

# Mapping the landscape of online job vacancies

## Background report: Netherlands

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

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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

<b>BRC</b>	Dutch Occupation Classification System (Beroepenindeling ROA CBS)
<b>CBS</b>	Central Bureau for Statistics from the Netherlands
<b>Cedefop</b>	European Centre for the Development of Vocational Training
<b>CPO</b>	Chief Privacy Officer
<b>CRISP</b>	Centro di ricerca interuniversitario per i servizi di pubblica utilità, University of Milano-Bicocca
<b>ESS</b>	European Statistical System
<b>EURES</b>	European Employment Services
<b>HR</b>	Human Resources
<b>ISCO</b>	International Standard Classification of Occupations
<b>ICT</b>	Information and Communication Technology
<b>LMI</b>	Labour Market Information
<b>OJVs</b>	Online Job Vacancies
<b>PES</b>	Public Employment Services
<b>UWV</b>	Public Employment Service of the Netherlands (Uitvoeringsinstituut Werknemersverzekeringen)
<b>VNO NCW</b>	Confederation of Netherlands Industry and Employers
<b>W3C</b>	WWW Consortium

## 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 the Netherlands. It is based on desk research of available data sources in the Netherlands (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 Dutch 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 the Netherlands 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 the Netherlands 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

Desk research was performed during the last three weeks of May 2017. It included analysis of resources available on national databases such as:

- Statistics Netherlands (CBS);
- Statline (online databank of the CBS);
- PES of the Netherlands (UWV) <sup>(1)</sup>;
- Ministry of Social Affairs;
- RABO Bank (economic forecasts and reports);
- Confederation of Netherlands Industry and Employers (VNO-NCW);
- The largest SME organisation in the Netherlands (MKB-Netherlands);
- Google Scholar (English language searches in February 2018)

## 1.2. Data Sources

We found two publications, both by the PES, concerning the use and role of job portals in 2013 and 2015 (UWV 2013, UWV 2015). We also identified three publications from commercial online job providers (Persgroep Employment Solutions 2015, Textkernel 2016 and Textkernel 2016b). The outcomes of these studies could be biased toward the importance of the specific job portals that sponsored them.

We also used English and Dutch keyword searches on Google Scholar. We found sources that looked at the use of English in OJVs in the Netherlands and one source that considered how other socio-economic factors affect an individual's use of online resources, including job search (van Deursen and Helsper 2015). Some articles considered OJVs focussed on specific occupations, such as a Master's thesis that investigated Austrian and Dutch online purchasing and supply management positions (Stek 2016) and another article looking at the most important qualifications in OJVs advertising requirements engineer jobs (Daneva et al. 2017) Other sources that did not directly fit the subject of this paper, but which were consulted, discussed the design and structuring of CVs.

We conducted three in-person interviews with a representative from the PES and two representatives from recruitment agencies. The representative from the PES organisation had expert knowledge in the field of OJV channels. Both representatives from the recruitment agencies had more general knowledge. However they could inform us of the extent to which their organisations use OJV channels to recruit and hire personnel. We also had a brief phone interview with a representative from a commercial OJV provider.

We contacted the statistics office and VNO-NCW by phone and email. The representatives from the CBS ultimately referred us to the UWV as a contact source. The VNO and EURES representatives who we approached did not respond to our requests.

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<sup>(1)</sup> In Dutch "Uitvoeringsinstituut Werknemersverzekeringen".

**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 OJV per sector/occupation/qualification level/ region	Skills requirements in Job's	
<b>Source 1: Public data/academic research</b>	UWV (2015): Vacatures in Nederland 2015: Personeelswerping in beeld	PES	Yes	Yes	Yes	Solid
<b>Source 2: Research/surveys of interest groups</b>	White paper response survey	Nationale vacaturebank	Yes			Biased
<b>Source 3: Expert opinions</b>	Expert Interview with a representative of UWV	UWV	Yes	Yes	No	Solid

## 2. Labour Market Dynamics and Impact on the Online Job-portal Market

The labour market in the Netherlands is changing due to a number of developments in the demand for labour and the utilisation of skills in the workplace. This also impacts the online job-portal market.

**Overall economic development:** The main development is the continuing economic growth marking recovery from the severe recession in 2008. For 2017 and 2018, economic growth of more than 2% per annum is expected. As a result, the number of jobs will increase by 225,000 to a total of 10.2 million. Annually, around 900,000 vacancies arise through the expansion of staffing or the replacement of personnel (UWV 2017a).

**Health and welfare sector:** There is a growing demand for healthcare workers due to the ageing of the population, new treatment methods and the cancellation of previously planned cuts to national healthcare spending. The ageing population is leading to a growing number of people who rely on long-term care. The health and care sector is by far the largest sector in the Netherlands. Between 2012 and 2016, employment in this sector dropped to 1.24 million jobs, while in 2018, the number of jobs is expected to rise to 1.27 million.

**Building and construction sector:** The construction sector accounts for 5% of all jobs in the Netherlands. Due to the economic recession, the number of construction workers dropped from 377,000 to 300,000 between 2010 and 2016. An increase of 24,000 positions in the construction sector is expected between 2016 and the end of 2018.

**Communication and information sector:** Due to increasing digitalisation, the demand for IT services is also increasing. Between 2013 and 2016, the number of jobs in this sector increased by 18,000, reaching 245,000. The tightness of the labour market for ICT staff, however, inhibits its growth. Last year, more than 17% of ICT companies reported that the shortage of qualified personnel hampered their growth.

It is forecasted that the number of jobs fulfilled through online channels will rise to 32% of all recruitment (225,000 jobs). The projected increase of recruitment through online channels by sector is as follows: health and welfare (42%), construction (12%) and the communication and information sector (43%).

