

# ***e-SKILLS IN EUROPE***

## **IRELAND**

### **COUNTRY REPORT**

JANUARY 2014

#### **Disclaimer**

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# 1 Overview

Within the ICT sector in Ireland there is an integrated effort by government agencies, professional bodies, academia and employers to address the perceived ICT skill gap up to 2018. These are documented in the umbrella document "ICT Action Plan". A Key Target is doubling the annual output from honours degree ICT undergraduate programmes to 2,000 graduates by 2018. Projected output in 2011 is approximately 1,000 graduates.

Current skills recruitment difficulties mainly relate to high-level ICT Honours Bachelor Degree (Level 8) and above, according to research conducted by Forfas / Expert Group on Future Skills Needs (EGFSN). These difficulties result from a steep decline in the domestic supply of ICT graduates over recent years. Year 2010 acceptances for Level 8 computing programmes remain 20% less than for year 2000, although the numbers of acceptances have increased by 29% over the last three years. Companies are sourcing approx 55% of their high-level ICT skills supply needs (for expansion and replacement needs) through inward migration, although with increasing difficulty, as these skills are also in high demand globally, for example, Germany currently has 400,000 unfilled vacancies in 'MINT' business areas, Maths, Informatics, Natural Sciences and Technology.

While the annual increase in the ICT sector employment (+4% for 2010) is modest, an increasing share of employment within the sector is being accounted for by people with high-level skills. This is a result of a shift in subsector employment from hardware towards software; a general shift in the skills mix; and a pattern of simultaneous creation and loss of jobs, resulting in lower-skilled jobs being replaced with higher-skilled ones. There is a resilient demand arising within the ICT sector due to:

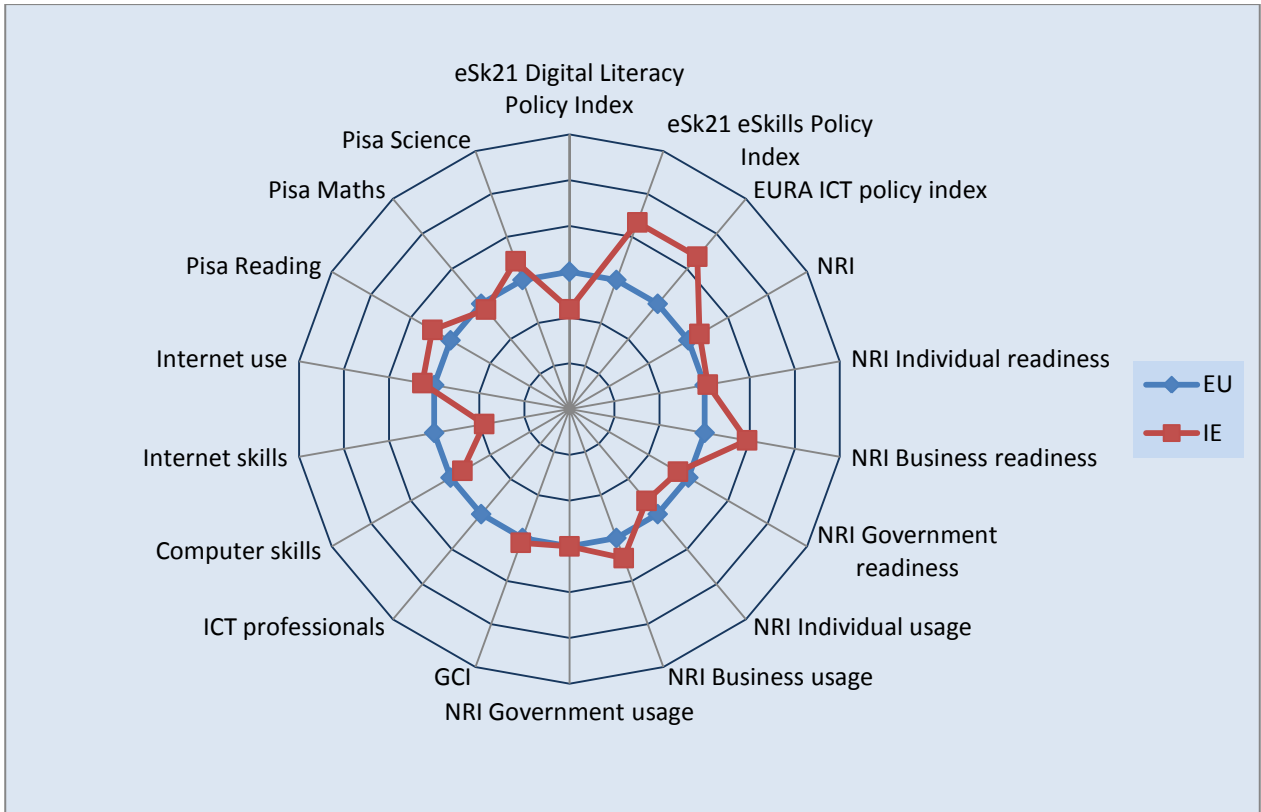
- An expansion of the business operations of companies over the last year, inflow of foreign R&D investment and formation of new start-ups;
- Potential for foreign companies to win mobile investment from the parent company and the availability of high skilled personnel to enhance their business proposition;
- An increasing share of employment within the sector comprises staff with high-level skills, a result of a movement of business activity from hardware towards software services and an ongoing pattern of simultaneous job creation.

