

Mapping the landscape of online job vacancies

Background report: Belgium

Study: Real-time labour market information on skills requirements: Setting up the EU system for online vacancy analysis

Contract: AO/DSL/VKVET-GRUSSO/Real-time_LMI_2/009/16

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Preface

Over the last decades, online job portals have become important features of the job market. The Internet offers a rich source of live and real-time labour market information for almost all of occupations. It can provide insight on job-specific skills required in particular occupations in different regions, combined with information on the characteristics of the job offered – i.e. much more than is available using conventional sources. However, consistent and comparative information on the use of the internet and online job market by job-seekers and employers in Europe is rather scarce.

To tap the potential of online labour market information, Cedefop started to investigate the possibility to develop a system for gathering and analysing data from online job portals in the EU to complement the centre's toolkit of skills intelligence instruments. While this is feasible, drawing meaningful conclusions from these data requires a good understanding of the features of national online job markets. Therefore, Cedefop has mapped the landscape of the online job market in all EU Member States. This publication presents one of the background country reports developed in the project - 'Real-time labour market information on skills requirements: Setting up the EU system for online vacancy analysis' (AO/DSL/VKVET-GRUSSO/Real-time LMI 2/009/16). Its findings will inform the cross country comparison published in the upcoming synthesis report.

The work was undertaken by a consortium of external contractors: CRISP (Milano/IT), Tabulaex (Milano/IT) and IWAK (Frankfurt/DE) and their network of country experts (see annex 1 for detailed list) and closely supervised by Cedefop. It presents authors' analysis of the landscape of the online job portal market in the country using a methodology developed for the purpose of the project.

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List of Abbreviations

ADG	Employment Agency of the German Society in Belgium (Arbeitsamt der Deutschsprachigen Gesellschaft Belgiens)
BISA	Brussels Institute for Statistics and Analysis (Brussels Instituut voor Statistiek en Analyse)
Cedefop	European Centre for the Development of Vocational Training
ESS	European Statistical System
EURES	European Employment Services
FEDERGON	Federation of Private Labour Market Intermediaries and HR Service Providers
FOREM	Labour and Professional Training Office of Wallonia (Service public wallon de l'Emploi et de la Formation professionnelle)
FPB	Federal Planning Bureau
GDPR	EU General Data Protection Regulation
HR	Human Resources
HIVA	Research Institute for Work and Society
IBSA	Brussels Institute for Statistics and Analysis (L'Institut Bruxellois de Statistique et d'Analyse)
ICT	Information and Communication Technology
ILO	International Labour Organization
IWEPS	Walloon Institute for Evaluation, Prospective and Statistics (Institut Wallon de l'Évaluation, de la Prospective et de la Statistique)
JVS	European Job Vacancy Survey
LFS	European Labour Force Survey
LMI	Labour Market Information
NACE	Nomenclature statistique des activités économiques dans la Communauté européenne
OJVs	Online Job Vacancies
ONEM	National Labour Office (Office National de l'Emploi)
PES	Public Employment Services
RVA	State Office for Employment Creation (Rijksdienst voor Arbeidsvoorziening)
SO	Statistical Office
SSR	Search, Selection and Recruitment
TWA	Temporary Work Agencies
UPEDI	The Umbrella Organisation of private labour market intermediaries currently known as FEDERGON
VDAB	Flemish Service for Job-Search and Professional Training (Vlaamse Dienst voor Arbeidsbemiddeling en Beroepsopleiding)

Introduction

With the project “Real-time Labour Market Information on Skill Requirements: Setting up the EU System for Online Vacancy Analysis”, Cedefop explores online job-vacancies (OJVs) as a new source of real-time Labour Market Information. By crawling the most important online job-portals of the 28 EU Member States, Cedefop will further its understanding of the changing skills demand in different sectors and occupations. A systematic overview of the online job-portal landscape in each of the 28 EU Member States will identify the most relevant online job-portals and provide context for the data scraped from them. With the Landscaping Activity, Cedefop seeks to acquire insights into the structure of online job-portal markets and the extent to which online job-portals are used in recruitment and job-search. Furthermore, it aims to better understand which factors cause variation in the formats and content of OJVs in different countries.

This Country Report was compiled between April and October 2017 and constitutes a first overview of the online job-portal landscape in Belgium. It is based on desk research of available data sources in Belgium (e.g. public data, academic research and publications of interest groups) and expert opinions. Chapter 1 describes the methodology used for compiling the report in terms of the relevant search paths and data sources. Chapter 2 gives an overview of the main drivers for the use of online job-portals in recruitment and job-search, while Chapter 3 concentrates on the characteristics of the online job-portal market and lists the most important players. Moreover, it seeks to understand to what extent OJVs published on the online job-portals provide adequate information on the developments in the Belgian labour market in terms of the number of vacancies and representation of sectors/occupations. Furthermore, it elaborates on the legal and regulatory framework guiding the activities of the job-portal owners and employers, highlights the differences between the public versus private online job-portals and delineates their relationships with one another. Chapter 4 covers the use of online job-portals in recruitment and job-search. It focuses on the differences in the behaviour of employers and job-seekers across sectors, occupations, qualification levels and regions. Chapter 5 presents the most important online job-portals in Belgium for web-crawling and describes a step by step process of the OJV drafting and posting on select private and public online job portals. Chapter 6 concludes the Country Report by describing the main features of OJVs in Belgium in terms of format and content. In particular, it explores to what extent OJVs contain information pertaining to hard and soft skills required for the job, how these skills are characterised and what they reveal about the nature of the job.

1. Methodology

1.1. Search Paths

Most of the research material was obtained through targeted visits to websites of interest, based on our prior knowledge. The Public Employment Services (PES) websites (see Section 3.1. for the description of the organisation of the Belgian PES) and the website of Federgon, a federation of private labour market intermediaries and HR service providers, have been useful for initial access to the Belgian literature on recruitment methods and job-search methods. This process has resulted in a few research papers (see Table 1 and the reference section). Most of the research gathered was commissioned by interest groups, which may indicate some bias. However, the main problem is that most of this research is quite outdated.

The PES sites have been intensively analysed and consulted to gain further insights about PES functioning and PES-private cooperation. Some private portals and temporary work agency (TWA) websites also supply articles or news items that give some indirect insight into the functioning of the Belgian vacancy market. The Randstad website proved most useful in this respect. However, very little material enabled us to go beyond the information supplied by the experts, whom we interviewed (see Section 1.2.2.).

Google searches were used as a complementary tool throughout the entire research process; they span a wide variety of search terms in Dutch, French, English and (occasionally) German. They have also been used for topics of interest that were virtually absent in the material obtained above. However, only the search terms used to inform the job-portal selection were documented (see Section 5.1.1).

1.2. Data Sources

1.2.1. Public Data/Academic Research and Research/Surveys by Interest Groups

As for the statistical material, in addition to the data provided in the Guidance note, the Federal Planning Bureau (FPB) provided detailed Labour Force Survey (LFS)-information. This data has been complemented with figures on the evolution of vacancies based on the Belgian Job Vacancy Survey (Statistics Belgium) and the statistical material on vacancies available through the four regional PES. Given the outdated nature of the written material available, these statistical sources were analysed in combination with one another to gain further insight into the outreach of the PES portals, the characteristics of the PES target users (job-seekers and employers) and the evolution of search channels by unemployed as well as employed people.

1.2.2. Expert Opinions

In the very first stage of the research, Statistical Office (SO) experts were contacted. The Belgian SO is actively involved in the ESSnet work package concerning job-vacancy web-scraping and has performed scraping activities on Belgian job-portals. Throughout the research process, there have been frequent exchanges of information with the SO-expert involved in ESS-net, the SO-expert re-

sponsible for the web-scraping activities on Belgian private job-portals and the SO-expert in charge of the Belgian Job Vacancy Survey (see Section 5.1.2 for additional details). The ESSnet/SO contacts have addressed issues related to the actual web-scraping process and the selection of relevant private job-portals. As useful as these contacts were, other stakeholders were more helpful for all issues related to the functioning of the Belgian and regional OJV markets, the posting process of OJVs as well as OJV content.

Secondly, given the distinctive regional orientation of the Belgian labour and OJV markets, the regional PES play a pivotal role in the Belgian job intermediation landscape. Subsequent work has concentrated on the current positioning of PES with respect to job intermediation and the strategies they are considering to cope with increased competition and digitalisation. We decided to focus primarily on the Flemish PES (VDAB¹), for which information is abundantly available and to use this as a benchmark for further inquiries about the other regional PES systems. An interview was originally scheduled with the head of the VDAB department of research, but later, in light of the nature of the interview questions we and that individual agreed that the more appropriate interview partner was the project leader for open services and strategic alliances. This conversation was extremely useful, both with respect to the functioning of the PES portal as well as with respect to the interactions between VDAB, the other PES systems and the private portals.

Subsequently, an interview was granted by representatives of Federgon, the Belgian private employment services organisation comprising temporary work agencies, search, selection and recruitment (SSR) companies, private training and related services providers. Given the nature of its activities, Federgon is arguably the employer body in which the most expertise about the vacancy market is concentrated. Moreover, it has been the main commissioner of research concerning the Belgian job-vacancy market. For this reason, we interviewed the Director of Research and Economic Affairs. This interview allowed us to gain further insight into the point of view of the private sector participants in labour market intermediation, although it was not possible to go into detail about specific strategies of individual companies. The Actiris² and FOREM³ representatives in the working group currently in charge of the revision of the Belgian Job Vacancy Survey were contacted to clarify issues that were not sufficiently covered in previous interviews or desk research. For Actiris, a formal interview was subsequently held by phone, for FOREM a face-to-face interview was scheduled.

This Country Report for Belgium aims at giving a comprehensive description of the Belgian on-line job-portal landscape, given various restrictions, including the complexity of the Belgian institutional setting, the limited amount of days that were budgeted for the entire exercise and the fact that, especially for an institution like the FPB, access to information concerning the strategic behaviour of private players in the market was less straightforward. Particularly the sections concerning the business models of online portals and the content of private OJVs (i.e. questions related to soft skills, personal competencies, personality traits and framing) could have benefited from a more thorough and time-consuming analysis across job-portals. Likewise, descriptions of the four PES in this report is tilted towards VDAB-sources and would benefit from a more even-handed approach, especially with respect to the ADG⁴ PES, for which we were not able to speak with a representative. Finally, the job-portal selection process has focused on the general-purpose sites, and the overview of the literature has focused on the proportion of total outstanding vacancies covered by OJVs. The Real-time Labour Market Information (LMI) project could develop more towards

¹ In Flemish “Vlaamse Dienst voor Arbeidsbemiddeling en Beroepsopleiding”.

² In French “Office Régional Bruxellois de l’Emploi” and in Flemish “Brusselse gewestelijke dienst voor arbeidsbemiddeling” (Actiris, formerly known as Orbem/Bgda).

³ In French “Service public wallon de l’Emploi et de la Formation professionnelle”.

⁴ In German Arbeitsamt der Deutschsprachigen Gesellschaft Belgiens.

studying real-time changes in required competencies in niche professions rather than aiming at a comprehensive and representative overview of developments in the entire labour market. From this point of view, it may be worthwhile to complement the information in this report with a more detailed analysis of special-purpose job-boards.

Table 1: Overview of the different sources used in the Landscaping Activity

Type of source	Title/year	Provider	Information on			Quality
			Share of existing vacancies on online job-portals (PES/private)	Use of OJVs per sector/occupation/qualification level/ region	Skills requirements in OJVs	
Source 1: Public data/ academic research	Delmotte, Jeroen/Van Hootegem, Geert/Dejonckheere, Johan (2001): Hoe werven bedrijven in België in 2000?	UPEDI	Yes	Yes		Excellent quality but outdated
	Job Vacancy Survey	Statistics Belgium/Eurostat	Yes	Yes		Short time period available
	Regional vacancies statistics	Actiris/FOREM/VDAB	Yes	Yes	Yes	More statistical material readily available on-line at VDAB than at Actiris/FOREM
Source 2: Research/ surveys of interest groups	Gevers, Ann/Peeters, Anneleen (2006). Wervingsbeleid en werknemersstromen in beeld, Eindrapport, Brussels	FEDERGON	Yes	Yes		Research questions guided by interest group; becoming outdated
	Valsamis, Daphné/Vandeweghe, Barbara/Van der Beken, Wim (2012): Instroom- en retentiebeleid van bedrijven, Eindrapport	FEDERGON	Yes	Yes		Research questions guided by interest group; more up-to-date but less detail than in Gevers and Peeters (2006)
	VDAB (2010): Rekrutering in revolutie? VDAB ontcijfert nr. 20	VDAB	Yes	Yes	Yes	Limited to Flemish region
Source 3: Expert opinions	Expert opinions 2017	Experts 1-5	Yes	Yes	Yes	Good

Source: Federal Planning Bureau (2017).