## 3.Context and Characteristics of the Online Job-portal Market

### 3.1. PES Online Job-portal(s)

#### 3.1.1. Legal/Regulatory Framework

There is no formal legal or regulatory framework for werk.nl, the PES online job-portal in the Netherlands. The portal has been designed to simplify the search functions for users. For example, jobs can be searched according to their distance from a particular location and according to the international ISCO codes and sectoral standards. These codes, however, are used for internal purposes and are not directly shown to individual job-seekers.

According to the Employment Equal Treatment Act, no one may be discriminated upon or excluded based on age, race, origin, nationality, sexual orientation or belief, regardless of whether a job is posted to a public or private portal. Up until January 2018, employers could request people between 18 and 27 years of age or people over 50 in job vacancies, however, that policy has been abolished.

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

The PES system is operated by the UWV, which is part of the Ministry of Social Affairs. Besides the employment function, the UWV is also responsible for the execution of all labour-related legislation and social benefits.

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

The PES portal does not focus on specific types of employers. All employers in the Netherlands can use the PES channel for their recruitment activities free of charge. However, it is clear that the use of both the PES and commercial portals is influenced by the sector and the professional skills of the desired candidates. The PES channel is mostly used by unemployed job-seekers, who also receive unemployment benefits.

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

The public portal offers about 120,000 jobs at any given time. For companies and recruiters, it is a free channel for posting vacancies. The primary target group are unemployed job-seekers. It is one of the three most-used portals in the Netherlands. In addition to sharing vacancies posted directly to the PES, the UWV also purchases OJVs from private portals, which are sourced through web scraping <sup>(2)</sup>. All posts are removed after one month. Most of the private portals remove their vacancies after a period of 60 days.

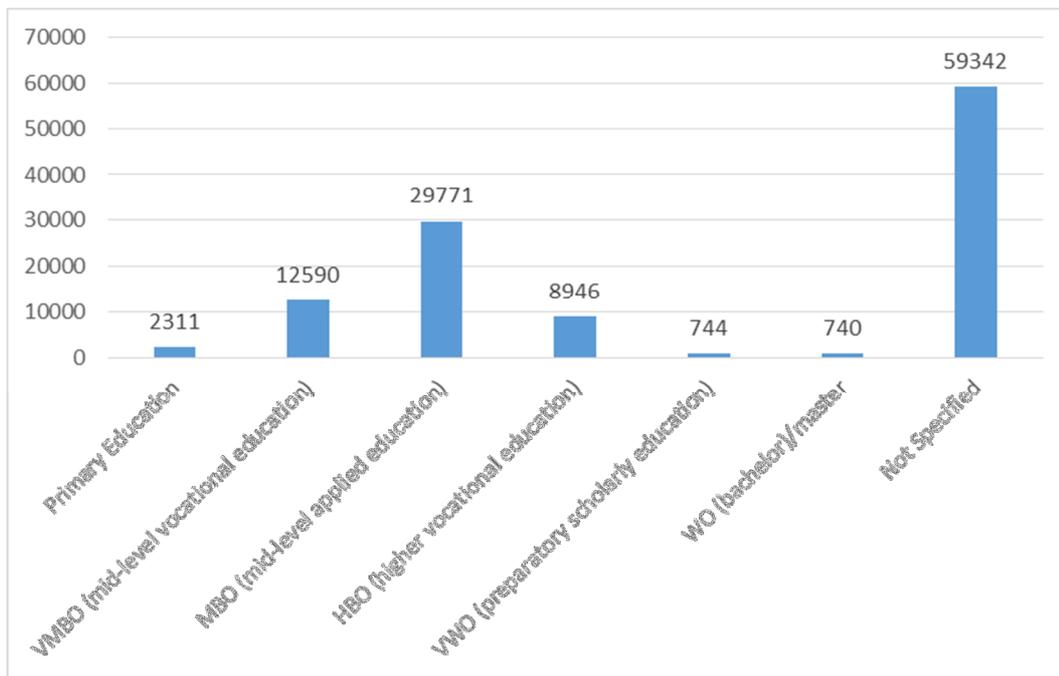
The landing page for werk.nl provides some statistics about the sectors that are most represented on the portal. In February 2018, the most jobs were posted for the construction sector (18,735 OJVs), metal working (17,124 OJVs), warehouse, storage and delivery (9,820 OJVs), trade (9,094) and healthcare (8,405) as well as 40 additional sectors. The least represented sectors mentioned

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<sup>(2)</sup> The Dutch PES buys vacancies from Textkernel, a for-profit provider of vacancy information. These supplementary vacancies are placed on the public OJV portal.

are personal care (102 OJVs), Tourism (56 OJVs), Language (31 OJVs), Fishing (29 OJVs) and Extraction of Minerals (27 OJVs). The landing page also describes the level of education that is requested for each posted position (see Figure 1). On the date that we checked in February 2018, just over 50% of the listed jobs did not specify a level of education. Just over 25% of jobs requested mid-level applied education (MBO<sup>(3)</sup>) or vocational education and around 11% requested mid-level vocational education (VMBO<sup>(4)</sup>) or pre-vocational education. This indicates that fewer jobs on the PES portal target people with pre-academic (VWO<sup>(5)</sup>) or academic degrees (WO<sup>(6)</sup>) or poly-technic/professional degrees (HBO<sup>(7)</sup>). PES jobs also have fewer options targeting unskilled workers with only primary level education. Most are oriented towards semi-skilled or skilled workers with vocational backgrounds.

Figure 1: Requested level of Education on OJVs on Werk.nl on February 19, 2018



Source: werk.nl (last accessed 19 February 2018).

