for each one of the 28 EU Member States, it needs to be taken into account that the collected data and information are heterogeneous and of quickly changing nature. Therefore, it is necessary to consider how the results can be generalised and how they can be used to support the web-crawling process.

Despite these challenges the Expert Workshop demonstrated that the ICEs had acquired a considerable level of expertise on the subject and that an adequate picture of the online job-portal landscape and use of OJVs has emerged for the 28 EU Member States. Possible solutions improving the availability of data were suggested for the future¹³.

¹² Christa Larsen: Methodological Issues Arising from Country Reporting (IWAK).

¹³ Working Groups at the Expert Workshop.

- Adding specific questions to existing surveys (e.g. the National Vacancy Surveys already conducted by the Member States according to the Regulation 453/2008 of the European Commission);
- Developing a specific survey of the employers;
- Using the Labour Force Survey to contextualise data from OJV scraping (e.g. comparing LFS data with data from web-crawling to detect whether the occupational structure of people who changed jobs was the same as the occupational structure of OJVs of the same period);
- Creating a panel of experts in every EU Member State to validate the results of web-crawling.

Suitability of the EURES Porta for Web-crawling¹⁴

In 17 countries the national PES databases are widely harmonised with the EURES Portal, making it a feasible substitute for the web-crawling of individual national PES portals. However, the Regulation 2016/589 of the European Parliament and the Council, demanding the transfer of all PES vacancies to EURES, is expected to effect in all countries as of May 2018. Therefore, it is advisable to conduct another assessment of the situation in the second half of 2018.

Relevance of the Global Portals for Web-crawling¹⁵

In certain sectors/occupations where employers recruit globally, the OJVs are often not represented in national portals. This includes inter-governmental and non-governmental organisations (e.g. EU institutions, transnational organisation as well as development and aid organisations) and large multi-national companies in globally spread sectors (e.g. finance, IT, oil and gas, transport and logistics). Furthermore, global recruitment takes place in highly demanded occupations such as engineering and nursing, niche professions such as scientists and emerging occupations such as green occupations. 63 online job-portals containing OJVs from these sectors/occupations that might constitute a value-added for the web-crawling on national portals have been preliminarily selected. They will need to be assessed further as to their relevance for the labour markets of the EU countries.

Project outlook and subsequent steps¹⁶

The ICEs had identified 530 sources for web-crawling and it is expected that over 40 million OJVs will be recorded in a particular instant of time. This number will increase exponentially over time as a continuous data ingestion activity will be potentially available on all the websites identified by the ICEs.¹⁷ According to the current analysis, the largest number of OJVs will be available for DE, FR, ES, PL and UK. However, as the OJVs have not yet been subjected to deduplication, further analysis of the data is needed.

¹⁴ Sigrid Rand: EURES and GLOBAL Reports (IWAK).

¹⁵ Sigrid Rand: EURES and GLOBAL Reports (IWAK).

¹⁶ Mario Mezzanica: Relevance of the Landscaping Activity for the European Model: An Overview of the Analytics Process (CRISP); Silvia Dusi: Next steps in the ICE involvement (CRISP).

¹⁷ A rough indicator of the potential volumes of data can be calculated adding up the volumes reported for each site inspected. Obviously, this indicator does not yet consider duplicates across different sources, but can be used to estimate the number of items to be collected. Further details are available in the Annex I of the Report for OF2: Crawling Technical Documentation, p. 4f.

During the processing and analysis of collected data, the ICEs will support the CRISP team in the building the training set, improving and checking the taxonomy and validating the results. First results can be expected within the early release for countries covering about 66% of the European population (CZ, FR, DE, IE, IT, ES, UK).

Conclusions

The Expert Workshop confirmed that systematic research on the online job-portal landscape across Member States is scarce. This re-enforces the value of the explorative work carried out by the ICEs. Its results so far demonstrate a wide-spread convergence in the use of online job-portals in recruitment and job-search in the 28 EU Member States and point out that the online job-portal landscape is a dynamic field subject to short-term changes. Resulting from these insights, further observation of the online job-portal landscape in the coming years will be necessary. Moreover, it would be advisable to follow up the first research conducted by the ICEs through a representative survey of companies to understand better the recruitment behaviour of employers, which is the main determinant for the share of vacancies published as OJVs.