

# DIGITAL COMPETENCE AND EMPLOYABILITY



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Position paper on a recognition of competences acquired  
through non-formal and informal learning



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# Digital competence and employability

## POSITION PAPER ON A RECOGNITION OF COMPETENCES ACQUIRED THROUGH NON-FORMAL AND INFORMAL LEARNING

### EXECUTIVE SUMMARY

This position paper offers an understanding of the current need for the development of the digital competence levels of citizens in Europe with the aim of increasing employment and employability perspectives and discusses the need to formally recognise those competences when acquired in non-formal and informal settings.

The paper argues that our social and economic interactions are increasingly mediated by new technologies, and that digital inclusion today depends largely more on competences than on access to and use of technologies. However, the EU population have either "low" or "no" digital skills and is thus not considered to be functional in a digital society. The lack of digital competence of a large part of the EU population has dramatic repercussions on their employability perspective. Regardless of overall high unemployment rates, in areas like ICT the job offer exceeds the demand and the gap is widening, while it is expected that 90% of jobs in the near future will require ICT skills of some level.

Despite the long record of policy developments in the field since at least 2002, reducing skills mismatches and preparing the population to face the challenges of an ever-increasing adoption of technologies in everyday life are still two urgent challenges that require pressing and focused policy action and endorsement.

The focus on digital competence in formal schooling is recent and still insufficient. The importance of learning about digital competence in non-formal and informal settings becomes a central aspect of education of the EU population with an employability perspective. However, formal validation and recognition of competences acquired in such ways remains an issue for job-seekers (whether unemployed or already active in the job market) to be able to demonstrate to prospective and new employers their competence portfolio. It is nowadays necessary to adopt a transversal model which takes stock of digital competence richness. It is time to develop the digital component of "new skills for new jobs" initiative in the European labour market.

There is a necessity for a common European framework that allows a shared understanding of the meaning and implications of digital competence and that presents its components and levels of proficiency, similar to the Common Reference Framework for languages. This might ease comparability across Europe and the alignment and harmonisation of training offers. Three frameworks have been developed recently at the request of the European Commission that touch upon digital competence - the eCompetence Framework for ICT professionals; the eCompetence framework for end users; the DIGCOMP framework. Telecentre Europe suggests that - in the case of non-ICT professionals - the DIGCOMP framework is used as it considers and develops the transversal component of digital competence that are necessary for a variety of job profiles. The eCF for end users can be used to complement the DIGCOMP frame as it covers some aspects of digital competence in a more granular

way and allows for measurements and certifications which are already developed and adopted. The eCF for ICT professionals shall then be used in the context of ICT-related jobs.

In conclusion, given the current economic crises, and given the premises of skills and vacancies mismatching, given the rising digitalisation of society which is not followed by a higher digital competence level of the population, this paper proposes that the following actions are considered by stakeholders with the scope of nurturing digital skills for employability:

At European level:

- **the endorsement of a unique common reference framework of digital competence** as DIGCOMP, linked to the European Qualifications Framework and to EUROPASS, to create a shared language and understanding between education and employability and among different initiative for fostering digital competences of non-ICT professionals;
- **the creation of guidelines and job profiles** to support the implementation of such a framework for employability and to better address the specific needs of employers, employees and job seekers;
- **the recognition of digital competence as an ability that goes beyond operational skills** and that support several aspects of everyday life, whose learning can activate other key competences (like learning to learn or a sense of initiative) and whose full command implies a safe, responsible, critical and creative use of technologies;
- **the promotion of the recognition of competences acquired in non-formal and informal settings**, as the vast majority of the population did not receive a formal education on digital competence, and those who have might need to update their knowledge and skills;
- the development of **evaluation tools** and approaches that cover the transversal aspects of digital competence.

At local level:

- the endorsement of the proposed European framework by national ministries of education, labour and employment;
- the embedding of digital competence in a transversal way to formal education curricula – like literacy or numeracy;
- the adoption of the proposed European framework as the framework of reference to design vocational, occupational or continuing training curricula for adults;
- the adoption of the proposed European framework at the level of job seeking agencies for the matching of actual competences and specific profiles;
- the development of training and evaluation resources in local languages that match the European framework's proficiency levels.