2. Context and Characteristics of the Online Job-portal Market

We share the majority view among the participants at the Milan workshop that the evolution of the OJV market is, first and foremost, driven by technological, legal and competitive forces that operate within the market itself. On the technological side, the growing digitalisation and the increased possibilities for monitoring and matching job-search and recruitment activities have been influential. On the legal side, an important factor is the abolition of public monopolies, which had historically been responsible for labour market intermediation and the simultaneous increase in private companies' access to all niches of the labour market intermediation process. Large international players are also entering the market, and they often have a competitive edge when it comes to technological developments.

Although the main drivers of change to the OJV market are internal, developments in the broader labour market context may also influence the dynamics of the OJV market. More specifically, the following topics are important factors in the development of the Belgian OJV landscape:

- **Regional discrepancies:** Given the large interregional differences in unemployment rates, current strong growth in employment in the Flemish region is expected to lead to a rapidly increasing number of bottlenecks, exacerbated by more rapid ageing of the Flemish working population compared to other regions (see FPB, IBSA, IWEPS, SVR 2017). This mismatch between employment opportunities and population in the Flemish region is expected to incentivise better interregional matching of job-offers and potential candidates across Belgian PES systems. At the same time, the growing presence of online portals is making cross-regional job-search activities easier and more fruitful.
- The **responsibility for monitoring active search behaviour** of people receiving unemployment benefits has recently shifted from the federal level to the regional PES (see Section 3.1.1). This could provide an additional incentive for unemployed people to use the PES-portal, and increased usage could allow the PES to analyse search behaviour on their portals as a way to monitor eligibility for unemployment benefits. On the other hand, the last decade has also seen a considerable tightening of eligibility conditions and the development of more stringent criteria when monitoring active search behaviour. This may have intensified job-search behaviour for certain individuals, but according to the records of the RVA⁵-ONEM⁶/PES circuit (labour offices of the Flemish and French-speaking communities), it may have also led to people withdrawing from the labour market. This threatens to reduce the coverage of the PES among population groups considered to be their target audience, especially in the Walloon and Brussels region. The recent decline in activity rates among low-qualified young people gives support to this conjecture.
- **Post financial crisis growth** has generated many new jobs, both because periods of slack were accompanied by a high degree of worker retention and because job growth has been picking up rapidly in the more recent economic upturn. This leads to a more demand-driven OJV market. In view of the latest macro-economic projections for the Belgian economy (FPB 2017), this evolution may be expected to persist in the medium term, increasing incentives to

⁵ In Flemish Rijksdienst voor Arbeidsvoorziening.

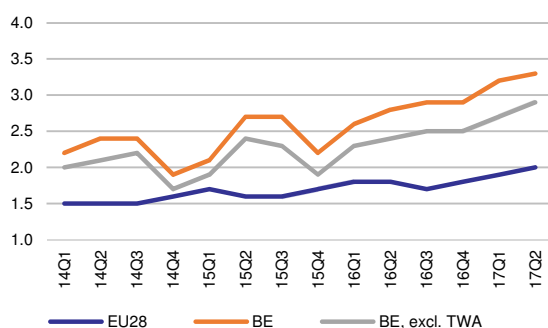
⁶ In French Office National de l'Emploi.

shift the OJV content toward competencies that are less directly related to formal qualifications.

- At the same time, the **ageing of the workforce** tends to reduce labour force growth and puts upward pressure on the number of job openings related to replacement demand. This pressure has been temporarily offset by a government policy discouraging early exit from the labour market in the upper age bands, but the pressure will kick in again by 2020, when the effect of policies combatting early retirement is expected to level off. The fact that efforts to increase exit ages focus more on civil servants, may help to reduce the increase in competition for high qualified profiles in the private sector, because replacement demand in the public sector is temporarily at a lower level. This evolution favours the market coverage of private portals, which tend to publish fewer civil servant jobs. On the other hand, according to FPB (2017), an increase is expected for employment in health care and social services, which are sectors that tend to publish to the PES portals.
- Private portal coverage is also encouraged by the fact that employment evolution in Belgium over the last decade and a half has been characterised more by **skills upgrading** than by job polarisation, as the share of highly qualified occupations is increasing at the expense of both medium and low-qualified occupations (Muçaj 2016). The only elementary occupations that have significantly increased their share in overall employment are cleaning services. This is the mixed outcome of spontaneous market developments (e.g. increase in cleaners in offices, etc.) and the introduction of a heavily government-subsidised voucher system for household-type services, which has led to a substantial increase in the number of domestic cleaners and helpers. During the last decade, the number of jobs within the subsidised voucher system has risen to over 4% of salaried private sector employment. These jobs are filled largely through TWA intermediation. The voucher system is now on its way to maturation, but remains an important element in overall job turnover.

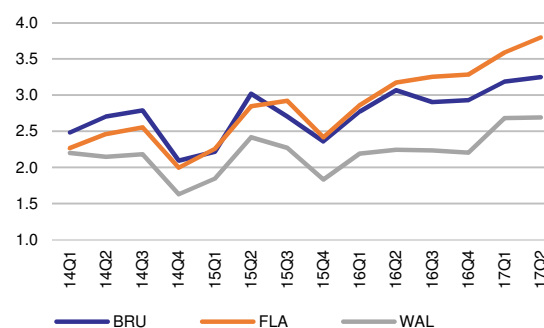
The recent evolution in the number of vacancies may be obtained from the quarterly results of the Belgian section of the European Job Vacancy Survey (JVS). Due to various breaks in the series, there is a relatively short time span for which Belgian quarterly JVS data are available for comparison (2014Q1 to 2017Q2). Figure 1 shows that, throughout this period, the job vacancy rate in Belgium has been consistently higher than the EU28 average. In 2017Q2, the most recent quarter available, Belgium ranked second among EU28-countries based on this indicator.

Figure 1: National job vacancy rate; NACE Rev. 2 B-S



Source: JVS (Statistics Belgium and Eurostat).

Figure 2: Regional job vacancy rate; NACE Rev. 2 B-S



Source: JVS (Statistics Belgium).

The metadata provided by Eurostat reveals much broader heterogeneity in terms of methods, coverage and data used in the JVS than in the LFS. Therefore, a much lower degree of international comparability may be expected from the JVS data. Belgium's high relative ranking for the job vacancy rate may be related to wider coverage in the Belgian JVS. This includes TWA jobs and, according to the person responsible for the JVS at Statistics Belgium, may also capture some informal vacancies that would not be considered within the perimeters of a typical JVS. The Statistics Belgium data allows for the removal of TWA jobs from the Belgian figures. Figure 1 shows that this has a significant impact on the level of the job vacancy rate. Even then, the Belgian job vacancy rate remains at a structurally higher level compared to the EU28.

The Belgian data can also be evaluated by region, firm size and industry. Figure 2 shows the regional job-vacancy rates (including TWA jobs) and shows that the job vacancy rate has increased in all three regions during the period covered, but that the Walloon rate is structurally lower for the entire period and that the increase in the Flemish rate has recently outpaced the increase in the Brussels rate.

Table 2 shows average job vacancy rates per industry over the period 2014Q1 to 2017Q2, both including and excluding TWA jobs. From the table, it may be seen that job vacancy rates in electricity, gas and water, financial and insurance activities, public administration, education and health are considerably below the average for the overall economy, whereas job vacancy rates in construction, arts, entertainment and recreation, administrative and support service activities, and – especially – in information and communication and professional, scientific and technical activities are substantially above average. The incidence of TWA vacancies is largest in manufacturing, construction and business services. Job vacancy rates are substantially higher in small firms (10 employees or less), whereas TWA vacancies have a larger impact in Flanders than in the other regions.

An assessment of the appearance and nature of bottleneck occupations may be obtained from the PES websites⁷. A distinction is made between quantitative shortages, meaning there are not enough candidates, qualitative shortages, meaning the available candidates lack the necessary competencies and shortages caused by adverse working conditions. These lists typically display a heterogeneous character. The latest information points to difficulties in filling vacancies for professions that are in high demand in booming or structurally growing industries, such as social for-profit professions, technicians, truck drivers, cleaners and ICT, but also for some professions in industries where employment is contracting, but there is high replacement demand for profiles that are no longer provided by the educational system, for instance in the textile and confection industries.

⁷ See <https://www.vdab.be/trendsdoc/vacatureanalyse/knelpuntberoepenlijst2016.pdf> and https://www.vdab.be/sites/web/files/doc/trends/knelpuntberoepen_2016.pdf for VDAB; <https://www.leFOREM.be/former/horizonemploi/metier/index-demande.html> for FOREM and <http://www.actiris.be/marchemp/tabid/243/mctl/5/idtheme/3/language/fr-be/Description-thematique.aspx> for Actiris.

Table 2: Job vacancy rate; multiple splits; averages 2014Q1 to 2017Q2

Industry; size; region	Incl. TWA	Excl. TWA
B. Mining and quarrying	2.6	2.3
C. Manufacturing	2.6	1.8
D. Electricity, gas, steam and air conditioning supply	1.7	1.7
E. Water supply; sewerage, waste management/remediation activities	1.8	1.4
F. Construction	3.9	3.1
G. Wholesale, retail, repair of motor vehicles	2.9	2.4
H. Transportation and storage	2.4	1.8
I. Accommodation and food service activities	3.2	2.8
J. Information and communication	5.5	5.3
K. Financial and insurance activities	2.1	2.0
L. Real estate activities	3.0	2.5
M. Professional, scientific and technical activities	5.9	5.0
N. Administrative and support service activities	3.8	3.0
O. Public administration and defence	2.2	2.2
P. Education	1.4	1.4
Q. Human health and social work	1.5	1.4
R. Arts, entertainment and recreation	3.3	2.9
S. Other service activities	2.6	2.4
1-10 employees	4.4	3.6
At least 10 employees	2.4	2.1
Brussels region	2.7	2.5
Flemish region	2.8	2.4
Walloon region	2.2	1.9
Total NACE B-S	2.7	2.3

Source: JVS (Statistics Belgium).

3. Labour Market Dynamics and Impact on the OJV Market

3.1. PES Online Job-portal(s)

3.1.1. Legal/Regulatory Framework

In Belgium, four regional public employment systems operate: Actiris in the Brussels-Capital region, VDAB in the Flemish region, FOREM in the Walloon region and ADG in the German-speaking community (which in territorial terms is part of the Walloon region). Orbem/Bgda (the labour market service that preceded Actiris), FOREM and VDAB were created in 1989, after the transfer of labour intermediation from the federal to the regional level. ADG was created in 2000.

The regional public employment systems operate independently of one another and have their own historic traditions, approaches and ways of functioning. However, they do collaborate within the interregional platform, SYNERJOB⁸, which belongs to the non-profit Federation of Public Employment and Vocational Training Services in Belgium. It was created in 2007 to increase the efficiency of intermediation across regional borders through the sharing of vacancies, increased focus on language learning, development of common methods to establish lists of bottleneck professions and synchronisation of classifications for professions and competencies.

Current legislation concerning VDAB, Actiris, FOREM and ADG dates from 2004⁹, 2001¹⁰, 1999¹¹ and 2000¹², respectively. This legislation does not explicitly deal with the functioning of the online PES-portals, as it largely pre-dates the increase in Internet access and use. It does coincide with the abolition of public monopolies on job intermediation and sets the scene for increased public-private cooperation and partnerships in this field.

The PES typically include pluri-annual management agreements with the regional public authorities, listing goals of attainment that are monitored through quantitative indicators. The current agreements for FOREM and Actiris cover the period 2017 to 2022, whereas in the case of VDAB, pluri-annual agreements were abandoned in 2015 in favour of annual business plans.

According to the federal legislation adopted in the eighties, even before the regionalisation of the PES and the development of online job search, employers of a certain size (20+ employees) have the obligation to publish all outstanding vacancies to the PES. In practice, however, none of the regional PES impose or verify this legal obligation, although VDAB mentions it on its website.

⁸ <https://www.vdab.be/synerjob/engels.html>.

⁹ http://www.ejustice.just.fgov.be/cgi_loi/loi_a1.pl?language=nl&la=N&cn=2004050753&table_name=wet&&c_aller=list&fromtab=wet&tri=dd+AS+RANK; in operation since 2006.

¹⁰ http://www.etaamb.be/fr/ordonnance-du-18-janvier-2001_n2001031143.html.

¹¹ <https://wallex.wallonie.be/PdfLoader.php?type=doc&linkpdf=4110-3436-1388>.

¹² http://www.adg.be/PortalData/19/Resources/downloads/verwaltungsratnoten/regelwerke/2000-01-17_Dekret_zur_Schaffung_eines_Arbeitsamtes_in_der_DG.pdf.

