

# *e-SKILLS IN EUROPE*

# **BELGIUM**

## **COUNTRY REPORT**

JANUARY 2014

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## Table of Content

<b>1 Overview.....</b>	<b>3</b>
<b>2 Indicators on innovation, competitiveness and ICT skills.....</b>	<b>4</b>
<b>3 E-skills demand and supply forecasts 2012 – 2015 - 2020 .....</b>	<b>6</b>
<b>4 Policy and major stakeholders initiatives .....</b>	<b>8</b>
<b>5 Selected multi-stakeholder partnerships .....</b>	<b>13</b>
<b>6 Success of e-skills policies and activities in meeting the objectives of the EU e-skills agenda and other relevant European initiatives .....</b>	<b>15</b>

# 1 Overview

There is evidence for a number of positive developments over the last ten years or so:

- A continuous increase in employment (for both employees and self-employed) in the IT service industry in Belgium, despite a slow-down after 2008.
- A growing concern for the image of ICT professions in the general public and among the youth – making the assumption that the disinterest of young people (female and male) for ICT curricula in higher education partly comes from a distorted or blurred image of the professions.
- From the point of view of the ICT industry: a growing interest from institutions of higher education to cooperate with industry in the adaptation of their training programmes.
- While the number of graduates in ICT in higher education had decreased continuously until 2008, the trend seems to have been reversed, as reflected in increasing figures since then.
- Continuous vocational training (in ICT competence centres, in evening classes) takes an increasing place in the provision of ICT professional skills. It enhances the opportunities of conversion or upgrade from other occupations towards ICT occupations, in a general context of growing unemployment and persisting shortage of ICT professionals.

These stand in contrast to various negative developments and newly emerging challenges that have become obvious in recent years:

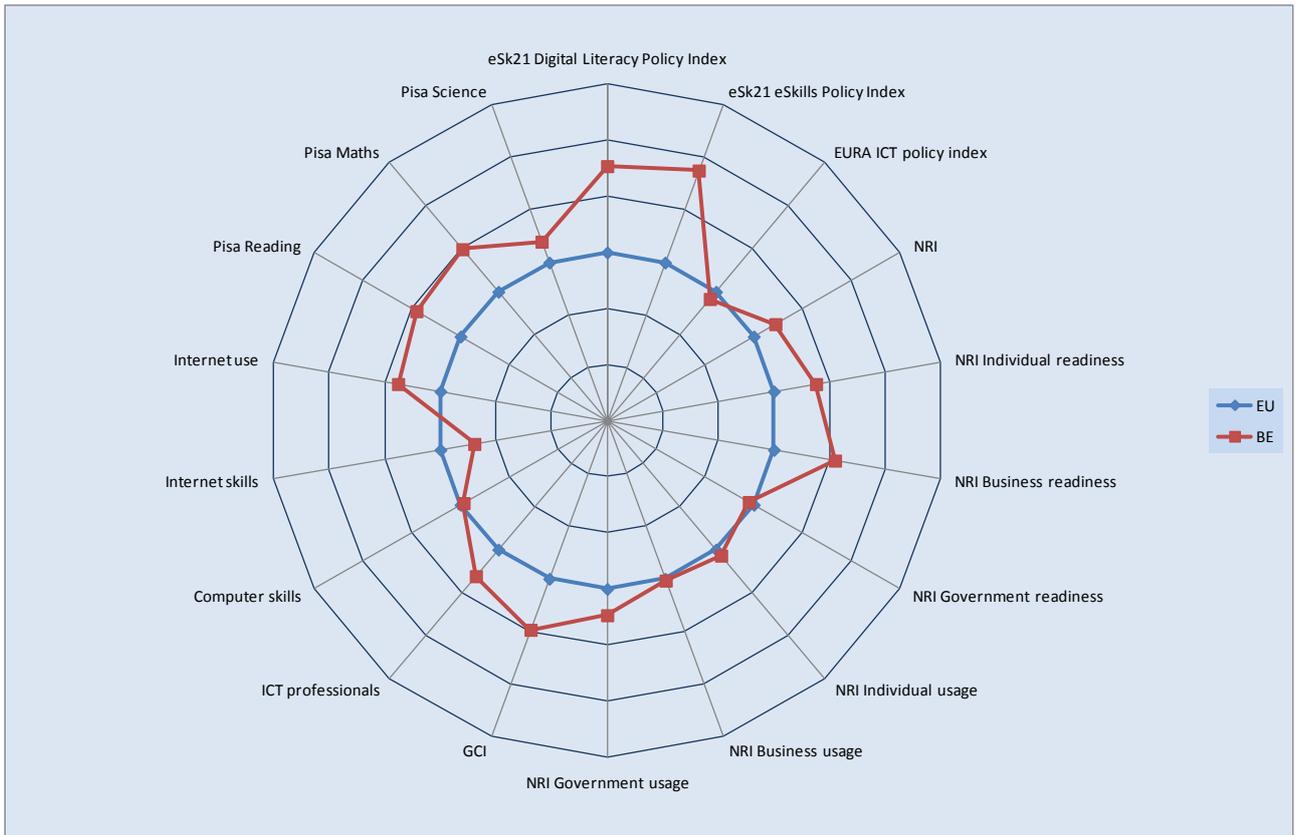
- Despite a positive effect of the Bologna reform on the simplification of the structure of ICT-degrees in higher education, the offer from the education system remains unclear, as well for young students as for employers (as recruiters).
- There is little sign of the skills shortage being reduced.
- The gender gap in ICT occupations has not been reduced.
- Although there is a general agreement among experts on the skills shortage, the existence of a skills gap is more controversial. Experts from the ICT industry claim that some skills are hugely missing (ICT business analysts, project managers), while other experts (mainly from the research side) highlight the role of career management within companies.

In sum, the outlook for the coming years is dominated by a number of challenges that need to be addressed in effective ways:

- Attracting more new students in ICT curricula in higher education;
- Improving human resource management (particularly career management) in the ICT industry;
- Financing the needs of the system of continued vocational training in ICT, which is until now the most efficient way to reduce the skills shortage (at least in the short-term).