## About Telecentre Europe

Telecentre Europe is a European non-for-profit organisation (NGO) and a member based association with a central office in Brussels, Belgium.

We represent publicly funded telecentres/telecentre networks, ICT learning centres, adult education centres and libraries across Europe where children and adults can access the Internet, learn the latest digital skills and keep up to date with technology and community developments.

We coordinate a number of projects, programmes and campaigns that empower people through ICT by finding new paths to employment, community life, relevant information and staying in touch with friends and family. All our members and partners believe that Information and Communication technology has an enormous potential to combat social exclusion and poverty.

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Although digital competences are essential for employment, today's young people lack the ability to use them creatively and critically. Being born in a digital era is not a sufficient condition for being digitally competent.

EC, 2013<sup>1</sup>

Validating non-formal and informal learning is increasingly seen as a way of improving lifelong and lifewide learning. More European countries are emphasising the importance of making visible and valuing learning that takes place outside formal education and training institutions, for example at work, in leisure time activities and at home.

CEDEFOP, 2009<sup>2</sup>

## Living in a digital society

Information and communication technologies brought many changes and challenges in everyday life. Today, being able to fully and actively participate in society requires the ability to use technologies: digital competence is now considered a 'life skill'<sup>3</sup> or a basic skill. Our interactions depend ever more on technology – whether it is communicating with friends or relating to bank and medical services. ICT has spread throughout all aspects of our life: the large majority of jobs require an understanding of technology, our social life is dictated by ICT interactions, leisure and entertainment are often media or ICT related, governments are migrating to e-services. The increasing opportunities offered by technologies come with the ability to use technological means: already from the beginning of the new millennium, being digitally competent was perceived both as 'a requirement and a right'.<sup>4</sup>

Participation in the digital society has long been measured in terms of access to digital technologies. However, we witness an increasing access to technology and to the internet mainly through the use of mobile phones. The number of mobile cellular subscriptions is approaching the number of people on earth, with a penetration rate of 96% in 2014.<sup>5</sup> In December 2013, the average subscription rate of mobile internet access in OECD countries was of 72.4 every 100 inhabitants.<sup>6</sup> Given these numbers, we consider that access, at least in Europe, is not anymore the most relevant indicator for eInclusion.<sup>7</sup> Digital inclusion today depends largely more on competences than on access to and use of technologies.<sup>8</sup> Wider reach is not a sign of ability to use, even in the case of the young and so-called 'digital natives'.<sup>9</sup> Only 8% of 15 years-old taking part in the PISA 2009 showed the ability to use the internet in an efficient way, valuing the credibility and usefulness of information.<sup>10</sup> If we then expand this analysis to the older generations, we realise that the picture is still less comforting. Data from a representative sample of the EU population aged between 16 and 74 show that almost half the EU

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<sup>1</sup> EC. (2013). Opening up Education: Innovative teaching and learning for all through new Technologies and Open Educational Resources. <http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52013DC0654&from=EN>

<sup>2</sup> CEDEFOP. (2009). European Guidelines for validating non-formal and informal learning. Luxembourg: Office for Official Publications of the European Communities.

<sup>3</sup> Bowden, David. (2001). Information and digital literacies: a review of concepts. *Journal of documentation*, 57(2), 218–259.

<sup>4</sup> OECD. (2001). *Learning to change*. Paris.

<sup>5</sup> ITU. (2014). ICT Statistics. <https://www.itu.int/en/ITU-D/Statistics/Documents/facts/ICTFactsFigures2014-e.pdf>

<sup>6</sup> OECD. (2014). *Measuring the Digital Economy. A New Perspective*. DOI: [10.1787/9789264221796-en](https://doi.org/10.1787/9789264221796-en)

<sup>7</sup> From the 2006 Riga declaration, eInclusion can be defined as follows: "eInclusion means both inclusive ICT and the use of ICT to achieve wider inclusion objectives. It focuses on participation of all individuals and communities in all aspects of the information society."