Immediate skills demand is at (i) graduate-entry level; (ii) ICT professionals with 2-8 years experience; and (iii) ICT professionals with 8+ years experience (while smaller in number, their recruitment is linked to the additional hiring of a team of graduate and professional staff). This requirement varies across companies. It ranges from those looking only for level 8 graduate-entry staff, to those seeking a balance between new graduates and experienced personnel. There are some companies seeking only postgraduates (MSc and PhDs) and specialised personnel with several years experience, for example, software development architecture professionals with 15 years experience.

On the other hand, discussions with companies indicate that they are continuing to fill a substantial number of managerial, professional, administrative and sales and marketing positions without too much difficulty, especially firms located in main commercial centres.

## 2 Indicators on innovation, competitiveness and ICT skills

Ireland						
	Score 2009/2010	Rank 2009/2010	Score 2011/2012	EU27 Rank 2011/2012	Change (Rank)	Comment
eSkills21 study: 'e-skills' index 2010	4	4				Max.: 5.0
eSkills21 study: 'Digital literacy' index 2010	2	20				Max.: 9.0
EuRA e-skills index	4.8	3				Max.: 5.0
ICT practitioners in % of total employment 2012			4.07%	7		EU average: 3.43%
Digital literacy skills of the population 2009/11:						
• Individuals with high level of computer skills	22%	17	26%	16	↑	EU average: 28.52%
• Individuals with high level of Internet skills	3%	25	7%	25	↔	EU average: 13.67%
• Individuals using the Internet (last three months)	65%	13	75%	25	↓	EU average: 71.33%
Global Competitiveness Index (GCI) 2010/12	4.8	11	4.77	11	↔	Max.: 5.61 EU median: 4.52
Networked Readiness Index (NRI) 2010/12	5.0	11	4.71	13	↓	Max.: 5.6. EU median: 4.5
• Individual readiness	6.04	10	5.09	15	↓	
• Business readiness	5.63	6	5.08	7	↓	
• Government readiness	4.66	13	4.13	17	↓	
• Individual usage	3.95	12	4.78	15	↓	
• Business usage	5.14	14	4.05	11	↑	
• Government usage	4.66	13	4.17	16	↓	
PISA scores (2009) in:						
• Mathematics	487	17				EU median: 493
• Science	508	7				EU median: 498
• Reading	496	8				EU median: 489

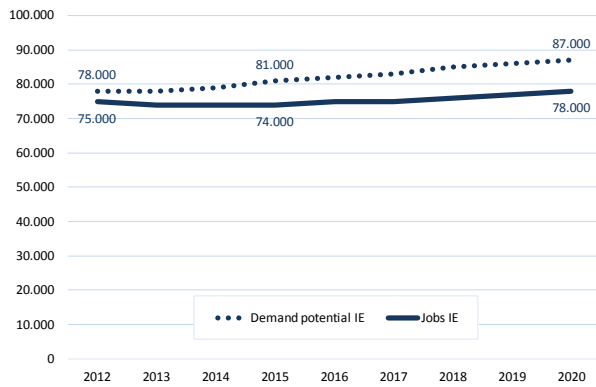


### 3 E-skills demand and supply forecasts 2012 – 2015 - 2020

Ireland			
	IE	Rank EU27	EU27
ICT practitioner workforce 2012	75,000	17	7,403,000
ICT practitioner workforce 2012 as percent of total workforce	4.1%	7	3.4%
Assumed excess demand 2012	3,000	16	274,000
Forecast excess demand 2015	6,100	14	509,000
Forecast excess demand 2020	8,800	13	913,000
Forecast ICT practitioner jobs 2015	74,000	17	7,503,000
Forecast ICT practitioner jobs 2020	78,000	17	7,950,000
Workers 2012 - Management, business architecture and analysis level	13,000	14	1,477,000
... as percent of total workforce	0.7%	12	0.7%
Workers 2012 - ICT practitioners, professional level	44,000	16	3,393,000
... as percent of total workforce	2.4%	4	1.6%
Workers 2012 - ICT practitioners, technician and associate level	19,000	20	2,532,000
... as percent of total workforce	1.0%	15	1.2%
Growth core ICT workforce 2001-2010	2.8%	17	3.0%
Growth core ICT workforce 2008-2010	6.7%	3	2.6%
Growth core ICT workforce 2011-2012	5.3%	14	3.9%
Growth broad ICT workforce 2011-2012	7.2%	8	1.8%
ISCED 5A/B first degree graduates in Computer Science, 2011	865	19	113,000
... graduates per 1000 population aged 20-24	2.8	20	3.6
... graduates 2011 as percent of 2006 (= peak EU)	75%	20	88%
Vocational training graduates in Computer Science, 2011	75	20	67,000