## 2 Indicators on innovation, competitiveness and ICT skills

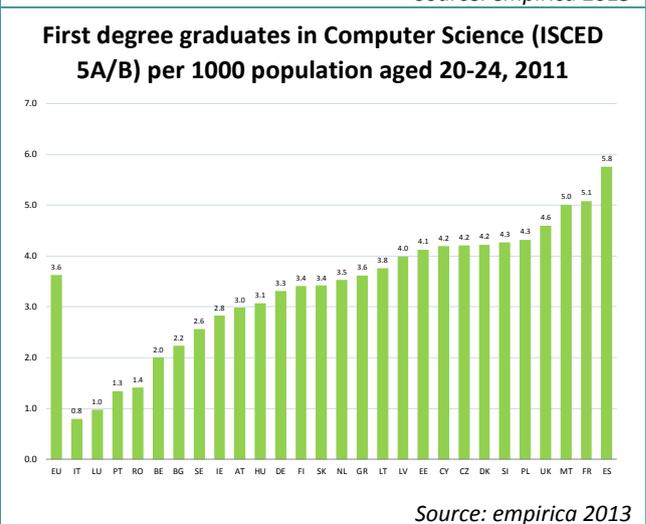
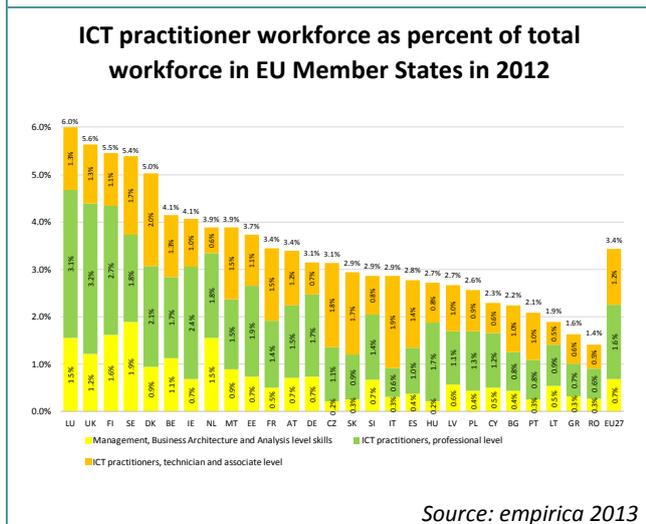
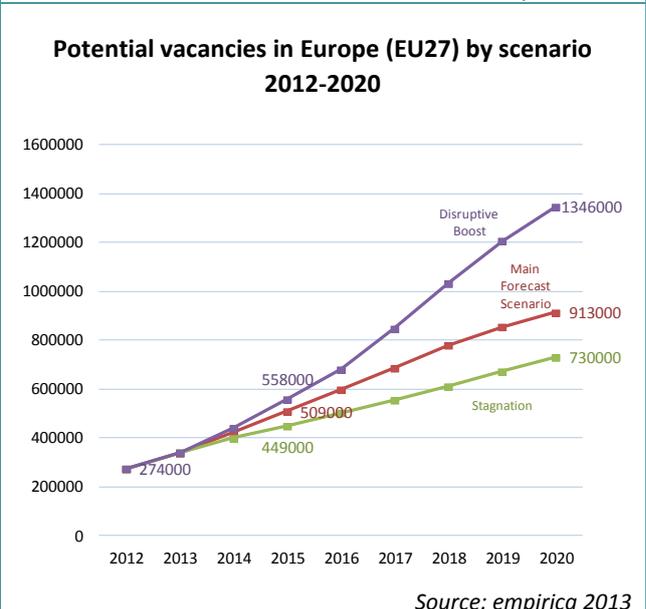
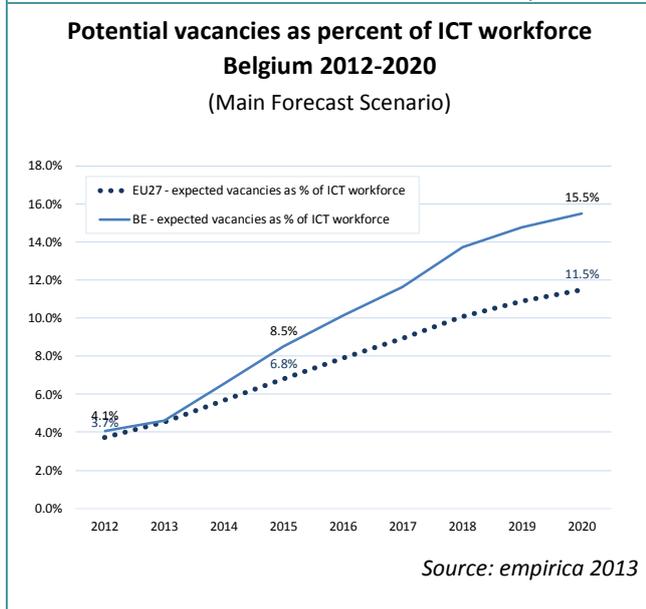
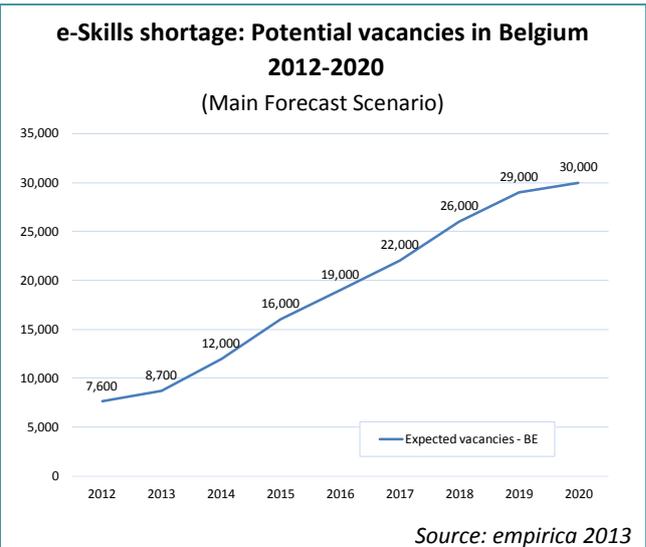
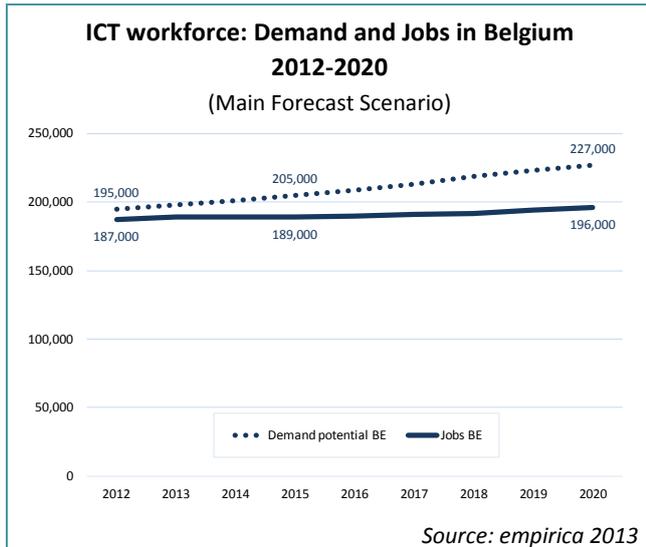
Belgium						
	Score 2009/2010	Rank 2009/2010	Score 2011/2012	EU27 Rank 2011/2012	Change (Rank)	Comment
eSkills21 study: 'e-skills' index 2010	4.5	2				Max.: 5.0
eSkills21 study: 'Digital literacy' index 2010	4.5	1				Max.: 9.0
EuRA e-skills index	3	16				Max.: 5.0
ICT practitioners in % of total employment 2012			4.14%	8		EU average: 3.43%
Digital literacy skills of the population 2009/11:						
• Individuals with high level of computer skills	18%	22	28%	14	↑	EU average: 28.52%
• Individuals with high level of Internet skills	5%	23	10%	18	↑	EU average: 13.67%
• Individuals using the Internet (last three months)	75%	8	82%	18	↓	EU average: 71.33%
Global Competitiveness Index (GCI) 2010/12	5.1	9	5.2	7	↑	Max.: 5.61 EU median: 4.52
Networked Readiness Index (NRI) 2010/12	5.0	11	4.8	10	↑	Max.: 5.6. EU median: 4.5
• Individual readiness	6.32	2	5.38	8	↓	
• Business readiness	5.67	5	5.17	5	↔	
• Government readiness	4.55	15	4.24	14	↑	
• Individual usage	4.37	9	5.1	10	↓	
• Business usage	5.55	9	3.79	12	↓	
• Government usage	4.55	15	4.49	11	↑	
PISA scores (2009) in:						
• Mathematics	515	3				EU median: 493
• Science	507	9				EU median: 498
• Reading	506	3				EU median: 489