3.1.2. Organisational Structure of the PES Online Job-portal(s)

The regional PES are in charge of initial registration of job-seekers, job intermediation and the provision of training facilities, whereas the federal social security institution RVA/ONEM (National Employment Office) is responsible for the payment of unemployment benefits. In the Brussels region, the public provision of training facilities is not hosted within Actiris; it is split along linguistic lines. The public body “Bruxelles formation” is responsible for the French-speaking community and VDAB is responsible for the Flemish-speaking community.

Until recently, RVA/ONEM also played a crucial role in monitoring active job-search behaviour. However, after the latest reshuffling of competences between the regional and the federal level, these monitoring and sanctioning activities were transferred to the PES, making the PES entirely responsible for eligibility monitoring as of January 2016. At the same time, most of the remaining federal targeted active labour market policies have been transferred to the regions, some of which now fall under the PES.

According to Struyven and Van Parys (2016), the opening of the labour market to private intermediaries and the abolition of the public monopoly on labour market intermediation around the turn of the century, has set in motion a movement away from the PES as a labour market actor (i.e. implementation of services) towards the PES as a driver and facilitator that ensures efficient functioning of the labour market. All PES acknowledge this movement explicitly in their management agreements. VDAB, for instance, is developing into a support organisation for the recruitment market, leaving room for other specialised intermediaries, while safeguarding the provision of services to traditional target groups (‘basic services’) and operating as an inspector/monitor of proper market functioning and adherence to minimum quality standards. Actiris and FOREM explicitly distinguish between their activities as ‘actor/operator’ and ‘conductor’ and specify that they aim to increase collaboration with both public and private partners to diversify and amplify both job-offers and recruitment pools.

This strategy translates into an increased reliance on recruiting services and public-private partnerships. For example, VDAB has a long-standing partnership with FEDERAGON, enabling the joint funding of activities, better exchange of vacancies, cooperation in career guidance and training and placement services, as well as TWA-assistance in reaching vulnerable labour market groups while addressing employers’ needs. Through successive agreements with private sector actors, the PES have succeeded in publishing a steadily increasing share of vacancies that originated on private portals on their website. According to the VDAB expert interviewed, VDAB has developed a liberal policy of sharing original data, such as profiles of job-searchers, vacancies and competencies with external parties. While the PES insist that they are moving towards the role of conduit on the recruitment market, they maintain a commanding and pivotal position as an actor of job-portal services in terms of market coverage and are increasingly taking on a role as aggregator of third party vacancies.

The PES also claim to focus less exclusively on their traditional target population of school-leavers and the unemployed and to be moving towards more active assistance in job-to-job and inactivity-to-work or work-to-inactivity transitions. Again, this may be accompanied by stronger collaboration with private partners. VDAB, for example, has externalised career planning, which is now managed by third parties.

With respect to recruiters, the PES are moving towards a more demand-driven approach. They are cooperating with employers and offering employer-branding services. VDAB offers a range of fee-based branding options. Actiris has introduced key account managers to cater to the specific needs of large employers and has segmented employers into categorical clusters based on similar recruitment needs. FOREM explicitly mentions increased services to employers in its current pluri-

annual management agreement and plans to re-arrange its organisational structure along more cross-territorial lines. They will also centralise services to large employers.

All PES are actively and increasingly engaged in regional labour market monitoring, for which they have a comparative advantage over private companies. Although the latest state reform has relegated statistical authority to the regions (Brussels Institute for Statistics and Analysis (IBSA/BISA)¹³ for the Brussels region, the Flemish Statistical Authority¹⁴ for the Flanders region and the Walloon Institute for Evaluation, Prospective and Statistics (IWEPS)¹⁵ for the Walloon region), a significant part of regional labour market intelligence is concentrated within the PES. Actiris, for example, hosts the ‘observatory for employment’, which is specifically dedicated to monitoring labour market developments and evaluating targeted labour market policies.

Finally, the PES are focusing more on offering services, including online matching services (VDAB: “digital first” strategy, Actiris: Self’Actiris) with the goal of freeing up resources to better accommodate high risk groups. Automated matching requires structured fields for listing competencies in both the CV and vacancies databases. With this purpose in mind, VDAB has designed the ‘Competent’ database, linking functions and professions to competences using the ROME 3 standard. Competence-based matching allows employers to go beyond focusing merely on qualifications and encourages employers to widen the scope on competences, which are important for filling bottleneck vacancies.

A significant percentage of prime PES target groups do not use digital communication. The statistical annex provided in the Guidance note confirms that Belgium has been lagging behind neighbouring countries when it comes to Internet usage in general and has been slow in closing this gap. For employment-related Internet use, this gap is somewhat smaller. Belgium is comparable to Luxembourg, but significantly inferior to the Netherlands in terms of employers’ use of company websites or social media for recruitment and for individuals’ use of the internet for job-search. The gap in the use of the Internet for job-searches by medium-skilled people compared to high-skilled people has been decreasing over time and has virtually disappeared now, but a considerable gap persists for people with no or low formal education. Belgium scores low for use of the Internet to look for information about education and training, lagging behind its neighbouring countries and the EU28, with no apparent signs of catching up. In this category there is also a strong differentiation with respect to level of formal schooling, with higher education levels correlated to greater use of the Internet.

3.1.3. Focus of the PES Online Job-portal(s)

In section 3.1.4, a tentative analysis will be made of the sectoral scope of the (Flemish) PES portal.

There is a positive relationship between the size of a company and its use of public portals, and publishing on the public portal is much less common for executive functions (see Section 4.1.).

Based on the LFS data (see Section 4.2), it appears that for unemployed job-seekers the use of the PES for intermediation is differentiated based on gender, education level and region. Its use is relatively higher in the age group between 20 and 24, while it is relatively lower among people with higher education. It is most used in the Flanders region. For the Brussels region, the use of PES intermediation is similarly differentiated by gender, with relatively lower use in the age group between 60 and 64. It is less used by the highly educated. Younger employed people in search of

¹³ In Flemish “Brussels Instituut voor Statistiek en Analyse” (BISA), in French “L’Institut Bruxellois de Statistique et d’Analyse (IBSA).

¹⁴ In Flemish “Vlaamse Statistische Autoriteit”.

¹⁵ In French “Institut Wallon de l’Évaluation, de la Prospective et de la Statistique”.

another job are more likely to use PES intermediation than older employed people. There is a negative correlation between the level of schooling and use of the PES. Women tend to rely relatively more on PES intermediation than men, and people living in the Walloon region use the PES relatively less than in other regions.

The VDAB portal allows users to search based on occupations and lists the occupations for which the most OJVs are available. The occupations with the most OJVs as of February 2018 are Sales Assistant (4,377 jobs), Warehouse employee (3,758), Housecleaner (3,573), Maintenance mechanic (3,461), Administrative assistant (3,325), Sales and Account Representative (2,817) and Analyst developer ICT (2,596). Aside from ICT workers, which are in shortage, the most represented occupations tend to have lower skills requirements.

3.1.4. Outreach of the PES Online Job-portal(s)

A rough measure of the outreach of the PES-portals may be obtained by comparing the JVS figures on vacancies (available through Statistics Belgium) to the statistics on vacancies that are available on the PES websites. Table 3 shows the number of vacancies for industries in NACE B-S as reported by the JVS for 2017Q2, cross-classified by region and job type (regular versus TWA).

Table 3: Number of vacancies outstanding by region and type; NACE B-S; 2017Q2; JVS (in thousands)

	Regular	TWA	Total
Brussels region	16.7	1.3	18.0
Flemish region	67.2	18.3	85.5
Walloon region	21.9	4.8	26.7
Total	105.8	24.4	130.1

Source: JVS (Statistics Belgium).

Actiris (vacancies data) publishes monthly data on newly opened vacancies according to region. During August 2017, which is the latest data available, roughly 3,000 vacancies were received by Actiris, almost 9,000 were received through VDAB/FOREM and over 4,000 vacancies were received through 'partners', adding up to a total of around 16,000 newly received vacancies. Among those vacancies, 5,300 vacancies referred to jobs located in the Brussels region, among which 2,300 vacancies originated with Actiris, compared to 1,300 vacancies, which originated with VDAB/FOREM and 1,700 through external partners.

Online information is only available for vacancies that were received directly by Actiris excluding information about location. For the second quarter of 2017, the stock of outstanding Actiris vacancies amounted to 7,900, including TWA vacancies, vacancies retrieved from EURES and subsidised jobs. Among these, roughly 6,000 vacancies refer to jobs located in Brussels. This number may be compared to a total stock of 18,000 vacancies in Brussels in 2017Q2 according to the Belgian JVS (Table 3). This would imply that around 30% of all Brussels vacancies are directly received by Actiris. This figure does not contradict estimates provided by Actiris. As of 2018, Actiris will start publishing more detailed information on its website about the stock of outstanding vacancies.

For VDAB, this information is already available online and goes into more detail, including division according to industry, although the VDAB still uses the NACE Rev.1 classification. Most of the VDAB data on vacancies refers to vacancies belonging to the so-called 'regular economic circuit

excluding temporary work, proper VDAB intake'. This excludes all TWA-type jobs, all vacancies that are taken over from other public and private job-boards and all vacancies that were put on the VDAB website by third parties, for instance by search, selection and recruitment (SSR) agencies. VDAB considers this to be the most stable indicator over time to monitor the demand side of the market, because it is less vulnerable to double-counting.

In Table 4, JVS data on vacancies (excluding TWA jobs) according to industry in Flanders for the most recently available quarter (2017Q2) and for the entire period available (2014Q1 to 2017Q2) is compared to VDAB data on vacancies according to industry. Industries have been aggregated to roughly correct for the differences in NACE-classification (Rev. 1 for VDAB vs. Rev.2 for JVS), but biases due to differences in classifications may persist in some cases. From the table, it appears that proper VDAB non-TWA vacancies account for 57% of all JVS-measured outstanding vacancies. Coverage differs between industries. Coverage is close to average for construction, trade, transportation and business services, while for human health and social work, accommodation and food service activities and personal and other services, coverage is well above average. However, for the latter two relatively small industries, NACE biases may be an issue. Coverage is well below average for financial and insurance activities as well as for the public administration and education.

Table 4: Number of vacancies outstanding in Flanders; non-TWA jobs; JVS vs. VDAB (in thousands)

	17Q2			14Q1-17Q2		
	JVS [1]	VDAB [2]	[2/1]	JVS [1]	VDAB [2]	[2/1]
A. Agriculture, forestry and fishing (p.m.)		0.4			0.2	
BCDE. Industry	10.0	4.4	0.44	7.1	3.3	0.46
F. Construction	5.7	3.7	0.65	4.2	2.5	0.59
G. Wholesale, retail, repair of motor vehicles	9.7	5.7	0.59	7.9	4.5	0.56
H. Transportation and storage	3.5	2.0	0.55	2.3	1.2	0.53
I. Accommodation and food service activities	2.5	2.4	0.99	1.9	1.9	0.99
JLMN. Business services	19.5	9.3	0.48	13.6	7.6	0.56
K. Financial and insurance activities	1.2	0.4	0.32	1.1	0.3	0.30
O. Public administration and defence	4.1	1.0	0.24	3.5	0.7	0.21
P. Education	2.8	1.4	0.51	3.4	1.2	0.36
Q. Human health and social work	6.4	5.9	0.92	4.9	4.3	0.86
RS. Personal and other services	1.8	1.6	0.93	1.3	1.4	1.06
Total BS	67.2	38.2	0.57	51.2	29.0	0.57

Sources: JVS (Statistics Belgium) and VDAB (vacancies data).

Turning to TWA jobs, for 2017Q2, VDAB mentions a total of 81,200 TWA-type outstanding vacancies on its website. This figure vastly outnumbers the JVS figures for TWA-jobs in Flanders (see Table 3: 18,300 jobs). JVS figures for TWA-vacancies are considered reliable, because they are collected from the companies that use TWA jobs, which eliminates the risk of double counting. The unreasonably high VDAB figure for TWA vacancies may point to substantial double counting on the VDAB website and/or problems with the timely removal of filled/outdated TWA vacancies from the VDAB website.

Finally, for 2017Q2, VDAB mentions 27,500 outstanding vacancies on its website that have been taken in through SSR agencies, whereas stock data for vacancies that are taken over from other job-boards are not made available. At face value, the total number of vacancies for non-TWA jobs on the VDAB portal (proper intake + intake through SSR + copies from other job-boards) would correspond to a very high degree of coverage with respect to total JVS figures, even after accounting for substantial double counting.

For FOREM, a similar exercise along the lines of what has been done above for VDAB is potentially possible, but due to technical problems, currently only figures for the FOREM website are available.