[http://ec.europa.eu/information\\_society/activities/ict\\_psp/documents/declaration\\_riga.pdf](http://ec.europa.eu/information_society/activities/ict_psp/documents/declaration_riga.pdf)

<sup>8</sup> Erstad, O. (2010). Educating the Digital Generation. *Nordic Journal of Digital Literacy* 1, (pp. 56-70).

<sup>9</sup> 'Digital native' is an expression used to refer to a person born or brought up during the age of digital technology and supposedly familiar with digital devices. Prensky, M. (2001). *Digital Natives, Digital Immigrants*. *On the Horizon*, 9(5)

<sup>10</sup> PISA is an international survey students, in 2009 a module on online reading was introduced for the first time. OECD. (2010). *PISA 2009 Assessment Framework: Key Competencies in Reading, Mathematics and Science*. OECD Publishing.

population (47%) have either "low" or "no" digital skills and is thus not considered to be functional in a digital society.<sup>11</sup> Despite lack of functionality, 62% of EU population uses the internet every day.<sup>12</sup>

At the same time, regardless of high unemployment rates, about one third of enterprises in the EU claimed in the last few years to be unable to meet their needs for labour.<sup>13</sup> The unfilled jobs are generally requiring specialised skills. For instance, in areas like ICT the job offer exceeds the demand and the gap is widening. While demand for ICT practitioners is growing by around 4% a year, the number of graduates from computing sciences, and from maths, science and engineering, is actually declining. In 2015 the unfilled vacancies for ICT practitioners are believed to amount to 509,000, and forecasted to be 913,000 in 2020.<sup>14</sup> Furthermore, the need for people with specific skills will augment in the future: it is expected that 90% of jobs in the near future will require ICT skills of some level.<sup>15</sup> At the same time, the digital competence of EU citizens is perceived to be unaligned to these expectations: 39% of the EU workforce has insufficient digital skills, 14% has no digital skills at all.<sup>16</sup> Nearly half of the European labour force (47%) is not confident their computer and internet skills are sufficient in today's labour market.<sup>17</sup>

The younger generations present the most worrying profile in terms of employment, especially in times of economic crisis. According to a Communication from the European Commission,<sup>18</sup> in 2013 nearly 6 million people in Europe under the age of 25 were unemployed and a total of 7.5 million were not in employment, education or training. Youth unemployment rates in Europe stood at 23.5% in the first quarter of 2013. If we compare these findings with other publications from the European Commission, we find out that only 30% of students in the EU can be considered as digitally competent.<sup>19</sup> The analysis of data from the Skillage test<sup>20</sup> carried out by Telecentre Europe in 2013 shows that the young group of people taking the test (aged between 16 and 24) perform worse than adults (25-54): from the analysis of users' performances, and surprisingly so, youths and seniors (55-64) have a comparable level of readiness for the labour market. Although there are certainly a variety of reasons that contribute to youth unemployment, a doubt might arise about missed opportunities that could be caused by the mismatch between job offers (in particular in an ICT career) and young people competences and employability profile.

Reducing skills mismatches and preparing the population to face the challenges of an ever-increasing adoption of technologies in everyday life are two urgent challenges that require pressing and focused policy action and endorsement.

## Current policy panorama on digital competence and employability

While the digital economy is of central relevance for the newly appointed Juncker Commission, the concept of digital competence has been increasingly occupying a strong position in European policy documents, actions, and initiatives, since the turning of the new millennium. Indeed, recognition of digital competence as central topic to European policies dates back to 2002, when the development of digital literacy was requested at the

<sup>11</sup> EC. (2014). Measuring Digital Skills across the EU: EU wide indicators of Digital Competence. <http://ec.europa.eu/digital-agenda/en/news/measuring-digital-skills-across-eu-eu-wide-indicators-digital-competence>

<sup>12</sup> EC. (2014). Digital Agenda Scoreboard. <http://ec.europa.eu/digital-agenda/en/digital-agenda-scoreboard>

<sup>13</sup> Cedefop. (2012). Analysing skill mismatch. <http://www.cedefop.europa.eu/en/events-and-projects/projects/analysing-skill-mismatch>