### 3 E-skills demand and supply forecasts 2012 – 2015 - 2020

Belgium			
	BE	Rank EU27	EU27
ICT practitioner workforce 2012	187,000	9	7,403,000
ICT practitioner workforce 2012 as percent of total workforce	4.1%	6	3.4%
Assumed excess demand 2012	7,600	9	274,000
Forecast excess demand 2015	16,000	7	509,000
Forecast excess demand 2020	30,000	7	913,000
Forecast ICT practitioner jobs 2015	189,000	9	7,503,000
Forecast ICT practitioner jobs 2020	196,000	9	7,950,000
Workers 2012 - Management, business architecture and analysis level	51,000	9	1,477,000
... as percent of total workforce	1.1%	6	0.7%
Workers 2012 - ICT practitioners, professional level	78,000	9	3,393,000
... as percent of total workforce	1.7%	10	1.6%
Workers 2012 - ICT practitioners, technician and associate level	59,000	9	2,532,000
... as percent of total workforce	1.3%	10	1.2%
Growth core ICT workforce 2001-2010	5.7%	11	3.0%
Growth core ICT workforce 2008-2010	12.8%	2	2.6%
Growth core ICT workforce 2011-2012	5.8%	13	3.9%
Growth broad ICT workforce 2011-2012	-1.9%	22	1.8%
ISCED 5A/B first degree graduates in Computer Science, 2011	1,373	16	113,000
... graduates per 1000 population aged 20-24	2.0	23	3.6
... graduates 2011 as percent of 2006 (= peak EU)	55%	27	88%
Vocational training graduates in Computer Science, 2011	1,290	10	67,000

Sources and notes: see annex.



## 4 Policy and major stakeholders initiatives

In Belgium, most of the policy areas addressing ICT user skills and ICT practitioner skills belong to the competences of the federated bodies (Regions and Communities) rather than the federal government. Three policy areas can be distinguished: digital literacy, lifelong vocational training and retraining in ICT (user skills), and professional e-skills (practitioner skills and e-leadership skills). Recently (November 2012), a new impulse was given to a nation-wide coordination of these policies, when the Minister of Economy appointed as “**Digital Champion**” Ms Saskia Van Uffelen, general director of Bull Belgium. The Digital Champion is in charge of coordination and stimulation of e-skills and e-inclusion initiatives.

With regard to **digital literacy**, an extensive update of the information contained in previous reports can be found in the evaluation report of the national action plan against the digital divide 2005-2009. This national action plan is a framework programme, containing measures to be implemented either by federal or regional authorities. The evaluation was carried out in late 2010 and a report published by the Federal Public Service for Social Integration. The annex of the report contains a detailed inventory of existing initiatives in the three Regions. The evaluation report also suggests guidelines for future policy initiatives concerning digital literacy and e-inclusion, to be implemented mainly by Regions and Communities.<sup>1</sup>

**Lifelong vocational training** belongs to the policy competences of the three Regions, without any federal competence. It mainly addresses user skills. The key players are the public agencies for vocational training (VDAB in Flanders, FOREM in Wallonia and Actiris/Bruxelles Formation in Brussels). Lifelong vocational training in ICT user skills is well established for many years, as well for employees as for job seekers looking for skills upgrade or occupational conversion. The (long) list of training courses for ICT users in industrial and service occupations is available on dedicated web sites<sup>2</sup>. Training courses are organised either by the public agencies themselves, or by accredited partners, or through multi-stakeholders partnerships.

**Professional e-skills** also belong to the scope of Communities (universities and high schools) and Regions (ICT centres). University and high school curricula are separately managed in the French- and Flemish speaking parts of the country, without any common policy, except for European guidelines. Neither the Flemish nor the French-speaking Communities have implemented yet the European e-competence framework and its coupling with the European qualification framework. Works are in progress in Flanders, at the very beginning in Wallonia.