3.1.5. Posting of PES Vacancies on EURES

VDAB fulfils the obligation to publish PES vacancies on the EURES platform. VDAB is currently re-shaping and extending what is shared with EURES, after a request to provide additional information regarding CV's that are posted on the public job-portal. This revised process will become operational next year. Actiris also uploads all vacancies posted to its portal, including subsidised jobs. It excludes third party vacancies from the EURES portal. Subsidised jobs will be removed from the scope of the Actiris-EURES flow in the future.

The inverse movement (i.e. the posting of EURES vacancies on the PES-portals) seems to have lost pace in Flanders; VDAB only provides a general link to the EURES website without direct access to individual vacancies. According to VDAB, the EURES network is used more intensively for specific bottleneck profiles (e.g. ICT, nursing, engineers), but the quantitative impact seems rather limited; VDAB indicates that fewer than 1,000 vacancies were filled in cooperation with EURES during the period between 2012 and 2016. Actiris mentions approximately 350 EURES vacancies on its portal, out of a total of 8,000 outstanding vacancies. These vacancies are explicitly selected by Actiris officers and are subject to active intermediation efforts by Actiris.

From the employers' side, the impression seems to be that the EURES site is not sufficiently user-friendly and that its potential as a tool to support transnational movement has not yet been achieved.

3.2. Private Online Job-portals

3.2.1. Legal/Regulatory Framework

There is a considerable regional body of legal and regulatory provisions applying to private job intermediation¹⁶. In this legislation, a distinction is made between intermediation in general, including job-search assistance, recruitment and selection services, integration and outplacement services and intermediation by TWA in specific. TWA agencies must obtain a licence to be able to operate and must respect federal laws that govern the boundaries and the nature of temporary work. For other intermediaries (i.e. non-TWA), there is an obligation to register for each type of intermediation service in the Walloon and Brussels regions and an obligation to submit a yearly business report. In all regions, private intermediaries must respect certain obligations, ranging from the prohibition against accepting payment from job-seekers to the prohibition against publishing fictitious

¹⁶ Walloon region: <https://wallex.wallonie.be/index.php?doc=14197>; Flemish region: https://www.werk.be/sites/default/files/20101229BVR_PrivateArbeidsbemiddeling.pdf, Brussels region: http://www.ejustice.just.fgov.be/cgi_loi/change_lg.pl?language=fr&la=F&cn=2011071417&table_name=loi).

vacancies. Intermediaries are required to inform users about their rights or duties to comply with (federal) legislation concerning anti-discrimination, equal treatment of men and women and privacy protection. In Flanders, there is no obligation for private intermediaries to register, but the legislator explicitly mentions that services of job-portal sites are included within the perimeter of private job intermediation.

3.2.2. Dominant Online Job-Portals and Their Business Models

Within the online job-portal landscape, a distinction can be made (see Section 5) between PES-portals, newspaper-related private portals, general-purpose private portals, private aggregator portals, TWA portals, company websites and miscellaneous niche portals. The latter are either specific for a sector of activity or have a sub-regional dimension.

Compared to neighbouring countries, the Belgian OJV market seems less scattered over a multitude of actors. The Belgian market is dominated by PES-sites that offer (most) services for free and have a relatively large share of vacancies and by private general-purpose, aggregator and newspaper-related sites, which work on a pay-to-post basis.

The selection procedure for online job-portals (see Section 5) pointed towards Monster, Stepstone and Indeed as the most relevant general-purpose sites and to be.Indeed.com, Optioncarriere.be, Jobinga.be and Jobrapido.com as the most relevant aggregator sites. These sites cover the entire Belgian market. The newspaper-related portals favour particular linguistic populations. “Jobat” (jobat.be) and “Vacature” (vacatures.com/nl-be) are directed towards the Dutch-speaking population and “Références” (references.lesoir.be) is directed towards the French-speaking target group. Jobat, Vacature and Références all originated from the job advertising supplements that were traditionally published by the various newspaper conglomerates and hence have a long-standing tradition in the Belgian job-search landscape. To this day, they exploit synergies between digital and print media. “Jobat” is the advertising vehicle of the newspapers related to the publishing house Mediahuis (Het Nieuwsblad, De Standaard, Gazet van Antwerpen, Het Belang van Limburg). “Vacature” is linked to the Persgroep newspapers (Het Laatste Nieuws, De Morgen) and “Références” is linked to Rossel group (Le Soir). These connections also impact how the pay-to-post models are organised. Typically, employers may choose from three options: the basic option ranges from EUR 350 to EUR 765 and the most extensive option ranges from EUR 999 to EUR 2550. Distinguishing criteria that differentiate between the options include the length of the posting period (from 28 days up to 80 days), access to posting assistance and follow-up expertise, diffusion to target audiences on social media (Facebook, LinkedIn, Google Adwords) and diffusion via related print media, aggregators and partner websites. The latter, incidentally, may include posting to the PES in some cases.

The number of TWAs seems higher in Belgium than abroad. FEDERGON lists some 80 certified TWA members and around 30 certified SSR members. However, according to FEDERGON, approximately ten TWA firms control a majority of the total market. Textkernel (2017b) lists Randstad, Adecco, Accent jobs, Konvert interim and Start People as the five leading TWAs in terms of absolute number of vacancies published. TWAs post vacancies through various channels (e.g. the PES online job-portal, private portals, company portals), since it is in their business model to maximise exposure and attract as large a pool of potential candidates as possible. In principle, it should be feasible to retrieve a large share of TWA vacancies through the non-TWA portals.

3.2.3. Focus of the Private Online Job-portals

Based on the available literature (see section 4.1), we can conclude that large firms, manufacturing and private services industries and upper-medium qualified jobs are overrepresented among va-

cancies on private job-portals. The limited statistical information that is available for some private portals (e.g. Jobat, Vacature) points to an overrepresentation of white collar workers and higher educated people among the visitors of these job sites. Jobat also mentions a share of slightly over 50% of unemployed people in its CV database. The Jobat website lists the most common occupations available on its portal. The largest categories are Technics, engineering & production; Sales; Logistics, transport and purchase; Finance, insurance & law; and ICT. Compared to the most common occupations on the PES (see Section 3.1.3.), one notes that sales and ICT positions appear often on private and public portals, however high-skilled roles are much more common on this private portal.

3.2.4. Outreach of the Private Online Job-portals

It is much more difficult to answer this question than in the case of PES portals, because it is more complicated to judge the amount of overlap between private portals. Please refer to Section 4.1. for an overview of the evidence that may be obtained from the literature on recruitment channels.

3.3. Co-operation between Public and Private Online Job-portals

The last decade has witnessed growing cooperation between private and public job-portals, as documented in Section 3.1.2. Partnerships have been established for job intermediation directed toward target groups. The PES have tended to externalise part of their core business to other public bodies or to private partners. On the other hand, the PES have increasingly taken on the role of aggregator of private portal vacancies, in an attempt to offer job-seekers a broader overview of available job-opportunities. VDAB mentioned agreements with private employment services, private jobsites, such as with Jobat, Monster and Stepstone, as well as with Jobkanaal, a partnership between employer organisations aimed at acquiring vacancies for disadvantaged groups, migrants, disabled people and people over the age of 50. Actiris and FOREM mention Jobat and Stepstone as important providers of third party vacancies, whereas both VDAB and Actiris point to the increasing importance of intermediaries like Knollenstein Technologies (knollenstein.com). The latter assists companies in the design of vacancies and assures uploading at short notice to a host of job-boards, including the PES, while adapting the vacancy to the specific requirements of each job-board. For VDAB, the successive agreements to upload vacancies to TWAs has led to an exponential increase in the number of vacancies available on the public portal. This movement has also been enhanced by technological improvements, which allow for frequent exchanges of large batches of vacancies.

For a tentative assessment of the extent of cross-posting between PES and private portals, refer to Section 5.2.2.

3.4. Role of other Recruitment and Job-search Channels

This matter will be dealt with in Sections 4.1. and 4.2.

3.5. Expected Trends in the Online Job-portal Market

When it comes to the PES, current trends and changes have already been touched upon in Section 3.1.2. As for the private side of the market, according to FEDERGON, there is an increasing tendency for large firms across all sectors to post vacancies on their own website or even to create spin-off websites exclusively focussed on recruiting. Job-offers may even be intended for current employees. This type of vacancy used to remain within informal recruiting channels and is generally beyond the scope of the European Job Vacancy Surveys.

There may also be a shift towards more niche-oriented portals, such as the construction-oriented site Bouwjobs.be and sub-regional sites. Textkernel (2017a) mentions Streekpersoneel.be and Regiojobs.hln.be among the top-five niche-oriented jobsites in quantitative terms, next to the PES sites VDAB and FOREM and the newspaper site Jobat.

However, according to FEDERGON, the market position of newspaper sites may become more vulnerable as these sites are at risk of being suppressed by large international companies, which may benefit from scale and the PES, which ‘benefit’ from their legal role in the monitoring of job-search behaviour.

With respect to future developments, two questions seem of interest: who will control access to the data and who will develop the best-performing matching tools? As for access to the data, the current trend on the job-seeker side is towards increased availability of personal information gathered online. An important issue in this respect is the impact that the new EU General Data Protection Regulation (GDPR)¹⁷, which aims to harmonise data privacy laws across Europe, may have as of mid-2018.

As for the matching tools, private portals create value by optimising the matching of jobs with candidates and by giving feedback to employers about the most successful ways to fill vacancies. The PES tend to provide employers with less feedback concerning the matching process, although VDAB has made considerable efforts when it comes to the development of labour market intelligence and automated matching processes via the introduction of the ‘Competent’ system. Although VDAB may currently be considered a frontrunner among European PES when it comes to the development of matching tools, it remains to be seen whether these tools will stand up to innovative methods, such as deep learning and artificial intelligence capabilities, which may be developed by larger international players.

¹⁷ <https://www.eugdpr.org/>.

4. Use OJVs in Recruitment and Job Search

Literature about the functioning of the Belgian job-vacancy market is rather scarce and not necessarily up to date. Most of the available studies approach the vacancy market from the employers' perspective, meaning from the recruitment angle. Below, we will summarise the main findings that emerge from the literature. Structured information about the job-seekers' perspective or the job-search angle is harder to obtain. However, some information may be obtained from the questions related to job-search activity in the Labour Force Survey (LFS).

4.1. Use of OJVs in the Recruitment of Labour

A series of comprehensive analyses by the Research Institute for Work and Society (HIVA)¹⁸ and commissioned by UPEDI (the umbrella organisation of private labour market intermediaries, currently known as FEDERGON¹⁹) about recruitment methods in Belgium dates from the period between 1995 and 2000. These reports were based on employer surveys that were specifically designed for this purpose and that were conducted in 1995, 1996, 1997, 1998 and 2000. We used the comprehensive 2001 report by Delmotte, Van Hootegem and Dejonckheere that presents the main results from the 2000 survey. Obviously, this information is only of marginal interest when it comes to the use of online job-portals, which were only just emerging at that time. Still, the report offers a rich overview of recruitment practices prevailing at that time, thanks to the scope of the survey and the careful research methodology and use of concepts. It seems to be the only piece of Belgian research that systematically investigates recruiting channels at the level of the vacancy or function and not at the level of the entire company. This approach is essential to get an insight into the real overlap between recruitment channels. Information is based on vacancies that had been filled over the previous quarter.

¹⁸ <https://hiva.kuleuven.be/en>.

¹⁹ <https://www.federgon.be/nl>

Table 5a: Used recruitment channels (as % of filled vacancies; market penetration) (2000*)

	Total	Region			Sector**					Firm size		
		BR	FL	WA	IND	CON	COM	OSE	SPU	<10	10-100	>100
Current employees	20.8	25.9	19.7	19.4	17.0	20.4	22.3	21.2	20.3	20.4	19.6	27.4
Employer network	20.2	20.1	19.2	23.0	20.6	26.5	19.8	19.1	18.8	23.8	15.6	11.1
Recruitment pool	15.6	9.8	18.4	12.4	11.9	16.5	14.5	18.1	17.2	12.9	17.3	28.2
Schools/training institutes	6.8	5.7	7.5	5.6	7.1	5.3	6.1	7.8	7.3	6.1	6.8	11.8
Print Advertisements	36.7	36.1	40.8	25.5	28.5	41.1	39.1	38.2	34.4	33.6	40.6	44.4
TWA	15.8	12.9	18.0	12.5	26.8	7.0	16.9	18.9	3.0	12.7	19.9	23.6
PES intermediation	26.3	20.4	31.1	17.7	29.7	21.7	22.7	21.6	40.8	26.5	24.5	31.0
SSR	2.7	4.0	2.4	2.5	2.0	0.4	2.9	4.4	1.8	1.4	3.9	7.7
Company website	3.9	5.6	4.5	1.2	3.1	0.3	2.6	4.9	8.5	2.2	3.4	17.7
Job-portals (including PES)	7.2	7.0	9.4	1.1	4.3	1.1	7.4	7.8	12.0	5.2	8.8	15.7
Other	2.0	1.1	2.8	0.5	1.3	4.6	0.6	3.5	2.0	2.2	1.7	1.5
Average no. of channels used	1.58	1.49	1.74	1.21	1.52	1.45	1.55	1.66	1.66	1.47	1.62	2.20

* Compiled from Van Hootegeem et al. (2001: 72-89).