<sup>14</sup> Empirica. (2014). e-Skills for Jobs in Europe – Measuring Progress and Moving Ahead, p. 128. [http://eskills-monitor2013.eu/fileadmin/monitor2013/documents/MONITOR\\_Final\\_Report.pdf](http://eskills-monitor2013.eu/fileadmin/monitor2013/documents/MONITOR_Final_Report.pdf)

<sup>15</sup> EC. (2013). Digital Agenda. ICT for Jobs. [http://ec.europa.eu/europe2020/pdf/themes/12\\_digital\\_agenda\\_ict.pdf](http://ec.europa.eu/europe2020/pdf/themes/12_digital_agenda_ict.pdf)

<sup>16</sup> EC. (2014). Digital Inclusion and Skills. <http://ec.europa.eu/digital-agenda/en/news/scoreboard-2014-digital-inclusion-and-skills-eu-2014>

<sup>17</sup> EC (2012). Digital Agenda Scoreboard 2012, p. 18-19. [https://ec.europa.eu/digital-agenda/sites/digital-agenda/files/scoreboard\\_digital\\_skills.pdf](https://ec.europa.eu/digital-agenda/sites/digital-agenda/files/scoreboard_digital_skills.pdf)

<sup>18</sup> EC. (2013). Working together for Europe's young people. A call to action on youth unemployment.

<sup>19</sup> EC. (2013). Opening up Education: innovative teaching and learning for all through new Technologies and Open Educational Resources. <http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52013DC0654&from=EN>

<sup>20</sup> [www.skillage.eu/](http://www.skillage.eu/) Skillage is an online assessment tool evaluating the understanding of ICT in employment settings.

Barcelona's European Council.<sup>21</sup> In the Recommendations of the European parliament and the Council (2006), also known as the Key Competences for lifelong learning, digital competence is recognised as one of the eight key competences. The recommendations also endorse a support for adults who wish or need to develop and update their key competences throughout their lives.

In 2008, under the Educating and Training 2010 Work Programme, the ICT cluster released the following message: "*Lifelong learning strategies need to answer to the growing need for advanced digital competence for all jobs and for all learners.*" (EC ICT cluster, 2008). 2008 is as well the year of the 'New skills for new jobs' initiatives, whose aim is to react to the severity of the financial crisis and the growing mismatching of skills and job offers. The initiative wants to promote employment and reintegration into the labour market of workers made redundant through activation, retraining and skills upgrading measures, thus reinforcing the 'lifelong learning' message of the 2006 recommendations, and suggesting that economic recovery should take the path of up-skilling and re-skilling.

Employment and job recovery was certainly the target of the 'Agenda for new skills and jobs', a flagship initiative that bears a similar name to the 2008 one, albeit with wider objectives, being thus more focused on job creation and work conditions. Launched in 2010 as part of Europe 2020, the flagship initiative aims to reach an employment rate of 75% of the working age population (20-64 years of age). The Agenda for New Skills and Jobs recommends European education and training systems to deliver the right mix of skills to all EU citizens, irrespective of their age, in particular including digital and transversal key competences, media literacy, and communication in a foreign language. The communication, moreover, recognises the transversal role of digital competences across the economy and sees in the Digital Agenda for Europe, another flagship initiative of EU2020, an essential catalyst that can help provide the right digital competences for workers and job-seekers. The Pillar VI of the Digital Agenda is actually dedicated to 'Enhancing digital literacy, skills and inclusion' as it reports that as much as 30% of Europeans have never used the Internet. As stated in this Pillar, lack of competences to use digital technologies has become a barrier to social integration and personal development, as people with no or low digital competence miss out on social and economic opportunities and on easy access to online public services. The focus is therefore on developing and enhancing digital skills of all EU citizens to allow them to actively participate to the digital society. There is as well recognition that enhancing digital competence will provide better job prospects and new employment opportunities.

## Evolving digital practices, evolving competences

When we refer to digital competence, we include here all the plethora of names and phrases that denote the ability to use information and communication technologies. We thus use 'digital competence' as an umbrella term to refer to concepts as digital literacy, e-skills, e-competences, computer literacy, and media literacy. We understand that some of these terms have their specificities (for instance, media literacy encompasses the understanding of media messages that can be displayed on forms other than digital). However, with the digitalisation of society, we believe that there are several concepts, with their traditions and insights, which converge into digital competence.