In the French-speaking Community, the Agency for Evaluation of the Quality of Higher Education (AEQES) carried out in 2011-2012 an evaluation of all computer science curricula at the master and bachelor levels, in universities and high schools. A transversal synthesis report is available, as well as reports for each institution, including specific recommendations for each of them.<sup>3</sup>

ICT competence or reference centres (Wallonia and Brussels), which are oriented towards lifelong education and vocational training for IT professionals, are multi-stakeholder partnerships, associating regional authorities, public employment agencies, business federations and trade unions. There is a rather strong tradition of multi-stakeholders partnerships in the area of e-skills in the three Regions of Belgium. A typical and long-standing example is FormaTIC, which is a partnership between the software industry, the ICT competence centres and the Joint committee (employers / trade unions) CP218, which covers the employees of the ICT sector.

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<sup>1</sup> Source: [http://www.mi-is.be/sites/default/files/doc/miis2010-02\\_final\\_fr.pdf](http://www.mi-is.be/sites/default/files/doc/miis2010-02_final_fr.pdf)

<sup>2</sup> [www.vdab.be](http://www.vdab.be) (home>carrieres>beroepeninfo>beroepenfiches); [www.leforem.be](http://www.leforem.be) (home>se former>acquérir des compétences); [www.bruxellesformation.be/formations-professionnelles.html](http://www.bruxellesformation.be/formations-professionnelles.html).

<sup>3</sup> Source: <http://www.aeqes.be/documents/20121108ATINFO.pdf>

Two additional public bodies must be mentioned, although e-skills are not their core business: the Walloon Agency for ICT (AWT) and the Flemish Institute iMinds (formerly Institute for Broadband Technology IBBT). Both institutions contribute to several multi-stakeholders partnerships, respectively in Wallonia and Flanders, and are involved in studies, surveys or awareness campaigns concerning the diffusion and use of ICT in companies and institutions.

Beyond governmental initiatives, several **multi-stakeholders partnerships** can be mentioned, many of them including **Agoria-ICT**, the business association representing the country's ICT sector. Agoria-ICT plays a key role in partnership building and awareness building in the e-skills area; it also develops its own expertise concerning business, education and labour market issues. Agoria-ICT runs an online platform about the e-skills topic, and is a major stakeholder in many of the most important Belgian initiatives in the area, as described in the next section. Agoria is also the national contact point for the European **e-Skills Week**. More generally, multi-stakeholders partnerships play a key role mainly in two areas: certification and awareness building.

**Certification:** Besides their ongoing partnership with Cisco Network Academy (Cisco Certification System) and SAP Academy, the ICT competence centres and several high schools have concluded agreements concerning the Microsoft certification scheme, following the recent installation of a Microsoft Innovation Centre (MIC) in Mons (2009). Conversely, the partnerships between ECDL and high schools, as well as between ECDL and FOREM and VDAB, were discontinued in 2009; the only remaining institutional partnership of ECDL in Belgium is Bruxelles Formation.

**Awareness-raising:** In the area of awareness building, several awareness campaigns can be mentioned during the past five years, pursuing various objectives:

- The joint campaign **JesuisfantasTIC** (IamfantastICT) of the Walloon agency for ICT (AWT) and the federation of SMEs (UCM) in Wallonia, addressing accountants, merchants, construction workers, the tourism and accommodation sector, transportation and logistics (2009-2011);
- The joint campaign of the MIC (Mons) and the Walloon ICT competences centres, to promote vocational training and certification.

Awareness campaigns addressing the youth include the following:

- The national campaign “**Digital expert**”, launched by Agoria in autumn 2011, in order to inform young people about the new jobs for the future. “Digital expert” is promoted as a new name for “computer professional” (*informaticien* in French, *informaticus* in Dutch), which are negatively and erroneously connoted by young people. The campaign has run until March 2012 and was supported by national radio coverage and social media.
- The national campaign “**Live online**”, launched by the Digital champion and her company (Bull).
- The campaign “**Un avenir qui vous sourit**” launched in 2010 by the business federation Agoria-ICT, and addressing French-speaking pupils at the end of secondary school. For Dutch speaking pupils, Agoria runs since 2009 the “CEOtour”.
- The **information booklet** of the Walloon Agency for ICT (AWT) on ICT professions and ICT practitioners’ skills.

The objective of increasing women's role in the ICT profession is driven forward by **Interface3**, the Belgian training centre for promotion of women's access to the ICT professionals domain. Interface3 seeks to expand and diversify the opportunities for female professionals in a labour market in which ICT practitioner skills are increasingly important. Active since 1988 in the area of equal opportunities in the professional world, the association is recognized and supported by many private and institutional partners for the quality and innovative nature of its training programmes. Courses are offered for free, made possible through the support of sponsors from the business and public sectors. One of the initiatives of Interface3 is the campaign **Informaticienne d’un jour**

(Women one-day computer professional), resulting from a partnership with Agoria-ICT. The campaign was designed as a means to attract more women in ICT education and training in the Brussels and Wallonia regions.

Activities focusing on **digital entrepreneurship** and **e-Leadership** have been driven mainly by **AWT** (Agence Wallonne des Télécommunications) in the Wallonie and **iMinds** in Flanders. **iMinds** is an independent research institute founded by the Flemish government to stimulate ICT innovation, with particular emphasis on entrepreneurs. The institute trains and coaches ICT entrepreneurs in Flanders via its 'Entrepreneurship and Valorization' program. In this context, iMinds offers a range of training, incubation and networking services that are supported by an active ecosystem of entrepreneurs, financial organisations, industrial partners and research departments in the region. Other stakeholders who are engaged in providing support to e-entrepreneurs include **ABE-BAO-BEA** in the Brussels region, **Cetic** and **Cluster TIC** in Wallonia, **Agentschap Ondernemen** in Flanders as well as **Sirris** and **Katalict** at national level.

#### Summary Assessment of Belgian e-Skills Activities: ●●●●

Belgium, in its regions, has well-established ICT competence/reference centres. The VET sector is well equipped with ICT infrastructure and ICT-related teacher and worker training measures. Especially the private sector accounts for the good rating of Belgium here, as it runs a host of activities including promotion / awareness raising, certification, and training measures.

#### Summary Assessment of Belgian Digital Literacy Activities: ●●●●

For digital literacy, Belgium had a national action plan against the digital divide over the period 2005-2009. It has been evaluated, showing largely positive results. Eurostat statistics suggest that these initiatives may have been contributing to the country's above-average performance in terms of share of the population with strong computer and Internet skills.