** IND: industry; CON: construction; COM: commerce/horeca; OSE: other private services; SPU: (semi)-public services.

Table 5b: Successfully used recruitment channels (% of filled vacancies; market share) (2000*)

	Total	Region			Sector**					Firm size		
		BR	FL	WA	IND	CON	COM	OSE	SPU	<10	10-100	>100
Current employees	13.6	17.1	11.8	15.9	9.6	15.4	14.9	13.2	13.9	14.6	12.5	11.7
Employer network	13.9	16.5	10.9	20.4	14.4	15.7	14.1	12.0	14.3	18.2	9.5	3.9
Recruitment pool	12.4	7.0	15.2	8.4	10.5	14.6	11.4	15.3	10.7	12.5	11.7	13.9
Schools/training institutes	4.1	2.9	4.5	3.9	3.7	4.6	4.7	2.9	4.8	4.1	3.8	5.1
Print Advertisements	26.7	28.0	27.3	23.8	21.4	25.8	30.8	25.9	24.5	24.1	31.5	25.9
TWA	9.8	9.0	9.9	10.5	20.0	1.9	8.7	14.2	1.5	7.5	12.8	13.3
PES intermediation	14.3	10.4	15.8	13.5	15.8	17.0	11.9	10.8	21.5	16.0	12.1	12.4
SSR	1.7	2.7	1.3	2.2	1.3	0.2	2.4	1.8	1.3	0.8	2.6	3.7
Company website	0.9	2.6	0.5	0.5	0.9	0.0	0.3	1.6	1.6	0.4	0.6	4.2
Job-portals (including PES)	2.0	3.7	2.1	0.5	2.2	0.4	0.7	2.2	5.4	1.1	2.6	5.0
Other	0.6	0.2	0.7	0.3	0.2	4.3	0.0	0.1	0.7	0.7	0.2	0.9
Total	100	100	100	100	100	100	100	100	100	100	100	100
- informal	44.0	43.5	42.4	48.6	38.2	50.3	45.1	43.4	43.7	49.4	37.5	34.6
- formal	56.0	56.6	57.6	51.3	61.8	49.6	54.8	56.6	56.5	50.6	62.4	65.4

* Compiled from Van Hootegeem et al. (2001: 72-89).

** IND: industry; CON: construction; COM: commerce/horeca; OSE: other private services; SPU: (semi)-public services.

Table 5c: Effectiveness of recruitment channels (market share/market penetration) (2000*)

	Total	Region			Sector**					Firm size		
		BR	FL	WA	IND	CON	COM	OSE	SPU	<10	10-100	>100
Current employees	65.4	66.0	59.9	82.0	56.5	75.5	66.8	62.3	68.5	71.6	63.8	42.7
Employer network	68.8	82.1	56.8	88.7	69.9	59.2	71.2	62.8	76.1	76.5	60.9	35.1
Recruitment pool	79.5	71.4	82.6	67.7	88.2	88.5	78.6	84.5	62.2	96.9	67.6	49.3
Schools/training institutes	60.3	50.9	60.0	69.6	52.1	86.8	77.0	37.2	65.8	67.2	55.9	43.2
Print Advertisements	72.8	77.6	66.9	93.3	75.1	62.8	78.8	67.8	71.2	71.7	77.6	58.3
TWA	62.0	69.8	55.0	84.0	74.6	27.1	51.5	75.1	50.0	59.1	64.3	56.4
PES intermediation	54.4	51.0	50.8	76.3	53.2	78.3	52.4	50.0	52.7	60.4	49.4	40.0
SSR	63.0	67.5	54.2	88.0	65.0	50.0	82.8	40.9	72.2	57.1	66.7	48.1
Company website	23.1	46.4	11.1	41.7	29.0	0.0	11.5	32.7	18.8	18.2	17.6	23.7
Job-portals (including PES)	27.8	52.9	22.3	45.5	51.2	36.4	9.5	28.2	45.0	21.2	29.5	31.8
Other	30.0	18.2	25.0	60.0	15.4	93.5	0.0	2.9	35.0	31.8	11.8	60.0

* Compiled from Van Hootegeem et al. (2001: 72-89).

** IND: industry; CON: construction; COM: commerce/horeca; OSE: other private services; SPU: (semi)-public services.

Table 5a compiles data on the reach (or penetration rate) of recruitment channels, defined as the percent of filled vacancies for which the channel was used. Channels may be grouped into informal (i.e. consultation with current employees, personal network, recruitment pool or contacting schools/training institutes) and formal (i.e. print advertisements, PES intermediation, externalisation to TWA or SSR, publishing on company websites or on job-portals). Results may be split by region, industry and firm size.

The main conclusions that emerge from Table 5a may be summarised as follows.

- Market penetration was highest for print advertisements (37%) and PES intermediation (26%), whereas the use of current employees (21%), the network of the employer (20%) and the recruitment pool (16%) constituted the main informal recruitment methods used. Market penetration of private intermediaries was under 20% (16% for TWA; 3% for SSR), whereas online research methods were used in approximately 11% of the vacancies under consideration: 4% company website; 7% public and private online job-portals. The latter may be split into 60% PES (essentially VDAB) and 40% private (essentially Vacature, Jobs-career, Jobat, Stepstone and Monster, in that order).
- The most surprising result is the limited overlap between recruitment methods for any given vacancy. On average, only 1.6 recruitment methods were used per vacancy. Although the paper does not infer for which share of vacancies employers relied exclusively on informal methods, it seems reasonable to assume that this share was considerable.
- As for the regional divide, on average, significantly fewer search methods were used in the Walloon region than in the Flemish region, with the former relying much less on formal recruitment methods (paper advertisements, PES intermediation and portals). Brussels occupied a position more similar to Flanders in terms of use of print advertisements and portals, but closer to the Walloon region for TWA and PES intermediation.

- The split by industry shows that employers relied more on personal contacts in construction and less on recruitment pools and print advertisements in industry. Industry relied more on PES intermediation, especially in the semi-public sector. TWAs were used significantly less in construction and in the semi-public sector, for policy reasons and significantly more in industry. Emerging and established job-portals were more intensively used in the (semi)-public sector, but hardly at all in construction.
- The split by firm size shows a clear positive relationship between number of employees and the number of search methods used per vacancy. In fact, the use of every single search method was positively correlated to firm size, except for personal networks (which shows an inverse correlation). The differentiation by firm size was less significant for PES intermediation, but it was very significant for recruitment pools, TWA use and recruitment via the Internet, both for company websites and for job-portals.

The paper also gives information on the market share of recruitment channels, defined as the percent of total vacancies that were filled through that channel (Table 5b). The ratio of market share and penetration rate may be used as an indicator of effectiveness of the recruitment channel (see Table 5c).

- The overall ranking of recruitment methods by market share is comparable to the ranking by penetration rate. Nevertheless, differences in effectiveness do exist. Recruitment pools and print advertisements were more effective, while Internet intermediation and PES intermediation were less effective. Vacancies were filled through informal methods in 44% of all cases. Among the formal methods, print advertisements were effective in 27% of recruitment, PES intermediation in 14% and TWA in 10% of recruitments. These results are likely to have changed, since the use of job-portals is likely to have increased significantly over the past two decades.
- In the regional split, the Walloon PES market share is comparable to the Flemish share, as both PES are highly effective recruitment tools, but the fact remains that Walloon employers recruited comparatively more through their current staff and networks.
- In the split by industry, the main differentiation is related to the higher market share of TWA in industry and private services. The (semi)-public sector relies much heavier on PES in filling vacancies, while vacancies in construction (industry) are filled more often by using informal methods.
- In the split by firm size, the most striking feature is the stronger reliance on informal methods and PES intermediation by small firms, whereas a positive correlation holds between firm size and market share for TWA, SSR, publishing on company websites and through portals

Research published since Delmotte et al. (2001) no longer uses vacancies as a unit of observation, but rather the employer. At best more recent data includes a split along broad functional lines. Moreover, it exclusively focuses on penetration rates rather than market shares. A FEDERGON-commissioned report by Gevers and Peeters, from 2006, deals with recruitment practices by Belgian firms, based on an employers' survey that was conducted by phone. The more recent Valsamis, Vandeweghe and Van Der Beken (2012) follow-up report, also commissioned by FEDERGON, was based on a web-survey among human resource managers. Unfortunately, it goes into less detail regarding recruitment channels than Gevers and Peeters. In VDAB (2010), a web-survey amongst Flemish employers was conducted to gauge the market position of the Flemish PES with respect to competing recruitment channels. In the survey, employers were asked to stipulate whether they have used any of the proposed channels for recruitment. The results were split by broad function class (blue collar, white collar operative and white-collar executive) and considered recruitment throughout the entire preceding year.

Table 6: Market penetration in the Flanders region, VDAB (2010)

	Delm. (year 2000)	VDAB (year 2009)	VDAB functional split*			VDAB firm size split			VDAB sector split**			
	Total	Total	BC	WC	EX	<50	50- 200	>200	AGR	SEC	TER	SPU
Current employees	19.7	74.7	79.8	54.4	75.0	74.1	88.9	94.6	91.9	68.6	76.2	74.0
Employer network	19.2	59.5	64.7	35.4	73.5	59.3	64.4	92.5	67.8	58.9	61.3	50.5
Recruitment pool	18.4	60.4	62.0	40.8	68.9	59.4	87.5	95.2	71.3	70.4	51.7	77.5
Schools/training institutes	7.5	48.0	49.0	39.0	34.1	47.1	69.9	84.8	45.3	57.9	42.6	54.4
Pprint Advertisements	40.8	54.9	58.6	46.0	51.7	54.3	68.7	71.9	38.2	76.3	48.3	49.7
TWA	18.0	52.2	57.8	36.6	52.0	51.7	64.1	84.6	46.6	65.4	54.5	19.5
PES intermediation	31.1	33.1	40.5	21.0	14.4	32.4	48.4	65.9	46.5	31.9	34.0	27.9
SSR	2.4	15.0	11.6	18.1	22.7	14.0	40.4	69.5	5.7	21.3	14.8	7.1
Company website	4.5	37.8	26.9	46.9	73.6	36.7	63.8	88.7	17.7	26.1	41.3	49.7
Job-portals (including PES)	9.4											
- PES job-site		51.2	50.3	58.4	36.9	50.2	76.5	66.4	52.7	45.5	46.2	83.3
- private portals		18.8	13.7	21.7	43.9	17.7	45.8	42.7	7.0	25.0	16.1	22.9
Other	2.8											
- Public places	n/a	19.2	22.7	18.9	8.9	18.6	33.7	55.3	20.7	28.4	16.6	13.8
- Job fair	n/a	7.0	7.9	7.1	8.2	6.0	27.5	64.0	6.2	16.8	3.8	3.3
- Social Media	n/a	3.4	0.4	5.8	11.9	3.2	8.0	13.5	0.9	4.5	2.4	6.4
Average nr. of channels used	1.7	5.4	5.5	4.5	5.8	5.2	7.9	9.9	5.2	6.0	5.1	5.4

* BC (Blue collar); WC (White collar operational); EX (Executives).