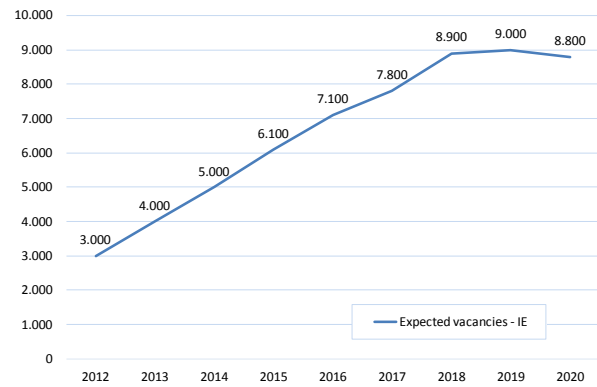
Sources and notes: see annex.

### ICT workforce: Demand and Jobs in Ireland 2012-2020 (Main Forecast Scenario)



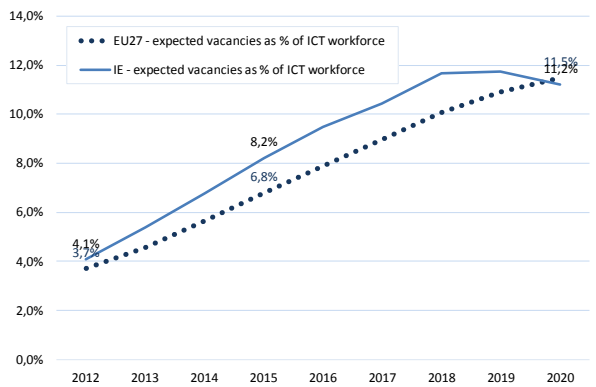
Source: empirica 2013

### e-Skills shortage: Potential vacancies in Ireland 2012-2020 (Main Forecast Scenario)



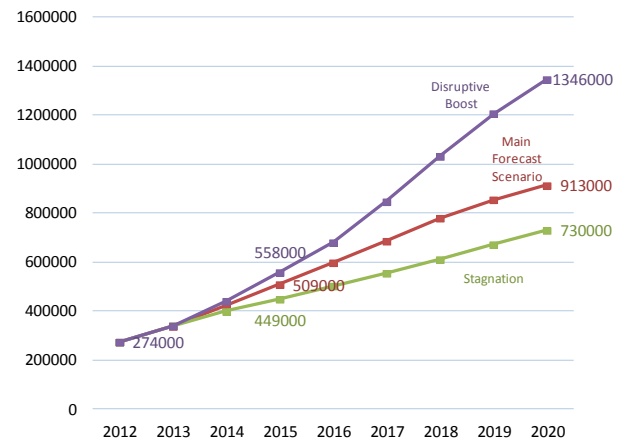
Source: empirica 2013

### Potential vacancies as percent of ICT workforce Ireland 2012-2020 (Main Forecast Scenario)



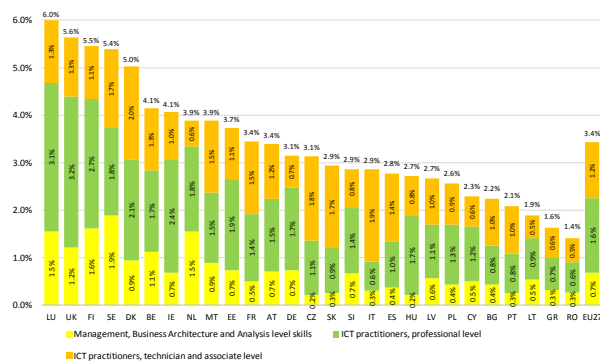
Source: empirica 2013

### Potential vacancies in Europe (EU27) by scenario 2012-2020



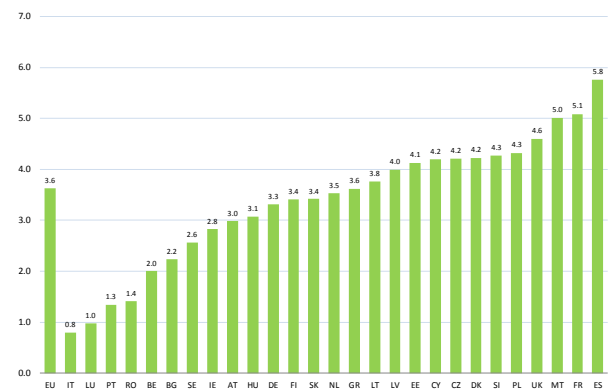
Source: empirica 2013

### ICT practitioner workforce as percent of total workforce in EU Member States in 2012



Source: empirica 2013

### First degree graduates in Computer Science (ISCED 5A/B) per 1000 population aged 20-24, 2011



Source: empirica 2013

## 4 Policy and major stakeholders initiatives

The annual **Action Plan for Jobs** is a whole of Government response to methodically and deliberately reconfigure and retool the economy so that long term sustainable jobs are created. The **Action Plan for Jobs 2013** includes a range of relevant objectives and related actions:

- Make Ireland the most attractive location in the world for ICT Skills availability ensuring continued success of ICT sector, by providing an additional 2,000 ICT graduate level professionals in 2013;
- Increase the number of businesses trading online;
- Building competitive advantage by aligning skills with enterprise needs;
- Providing sectoral opportunities: Cloud Computing (as a source of exports, growth and jobs; opportunities and benefits for indigenous enterprises; government usage of cloud computing; and business environment and key infrastructures);
- Continuing to implement the **International Education Strategy**, encouraging more students to study in Ireland, driving revenue, growth and jobs

The main stakeholders involved Department of Jobs, Enterprise and Innovation (Forfás); the Department of Public Expenditure and Reform; the Department of the Taoiseach; the Science Foundation Ireland; Enterprise Ireland; IDA Ireland; the Department of Communications, Energy and Natural Resources and the Irish Payment Services Organisation (IPSO).

The Action Plan for Jobs makes use of financial support from the Structural Funds (under the European Social Fund/European Structural Funds Programme 2007-2013) e.g. to provide training to long-term unemployed workers. This so-called **MOMENTUM** scheme funds the provision of free education and training projects to allow a total of 6,500 long-term unemployed (12 months or more) to gain skills which are currently in demand on the labour market. The scheme also provides links to identified job vacancies and employers, work placement and support, as well as relevant industry and NFQ (National Framework of Qualifications) Certification. MOMENTUM is used for training ICT practitioner skills in direct response to demand expressed by employers.

The Irish **ICT Action Plan** is intended as an "integrated effort by government agencies, professional bodies, academia and employers to address the perceived ICT skill gap up to 2018". These are documented in the umbrella document "ICT Action Plan"<sup>1</sup>, drafted by the Higher Education Authority (Department of Education) and Forfás' Policy Advisory Board in cooperation with ICT Ireland (representative body for the technology sector in Ireland), the Irish Software Association (representative body for the digital and software technology sector in Ireland) and the American Chamber of Commerce Ireland (representing US-based multinationals in the ICT sector with strong activities in the country). The overarching target is to double the annual output from honours degree ICT undergraduate programmes to 2,000 graduates by 2018 (projected output in 2011 is approximately 1,000 graduates). This target is divided into the following themes: Upskilling and conversion responses; Attracting more students to ICT, Improving retention and quality; Alignment of higher education programmes to changing needs. These include objectives in the following areas:

- Maximising uptake in courses for skilled but unemployed people;
- Increasing the national internship scheme;
- Conversion courses at degree and masters level;
- In-house vocational training;

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<sup>1</sup> [http://www.heai.ie/files/ICT\\_AP.pdf](http://www.heai.ie/files/ICT_AP.pdf)



- Encouraging higher mathematics at leaving Certificate level;
- Teacher training;
- Within 2nd level internships;
- 2nd level mathematics curriculum.

The “ICT Action Plan” builds upon earlier achievements of the various stakeholders including:

- Reskilling jobseekers at honours degree or above on ICT programmes; 400 graduates in 2012 and a further 1,500 in 2013;
- An increase in 35% in the number of Leaving Certificate students (2nd level) presenting for the higher level maths paper in 2012;
- An increase in demand for third level technology courses, to one fifth of all level 8 first preferences applications in 2012 and an increase of 12% in first preference applications for level 8 computer programmes in 2012;
- The establishment of an ICT Skills Foresight group with high level representatives from industry, higher education institutions and the enterprise development agencies, with a specific remit to ensure higher education programme development is aligned to emerging skills needs;
- A post graduate Professional Diploma in Mathematics for Teaching for “out of field” maths teachers commenced in 2012 with 390 places
- Revised curriculum time requirements for literacy and numeracy and standardised testing in English and Mathematics introduced in primary schools 2012. Full roll out continues.

To ensure future needs will be met a research project will shortly be announced by Forfás about how to address the future demand of high-level ICT skills across all sectors of the economy.

The main actions within the Plan, most of which refer to the continuation of up-and running programmes, include the following:

- **Springboard:** This is a scheme for providing free education to Masters level. The current target is to maximize uptake of 1,400 available places on Springboard 2011 ICT programmes providing qualifications from L6 to L9 NFQ.
- **Jobbridge National Internship Programme:** This is a country-wide internship scheme. The current target is to maximize the number of internship places to be made available for unemployed graduates including Springboard participants.
- **Level 8 Conversion Programme:** The current target is to launch 1-year full time HDip L8 Conversion Programme in core computing/programming skills (see also description in next section).
- **Review of Graduate Skills Conversion Programme:** The target here is to secure 1,700 places annually on Masters Degree level, plus programmes directed at needs of ICT/Biopharma sector.
- **Skillnet:** This is a state funded, enterprise-led support body dedicated to the promotion and facilitation of training and upskilling as key elements in sustaining Ireland's national competitiveness. The current target is to establish the Core Training Network Programme (TNP) and the new Job Seeker Support Programme (JSSP) with work placements; and to introduce three ICT training courses under new Future Skills Needs Programme (FSNP).