#### Summary Assessment of Belgian eLeadership & Digital Entrepreneurship Activities: ●●

No policy initiatives on e-leadership skills were identified, but some universities have started to offer e-leadership related courses. Moreover, both Wallonie and Flanders have set up institutions that provide targeted support to digital entrepreneurs.

Like in the precursor study<sup>4</sup> the assessment of the information gathered resulted in two activity indices, one for digital literacy and one for e-skills computed for each country. These were computed based on data from 2009 and 2013. The e-leadership skills activity index was computed only for 2013, as no data had been collected on this topic in 2009. In the following the focus will be on the e-skills activity index; we first mapped the e-skills activity index values against the Networked Readiness Index (NRI)<sup>5</sup> for each of the 27 Member States.

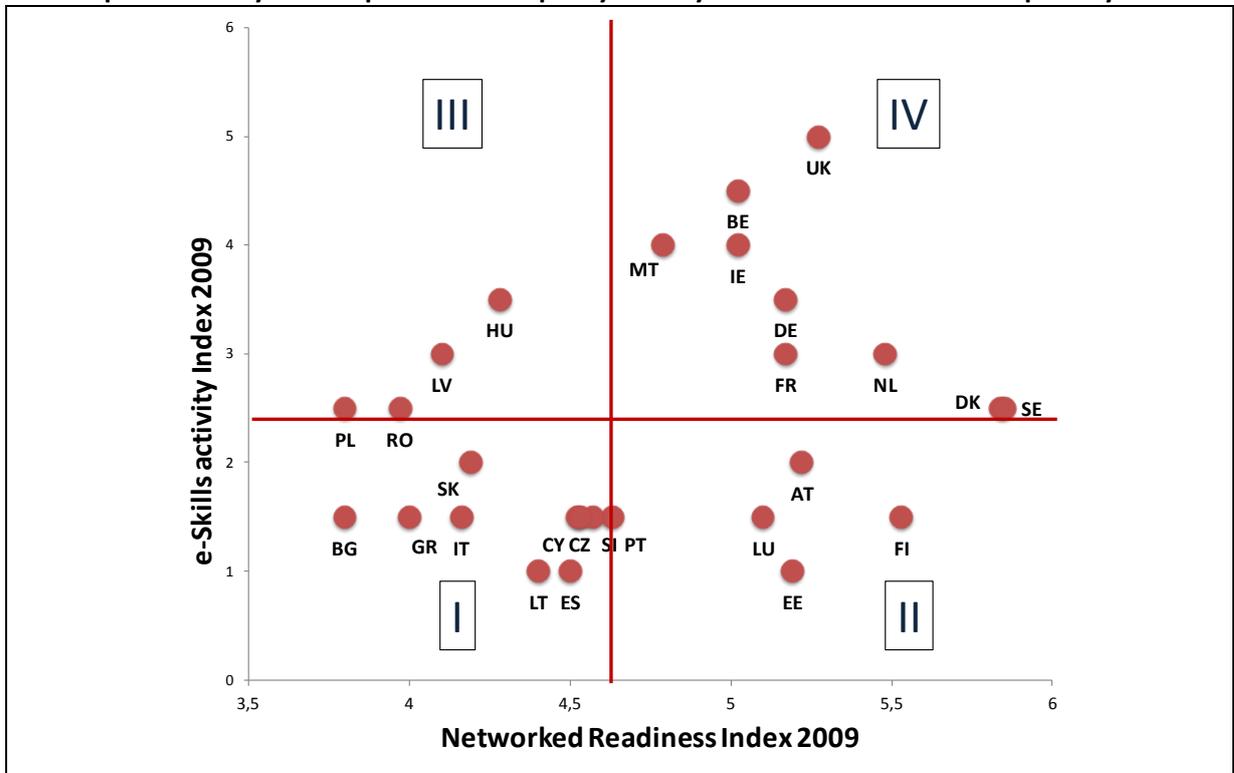
This allows for putting the results of the e-skills policy and activity analysis in the different countries in the wider context of each country's propensity to exploit the opportunities offered by ICT using data which can be obtained from the country values on the Networked Readiness Index (NRI).

<sup>4</sup> Hüsing, T. and Korte, W.B. (2010) "Evaluation of the Implementation of the Communication of the European Commission 'e-Skills for the 21st Century'", URL: [http://ec.europa.eu/enterprise/sectors/ict/files/reports/eskills21\\_final\\_report\\_en.pdf](http://ec.europa.eu/enterprise/sectors/ict/files/reports/eskills21_final_report_en.pdf)