** AGR (agriculture); SEC (industry and construction); TER (private services); SPU (public or semi-public services).

Table 6 compares penetration rates between Delmotte et al. (2001) and VDAB (2010) and lists the VDAB results by function, firm size and sector. The main conclusions are as follows:

- The average number of search methods per employer in VDAB (5.4 channels) is much higher than the average number of search methods per vacancy in the older survey by Delmotte et al (1.7 channels). There is no way of knowing to what extent these differences are due to real diversification in search methods or to methodological differences (i.e. different units of observation and different reference periods).
- Still, it is striking how much higher the penetration rates for the informal recruitment channels as well as for the TWA are in the VDAB survey. Paper advertisements were still used by almost half of the employers despite the arrival of more internet sites. Whereas PES intermediation was used by one third of the employers, half of the employers used the VDAB website to publish vacancies and almost one fifth posted on private portals. Almost 40% of employers used their company websites to publish vacancies.
- The division by broad functional classification shows that PES intermediation is used significantly more for blue collar workers (40%) than for white collars workers (21%), alt-

though a higher percentage of employers use the public portal to post vacancies for white collar workers (58%), as opposed to for blue collar workers (50%). Both PES intermediation and publishing on the public portal seem much less common for executive functions. Private and public portals are complementary in this sense; a much higher percentage of employers post on private portals and use SSR or social media to advertise executive positions than to advertise white collar operational positions, and the difference is even larger when comparing executive positions and blue collar roles,

- The split by firm size confirms the strong positive correlation between size and the number of recruitment channels used. For both public and private portals, there is a clear split between small firms with less than 50 employees and larger firms, with a much higher percentage of the latter posting on job-sites.
- The split by broad sector shows that the primary sector relies heavily on PES intermediation and publishing vacancies on the public portal, but this sector is rarely present on private portals. The (semi-)public services have the most intensive use of the public portal. However, whereas posting on the public job-site almost always implies a demand for PES intermediation for vacancies in the primary sector, for (semi-)public services, the opposite is true. This leads to a lower share of employers relying on PES intermediation in the (semi-)public services sector compared to other sectors. In industry (including construction) and private services, the shares for PES intermediation, as well as public portal posting are almost equivalent, whereas in the industry sector, the share of vacancies posted on private portals is slightly higher than in private services.
- All of these results refer to the Flemish region exclusively. According to Gevers and Peeters (2006), we can conclude that when the report was published, both the public job-portal and print advertisements were more frequently used in Flanders than in the other regions, while recruitment pools were used less. The use of private portals and company websites was much lower in the Walloon region than in the other regions.

4.2. Use of OJVs in Job-search

Van Trier and Verhaest (2016) deal with the extent to which search strategies of school-leavers entering the labour market impact early labour market outcomes, using data on Flemish education leavers from the so-called SONAR panel. SONAR contains data on the transition from school to work among samples of young Flemish people born between 1976 and 1978, Face-to-face interviews were conducted at ages 23 and 26. Useful as this may be, since the actual data refers to cohorts of school-leavers entering the labour market during the period between 1994 and 2004, they are not considered representative for today's use of online job-portals as a search channel. SONAR used very detailed questions concerning both preferred job-search method and successful job search methods (i.e. some 25 types, including the distinction between newspaper and online advertisements), but for analytical purposes they are aggregated into nine categories, and print and online advertisements are grouped together.

Based on the results, for this specific target group, PES intermediation was the most frequently used method to search for a first job (used by 57% of individuals in the sample), followed by spontaneous applications (55%), advertisements (54%), personal relationships (42%) and TWAs (38%). Search through school was only used by 13% of job-seekers. Van Trier and Verhaest (2016) report an average of 2.9 search methods per individual.

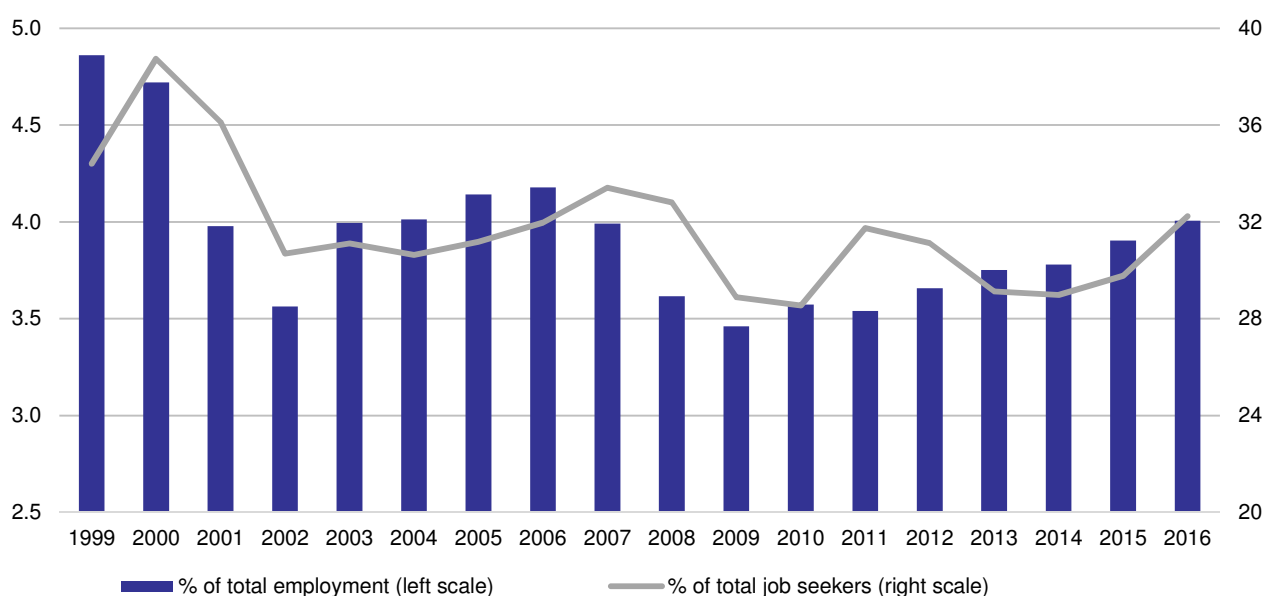
When it comes to successful search methods, personal relationships top the list (21%), followed by spontaneous applications (15%) and TWA (14%). All other channels accounted for less than 10%.

These results illustrate once again the importance of informal search channels in the recruitment process.

As far as effectiveness (i.e. successful search conditional on using the search method) is concerned, personal relations and TWA scored 33%, followed by spontaneous applications with 23% and school with 22%, whereas advertisements scored 14% and PES intermediation scored 11%. A rather similar ranking is found in a recent, but not necessarily representative, survey by Randstad (2017). According to this survey, job-boards currently rank third when it comes to most frequently used job-search channels after public intermediation and spontaneous applications, crowding out the more traditional paper advertisements. However, as is the case for paper advertisements, job-boards rank rather poorly when it comes to successful search methods, due to a low degree of effectiveness.

We have tried to extract further information from the Labour Force Survey (LFS). The LFS is available for recent years and is representative of the entire population. Moreover, the population in search of a job can be divided into employed and unemployed, according to ILO-status. Figure 3 shows that, according to the LFS, the number of employed people in search of (another) job fluctuated between 3.5% and 5% of total employment during the period between 1999 and 2016 and represented between 28% and 38% of the total job-seeking population. Both indicators clearly move pro-cyclically, and current levels are now approaching pre-financial crisis levels, but they are still significantly below the levels that had been observed during the 1999/2000 upturn.

Figure 3: Employed people, actively searching for another job



Source: LFS (Statistics Belgium).

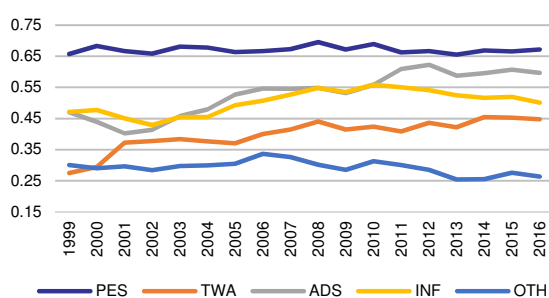
In the LFS, both employed and unemployed respondents in search of a job are asked to pick their preferred search methods from a predefined list of 15 possibilities. Multiple responses are possible, but no ordering of methods according to importance is available. Unfortunately, use of print advertisements and digital job-boards are grouped in one single response category in the LFS. For the purposes of this report, we have grouped search methods into five categories. 'PES' means that the job-seeker contacts the public employment office to find work. Eurostat specifies that use of the PES website should also be included in this category, but according to SO experts, this has not

necessarily been followed systematically in the Belgian LFS. “TWA” refers to contacting private employment agencies in the broad sense, including recruitment and selection agencies and agencies in charge of the Belgian subsidised household services. “ADS” refers to consultation with any type of advertisement, print or digital. “INF” refers to informal methods, such as contacting employers directly or asking friends and relatives. “OTH” refers to other methods, such as “answered advertisements”; “took a test or interview”; “looked for land, permits, etc.”; and “non-specified”. Only active methods have been considered. Passive methods, such as “waiting for results of applications”; “waiting for results of exams”; “waiting for calls from PES or TWA” have not been included, in agreement with ILO-practice.

For each search method, Figures 4 and 5 show the percentage of active job-seekers (divided according to employed and unemployed populations) that have used the method. For the unemployed population, PES intermediation ranks first and is used by about two thirds of job-seekers. This share has remained rather stable over the last two decades. Consulting advertisements and using TWA intermediation have both trended upwards over the entire period and have climbed to 60% and 45%, respectively, in 2016. Informal methods are used by 50% of active job-seekers; their share increased significantly until the financial crisis and has been on a downward trend in recent years.

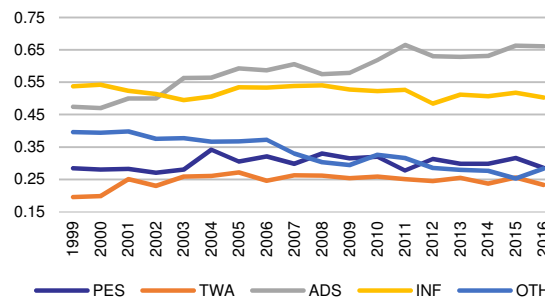
For the employed population, consulting advertisements has become the most important informal search channel. The share of employed job-seekers that use this channel has increased throughout the entire period, presumably influenced by growing digitalisation, and reached 66% in 2016. The share of people that use informal methods has remained relatively stable, at 50% in 2016. Both TWA and PES intermediation were used much less by employed people in search of another job in 2016, at 23% and 29%, respectively, without any significant positive or negative trends.

Figure 4: Active search methods; unemployed (% using the method)



Source: LFS (Statistics Belgium).

Figure 5: Active search methods; employed (% using the method)



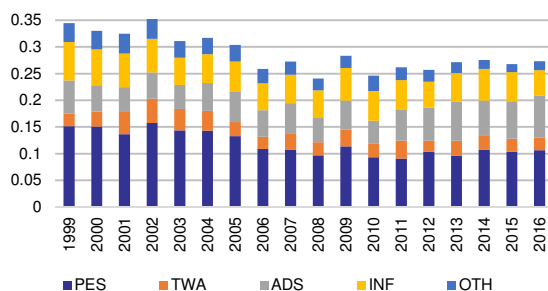
Source: LFS (Statistics Belgium).

It is also possible to calculate the share of job-seekers that relies exclusively on one particular search method (see Figures 6 and 7) Overall, these shares are rather low, suggesting that most people combine search methods. Moreover, cumulative shares have decreased over time, indicating that a growing number of job-seekers rely on multiple methods.

For the unemployed, the share of job-seekers that exclusively uses PES intermediation fell during the first decade of this century, but it has remained stable since then (11% in 2016) and still ranks first among exclusive search methods. The share of people that exclusively uses advertisements has been increasing during the last decade and is gradually catching up with PES intermediation,

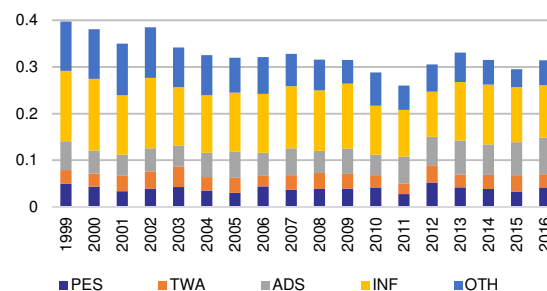
reaching 8% in 2016, whereas the share that exclusively uses informal methods has fallen and currently stands at 5%. TWA intermediation scored very low on this indicator throughout the entire period, with merely 2% in 2016.

Figure 6: Exclusive search methods; unemployed (% using the method)



Source: LFS (Statistics Belgium).

Figure 7: Exclusive search methods; employed (% using the method)



Source: LFS (Statistics Belgium).

For the employed population, informal methods are on a slightly negative trend, but they remain the most important exclusive job-search channel, with a share of 11% in 2016, whereas advertisements are on a positive trend and currently rank second, with a share of 8%. The share of people that exclusively search for another job through PES or TWA intermediation has been very low throughout, at 4% and 3%, respectively, in 2016.

The LFS allows for multiple divisions based on personal characteristics (i.e. age, gender, level of schooling and region of residence) and for job-related characteristics (i.e. occupation, industry, region of work). Table 7 focuses on personal characteristics and uses LFS data collected between 2011 and 2016 to avoid problems related to small sample sizes.