Digital competence refers to the ability to use digital technologies. It should be noted that the digitalisation of society implies changes in what is understood by 'digital technology'. Twenty years ago, technology was often understood as a synonym for 'computers', whereas nowadays it embraces media, mobile phones, leisure tools as television sets and video game consoles. The term does not only refer to a wider set of devices than it did for previous generations, it moreover implies a number of adapted, new, and fast-changing practices. For

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<sup>21</sup> European Council. (2002). Presidency Conclusions. Barcelona 15 and 16 March 2002, [http://ec.europa.eu/invest-in-research/pdf/download\\_en/barcelona\\_european\\_council.pdf](http://ec.europa.eu/invest-in-research/pdf/download_en/barcelona_european_council.pdf)

instance, a common task as grocery shopping requires a series of tricks and abilities when done online that differ from the ability to buy in standard supermarkets, and which is not acquired through the ability to use a computer for writing a text document. The use of social media is another example of changing practices: 20 years back people did not face the issue of appropriateness of tagging friends and colleagues in specific occasions. It can be argued that these examples describe competences that go behind the ability to use a digital device. However, awareness of the implication of our digital acts is nowadays at the centre of an active and reflective use of digital devices. Moreover, changes in practices include the interaction with services: taking a medical appointment, for instance, is more and more done through the Internet, thus implying the risk of excluding the older and less digitally proficient population from services they strongly need.

Changes in practices, we have seen, do not restrain to leisure time, but are embedded in the development of digital competence as an evolving concept in several domains. Until the eighties, ICTs were the tools of a minority of professionals. With the shift from programming languages to graphical user interfaces in the nineties, ICTs became more available to society.<sup>22</sup> This meant a change in the type of knowledge that was needed to use them, as being able to operate specific applications was then seen as more important than knowing how to programme. Technological shifts and spill-over effects on the required competences continue today, as ICTs become user-friendlier, more pervasive and more needed than ever before. In the case of social networking, ICT use has direct implications for people's privacy, with a growing need to know how to protect one's privacy, reputation, and data.

Even old competence sets (i.e.: programming) have changed their pragmatic meaning in the last decades. For instance, programming and writing codes are today involving a much different approach. Coding, which is the ability to create or modify a program, is becoming more approachable as a practice, and it is gaining relevance after a period of dismissal. Coding is now at the centre of several initiatives due to the fact that a practice in coding develops the ability to think in computational terms, thus to understand how the digital devices and machine operate (which might have benefits, for example, in understanding why results from search engines are displayed in a certain way). We see a recent revamp of programming skills in several actions: for instance, coding is at the centre of the new curriculum for primary and secondary schools in England since September 2014, while several campaigns are raising awareness of the importance of the ability to code. Examples include: Code.org, Codecademy, European Code Week organised by the EC in 2014 for the first time, as well as the well-known Coderdojo initiative. One of the aims of these activities is to approach young people to the possibilities offered by Computer Science.

Even old or relatively established technologies and software packages change shape. Every user of technologies, no matter how proficient, needs to update his/her skills even when using the same technologies, software and packages, as new versions are adopted. This applies as well to the context of standardised work processes, where the migration to new technologies and packages requires a phase of adaptability to new functions and pathways. The ability and readiness to adapt knowledge and skills to new products is per se a relevant competence.

So, while coding and understanding how to think in computational terms is still important nowadays, and the ability to operate devices and software is still a central part of our interaction with technologies, these two sets of competences do not cover the full spectrum of what it means today to be digitally competent. As a consequence, the concept of digital competence needs to be tackled by re-thinking the current needs of today's population and not in a perspective of 'follow-up' of previous conceptualisations. We therefore see a need to expand the consolidated tradition of teaching, learning and certifying digital competence and to consider the transversal components of digital competence. Functional and operational skills need to be paired with all the

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<sup>22</sup> Erstad, O. (2010). Educating the Digital Generation. *Nordic Journal of Digital Literacy* 1, (pp. 56-70).