With regard to ensuring an increased output of appropriately skilled graduates in the medium term (2015-2018), the Action Plan includes measures for:

- Introduction of bonus points for students taking higher level maths;

- Promotion of career opportunities to parents as well as second and third level students including ICT and Foreign Languages;
- Rollout of the Smart Futures Campaign (see description in next section);
- Further promotion of Transition Year related programmes: ICT Ireland and ISA in association with careers portal to launch transition year internship programme; Support awareness raising in schools of TY opportunities in internship programme;
- Promotion of Undergraduate Work Placements;
- Implementation of a New National Numeracy and Literacy Strategy.

Other key initiatives in the e-skills domain include **Smart Futures**, a national campaign for second-level students in Ireland, highlighting career opportunities in STEM sectors such as medical devices, information and communications technology (ICT) and energy; **Discover Science + Engineering**, a national science promotion programme; and **Scratch**, an Irish Software Engineering Research Centre outreach programme to encourage students to discover and learn about computing and software development.

The **High Level ICT Foresight Group** is currently establishing and engaging in ICT and Electronic Engineering programme development with representation from key Industry and HEI decision makers.

**Fast Track to IT (FIT)** is a long-established initiative building on collaboration with major indigenous and international companies along with government departments and training agencies. FIT is committed to equip job seekers, especially those at risk of long term unemployment, with ICT practitioner skills to compete effectively in the marketplace. FIT is partnering with industry to develop appropriate market-led curricula, engages with state training agencies [FAS, VECs] in the provision of training and collaborates with the Department of Social and Family Affairs and local development agencies to mobilise and recruit marginalised job seekers. FIT has been running since 1999. See description in next section.

The **Irish Computer Society** is a key stakeholder in provision of ICT related education in the country. The following national initiatives are supported by the ICS and are in addition (some overlap) to those described in the ICT Action Plan:

- **ECDL** (achievement: 25% of all secondary level students now complete the ECDL);
- **Junior Certificate Curriculum**: When ready, these courses will consist of 100 hrs training, chosen from a selection of 8 X 25 hour modules. Two modules have been developed and are currently being piloted in 40 schools; two further modules will be available in September 2013;
- **F1 in schools**: A global multi-disciplinary competition that challenges secondary school students to design, build and operate miniature racing cars;
- **Choose IT**, a recourse to inform prospective students about IT training (at all levels) and careers;
- **ICS Leadership Development Programme**, consisting of several events, training sessions, workshops & conferences each year to support continuous professional development for ICT professionals.

Another key stakeholder is **ICT Ireland**, the ICT industry federation, which runs a number of programmes, both for third level students of technology courses such as engineering, computer science and physics, and for second level students considering a degree course in technology. They also provide information on careers available to people with a technology qualification, on career patterns or opportunities by profiling people working in the high tech sector. In the **digital literacy** and school realm, ICT Ireland has published a strategy on "ICT in the Classroom", which voices the perceived need to require the education system to continue to adapt and adjust to the changed circumstances to meet the impact of ICT on society and economy. The "**Smart Schools = Smart**

**Economy**" report (2009) drafted by ICT Ireland in cooperation with the Ministry of Education and Science included a set of recommendations concerning ICT investment decisions and activities that are needed to have an enduring and sustainable impact in school classrooms. With regard to securing supply of ICT practitioners, ICT Ireland is involved in initiatives including Springboard, Career fairs, Open Ireland (introduction of a visa scheme for IT professionals), and "Technology in the class rooms" (expert schools).

Ireland has also seen **social innovation** in the e-skills field, the most prominent example of which is **Coder Dojos**, now a worldwide network of free coding clubs that teaches children aged 8-18 how to code. The initiative originated in Ireland in the form of a social enterprise in which volunteers run the clubs on a regular basis, with a special emphasis on open source and free software. Created in 2011 by James Whelton, who set up a coding club for younger students at his school. Rapidly, other venues in the community became interested in setting up a similar coding club. Co-operating with angel investor Bill Liao, Whelton managed to spread the initiative nationally and worldwide. From 2011 to 2013, the Coder Dojos grew from coding lessons in Cork to involving thousands of children, increasingly beyond the borders of Ireland – at the time of writing, there are clubs in 29 countries, 100 of which are Ireland. Workshops take place in various kinds of venues, such as libraries, cafés, museums, co-working spaces or vendors' headquarters.

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

A Master Strategy is in evidence in Ireland and a whole range of measures are being taken in the areas of promotion/ awareness raising, stakeholder dialogue / summits, certification, monitoring and forecasting of supply and demand, and training measures. Evidence for strong multi-stakeholder partnership.

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

A Master Strategy exists, and there is a range of initiatives for providing individuals with ICT user skills, with a clear focus on employability, i.e. enabling citizen to perform successfully on the labour market. There appear to be shortcomings, however, in mainstreaming ICT training in primary and secondary education.