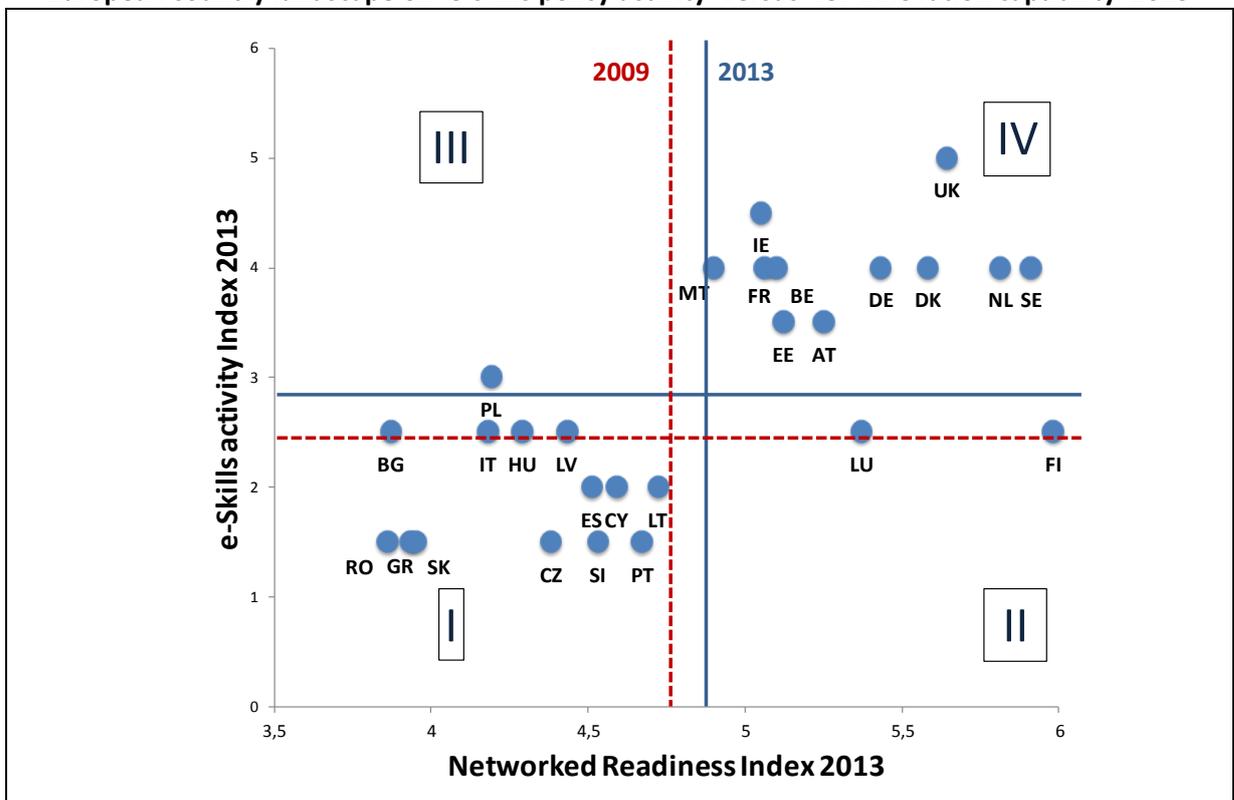
<sup>5</sup> The World Economic Forum's Networked Readiness Index (NRI) measures the propensity for countries to exploit the opportunities offered by ICT. It is published annually as part of the Global Information Technology Report. The NRI is a composite of three components: the environment for ICT offered by a given country (market, political and regulatory, infrastructure environment), the readiness of the country's key stakeholders (individuals, businesses, and governments) to use ICT, and finally the usage of ICT amongst these stakeholders. For further information on the NRI see [www.weforum.org/issues/global-information-technology](http://www.weforum.org/issues/global-information-technology).

The following figure allows a comparison of the results from this exercise for 2009 and 2013. In the graphical illustrations four quadrants are shown which are built by using the European averages on the NRI and those on the e-skills policy activity index for the respective years in order to group the countries into four main clusters.

**European country landscape on ‘e-skills policy activity’ versus ‘ICT innovation capability’ 2009**



**European country landscape on ‘e-skills policy activity’ versus ‘ICT innovation capability’ 2013**



Overall and for e-skills related policies and initiatives a strong increase of activity levels over the five-year time span can be identified. The unweighted average e-skills policy index score increased from 2.4 to 2.9 between 2009 and 2013. This is encouraging news.

Our analysis revealed that in 2009 three of the four quadrants are well populated by different countries with only 7 countries belonging to the group of top performers both, in terms of e-skills policy index as well as NRI, and 11 Member States constituting those best described as low activity countries (bottom left quadrant).

Five years later the situation has changed significantly; we are now faced with a situation which can be described as a dichotomy in Europe on these indicators: top performing countries as opposed to countries with low activity levels and NRI performance, with only three countries (Poland, Luxembourg and Finland) in transition phases between these clusters.

The group of top performers has grown from 7 to 11 with Sweden, Denmark, Austria and Estonia entering this cluster to which the United Kingdom, the Netherlands, Belgium, Ireland, Malta, Germany and France already belonged in 2009. However, the group of low activity countries is still substantial in terms of numbers of countries with 13 EU Member States – almost 50% showing a below average performance on the NRI and on the e-skill skills policy activity index.

EU Member States fall into two very distinct groups: 41% of the Member States are top performers, almost 50% are low activity countries, and 11% located between these two clusters.

While the former have been successful on the e-skills front and capable of exploiting ICT to become innovative and more competitive the latter group of low activity countries still has a rather long way to go to achieve both.

A look at the Member States' positions in the NRI ranking (Networked Readiness Index) reveals that again, those countries with high NRI positions also show high e-skills policy activity levels. The countries moving up in terms of migrating into the 'top performers' cluster include Sweden, Denmark, Austria and Estonia, as well as the Netherlands and France which managed to further increase their e-skills policy activity level.

Countries at the risk of losing ground include Hungary, Latvia and Romania which dropped down into the first cluster of countries, i.e. those lagging behind.

#### European country clusters on 'e-skills policy activity' versus 'ICT innovation capability' 2013

I : low NRI + Low level of e-skills policy activity	II : High NRI + low level of e-skills policy activity
Romania, Greece, Slovakia, Czech Republic, Slovenia, Portugal, Spain, Cyprus, Lithuania, Bulgaria, Italy, Hungary, Latvia	Luxembourg, Finland
III : Low NRI + high level of e-skills policy activity	IV : High NRI + high level of e-skills policy activity
Poland	United Kingdom, Ireland, Sweden, Netherlands, Denmark, Germany, Belgium, France, Malta, Austria, Estonia

## 5 Selected multi-stakeholder partnerships

The following is a list of multi-stakeholder partnerships of major relevance to the e-skills issue:

- The **CompeTIC project** concerning web occupations: a cross-boarder project between the Walloon Region and the French Region North-Pas-de-Calais, initiated by Technofutur TIC (the ICT competence centre in Charleroi, Belgium) and PRN (Pôle régional numérique Nord Pas-de-Calais, Lille, France). CompeTIC started in 2009 and has been concerned with mapping, identification and anticipation of e-skills for the web and multimedia sector. Its main objectives are to identify the "peripheral" occupations and professions in the digital industry, to map required skills and training needs and to anticipate trends in the regional labour market. The project also focuses on identifying core skills essential to entrepreneurs in the ICT sector, as well as for e-entrepreneurs. The project also contributes, by means of forecasting tools, to inform and assist organizations and institutions of initial and continuing training to adapt their services to industry needs. It is also to help guide young people and jobseekers to these sectors by awareness raising and information.
- The renewed **ICT Reference Centre Evoliris [selected as Good Practice]**: Today's ICT Reference Centre EVOLIRIS resulted from the merger in 2009 of former ICT training centres and the addition of a new function, i.e. observation of the labour market and job matching. Its main objectives are: a) Improve matching between ICT training supply and the needs of employers in the Brussels Region; b) Act as interface between all actors involved in ICT employment policies: education, training and labour market institutions; c) Coordinate the training supply from the various regional stakeholders; d) Support the training suppliers (project design, training organisation, follow-up of trainees, development of the training infrastructure). Main achievements so far have included: a) Identification of a set of "intermediate e-skills" demanded by employers: PC-network technician, network administrator, ICT help desk, web support, web developer; b) Organisation and coordination of vocational training activities (about 2,000 trainees/year in 2012, increase of 12% compared to 2011) for both employed workers and the unemployed; c) Job screening and job matching in ICT jobs; d) Serious online game 'InfiniTy" (awareness raising about ICT jobs among the youth); e) Reporting on supply and demand dynamics on ICT labour market in Brussels (last issue: 2011). Despite the complexity of the institutional system of the Brussels Region (overlapping institutional competences of the Region and the French/Flemish communities), EVOLIRIS has established itself as a major player and helped improve labour market transparency and tailoring of training measures to employer needs in the IT sector.
- **FORMATIC (Wallonie)**: "Formations pour demandeurs d'emploi dans le domaine des Technologies de l'Information et de la Communication (TIC)" is a programme providing professional e-skills training for job-seekers in the ICT domain in three regions of The Wallonie: Charleroi, Liège and Mons. The main stakeholders are: CEFORA, the study and training centre created by the Auxiliary National Joint Commission of Employees, which represents employers and trade unions in most of new industries and services of the information society; FOREM Formation, the public training agency for VET which role is to provide training courses according to the needs of the labour market; Talenteo, a training centre formed by the union representatives CNE SETCA and the ICT industry association Agoria; and local ICT competence centres in Charleroi Ciney, Liège, and Mons (Technofutur TIC, Technobel, Technifutur and TechnoClTé, respectively). Their main purpose is to help match demand of enterprises with available supply, and to seek ways how vacancies can be filled by persons in unemployment. Altogether 16 training programmes in ICT related subjects were offered to job seekers, all with some common features: They are qualifying and lead to a profession; including an internship in a company; relating to one or other aspect of ICT; free of charge. Course offers include: Network Administrator, e-Secretary, JAVA Developer, Web Developer, Intranet Applications

Developer, MS Certified System Administrator. Each course is aimed at a group of 12 jobseekers. Duration of the short courses is between 3 to 4 months, while long courses last for anything between 6 to 8 months.

## 6 Success of e-skills policies and activities in meeting the objectives of the EU e-skills agenda and other relevant European initiatives

The extent to which policies, initiatives and multi-stakeholder partnerships have been successful in helping meet the objectives of the EU e-Skills agenda and other relevant European e-Skills initiatives as seen by national experts is further described below along key actions and action lines of the EU e-Skills strategy and other relevant EU initiatives.

### ***“Longer term cooperation”***

Although e-skills mainly belong to competences of the Regions and Communities, the Federal Ministry for the Economy (SPF/FOD Economy) has recently improved its coordinating role at the national level, not only through the appointment of the Digital Champion, but also through various workshops gathering the key players from the Regions.

The business federation of the ICT sector (Agoria ICT) is at the centre of several initiatives in cooperation with public authorities, universities and companies. The development of e-skills is one of its focuses.

In vocational lifelong training, most of the successful and long-standing initiatives take the institutional shape of multi-stakeholders partnerships, including multi-stakeholders financing.

### ***“Human resources investment”***

There are few fiscal or financial incentives for lifelong vocational training that are specific to ICT. Most of the existing instruments are generic. The most stable instruments are the training vouchers. The principle of training vouchers is the same in the three Regions: the employer gets a reduction of social security contributions, while the worker gets a cheaper access to training; the practical aspects (amounts, percentage of tax refund, conditions of access) are however different in the three Regions. The Brussels Region is the only one where there is a specific regime for ICT training vouchers.

The process of Validation of acquired experience (VAE) in higher education and evening classes is in progress in all Regions and Communities. For the very last years, several universities and high schools have implemented specific bridges to facilitate access to bachelor or master degrees in ICT, taking into account the experience acquired in work. This is the case of all evening classes in high schools at the bachelor level, as well as for evening classes at the master level in ICT in the universities of Brussels, Namur and Mons.

### ***“Attractiveness of ICT jobs”***

Several information and awareness campaigns were implemented during the past years, from various sources: the ICT industry (Agoria ICT), public employment agencies, AWT, universities, non-profit organisations involved in ICT training, the federal institute for equal opportunities (concerning women in ICT), etc.

The question remains to what extent these initiatives have had an impact on career choices. A thorough evaluation of the various campaigns has not been undertaken, and the situation concerning e-skills gap/mismatch (including the gender gap in e-skills) does not appear to have improved much. For example, according to Agoria ICT, the increase in students' enrolment in the first year of higher education in ICT in September 2012 could be partly attributed to the success of its campaign “Digital experts” in 2011.

### ***“Employability and e-inclusion”***

Following the long governmental crisis in 2010-2011 and the current budget restrictions, the inter-ministerial proposal for a new phase of the national action plan for e-inclusion 2011-2015 is still frozen. A framework plan exists, but it is not yet implemented, except for two calls for projects on ICT for activation of unemployed.

Concerning ICT training for the unemployed, the long standing initiatives of the Flemish VDAB (Aangename kennismaking met ICT) and the Walloon Region (Plan mobilisateur TIC, [www.pmtic.net](http://www.pmtic.net)) are still ongoing, but they are in reform, because they need to find a second wind, including a renewal of their methods and of their target public.

### ***“Lifelong acquisition of e-skills”***

Both the network of Walloon ICT competence centres and the Brussels ICT reference centre Evoliris decided, in 2011-2012, to reinforce their ICT training supply for workers, in a perspective of lifelong vocational training. In the Walloon network, new programmes were set up for the year 2012-2013, in order to attract more workers in training; however, the network lost a large part of its public subventions for teachers training in ICT.

### ***“Closing the e-Skills gap”***

The shortage in ICT professionals is recurrent in Belgium, and has not decreased for many years, despite many efforts on the education side. The major part of the efforts (awareness building, incentives) is concentrated on the supply side: attracting more students or trainees, improving the training contents, adapting the bachelor and master curricula to recommendations from the ICT sector, etc.

However, few efforts are devoted to changes in the demand for e-skills: recruitment strategies of companies and institutions, wage policies, role of the mediating institutions in the labour market. In this area, the most significant progress consists of the publication of skills reference frameworks, which should facilitate the elaboration of profiles, and improve the recruitment practices and career paths.