It is difficult to assess the share of all vacancies placed on the PES channel. Two other private portals claim to have 250,000 and over 100,000 jobs. These numbers may be inflated by duplicate ads and longer publication times. The current estimate, according to experts, is that at least 60% of all vacancies are exclusively or additionally posted on the public channel.

### 3.1.5. Posting of PES Vacancies on EURES

The EURES activities in the Netherlands are generally focused on sectors with skills shortages, such as Technology, ICT and Agriculture and Horticulture. Plans are also being made for sectors with an expected shortage in the future, such as Care, Hospitality & Tourism and Business Services. The EURES activities are also aimed at cross-border employment projects for job-seekers in Germany and Belgium seeking work in the Netherlands and vice versa.

<sup>(3)</sup> In Dutch “*middelbaar beroepsonderwijs*”.

<sup>(4)</sup> In Dutch “*voorbereidend middelbaar beroepsonderwijs*”.

<sup>(5)</sup> In Dutch “*voorbereidend wetenschappelijk onderwijs*”.

<sup>(6)</sup> In Dutch “*wetenschappelijk onderwijs*”.

<sup>(7)</sup> In Dutch “*Hoger beroepsonderwijs*”.

The EURES activities in the Netherlands are carried out by recruiters from the PES agency. Daily support is aimed at employers who want to recruit staff from abroad and job-seekers in surplus sectors who want to work abroad. In addition, the services focus on European employers and job-seekers with an interest in recruiting from and working in the Netherlands. In 2016, almost 24,000 job-seekers stated that they were interested in working abroad in Europe through [werk.nl](#) and other UWV channels. Furthermore a total of nearly 40,000 employers also recruited for a vacancy across the border (UWV 2017b).

All vacancies, with minor exceptions <sup>(8)</sup>, that are posted directly to the PES are then shared with the European website, EURES. In June 2017 about 29,000 vacancies in the Netherlands could also be found on this portal. Compared with approximately 120,000 vacancies on the PES network itself, this represents almost 25% of the total number of vacancies. This indicates that around 75% of the jobs posted to the PES are scraped from private portals, and therefore are not currently shared with EURES, although this may change in the coming years as EURES looks to post jobs from private as well as public portals.

## 3.2. Private Online Job-portals

### 3.2.1. Legal/Regulatory Framework

There is no formal legal or regulatory framework for private online job-portals in the Netherlands. In the layout of most commercial portals, some features have been incorporated to allow for the placement of advertisements in other cross-channel websites or to address companies that place vacancies on their own careers pages. The Employment Equal Treatment Act also prevents discrimination on private portals (see Section 3.1.1.).

### 3.2.2. Dominant Online Job-Portals and Their Business Models

The largest job search engine in the world, Indeed, has a large presence in the Netherlands via [indeed.nl](#). It offers about 200,000 vacancies. It uses a 'pay for performance' policy, which means that employers or recruiters can post a vacancy or a link to a vacancy for a fee. The website charges a commission when the portal successfully leads to a hire. Indeed does not focus on specific sectors or target groups.

The most popular private Dutch portal is [www.nationalevacaturebank.nl](#). It offers about 29,000 jobs daily. The company is owned by a consortium of five national newspapers. The site offers multi-channel search channels to employers. Like all other private portals, this site has a "pay for performance" policy, with OJVs ranging in price from EUR 299 to EUR 597. All OJVs are posted for 60 days and include the option to place a logo in the OJV and to add a video. The more expensive OJV model includes CV match options, posting to other portals ([AD.nl](#)), appearance in top search results and on Google searches. The portal includes discounts when employers purchase multiple OJVs at once, for example, if an employer purchases 20-29 OJVs, the price per posting decrease by 35%. Although it has no specific target groups, it offers the possibility for job seekers to search by categories, such as health, welfare and education. According to its own internal research, Nationale vacaturebank is used by 75% of the people who use online job portals. Other popular portals are [Monsterboard.nl](#) (58%), the public portal [Werk.nl](#) (42%) and [Jobbird.com](#) (41%) (Persgroep

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<sup>(8)</sup> Jobs that are not legal throughout the EU, such as those related to the prostitution and marijuana industries are present on the PES but excluded from EURES; these represent a very small number of jobs each year.

Online Services 2015)<sup>(9)</sup>. Intermediar ('the intermediary'), which is owned by the same consortium as Nationale vacaturebank, is a portal focusing specifically on highly educated young academics.

Monster.com was founded in the USA in 1994 and has been active since 1998 in the Netherlands as Monsterboard.nl. The site has a "pay for performance" policy. According to research conducted by the Nationale vacaturebank, the portal is used by 58% of people who use online job vacancy media. The number of jobs available is not shown on the portal. The initial business model was based on presenting an online version of published newspaper vacancies, which were sold for a relatively high price at the time. Experts say this portal, despite a worldwide decline in use in the last three years, still belongs to the top three portals in the Netherlands.

Jobbird.com is a private Dutch portal founded in 2011. The company is owned by the former owner of the Nationale vacaturebank. Like many portals, it also has a 'pay for performance' policy. According to research by Nationale vacaturebank, Jobbird is used by 41% of people who use online vacancy portals. The platform has about 100,000 vacancies. Employers are able to access a database with more than 160,000 CVs. The portal has three main functions:

- Job-seekers can respond to vacancies;
- The portal matches job seekers to vacancies and is paid by employers when there is a successful match;
- Employers can access the CV database and recruit potential new employees based on the specific qualifications and skills they need.