#### Summary Assessment of Irish e-Leadership & Digital Entrepreneurship activities: ●

Very little policy or stakeholder initiatives are in place which explicitly deal with e-leadership skills or digital entrepreneurship.

Like in the precursor study<sup>2</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>3</sup> for each of the 27 Member States.

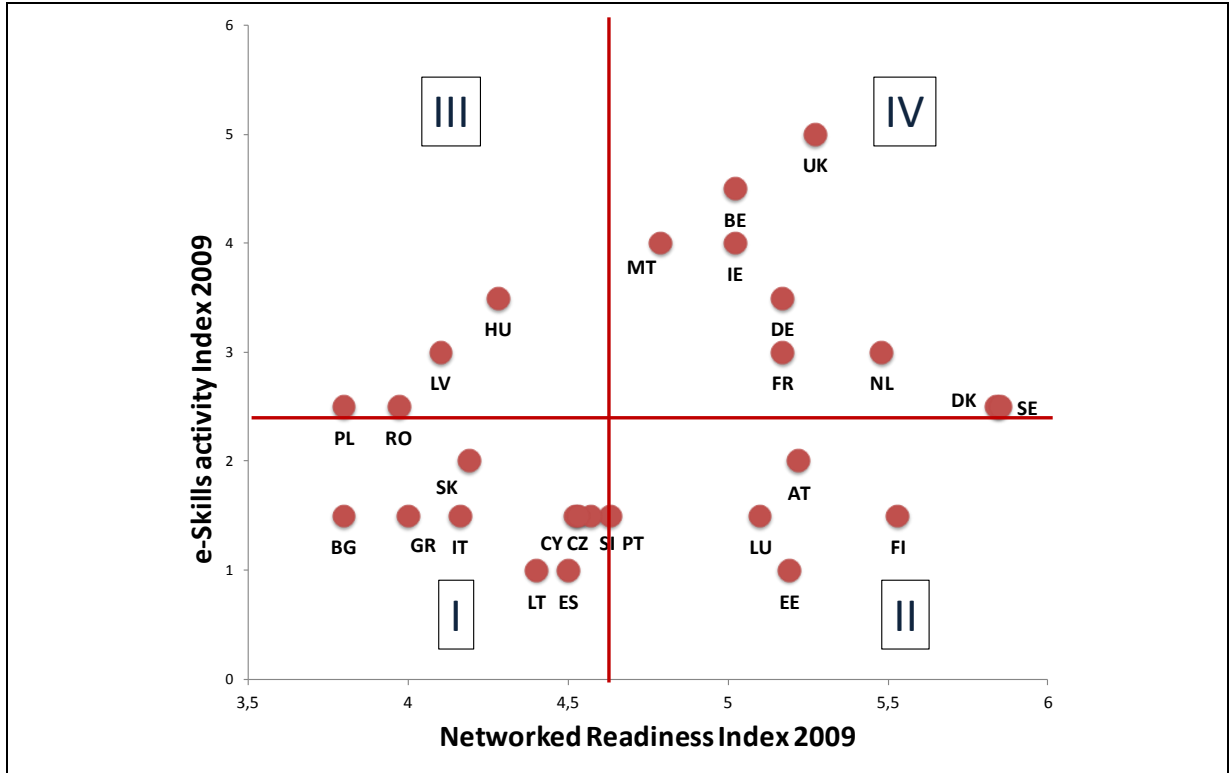
<sup>2</sup> Hüsing, T. and Korte, W.B. (2010) "Evaluation of the Implementation of the Communication of the European Commission 'e-Skills for the 21st Century'", URL: [http://ec.europa.eu/enterprise/sectors/ict/files/reports/eskills21\\_final\\_report\\_en.pdf](http://ec.europa.eu/enterprise/sectors/ict/files/reports/eskills21_final_report_en.pdf)

<sup>3</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).