For unemployed job-seekers, the share of people who use PES intermediation is relatively homogeneous across gender and (working) age groups, although it is slightly higher for the age group between 20 and 24 and lower in the age group between 60 and 64. The highly educated use PES intermediation less, while there are also significant regional differences. Unemployed people in Flanders looking for intermediate positions rely more on PES intermediation than unemployed people in Wallonia in similar sectors. Unemployed people in Brussels rely less on PES intermediation. Use of TWA-intermediation is highest in the younger age groups and decreases with age, although not as steeply as expected. This may be due to the influence of the Belgian subsidised systems of household cleaning services, for which TWA intermediation is important and which covers employment in the middle and upper age groups. TWA intermediation is used more by unemployed men than by unemployed women and by middle educated unemployed people more than by highly educated unemployed people. It is used less by unemployed people living in Brussels. Use of advertisements increases with age up to the age group between 25 and 29 and decreases slightly afterwards, especially in the highest age group. There are no significant differences with respect to gender, but there is a clear positive correlation between use of advertisements and level of schooling. Advertisements and informal search methods are both used relatively less in Flanders and significantly more in Brussels. The use of informal search methods is also positively related to the level of schooling and slightly negatively to age. Unemployed men tend to use informal methods slightly more than unemployed women.

Table 7: Active search methods used, by ILO status (in %); multiple splits; pooled data (2011-2016)

	Unemployed					Employed				
	PES	TWA	ADS	INF	OTH	PES	TWA	ADS	INF	OTH
15-19 years	63.2	43.6	44.2	52.0	24.9	47.5	43.6	46.9	52.6	26.4
20-24 years	70.5	44.6	53.5	52.4	31.9	42.5	32.7	57.7	55.0	35.6
25-29 years	68.1	43.1	56.0	51.6	31.1	28.7	23.6	61.9	52.0	35.4
30-39 years	66.1	39.8	54.6	50.0	29.5	25.1	21.1	58.3	51.0	33.4
40-49 years	67.0	37.3	52.8	49.6	27.9	28.4	22.5	57.0	51.0	31.2
50-54 years	66.1	35.3	52.8	48.6	27.5	30.3	25.1	56.6	53.7	30.3
55-59 years	63.8	31.7	51.7	46.8	24.9	30.9	28.9	55.8	52.3	29.1
60-64 years	56.1	24.5	47.2	48.0	18.0	23.4	20.3	46.7	61.1	25.2
65 years and more	19.3	17.9	42.6	59.9	20.1	10.0	5.0	39.5	64.5	23.8
Female	66.9	37.7	53.9	48.8	29.4	33.7	24.5	59.2	51.4	33.5
Male	67.2	42.1	53.0	52.0	29.0	26.6	24.5	57.5	52.7	33.1
Low education	67.9	39.1	47.7	47.6	24.0	38.4	33.0	49.9	52.3	25.4
Medium education	68.5	42.7	55.4	50.5	30.6	33.7	27.4	57.3	51.4	31.5
High education	62.4	36.6	61.8	56.7	37.5	22.9	17.8	63.4	52.5	38.8
Living in Brussels region	62.2	31.8	60.6	59.5	24.5	24.3	18.6	64.8	59.3	31.4
Living in Flanders region	70.3	43.3	49.6	46.1	29.5	31.6	25.7	58.1	47.7	33.2
Living in Walloon region	66.7	41.2	53.3	49.8	31.1	30.3	25.2	55.7	56.1	34.4
Total	67.1	40.0	53.4	50.5	29.2	30.1	24.5	58.3	52.1	33.3

Source: LFS (Statistics Belgium).

For employed job-seekers, both PES and TWA intermediation are much more important for the youngest age group, between 15 and 24 years, and use decreases with age. Use of these channels is strongly negatively correlated to schooling level, and these channels tend to be less important for people living in Brussels. Moreover, PES intermediation is used more by employed women than by employed men, while the use of ads increases with age up to the age group between 25 and 29, and then decreases thereafter. Moreover, ads are used significantly more in Brussels, followed by Flanders and then Walloon. Finally, informal search channels are rather evenly used by employed people across age, gender and level of schooling.

4.3. Expected Trends in the Use of OJVs in Recruitment and Job-search

As for trends in online recruitment, it is hard to say anything affirmative through hard figures, because time series data on the relative importance of recruitment channels is not available, and be-

cause the material in the literature is neither sufficiently homogeneous, nor sufficiently up-to-date to distinguish any clear trends.

As for job-search behaviour, however, the LFS figures discussed in Section 4.2. suggest an increasing importance of advertisements as a search channel, both for unemployed and for employed people in search of a (new) job.

5. Identifying Online Job-portals for Web-crawling

5.1. Documentation of the Job-portal Research Process

5.1.1. Identifying the Online Job-portals Through Google Search

For Belgium, Google-type searches were not used as the primary method for selecting the most relevant job-portals. Priority was given to the selection that had already been made by Statistics Belgium in their web-scraping activities and to the lists of portals that were provided by PES during the activities of the Job Vacancy Survey working group (see Section 5.1.2). The Google results were used as an additional confirmation of this selection, and in general the Google searches tended to corroborate the preselection of the general-purpose sites. Table 8 documents the search terms that were used during the verification process.

Table 8: Grid for documenting the Google search for job-portals

Search 1	Vacatures (Flemish)	Job vacancies
	Number of results per search term	Several pages
Search 2	Offres d'emploi (French)	Job vacancies
	Number of results per search term	Several pages
Search 3	Stellenangebote (German)	Job vacancies
	Number of results per search term	3

Source: Federal Planning Bureau (2017).

5.1.2. Identifying the Online Job-portals Through Expert Interviews

At an early stage, experts at Statistics Belgium were contacted based on their role as an active partner in the ESSnet Big Data job-vacancy web-scraping project. They have already conducted web-scraping on approximately ten non-PES Belgian job-portals. A report on this scraping activity, which has not been published yet, but which was available to us, dates from September 2016 and has been instrumental in the description of the job-portals for the Landscaping Activity.

Statistics Belgium is also leading a working group that is improving the Belgian Job Vacancy Survey, adding questions concerning the channels used by employers to post vacancies. Use of web-scraping as a complementary source for the survey is also being considered. Statistics Belgium has requested and obtained access to all PES databases (limited to the vacancies posted directly to these sites). The PES data has been recently used by Statistics Belgium to set up an algorithm to impute NACE industry codes to non-PES vacancies based on a non-structured description of the vacancy. All Belgian PES are represented in the JVS working group; the Federal Planning Bureau has been admitted as an 'observer', based on its involvement in the CEDEFOP-project.

Based on a combination of expert advice and web-searches, our recommendation was to focus attention on the following portals:

- The four **PES online job-portals** (Actiris, ADG, FOREM, VDAB), given the regional and linguistic divide in PES competencies in Belgium (see Section 3.1.1). No aggregated PES database exists on the federal level, but cross-references among PES do occur. Including PES portals is essential for Belgium, given the wide and expanding regional coverage that these portals command (see Sections 3.1.4. and 4.1.).
- **General purpose private online job-portals** seem sufficiently important to be taken into consideration. These may be divided into Belgian print-related job-boards (Jobat, Références, Vacature) and international general-purpose job-boards (Monster, Stepstone and Indeed) (see Section 3.2.2).
- Most relevant **search engine aggregator sites** (Optioncarrière, Jobinga and Jobrapido). According to Statistics Belgium, Jobrapido and Indeed are the prime aggregators, because they capture vacancies originating on most of the other job-boards. In this sense, Indeed may also be classified as an aggregator.

We have limited the final selection to cross-sector job-boards, for which we carried out the necessary analysis. However, the complete listing of job-boards that we sent to IWAK/CRISP also included additional references to non-PES public sites, TWA portals and miscellaneous sector-specific and region-specific portals, which, due to their limited scope, were determined to be insufficiently important to warrant further investigation. These portals have not been further analysed.

5.1.3. Validating the Selection of Online Job-portals

A tentative list of job-portals was given to Statistical Office experts, the VDAB expert and to FED-ERGON experts for their comments, which confirmed our portal selections.

5.2. Conditions for Drafting and Posting OJVs in the Selected Job-portals

We reviewed the drafting and posting procedure in the VDAB PES. A detailed description of this process may be found in Section 5.2.1. Since registering as a recruiter is imperative for access to the drafting process, this analysis has not been carried out for any of the private portals. Instead, in Section 5.2.2, we compared vacancies that appear on either the VDAB or the FOREM portal and the private portals.

5.2.1. Drafting and Posting an OJV on the PES Online Job-portal

For vacancies that are directly submitted by employers for appearance on the VDAB portal, there are two possibilities. In the first scenario the employer is registered at VDAB (via MijnVDAB) and goes through an online guided process when filling out the vacancy. The vacancy may be submitted; it will appear online immediately and may be administered, changed or withdrawn by the employer at any time. In the second scenario, for non-registered employers, a sheet may be filled

out²⁰ and submitted to VDAB via the VDAB website or by phone. The vacancy will be posted online by VDAB, which may take a couple of days.

The posting process is completely pre-structured, independent of the type of employer, function, etc. The predetermined fields/tick boxes contain the following information:

- **Information related to the employer:**
 - Company name;
 - Legal form: tick box with 13 possibilities;
 - Company registration number (this is the official identification number for Belgian companies);
 - A description of the activities of the company. NACE-coding is done by VDAB and available in secondary data bases, but is not visible online when consulting the vacancy;
 - Country (tick box provided);
 - Postal code/municipality;
 - Address;
 - Person of contact: name/email/phone.
- **Information related to the vacancy:**
 - Title of function (free entry; no pre-determined list; no codes required); ISCO-coding is done by VDAB and available in secondary databases, but is not visible online when consulting the vacancy;
 - Description of function. Companies are encouraged to use the VDAB database to select from pre-determined competences²¹, however they may also fill in competencies using free text. For a given function or profession, they may choose from “basic activities” and “specific activities using a list of skill-related and knowledge-related competencies. For the vacancies that are submitted by registered employers, a pre-determined list with approximately 20 competencies, such as client-oriented, independent, adaptability/flexibility, cooperative, etc. is available. Chosen items will appear in the vacancy under the heading “person-related competencies”;
 - Number of jobs represented by the vacancy ;
 - Work location: either same as company address or a different address;
 - Type of contract (tick box with 13 possibilities: fixed, temporary, student, apprenticeship, recruitment pool, etc.);
 - Duration: either limited or unlimited;
 - Working regime: either full time or part time (no indication of working hours);
 - Conditions offered by employer plus fringe benefits: free text description;
 - Time regulation: seven yes/no tick boxes for each specific regulation: work at night, weekend, shift-work, etc.;
 - Work experience: tick box (none, <2 years; 2-5 years; >5 years; irrelevant);
 - Required qualification level: tick box at two levels: first tick box provides general level (approximately 20 options, which may be aggregated towards ISCED); second tick box may be used to provide the required field of study and is conditional on the choice for the first tick box. It is possible to repeat this sequence various times to indicate a range of qualification levels. Finally, a yes/no tick box is given to indicate whether experience may compensate for a lack of qualification;

²⁰

https://werkgevers.vdab.be/vac/bezoeker/vacaturemelding.do;jsessionid=3C2837D9D19C8B3F109BA15BA24851D4.vaconline_PL01547V.vdab.be?execution=e1s1.

²¹ “Competent” database; please refer to <http://production.competent.be/competent-nl/main.html>.

- General requirements: free text description, but may also use the ‘competence’ database;
- Languages: tick box at two levels: first to choose a language, second to indicate the required level (no requirement; limited; good; very good). May be repeated to include any number of languages;
- Driver’s licence: tick box;
- Application methods: seven yes/no tick boxes for: web form/online via VDAB/e-mail/phone/fax letter/in person/form. If ‘yes’ is selected, the relevant mail/address/phone number/form template must be provided. A free text description field allows the employer to add more information or detail about the application process.

After completing this form, employers are given the opportunity to contact the VDAB sales team to personalise the vacancy in the style of their company. All vacancies for the employer will then appear on the VDAB portal under a common banner.

A final tick box requires the company to comply with the quality standards for posting vacancies on the VDAB portal. These standards are considered ‘best practices’ that must be taken into consideration during the posting process. They specify that:

- Each vacancy should be limited to one specific function or profile;
- Apart from technical terminology, the posting language must be exclusively in Dutch if the employer requests VDAB’s assistance with intermediation. When assistance is not required from VDAB, other posting languages are permitted;
- No vacancy may be submitted twice, except for jobs that imply mobility or jobs related to the service voucher system for domestic services. Moreover, a vacancy cannot be replaced by a second identical vacancy or changed with the goal of adjusting where the vacancy appears in the search results;
- Vacancies must be removed from the portal as soon as they have been filled; this can be done online or by contacting VDAB;
- Legal requirements: applications may not be subject to fees; no discrimination is allowed with respect to gender, age, race, colour of skin, nationality, religion, handicap, health, etc. Posting of a minimum or maximum age requirement is only allowed when the age is a legal requirement for the work, for instance for night shift, student jobs or certain job-related subsidies.