### **3.2.3. Focus of the Private Online Job-portals**

There is no detailed information available concerning the type of employers using specific portals. However, we know that international companies and maritime companies, as well as companies operating in the logistics sector prefer to use international online vacancies portals as opposed to the Dutch portals or the PES. The most popular Dutch portal, [www.nationalevacaturebank.nl](http://www.nationalevacaturebank.nl), indicates the number of OJVs posted for specific occupations, sectors and education levels. As of February 2018, the most posted occupations were technical (15,009 OJVs), production & executive (12,791), medical & care (9,963), commercial & sales (9,616) and purchasing, logistics and transport (7,003). Likewise, the most common sector was also the Technical Sector (9,551 jobs). It was followed by Healthcare (8,976 jobs), Construction/Installation (8,186), Industry (6,863) and Trade/Wholesale (6,043). The majority of jobs were posted for the education levels HBO (polytechnic and professional degrees) and MBO (vocational diploma). Jobbird also indicates the number of jobs per sector. The most OJVs were in the sectors Technical (10,408), followed by Healthcare/Medical (7,962), Sales/Commercial (5,035) and Automation (4,651). Within each sector group it lists the most-searched occupations. For example, within the healthcare field there are 1,187 OJVs for nurses, within Purchasing & Logistics, 1,308 logistics employees are sought, within the Finance sector, 1,113 administrative assistants are sought, and within the Sales sector, 1,454 account managers and 1,029 call center employees are sought. The occupations listed are only a sampling, and do not represent all OJVs posted.

### **3.2.4. Outreach of the Private Online Job-portals**

There is no information available concerning the share of all vacancies published as OJVs on private online job-portals. For the Netherlands as a whole, we know that in the year 2011 about 40% of the total annual vacancy market was covered by internet applications (UWV 2013).

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<sup>(9)</sup> The experts from the PES channel confirmed that these portals are the most used OJV channels in the Netherlands.

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

The PES portal offers about 120,000 jobs. In addition to vacancies published directly to the PES portal, the PES also buys additional job offers, which are provided through web scraping <sup>(10)</sup>. Some private portals also scrape vacancies from the PES.

The fact that the PES buys vacancies implies that many of the vacancies on private sites can also be found on the public channel and vice versa. The extent to which OJVs are exchanged between public and private portals is hard to determine.

### 3.4. Role of other Recruitment and Job-search Channels

Every two years, the UWV conducts research among companies regarding the ways employers in the Netherlands use existing recruitment channels. The research distinguishes between recruitment via the Internet (i.e. websites and social media), personal contacts, print advertisements and employment agencies. The research also provides insights into the share of recruitment channels by sector, company size and the requested level of education. In Table 2, the role of every recruitment channel is shown by sector (UWV 2015) <sup>(11)</sup>.

**Table 2: Market share by sector (multiple answers possible)**

Sector/ channel	Company website	Personal relations	Social media	Other OJV channel	Open application	Own personnel	Advertisement	Employment agency
Agriculture	10	34	8	9	20	12	14	11
Industry	25	17	13	14	7	10	9	27
Construction	20	30	12	5	11	8	11	16
Wholesale	25	18	12	17	4	8	13	16
Retail trade and car trade	21	23	13	9	21	9	9	2
Transportation and storage	30	21	14	8	15	13	8	12
Accommodation and food service	23	26	25	13	16	13	7	0
Information and communication	44	21	28	19	3	11	5	5
Financial and insurance activities	42	19	21	15	3	12	5	9
Real estate activities	41	33	18	25	4	11	12	8
Professional, scientific and technical activities	40	26	23	25	6	8	5	8

<sup>(10)</sup> The Dutch PES agency UWV buys vacancies from Textkernel, a for-profit provider of vacancy information on a quarterly basis. The main reason for doing this is to fill the "Labour Market Tension Meter". This is a Labour Market Information (LMI) instrument developed by the UWV that measures the surplus and shortages on the labour market on a sectoral as well as a job level. The supplementary vacancies are also placed on the public OJV portal for direct recruitment purposes.

<sup>(11)</sup> This survey is part of an LMI instrument called the "Labour Market Tension Meter" that enables the development of weights for coverage of occupations by vacancy information sources. The Annex in this report describes the methodology of this instrument.

Employment activities	44	25	26	25	6	7	8	2
Services to buildings	17	27	15	6	11	17	11	10
Business support activities	33	18	13	17	9	8	6	6
Public administration	62	12	20	34	1	12	13	6
Education	52	20	18	37	5	10	14	4
Human health and social work	43	20	17	22	16	11	9	2
Arts entertainment and recreation	40	17	22	19	13	9	3	1
Other service activities	30	18	27	17	18	6	7	1
<b>Total 2015</b>	<b>32</b>	<b>20</b>	<b>18</b>	<b>17</b>	<b>11</b>	<b>10</b>	<b>9</b>	<b>7</b>
<b>Total 2013</b>	<b>33</b>	<b>20</b>	<b>8</b>	<b>16</b>	<b>9</b>	<b>6</b>	<b>12</b>	<b>9</b>

Source: UWV (2015).

In Table 3, the role of every recruitment channel, is shown based on company size.

**Table 3:Market share by size of the company (multiple answers possible)**

Size pa-ny/Channel	Com-pany web-site	Per-sonal rela-tions	Social Media	Other OJV chan-nel	Open appli-cation	Own per-sonnel	Adver-tise-ment	Employ-ment agency
2 to 19 em-ployees	19	28	17	12	15	10	8	5
20 to 99 employees	37	19	17	17	10	11	9	9
over 100 employees	60	12	23	28	5	9	9	9
<b>Total 2015</b>	<b>32</b>	<b>20</b>	<b>18</b>	<b>17</b>	<b>11</b>	<b>10</b>	<b>9</b>	<b>7</b>
<b>Total 2013</b>	<b>33</b>	<b>20</b>	<b>8</b>	<b>16</b>	<b>9</b>	<b>6</b>	<b>12</b>	<b>9</b>

Source: UWV (2015).