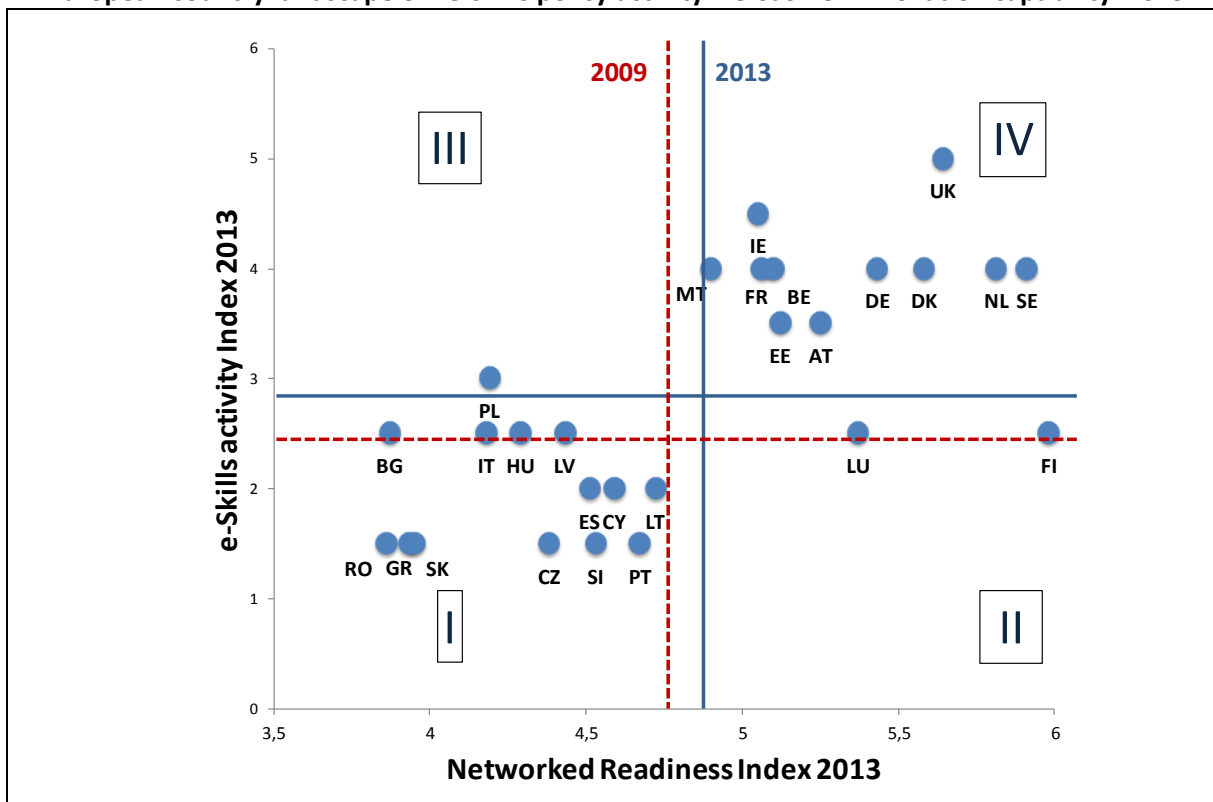
This allows for putting the results of the e-skills policy and activity analysis in the different countries in the wider context of each country’s propensity to exploit the opportunities offered by ICT using data which can be obtained from the country values on the Networked Readiness Index (NRI).

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**

<b>I : low NRI + Low level of e-skills policy activity</b>	<b>II : High NRI + low level of e-skills policy activity</b>
Romania, Greece, Slovakia, Czech Republic, Slovenia, Portugal, Spain, Cyprus, Lithuania, Bulgaria, Italy, Hungary, Latvia	Luxembourg, Finland
<b>III : Low NRI + high level of e-skills policy activity</b>	<b>IV : High NRI + high level of e-skills policy activity</b>
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:

- **Level 8 Conversion Programme [selected as Good Practice]:** This is a short / medium term measure of the Higher Education Authority, within the ICT Action Plan, to develop a sustainable domestic supply of high quality ICT graduates. It offers an intensive NFQ level 8 higher diploma ICT skills conversion programmes by higher education providers in partnership with industry. The 15 courses on offer will be for NFQ Level 8 jobseekers with cognate/numerical skills and underlying aptitude for programming and there will be 769 places offered countrywide. The 6-months work placements will be provided by a variety of business organisations. Importantly, the initiative is focused at graduates of disciplines with high numeracy proficiency such as construction engineering. The ICT conversion programmes are all highly intensive and lead to an honours degree level award in computer science and include a work placement with an industry partner. The Action Plan has a target of doubling the output of high quality computing graduates from undergraduate programmes between 2012 and 2018. The current graduate output figures reported by the HEA in relation to the Level 8 Conversion programme suggest that 800 students graduated and entered the workforce in 2012, 705 will graduate in 2013; 600 in 2014 and 300 in 2015.
- **Springboard:** This initiative was first launched in 2011 as part of the Government's Jobs Initiative. Springboard provides free, part-time places in higher education in areas of identified skills need. Target participants are unemployed people who have lost their jobs as a result of the recession and who would benefit from up-skilling or cross-skilling to get back into sustainable employment. Springboard complements the core State-funded education and training system and is one of a number of special initiatives designed to support people transition back to employment. Objectives: 1) To enhance collaboration and engagement between the enterprise sector and higher education providers in the design and delivery of relevant and responsive higher education programmes to support job creation and expansion in line with the objectives of the Government's Action Plan for Jobs; 2) To increase the skills profile of the labour force in line with the targets and objectives of the National Skills Strategy.
- **ICT Ireland Skillnet:** Skillnet is a state funded, enterprise-led support body dedicated to the promotion and facilitation of training and upskilling as key elements in sustaining Ireland's national competitiveness. It is open to any enterprise group. The ICT Ireland Skillnet comprises a group of companies in the ICT sector who have come together specifically to provide advanced training and development activities for technical and engineering staff in Irish ICT companies. Most of the work is focused on delivering Masters level programmes in Innovation and Technology in collaboration with academic institutions as well as advanced technical training programmes through a variety of providers. The network also supports entry to the sector for unemployed through specialised jobseeker support programmes. The Irish government contribution to training is approximately 35%, the remainder is provided by individual enterprises. The total annual government contribution for 2011, 2012 & 2013 together has been around €14.5 million.
- **Smart Futures:** This is a national campaign for secondary level students in Ireland, highlighting career opportunities in STEM sectors such as medical devices, ICT and energy. It is part of Discover Science & Engineering (DSE), Ireland's national science promotion programme managed by Science Foundation Ireland on behalf of the Department of Jobs, Enterprise and Innovation. Smart Futures represents a partnership ICT Ireland, the Irish Medical Devices Association, Engineer's Ireland (STEPS) and SFI/Discover Science and Engineering. It frequently organises online events, the so-called Smart Futures STEM Careers Weeks, where students can