It appears that a large amount of information required by VDAB is completely or semi-standardised. However, the free text description fields do allow for a large amount of differentiation across employers.

5.2.2. Drafting and Posting an OJV on a Private Online Job-portal

Apart from the pricing model (see Section 3.2.2), the drafting and posting process for private portals is not accessible for non-registered users. However, some indirect information may be gathered by comparing the content that is available for vacancies that appear on multiple PES portals or on both a PES portal and a private portal.

- **VDAB vs. FOREM** (600 vacancies; marginal overlap): There are a small number of duplicate vacancies, because they have been pre-selected from the overall FOREM database as especially attractive for potential commuters from the Flanders region. FOREM is indicated as the source in the heading of the vacancy, however there are no further references to FOREM in the body of the vacancy, and there is no hyperlink to the FOREM portal. All FOREM non-structured information (i.e. description of function; activities of the company; general requirements, conditions) remains and the vacancy is posted in its original lan-

guage. Structured FOREM information about region, qualification requirements, work experience, required language skills, type of contract and working regime has been translated into Dutch and converted into the VDAB format. Structured information about profession, sector of activity, name of company and working hours has been lost in the transfer to the VDAB portal. Additional FOREM information on working week arrangements has also been lost.

- **VDAB vs. Actiris** (1,000 vacancies; overlap estimated at 30%): Again, vacancies that hold potential interest for Flemish commuters have been pre-selected from the Actiris portal. The overlap is much larger than with FOREM, presumably because of the geographical proximity to the Brussels labour market. No hyperlink to Actiris is provided, and in many cases the latter is not mentioned explicitly as the primary source of the vacancy. Actiris' non-structured information (i.e. description of function; activities of the company; general requirements) is duplicated in the original language, except for the conditions offered, which seem to be lacking in the VDAB portal. Structured Actiris-information about work experience and type of contract is identical on VDAB's portal. Non-structured Actiris-information about language and qualification requirements has been translated into Dutch and the region has been added (not available at Actiris). Structured Actiris-information about the sector of activity has been lost in the VDAB portal.
- **VDAB vs. Stepstone** (3,200 vacancies; 50% overlap of total vacancies available on Stepstone): All VDAB non-structured information (i.e. description of function; activities of the company; general requirements) is identical to the original. Qualification requirements and work experience are presented as free text on Stepstone, but have been structured in the VDAB portal, however, with a certain loss of contextual information available on Stepstone. Textual language requirements have not been structured by VDAB. The place of work is described in greater detail at VDAB. VDAB also includes the last date of modification to the content of the vacancy.
- **VDAB vs. Jobat** (7,500 vacancies; 60% overlap of total Jobat): All VDAB non-structured information (i.e. description of function; activities of the company; general requirements) is identical to the original information. Jobat has structured information on function title, sector and closing date for application; this information has been lost in the VDAB portal. Structural information on required foreign languages has also disappeared, but it is not necessarily in accordance with textual information in Jobat.
- **VDAB vs. Vacature** (2,000 vacancies; 40% overlap of total Vacature): All VDAB non-structured information (i.e. description of function; activities of the company; general requirements) is identical to the original. Vacature has structured information on function title and sector; this information has been lost on the VDAB portal. Textual information on required foreign languages is not (necessarily) available on Vacature. Information on the location is available at a more detailed level (i.e. municipality) on VDAB.

A similar exercise has been done for vacancies that appear both on the FOREM portal and on other portals:

- **Vacancies from other PES** (VDAB: 18,500 vacancies; Actiris: 1,200 vacancies) are structured as FOREM vacancies. There is no hyperlink to VDAB or Actiris portals, but FOREM includes the vacancy reference in the other PES. Non-structured information is in the regional language (Dutch for VDAB, French or Dutch for Actiris), but the structured information, such as function, sector, languages and qualification, is in French. It is likely that the overlap with VDAB is exaggerated, since a large number of listed vacancies no longer seem to be available on the VDAB portal.
- **Vacancies from temporary employment agencies** (Accent: 2,000 vacancies; Randstad Belgium: 700 vacancies) are structured as FOREM vacancies, include the agency

reference and a hyperlink to the original. Non-structured information in FOREM is identical to the original. Qualification and experience information are structured in FOREM, and additional information related to the profile in the original vacancy is included in text fields in FOREM through a free description of the profile and additional comments. The main problem seems to be that some listed vacancies are no longer available in the agency website, but they are still on the PES portal.

- **FOREM vs. Jobat** (750 vacancies; 5% of total Jobat): all FOREM non-structured information is identical on Jobat, but the structured information (i.e. qualification, sector) is different, as it is more structured in FOREM, but less precise. FOREM includes a hyperlink to the original vacancy. The closing application date as well as the location (city in Jobat - province or country in FOREM) as well as a link to information on the employer, are all lost after the transfer to FOREM. The vacancies in FOREM are not always up to date, as they are sometimes no longer available at Jobat.
- **FOREM vs. Stepstone** (1,300 vacancies – estimated 20% of total): all FOREM non-structured information is identical to Stepstone. Qualification and sector seem to be lost in the transfer to FOREM. Employer location differs between the two sites: city on Stepstone, province or country on FOREM. Language requirements are not structured on FOREM. FOREM includes a hyperlink to the original.

5.3. Contacting the Online Job-portal Owners

Access to the PES data bases seems to be crucial, because the intake by PES covers a large proportion of vacancies that are posted online. Access to the PES databases would be much more efficient than just crawling the portals, since it would provide information that is better structured and richer in content and more true to the original form of the vacancy before transfer to the PES.

During the interview with VDAB, it has been made clear that VDAB has an open policy towards sharing information with third parties, as long as exchanges of information are made in a transparent and structured way. Web-scraping is not considered transparent and structured. Access to the VDAB database should be negotiated with the ICT department, but it does seem feasible for the CEDEFOP project. The extent of the coverage would also be subject to negotiation. The FPB can act as an intermediary to establish the necessary contacts.

For Actiris and FOREM, the FPB can inquire about possibilities for direct access to the vacancy data. However, for the private portals, the FPB cannot act as an intermediary for the negotiation of either permission to scrape the websites or direct access to the databases.

6. Format and Content of OJVs

6.1. Legal/Regulatory Framework

The content of vacancies must respect anti-discrimination legislation, as governed by federal legislation dating from 1981²², 2003 and 2007²³. Actiris and VDAB state that compliance with (federal) anti-discrimination legislation is verified during the posting process. Indirectly, these controls are also made when VDAB publishes vacancies that originate on private portals. No other mechanisms seem to be in place to guarantee minimum quality standards for the vacancies that are published on private portals.

Temporary work agencies (TWA) are a prime source for vacancies published on private portals. Since federal legislation restricts temporary work for certain industries (e.g. the (semi)-public sector), this tends to bias the sectoral scope of the private portal vacancies. The federal government has announced that it will introduce legislation reducing barriers to access, but, according to FED-ERGON experts, this will only lead to a slight increase in the scope of TWA-jobs.

6.2. Format of OJVs

In Flanders there seems to be a tendency towards standardisation of the content of vacancies intra-PES portal. This is the consequence of the extensive use of the VDAB 'Competent' tool that links professions to a description of a set of potentially-required competencies and allows employers to choose from pre-determined job descriptions. Use of Competent is not required to upload vacancies on the VDAB portal, but it is strongly recommended to employers as they go through the posting process.

The idea behind Competent is to go beyond a mere enumeration of required and desired qualifications when posting jobs or CVs, and to use this information to enable competency-based matching of jobs and candidates. In this way, the Competent tool has contributed to broadening the content of the typical vacancy, especially for low-skill functions, for which job descriptions may traditionally be very rudimentary. Moreover, it helps standardise the information contained on portals concerning competencies. However, increased standardisation of job content appears to have resulted in a certain loss of indirect information concerning the characteristics and wishes of the employer, including phrasing, word use and use of non-structured information compared to pre-determined classifications and terminology copied from Competent.

This process of standardisation may also be extending to non-VDAB sites, because VDAB has granted private portals access to the Competent tool and other tools that VDAB uses to monitor employers during the drafting process. Use of Competent has even been made mandatory by VDAB for vacancies that originate on other portals and are then transferred to the VDAB portal. In these cases, the Competent entries do not necessarily show up in the information online on the origin portal, but they must be included in the information that is transferred to VDAB.

²² Anti-racism Law:

http://www.ejustice.just.fgov.be/cgi_loi/change_lg.pl?language=fr&la=F&cn=1981073035&table_name=loi).

²³ Anti-discrimination Law: http://www.etaamb.be/fr/loi-du-25-fevrier-2003_n2003012105.html, amended by http://www.ejustice.just.fgov.be/cgi_loi/change_lg.pl?language=fr&la=F&cn=2007051035&table_name=loi.

Standardisation may be less of an issue for other types of information, such as advantages/fringe benefits or the description of the activities of the employer, which are entirely based on free text descriptions written by employers. In this respect, there is an increasing tendency towards ‘employer branding’ on job-sites. VDAB has accommodated this evolution by offering firms a fee-based option to brand their company with the “Company Showcasing” function²⁴ and by assembling all vacancies under a common banner. Actiris and FOREM have also taken steps in this direction (see Section 3.1.2), however, for the time being, they do not have a pricing model.

As for the use of languages, the private general-purpose sites are directed towards the entire Belgian market, publishing vacancies in either French or Dutch and a few in English. PES are regional by nature, with VDAB publishing mainly in Dutch and FOREM mainly in French, while Actiris has vacancies in both languages. As mentioned before, the portals associated with media and print advertisement target specific linguistic populations; “Jobat” and “Vacature” are directed primarily towards a Dutch-speaking population and “Références” is directed towards the French-speaking population.

At VDAB, use of the Dutch language is imperative for any vacancy for which the employer demands active intermediation services on behalf of the PES, which concerns less than 50% of the vacancies posted to VDAB. It is the recommended language for other vacancies. In exchanges between PES, vacancies are retrieved in the language of origin. The impression is that the use of other languages is not a pervasive phenomenon in the PES portals and is of secondary importance on the other general-purpose job-sites. The co-existence of multiple versions of the same vacancy in various languages has been checked for the Jobat portal and seems to occur very rarely.

6.3. Content of OJVs

Overall, information for vacancies published on Belgian job-sites seems relatively extensive and pre-structured to a high degree. This may be influenced by the standards VDAB is setting, which tend to dissipate through the market following the increased two-way collaboration between VDAB and other intermediaries.

However, wage and salary conditions are notably absent from most Belgian vacancies that originate with private sector employers.

There may also be a tradition in Belgium to focus more on formal qualifications and ‘hard’ skills, but this is an impression that should be confirmed by a more systematic multi-country comparison.

As for soft skills, attitudes and behaviour, VDAB offers registered employers a pre-determined list with approximately 20 competencies to choose from, such as client-oriented, independent, adaptability/flexibility, cooperative, etc. (see Section 5.2.1). Employers feel that this list does not offer sufficient scope for differentiation by industry and function. Hence, VDAB is currently working to incorporate competencies within the Competent tool to make them more function-specific.

As for the framing and formulation of OJVs, it is possible to find OJVs that include information regarding opportunities for career development, lists of specific requirements or a neutral description of tasks. Since the labour market is becoming more demand-driven for a growing number of functions, we anticipate that more OJVs will include information about career development.

Positive discrimination may be found in jobs related to Active Labour Market Programmes that require prerequisites related to age, schooling, etc. Otherwise, government-related websites such as

²⁴ In Flemish “Bedrijf in de kijker”.

selor²⁵, may also mention explicitly that disabled persons or other minority groups are encouraged to submit applications for posted roles.

6.4. Main Differences between the Public and Private Online Job-portals

Use of Competent has led to a growing standardisation of competencies across original VDAB vacancies and may be considered as a major difference in content of VDAB OJVs compared to the typical vacancy that originates on private portals.

6.5. Expected Trends in the Format and Content of OJVs

As far as VDAB is concerned, drastic modifications in the job-posting process or content for the near future were not mentioned, except for the incorporation of more competencies and greater use of the Competent tool. Actiris is currently working to introduce the Competent tool for its own vacancies and expects to implement the tool during the course of 2018. The motivating goal is to increase the ability to automate matching between vacancies and candidates.

²⁵ Website displaying public sector jobs, <http://www.selor.be/fr/>.

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Expert Interviews

Name of organisation	Type of organisation	Expert's position	Interview date
Statistics Belgium	Statistical Office	ESSnet responsible + responsible for Job Vacancy Survey	24 May 2017
VDAB	PES	Project leader for open services and strategic alliances	23 August 2017
FEDERGON	Federation of HR Service Providers	Director for Research and Economic Affairs	25 August 2017
FOREM	PES	Market analyst	9 October 2017
Actiris	PES	Research associate	9 and 20 October 2017