In Table 4, the role of every recruitment channel, is shown based on desired educational level.

**Table 4: Market share by educational level (multiple answers possible)**

Education level/channel	Company website	Personal Relations	Social Media	Other OJV channel	Open application	Own personnel	Advertisement	Employment agency
Primary school	16	29	15	7	19	12	8	6
Pre vocational secondary education	21	22	14	7	15	11	11	12
Vocational secondary education	32	21	16	16	12	10	10	8
Secondary education	27	18	23	19	3	9	4	7
Higher education	46	21	24	26	4	10	6	4
Without labour market qualification	18	26	14	8	18	11	9	8
With labour market qualification	38	21	20	21	9	10	8	6
<b>Total 2015</b>	<b>32</b>	<b>20</b>	<b>18</b>	<b>17</b>	<b>11</b>	<b>10</b>	<b>9</b>	<b>7</b>
<b>Total 2013</b>	<b>33</b>	<b>20</b>	<b>8</b>	<b>16</b>	<b>9</b>	<b>6</b>	<b>12</b>	<b>9</b>

Source: UWV (2015).

**The use of OJVs by different types of employers (company size, sector, ownership):** Companies use multiple recruitment channels to find employees. In situations where there is a large supply of labour, companies need less effort to recruit staff compared to when there is a tight labour market. For example, in 2015, when there was a surplus of labour, companies used an average of 1.6 recruitment channels, while in 2007, when the labour market was tight, they used an average of 2.1 recruitment channels.

**The company website remains the primary recruitment channel, while social media's role is on the rise:** The importance of the company website as recruitment channel has fallen slightly from 33% in 2013 to 32% in 2015. Compared to 2013, the importance of social media has increased, from 8% to 18% <sup>(12)</sup>.

**Different sectors use different recruitment channels:** Government, care and welfare sectors have above average use of employer websites when recruiting staff. By contrast, the agriculture and construction sectors mainly use personal contacts to fill their vacancies. Intermediary agencies play an important role in the industrial sector because of the big request for temporary personnel.

**The market of printed advertisements in papers is steadily decreasing:** In 2015, print advertisements were only used as a recruitment channel for 9% of the vacancies, compared with 51% of vacancies in 2001, the year that the Internet was first recorded as a recruitment channel. The In-

<sup>(12)</sup> All the information in this chapter is based on the publication "Vacatures in Nederland 2015" by the public employment agency UWV. The research was conducted among a group of 4,700 employers who had filled a vacancy in 2015.

Internet had a market reach of 11% in 2001, which grew to 69% by 2015. Internet usage in recruitment has reached its historical peak and continues to grow. It is higher than the level ever recorded for advertising in newspapers.

**Large companies tend to use corporate websites, while small businesses prefer to establish relationships:** Large companies (100 or more employees) use their own website as a recruitment channel for more than half of the vacancies. In addition, when compared to small and medium-sized companies, large companies are more likely to use other OJV channels and social media. For medium-sized companies (20 to 99 employees), company websites are also the most important recruitment channel. Small businesses (2 to 19 employees), on the other hand, use personal contacts to fulfil their staff needs.

### 3.5 Expected Trends in the Online Job-portal Market

The private portal industry is increasingly using a contingency model. Instead of paying to post an ad, employers only pay once a vacancy is filled. The same principle is gaining popularity on the job-seeker side, wherein job-seekers get free access to job portals, but they pay a fee if they accept a role as a result of the portal.

We expect that the online portal market share will continue to rise, in part because the Netherlands has the highest general internet penetration in Europe (90%). The online job vacancy market share in the Netherlands has already risen from 60% to nearly 70% between 2011 and 2015.

## 4. Use of OJVs in Recruitment and Job-Search

### 4.1. Use of OJVs in the Recruitment of Labour

As discussed in Section 3.4., there is some information available concerning the online recruitment behaviour of companies in particular sectors. Sectors like Government, Care & Welfare, and Culture, Sports & Recreation are relatively frequent users of private internet portals for recruiting. However, there are also sectors where other recruitment channels (traditional and other online forms, such as social media or the PES) are preferred. Two of these sectors that tend not to use private OJV portals are the Agriculture and Construction sectors.

According to research by Textkernel, in the second quarter of 2016, the Netherlands had a total of 466,102 unique OJVs. The job categories with the greatest market share were IT (11.2%), Sales & Trading (10.7%) and Administration & Customer Service (8.8%). The sectors with the largest market share were Trade/Retail (19.6%), Healthcare (16.55) and Education/Research (12.0%) (Textkernel 2016b). For the entire year of 2016, Textkernel documented 9.8 million OJVs posted across portals<sup>(13)</sup>, however only 1.9 million of these OJVs were unique, indicating that employers are posting to multiple sites. There were 26.5% more OJVs posted in 2016 than in 2015. OJV growth is particularly noteworthy in the province of Noord-Brabant, which increased its number of OJVs by 0.7% for a total market share of 17%. Both Noord-Holland and Zuid-Holland registered the highest percentage of OJVs, 19.6% in each province, although they each lost market share, 0.5% and 0.9% respectively. The largest intermediary was Randstad. The largest occupation class was ICT, with 11.7% of OJVs, although its market share dropped by 1.4%. The other highly requested occupational classes were sales and trade (10.6% of OJVs), administration and customer service (8.9%), installation, repair and maintenance (7.7%), health care and well-being (7.5%) and production (6.6%). The most requested job on OJVs was customer service representative, followed by repair and service engineer, nurse, production worker and account manager. The largest sector is trade at 20.2%, which also indicates a slight drop (1.7%) compared to the previous year. It is followed by Health and Wellness (17%) and Education and Research (9%) (Textkernel 2016).