knowledge, skills, and attitudes that derive from the expanding adoption of technologies and its application to all aspects of life. Educating for competences involves the need to be critical and reflective on what we do with technologies, aware of the possibilities and the risks that technologies offer, and ready to move along technological changes in order to keep up-to-date with the latest developments. Educating for digital competence shall therefore focus increasingly more on learning to learn abilities and adaptive skills. Studies describing media and digital curricula for education show underlying tensions<sup>23</sup>: the tendency to develop and assess discrete and limited notions of media and digital competence are contrasted by suggestions to shift away from a machine-focused viewpoint<sup>24</sup> and engage in 'reflective skills'.

### Digital competence and its acquisition outside formal education

A strong point that should not be forgotten in this discussion is the fact that the majority of jobs have or will have in the near future a digital competence component, albeit at different proficiency levels and in different formats. It is clear that digital competence covers a series of aspects that differ according to different work occupation: not every job profile will require the same set of competences for operating technologies. An engineer and a secretary will both need to be fluent in digital environments; however their abilities will differ in content and scope. As an example, the main aspect of digital competence needed by entrepreneurs could be the ability to manage their digital identity, and to shape their online reputation.

If we accept the argument of the centrality of digital competence for employability, we should then compare this statement with the previously presented data on digital skills and confidence to work in a digital environment. We have seen that skills are limited and that confidence is low among the EU population. Educating for digital competence is part of a relatively recent practice in formal schooling, with many adults not having acquired competences in the use of ICTs while at school. Moreover, even for the younger cohort of learners, their education in ICT is limited and probably already outdated due to constant technological progress and changing digital practices.

In this context, the importance of learning about digital competence in non-formal and informal settings becomes a central aspect of education of the EU population with an employability perspective. Data collected by Eurostat (2011) indeed shows that Europeans obtain IT skills primarily through informal learning (77%), and in similar proportions through formal education (28%) and training courses and adult education (27%).<sup>25</sup> However, even if non-formal and informal practices are taking place, and constitute a central mean of learning with and about digital technologies, there is still the need of formal validation and recognition of competences acquired in non-formal and informal ways, in order for job-seekers (whether unemployed or already active in the job market) to be able to demonstrate to prospective and new employers their competence portfolio. Nonetheless, this validation and recognition was until recently provided mainly by the ICT industry and was operational in nature. A European vendor-neutral certification model, which takes stock of digital competence richness, and is widely recognised by employers and employment agencies across Europe, is necessary to develop the digital component of "new skills for new jobs" in the European labour market.

The importance of learning outside the formal education system has been recognised by the European Council, who has adopted common principles for the identification and validation of non-formal and informal learning in 2004, and renewed them in 2012. CEDEFOP describes the recognition of competences acquired in non-formal and informal learning as a five-step process, consisting of: 1) information and guidance; 2) identification of

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<sup>23</sup> Gruszczynska, A., Merchant, G. and Pountney, R., (2013) "Digital Futures in Teacher Education": Exploring Open Approaches towards Digital Literacy. *The Electronic Journal of e-Learning*. 11/3 (pp.193-206).

<sup>24</sup> Hinrichsen, J., Coombs, A. (2014). The five resources of critical digital literacy. *Research in Learning Technology*. 21.

<sup>25</sup> Eurostat (2011), Way of obtaining e-skills (isoc\_sk\_how\_i). [http://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=isoc\\_sk\\_how\\_i&lang=en](http://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=isoc_sk_how_i&lang=en)

learning outcomes, 3) assessment of learning outcomes; 4) validation of learning outcomes; 5) certification of learning outcomes.