The most widespread estimations of the e-skills gap is that from the business federation Agoria-ICT, based on its own annual survey among affiliated companies. Agoria regularly highlights the shortage of ICT professionals, for which the number was estimated to be 9,300 persons at the end of 2011<sup>6</sup> and 11,700 in 2013<sup>7</sup>. Agoria has calculated that if all vacancies for ICT functions could be filled, Belgium's GDP would increase by as much as € 1.3 billion.

According to the source, the three types of ICT specialists most in demand are Business ICT Analysts and Consultants (3,472 unfilled vacancies in 2013), Systems and Application Software Developers (1,853), and Infrastructure Operations and Maintenance Engineers (1,051).

The ICT reference centre Evoliris (Brussels Region) also studied the supply and demand of e-skills in Brussels<sup>8</sup>. According to Evoliris, Brussels and its close surroundings (located in Flemish or Walloon Brabant) represent more than 50% of the labour market of ICT professionals in Belgium.

Other estimates are provided by the specialised recruitment agency ITjob. They also differ from Agoria estimations: For example, Business ICT Analysts only represent 9% of unfilled vacancies, against close to one third according to the Agoria figures.

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<sup>6</sup> <http://e-skills.agoria.be>

<sup>7</sup> <http://www.agoria.be/FR/La-Belgique-recherche-11-700-Digital-Experts-157102>. Between 2006 and the end of 2011, the number of ICT practitioners in Belgium increased by 15% to 157,100.

<sup>8</sup> [http://www.evoliris.be/evoliris/Uploads/Le\\_marche\\_de\\_l\\_emploi\\_TIC\\_bruxellois\\_09\\_10.pdf](http://www.evoliris.be/evoliris/Uploads/Le_marche_de_l_emploi_TIC_bruxellois_09_10.pdf)

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For the European Commission  
DG Enterprise and Industry



## Annex: data sources

	Source
eSkills21 study: 'e-skills' index 2010	eSkills21 study carried out by empirica. Report available at <a href="http://goo.gl/WKV7r">http://goo.gl/WKV7r</a>
eSkills21 study: 'Digital literacy' index 2010	
EuRA e-skills index	EU-RA 2009: Financial and fiscal incentives for e-Skills: State of play in Europe. Synthesis report. <a href="http://www.e-skills-funding.com/images/stories/PDF/synthesisreport.pdf">http://www.e-skills-funding.com/images/stories/PDF/synthesisreport.pdf</a>
ICT practitioners in % of total employment 2012	LFS data made available by Eurostat
Digital literacy skills of the population 2009/11:	Eurostat, database "isoc_ski"
• Individuals with high level of computer skills	
• Individuals with high level of Internet skills	
• Individuals using the Internet (last three months)	
Global Competitiveness Index (GCI) 2010/12	The Global Competitiveness Report 2011-2012: <a href="http://www.weforum.org/reports/global-competitiveness-report-2011-2012">http://www.weforum.org/reports/global-competitiveness-report-2011-2012</a>
Networked Readiness Index (NRI) 2010/12	The Global Information Technology Report 2011-2012: <a href="http://www.weforum.org/issues/global-information-technology">www.weforum.org/issues/global-information-technology</a>
• Individual readiness	
• Business readiness	
• Government readiness	
• Individual usage	
• Business usage	
• Government usage	
PISA scores (2009) in:	OECD, <a href="http://www.oecd.org/pisa/">http://www.oecd.org/pisa/</a>
• Mathematics	
• Science	
• Reading	

Indicator	Source	Further remarks
ICT practitioner workforce 2012	Eurostat Labour Force Survey. Some imputations and assumptions not in the original data but done by empirica apply	The definition can be looked up in the final report, Gareis et al. 2014: E-SKILLS: MONITORING AND BENCHMARKING POLICIES AND PARTNERSHIPS IN EUROPE.
ICT practitioner workforce 2012 as percent of total workforce		LFS based, number of ICT practitioners / number of workers in all occupations
Assumed excess demand 2012	Empirica, IDC	This is calculated using the percentage of vacancies per existing job and is based on a survey carried out in 2012. As some countries were not covered, several assumptions apply
Forecast excess demand 2015		Forecasts are scenario based and the methodology can be found in the final report (see above). Forecast of demand in the six largest countries (DE, UK, FR, IT, ES, PL) is based on country specific economic scenarios, for the 21 smaller countries only an aggregate scenario was developed and figures allocated according to ICT employment shares.
Forecast excess demand 2020		
Forecast ICT practitioner jobs 2015		
Forecast ICT practitioner jobs 2020		
Workers 2012 - Management,	Based on Eurostat Labour Force	LFS based, definitions can be looked up in the final

business architecture and analysis level	Survey, some definitions and calculation by empirica. Some imputations and assumptions not in the original data but done by empirica apply.	report.
... as percent of total workforce		
Workers 2012 - ICT practitioners, professional level		
... as percent of total workforce		
Workers 2012 - ICT practitioners, technician and associate level		
... as percent of total workforce	Based on Eurostat Labour Force Survey, some definitions and calculation by empirica. Some imputations and assumptions not in the original data but done by empirica apply.	ISCO-88 groups 213 and 312. Due to the break in series in 2010/11 only partly comparable to later data.
Growth core ICT workforce 2001-2010		
Growth core ICT workforce 2008-2010		
Growth core ICT workforce 2011-2012		ISCO-08 groups 25 "ICT professionals", 35 "Information and communications technicians".
Growth broad ICT workforce 2011-2012		Equals the "ICT practitioner workforce"
ISCED 5A/B first degree graduates in Computer Science, 2011	Eurostat, database "educgrad_5"	This figure represents a count of first degrees in ISCED 5A and first qualifications in 5B. See discussion of this indicator in the final report.
... graduates per 1000 population aged 20-24	Eurostat, databases "educ_grad5" and „demo_pjangroup"	Graduates as above. The denominator is used to make data comparable but there is no age restriction in the number of graduates. Some imputations and assumptions may apply.
... graduates 2011 as percent of 2006 (= peak EU)		
Vocational training graduates in Computer Science, 2011	Eurostat, database "educ_grad5"	Number of Computing graduates in Upper secondary education (level 3) - pre-vocational and vocational programme orientation and Post-secondary non-tertiary education (level 4) - pre-vocational and vocational programme orientation. Some imputations and assumptions may apply.