### 4.2. Use of OJVs in Job-search

Surveys of how different socio-economic factors affect the outcomes of a person's internet use indicated that in the Netherlands, people between the ages of 16 and 35 are more likely to have positive outcomes by using the Internet for job search compared to other age groups. Unsurprisingly, unemployed people benefitted more from job search on the Internet than employed people (van Deursen and Helsper 2015).

Based on our observations, most online portals provide the following methods of recruitment:

- Immediate recruitment: a vacancy is only advertised on the OJV portal and all recruitment and applications processes occur through the portal;
- Direct recruitment: the OJV portal links to the company's own website, and the rest of the application and recruitment process takes place through the employer;
- Indirect recruitment: the OJV portal and various recruiters or intermediaries are involved in the recruitment process

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<sup>(13)</sup> This study excluded internships, part-time jobs, volunteer work, freelance and franchises.

It is often possible for job-seekers to purchase an alert service, which notifies them about newly published vacancies.

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

The online job market will continue to grow in the coming years. Moreover, social media like Twitter and Facebook will play a greater role in distributing job offers. Recruitment service providers are also becoming increasingly important. They will take on larger shares of the recruitment process, from candidate search to placement. These developments will also lead to other business models developing for OJV portal providers. The function of the portals will also change from a focus on recruitment to serving as a lifelong career-support instrument. The OJV portal Jobbird is an example of this development; it already has over 160,000 CVs from people who are not actively looking for work.

## 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

Table 5 shows the keywords (in Dutch and English translation) that were searched on Google, as well as the number of search results that they generated. We recorded the names of job-portals that appeared frequently in the early pages of results.

**Table 5: Search terms for desk research**

Term in Dutch	Term in English	Search results
Vacatures	Vacancies	46,000,000
Werk	Work	158,000,000
Banen	Jobs	14,500,000
Arbeidsmarkt	Labour market	3,080,000
Economische ontwikkeling	Economic development	15,900,000
Werkloosheid	Unemployment	1,440,000
Job portal	Job portal	5,020,000
Vacaturesite	Job site	117,000
Online vacatures	Online vacancies	38,500,000

Source: Piepers (2017).

The Google searches identified five portals as strong candidates for web scraping activities (see Table 6).

**Table 6: Portals and their characteristics**

Portal	Number of jobs	Scope	Function
www.werk.nl	120,000	National	PES, with primary and secondary functions
www.nationale vacature-bank.nl	28,000	National	Combination of primary and secondary functions
www.monsterboard.nl	Unknown	National	Combination of primary and secondary functions
www.indeed.nl	200,000	International	Combination of primary and secondary functions
www.jobbird.com	100,000	International	Combination of primary and secondary functions

Source: Piepers (2017).

### 5.1.2. Identifying the Online Job-portals through Expert Interviews

The UWV expert indicated that the following portals are important to ensure maximum coverage of the Dutch labour market:

- [www.werk.nl](http://www.werk.nl);
- [www.nationalevacaturebank.nl](http://www.nationalevacaturebank.nl);
- [www.jobbird.com](http://www.jobbird.com).

### 5.1.3. Validating the Selection of Online Job-portals

We validated our portal selections in two ways:

- Based on the opinion of the UWV expert we interviewed;
- Based on a white paper, which stated that 75% of Dutch online portal users use vacaturebank.nl, followed by Monsterboard.nl (58%), the PES Werk.nl (42%) and Jobbird.com (41%) (Persgroep Employment Solutions 2015).

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

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

To post an OJV on the PES portal, the company concerned needs an account to access the website [werk.nl](http://werk.nl). Once the company has this account, it is possible to access more than 450,000 curricula vitae, post vacancies, approach potential candidates directly and receive applications by mail.

The representative of the firm needs to register using the fiscal number of the organization concerned. The following information has to be provided in this process: username, password and email address. Based on this, the employment relationship with the company is confirmed, and the company representative can act on its behalf.

The OJVs contain the following information:

- **Working conditions:** function, location, working conditions (full-time/part-time); contract form and salary (annual or hourly);
- **Explanation of the function:** type of person wanted, function demands, additional demands;
- **Employer's contact details:** contact person, mail address; address of the company; location of the workplace;
- **Educational level and work experience required;**
- **Additional demands:** e.g. driving licence or willingness to work at irregular times;
- **General vacancy information:** reference number, description of the vacancy, date posted and date of expiration.

The employer is then informed that the vacancy can also be posted on the EURES network and on other portals as well as classified ads sections in newspapers. As a result of the matching process, job seekers who match the requirements of a given position receive an email from the PES encouraging them to apply for the job.

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

On [www.indeed.com](http://www.indeed.com), it is necessary to register with the portal to be able to start filling in the form for posting an OJV. Posting an OJV takes place in the following steps:

- **Step 1: Providing company information for an account:** name, address and phone number of the company (mandatory);
- **Step 2: Basic information vacancy:** function name (free text), Company name (free text), location of the job (scroll menu), language of the vacancy text (default Dutch; scroll menu for other possibilities);
- **Step 3: Vacancy information:** full-time (click menu), part-time (click menu); stage (click menu); temporary (click menu); limited period (click menu), internship (click menu), voluntary work (click menu), freelance (click menu), undefined period (click menu), indication of the salary and periodicity of the salary (optional);
- **Step 4: Function description:** description of the job (free text; mandatory) tasks and responsibilities (free text optional), qualifications (free text optional) and skills (free text optional); requirements for the applicant (free text optional), terms of employment (free text optional);
- **Step 5: Screenings questions candidates:**
  - Work experience in years (click menu), educational level (click menu), location job and applicant (click menu) licensee and or certificate (click menu);
  - Box in which can be stated that only candidates who fulfil all the screening demands are presented;
- **Step 6: Settings for applications:**
  - Applications by mail or in person (click menu);
  - Number of email addresses to notify (free text);
  - Box in which can be stated that candidates have to add a CV to their application;
- **Step 7: Sponsoring items for the vacancy:**
  - Vacancy budget (click menu for amount and period);
  - Estimated number of reactions on sponsored and non-sponsored applications;
  - Expiration date of vacancy (click menu);
- **Step 8: Free or sponsored vacancy.**