## Developing digital competence

As for the centrality of digital competence in today's labour market that we argued about in the previous sections, we see a growing need for understanding and developing these competences for every citizen. In particular, we argue that there is necessity for a common European framework that allows a shared understanding of the meaning and implications of digital competence and that presents its components and levels of proficiency, as for the Common Reference Framework for languages. This might ease comparability across Europe and the alignment and harmonisation of training offers. As we have argued above, digital competence is fundamental for every path of life, therefore there is a need to validate and recognise digital competences acquired by non-ICT professionals in either formal or non-formal settings.<sup>26</sup> At the time of writing, three frameworks have been developed under request of the European Commission that touch upon digital competence: the eCompetence Framework for ICT professionals<sup>27</sup>; the eCompetence framework for end users<sup>28</sup>; and the common European digital competence framework for citizens (DIGCOMP).<sup>29</sup>

The eCF, or eCompetence Framework, is a common European framework for ICT Professionals in all industry sectors. It provides a reference of 40 competences as required and applied at the Information and Communication Technology (ICT) workplace. It is addressed to ICT professionals and provides definitions and support in relation to the needs of businesses and other ICT oriented organisations, both the private and public sectors. This framework is currently widely applied and implemented and constitutes the reference work for ICT professionals.

The eCompetence framework for end users is a framework that explains in a granular way five areas of digital competence, namely: Word Processing, Spreadsheets, Presentation, Communications, Web Browsing and Information Search. For each area, a series of competences is developed and explained along three proficiency levels. This framework was developed to allow ICT users to describe and develop their capabilities and specifically to allow employers to identify which individuals possess the skills and abilities they require. It expands in a detailed way the competences needed for the use of several applications which are still mainstream and offers an easy to measure approach, despite the framework authors recognise that the five developed areas are not the complete set of ICT user e-Competence areas, and that the framework is explicitly designed to be expanded to include further ICT user areas in the future.<sup>30</sup>

DIGCOMP is a competence framework developed for all citizens comprising 21 competences divided in 5 areas and including for each competence a description of three proficiency levels. The DIGCOMP framework aim is to provide an exhaustive view of digital competence, so that various initiatives could be mapped onto its matrix. It recognises that initiatives, programmes, and certifications do not need to cover all 21 competences. This framework is currently, in our view, the most adaptable tool to the needs of a diversified population looking for employment opportunities.

The DIGCOMP five competence areas can be described as follows:

<sup>26</sup> For a validation and recognition of non-formal and informal learning, see <http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32012H1222%2801%29&from=EN>

<sup>27</sup> <http://www.ecompetences.eu/>

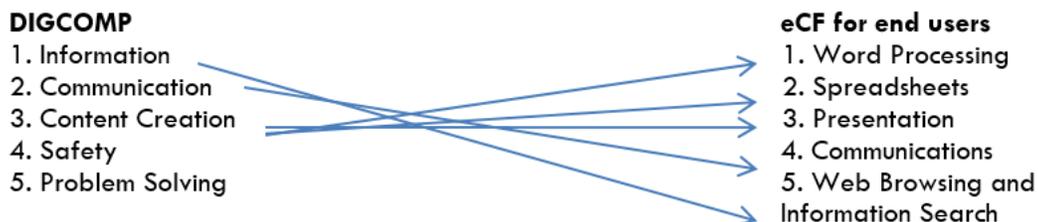
<sup>28</sup> [ftp://ftp.cen.eu/CEN/Sectors/List/ICT/CWAs/CWA%2016624\\_1.pdf](ftp://ftp.cen.eu/CEN/Sectors/List/ICT/CWAs/CWA%2016624_1.pdf)

<sup>29</sup> Ferrari, A. (2013). DIGCOMP: A Framework for Developing and Understanding Digital Competence in Europe. Seville: IPTS. <http://ftp.irc.es/EURdoc/JRC83167.pdf>

<sup>30</sup> CEN, e-Competence framework for end users, p. 9. [ftp://ftp.cen.eu/CEN/Sectors/List/ICT/CWAs/CWA%2016624\\_3.pdf](ftp://ftp.cen.eu/CEN/Sectors/List/ICT/CWAs/CWA%2016624_3.pdf)

- 1. Information:** Identify, locate, retrieve, store, organise and analyse digital information, judging its relevance and purpose.
- 2. Communication:** Communicate in digital environments, share resources through online tools, link with others and collaborate through digital tools, interact with and participate in communities and networks, cross-cultural awareness.
- 3. Content-creation:** Create and edit new content (from word processing to images and video); integrate and re-elaborate previous knowledge and content; produce creative expressions, media outputs and programming; deal with and apply intellectual property rights and licences.
- 4. Safety:** Personal protection, data protection, digital identity protection, security measures, safe and sustainable use.
- 5. Problem-solving:** Identify digital needs and resources, make informed decisions as to which are the most appropriate digital tools according to the purpose or need, solve conceptual problems through digital means, creatively use technologies, solve technical problems, update one's own and others' competences.