put career questions to a range of industry experts. Companies can participate in the event to get in touch with candidates as well.

- **Fast Track to IT:** FIT is an industry-led initiative which works in close collaboration with government departments and national education and training agencies, local development organisations and a host of community based organisations. Primary partners in education and training include FAS, VECs, Third Level Institutions, Leargas, Leader Companies, Rapid Coordinators, Local Authorities and Employment Pacts. FIT offers a fast track to marketable technical skills for those at risk of long term unemployment. FIT Ltd, a registered charity and not for profit organisation, was established in 1999. The Initiative develops and promotes technology-based programmes and career development opportunities for job seekers who have become detached from the labour market in an increasingly knowledge-based economy. Since it started in Dublin in 1999, FIT has expanded substantially and now operates across the Republic of Ireland. More recently FIT has commenced programmes in Northern Ireland under the banner FIT-NI. To date, over 13,000 job seekers have completed FIT skills development programmes of which over 9,500 progressed into employment. 2,500 job seekers are currently participating in FIT programmes. Recently the EU Commission cited FIT as one of the most effective employability initiatives in Europe.



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

The Irish national initiatives are solely focused on filling the perceived current and future gap in ICT skills. The policy makers and employers are confident that these initiatives have the correct focus and they are and will be successful. They cover 1<sup>st</sup>, 2<sup>nd</sup>, 3<sup>rd</sup> level and vocational training. This includes up-skilling teachers at 1<sup>st</sup> and 2<sup>nd</sup> level, encouraging students towards science and technology and retention of students within 3<sup>rd</sup> level. The 3<sup>rd</sup> level forum and the professional body feel that the initiatives are fine in themselves, but question the perceived skills gap and are critical of the longer term education of IT professionals.

Action resulting from research on filling the perceived e-skills need focus on three strands: 1.) Increase graduate intake / output; 2.) Reduce drop-out numbers; 3.) Encourage immigration based on ICT skills.

With regard to graduate intake / output, the last number of years saw a concentration on the core fundamental of ICT courses – definition and alignment. Moreover, conversion courses have traditionally been used for up-skilling. The more recent focus is to convert mathematical based graduates to ICT. 800 conversion places were taken up in 2012, with a commitment to provide a further 760 in 2013.

With regard to 3<sup>rd</sup> level drop-out rates, drop outs from ICT courses have been found to be correlated with math proficiency. To encourage 2<sup>nd</sup> level student take-up, higher maths greater points are awarded.

With regard to immigration, up to 2012 1,200 work visas were granted to individuals with ICT skills. A commitment has been made by the Minister of Training & Skills to increase this by a further 760 in 2013.

Current and emerging challenges for the ICT profession include the following:

- A major issue facing the ICT sector arises from the fact that over time ICT has grown to be a commodity affecting many (if not most) aspects of our life, but the ICT profession has not grown in any structured way. As a result the ICT profession has become very diverse and discrete. It has lost its novelty image and moved to a perception of “geek” and “nerd.”
- The current understanding of ICT skills is not detailed enough, typically based on outdated generic occupational codes. This does not take into account the variety of professions / careers within IT. A model such as the European eCompetence Framework (e-CF) should be applied.
- The current perception that most ICT jobs are within the high technology sector (which often refers to Irish based multi-nationals) is incorrect as ~40% of IT professionals are employed within the public services, banking and other services, according to estimates of EGFSN.
- The focus on a skills gap has resulted in individuals being trained in specific skills not educated for the long term. The high numbers of students doesn't equate with high quality of students (some course take in students with as little as 250 points). This focus is over technical without a balance of generic professional skills, such as ethical issues within IT.
- Students are not really aware of what they are getting themselves into (they don't understand the profession).
- While the entry level requirements for computing degree programmes in third level institutions have risen both in 2012 and 2013, some national experts claim that in practice fewer and lower quality 2<sup>nd</sup> level students are attracted.

- With respect to resources, there are concerns that college resources will continue to be cut. To address this issue colleges / courses will need to take a more flexible approach, e.g. gradual independence of students, moving to help desk support.

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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.