In this last step, the employer can decide whether the vacancy should be sponsored or not. Non-sponsored vacancies are free. The pricing model for sponsored vacancies depends on the kind of support that is provided. Generally the employer sets a budget and then only pays when job seekers click on the ad. The employer can change the budget or cancel the ad at any time, but the portal uses algorithms to help predict the cost and budget targets. It is also possible to choose other options, such as consulting services and access to the CV database of possible applicants. The website advises the employers to seek advice from the sales team to identify the optimal recruitment strategy. Specific prices and information about purchasing vacancies in larger quantities are only available with registration.

- On the portal [nationalevacaturebank.nl](http://nationalevacaturebank.nl), we cannot see the posting process without registering. However, we know based on the pricing guides and observations of several OJVs that employers have the option to use the formatting and templates of the website or to use their own company's formatting and template. As a result, the OJVs on the portal appear fairly heterogeneous, aside from an information bar on the right side of the screen entitled 'vacancy characteristics'. This section includes the following information: Function Group (occupation, however classification system is unknown)
- Function (specific job, however classification system is unknown)

- Industry (sector)
- Employment contract type
- Hours
- Educational attainment (according to the Dutch educational system)
- Career level
- Salary range
- Contact Information (address, contact person with telephone and email)
- Vacancy code (8-digit ID number assigned by the website)

Common sections in the body of the OJV are free text job descriptions, requirements and information about the employer/working conditions.

### 5.3. Contacting the Online Job-portal Owners

There are no specific peculiarities of the online job-portal market in the Netherlands that need to be taken into account for the web-crawling.

## 6. Format and Content of OJVs

### 6.1. Legal/Regulatory Framework

There are no legal requirements that determine the layout or content of web portals in the Netherlands. The internationally recognised guidelines of the W3C consortium on accessibility, building quality and website sustainability are used as guidelines. Government organisations must apply these standards. If following the W3C guidelines is not possible, they must explain this in a transparent way.

The European Parliament recently adopted a new privacy act, which introduces three major changes to the processing of personal data. First of all, privacy authorities may impose fines of up to 4% of worldwide sales if a company is found to be in violation of the act. Additionally, if a site is found to be storing personal information in an unsafe manner or if there is a data leak, the violation must be reported to the national privacy authority, the Authority for Personal Data in the Netherlands. Finally, companies are also frequently obliged to conduct internal reviews. If a company wants to process a large amount of data at one time, it must first identify the possible risks. Large companies are required to appoint a "Chief Privacy Officer" (CPO) to oversee privacy issues within the company.

Another law that can affect OJV portals is the "right to be forgotten". In May 2016, the European Court decided that European citizens should be entitled to remove search results from search engines under certain conditions. This could include deleting profiles on OJV portals.

### 6.2. Format of OJVs

Different portals use different types of search functions. The PES portal, [werk.nl](http://werk.nl), has very simple search features based on job "function" and "distance". Other sites, like Jobbird, offer the option to search within categories, such as "function group" (essentially occupation), "province", "city" and "company".

Most OJVs, regardless of portal, include the following elements: "profile of the organisation", "description of the job function", "requirements for the function" (in terms of education and experience), the requested "skills profile", "working conditions" (including hours and wages), and information about how to apply.

### 6.3. Content of OJVs

OJVs in the Netherlands are generally published in Dutch, English and/or Frisian, the second official language in the Netherlands. Most of the governmental organisations in the province of Friesland post their vacancies in both the Dutch and the Frisian languages. Vacancies submitted to the PES must be written in Dutch. English language ads appear to be most common among multinational and international companies, who may post specific English-language job postings to job boards geared towards international students and expats. A study of English-only ads in Belgium and the Netherlands in 2007/2008 estimated at the time that one in seven job ads in the two countries are written entirely in English, reiterating again that this is most common for companies with

headquarters outside the region. It occurred at a rate 62 times higher for companies based out of the US or the UK than for companies based out of the low countries, and the rate was still nine times higher for companies based in other regions. English was also more common for English-oriented roles, such as corporate communication and IT. The study found that English-only ads were less common in the Netherlands than in Flemish-speaking Belgium. In addition the study found the English-only advertising is less common in the industrial sector (Zenner et al. 2015).

By contrast, a study in 2016 article from Hilberink-Schulpen et al. considered whether the use of English words in otherwise Dutch language OJVs influenced the reactions of Dutch-speaking viewers. The article notes that English words are commonly found in otherwise Dutch-language ads, citing that 88.5% of ads examined on a Dutch portal in 2004 used at least one English word. The English words used in Dutch OJVs often have Dutch equivalents and are not intended to indicate that the position requires English language ability. The experiment described in the article sought to track eye movement of Dutch readers encountering English words in Dutch OJVs to determine if this tactic is effective in catching the reader's attention. The experiment considered the following parts of an OJV considered standard: job title, job description, job requirements, headline, company information, offer, application procedure, logo, illustration, and end line, as readers supposedly attach varying levels of importance to the different sections. The study found that use of English in job ads did not attract additional attention, and the authors hypothesised that English is used and heard so commonly in the Netherlands that it does not necessarily stand out to job seekers the way that it might in places where English ability is more indicative of a particularly desirable or marketable skill. Because the use of language did not make a notable difference to the readers, this study was able to be used to extrapolate the importance of the different sections of OJVs for readers. It found that readers spend the most time and give the most attention to the job title, and secondarily to the job requirements and the job description, explaining that the content provided in the latter two sections does make a difference. Detailed job requirement and job description sections received more return views and, expectedly, longer views from job seekers (Hilberink-Schulpen et al. 2016).

Werk.nl gives examples of some phrases that are considered discriminatory as well as acceptable phrases that can be used to indicate similar candidate preferences. For example, if an employer is looking for someone young, they can ask for someone, "with a good condition, because of the nature of the work." Employers cannot specify that they are looking for students or school leavers, but they can ask for "flexible candidates or candidates who want to work outside office hours." One cannot specify interest in a person based on race, origin or originality, but an employer can write that they are looking for someone, "who knows the Turkish language or has an affinity with Turkish culture." Similarly, employers may not ask for individuals who speak Dutch without an accent, however, they can specify that they are looking, "for candidates who speak comprehensible and understandable Dutch or who have a good command of the Dutch language (in word and in writing)".

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

There are hardly any differences between the format and content of OJVs posted on public and private online job portals. For the public channel, however, all vacancies are classified according to

the international classification systems (BRC 2014 <sup>(14)</sup> based on ISCO) for sectors and professions.

## 6.5. Expected Trends in the Format and Content of OJVs

According to the interviewed experts, the design and function of OJVs will change from a basic matching instrument to a lifelong career-support instrument for a great number of workers. This will be accomplished through frequently updated CVs posted to multiple media channels including social media. Employers will do the same and will post not only their actual need for labour force, but also their expected future needs for personnel.

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<sup>14</sup> In Dutch “Beroepenindeling ROA CBS” 2014 (BRC 2014). This standard is based on the International Standard Classification of Occupations 2008 (ISCO 2008).

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## Expert Interviews

<b>Name of organisation</b>	<b>Type of organisation</b>	<b>Expert's position</b>	<b>Interview date</b>
<b>Job recruiter for the Dutch governmental OJV market</b>	Employment Agency	Senior Recruiter	30 May 2017
<b>Job recruiter for the Dutch governmental OJV market</b>	Employment Agency	Vacancy co-ordinator for the region North Netherlands	2 June 2017
<b>UWV</b>	National PES and labour market research agency	Senior labour market advisor and researcher	9 June 2017
<b>Private online job-portal</b>	Labour market intermediary	Market researcher	25 May 2017

## Annex: Methodology of the Labour Market Tension Indicator

Since October 2012, UWV has published the results of the Labour Market Tension Indicator. This indicator reflects the tension between supply and demand on the Dutch labour market.

**Methodology:** The base file for the labour market information is Jobfeed. This vacancies file is delivered to UWV by the company Textkernel. The vacancies are included to the PES OJV channel in werk.nl, so that registered job seekers can consult them. The file is also used as a source of labour market information.

More and more vacancies are on the Internet. Jobfeed crawls the internet looking for vacancies. The vacancy data are deduplicated and encrypted by Textkernel. This file contains a large part of the total number of vacancies that have been measured by CBS.

It is possible that some sectors publish relatively few vacancies on the Internet (e.g. the agricultural sector) and other sectors publish many vacancies online (e.g. ICT). The Jobfeed file is therefore weighted on a quarterly basis by sector and occupational level. The total number of vacancies is determined by CBS. In this way, consistency with CBS is achieved, and sectors can be compared with each other.

Then UWV derives the number of vacancies from this file. This total number of open vacancies is again consistent with the CBS. This is measured quarterly in order to increase the robustness of the data and to reduce the effect of rounding off.

The Labour Market Tension Indicator is calculated by dividing the number of vacancies by the number of unemployed jobseekers registered with UWV who have been unemployed for less than six months. The resulting ratio measures the outstanding demand compared to the immediately available supply. An important difference is that now the number of vacancies in the total job market is used, which is consistent with CBS.

**Outcome of the instrument:** The Labour Market Tension Indicator results in a number that is equal to or greater than zero. A higher number means there is higher tension on the labour market for employers. With an indicator of 0, the labour market is very large, because there are no vacancies or short-term unemployed people. With many vacancies in relation to the number of short-term unemployed people, the labour market is very tight. By performing a time series analysis, the boundaries are determined. It is based on a division into five categories: very spacious, spacious, average, tight and very tight.

The format is as follows:

- **0 to 0.25:** very spacious;
- **0.25 to 0.67:** spacious;
- **0.67 to 1.5:** average;
- **1.5 to 4.0:** tight;
- **4.0 or more:** very tight.

**Availability of the data:** Both the total number of vacancies and the Labour Market Tension Indicator are used in the various services of UWV. The number of vacancies is available by sector, profession (BRC 2014) and region (province and labour market region). The Labour Market Ten-

sion Indicator is available by profession (BRC 2014) and region (province and labour market region). In case of too little data, no data are presented due to the reliability and the Personal Data Protection Act. The data are available on a quarterly basis, approximately two to three weeks after publication of the CBS vacancy figures.

**Usefulness for users:** The Labour Market Tension Indicator provides detailed labour market information by professional group and region. The data are updated on a quarterly basis. It covers all sectors and all educational levels. The ratio of unfilled vacancies to immediately available offers gives an indication of the current tension on the labour market. It is no indication of future tension on the labour market. The division into BRC (ISCO) professional groups makes it possible to compare the indicator with the medium-term forecasts for individual occupations.

**Ingredients for a European LMI instrument:** For a European approach the next elements must be available on national level:

- A strong periodical vacancy research;
- Insight into the numbers of short-term unemployed;
- Reliable figures concerning the number of jobs.