DIGCOMP counts with a wide support at policy and implementation level<sup>31</sup>. At the same time, it is recognisable that the eCompetence framework for end users and the DIGCOMP framework have areas of overlapping and complementarity, as can be seen in the table below comparing the areas of the two frameworks:



It should be noted that the DIGCOMP content creation area contains the first three areas of the eCompetence framework for end users and several more aspects (including the creation of video, audio and visual content, media production, and coding and programming aspects). In turns, the eCompetence framework for end users is more specific in detailing in a granular and measurable way the aspects that cover some of the most spread applications. At the same time, there is a growing interest in the development of transversal skills for employability. While we recognise that the two frameworks can fit together well, we suggest that a more detailed mapping shall be made and that the evaluation and measurement of competences that are not covered by the eCompetence Framework for end users shall be tackled too.

Therefore, we suggest that - in the case of non-ICT professionals - the DIGCOMP framework is used for its exhaustiveness and for the fact that it can cover the different and changing needs of the workforce, as this is currently the case with the emerging demands of some digital literacy in all employability domains. For more detailed specifications the eCF for end users can be used to complement the DIGCOMP frame; indeed it is more detailed in the description of specific competences that are still very central to a large part of the employment market, and can provide a useful means to target specific competences that can be recognised and certified.

The eCF for ICT professionals shall then be reserved for ICT careers and ICT professional positions.

<sup>31</sup> For a preliminary map of initiatives implementing DIGCOMP, see: <http://openeducationeuropa.eu/sites/default/files/DIGCOMP%20brochure%202014%20.pdf> The map is currently being updated by IPTS to include other upcoming initiatives that implement the DIGCOMP.

## Developing digital competence for employability

Although the DIGCOMP initiative started under the scope of Education, and was actually launched by the Directorate General of Education and Culture, under Juncker's mandate the initiative is now promoted by the Directorate General for Employment, Social Affairs and Inclusion. Its applicability for employment and employability is recognised and supported by Telecentre Europe, which invites other stakeholders to adhere to. Applications of the framework to employment are currently being carried out across Europe. The framework can support employment and employability in the following ways:

- Jobseekers to identify and describe their digital competence in their CV (through our online self-assessment tool Skillage, specifically conceived for youngsters, or through the EUROPASS website – forthcoming in the second half of 2015),
- Employers to map and describe the digital competences that are needed for job vacancies,
- Digital learning intermediaries and employment services in addressing skills and vacancies matches.

Moreover, the DIGCOMP framework answers to a rising need for a common language and a common strategy to overcome the digital divide and to foster the digital competence of all citizens in order to achieve ET2020 objectives.

As argued before, the need for re-skilling and up-skilling is a stringent one, especially in times of economic downturn. The majority of adults did not receive any formal training or education on information and communication technologies, and even the younger generations, who are now learning how to use technologies in schools, might need a re-training at some point as technologies evolve and change and as they might not have received an adequate level while in formal education. It is therefore necessary to enable citizen and job-seekers to foster, update, or refine their digital competence through informal and non-formal settings (like telecentres, public libraries, ICT community centres, etc.), and to envisage the recognition of competences acquired in an informal or non-formal way.

As recognised in recent surveys, a large proportion of the population is lagging behind in digital competence. The analysis of countries of the EU who took part in the PIAAC study<sup>32</sup> reveals that almost 14% of the EU population aged between 16 and 65 can only perform simple tasks in a technology-rich environments, and 13% could not even take the test due to their insufficient or lack of computer experience.<sup>33</sup> Even in the younger generation (16 to 24) the high number of low skilled is impressive: 30% of the younger population only reach level one of problem-solving in technology rich environment. Again, we can see that use of technology does not match the ability to use it. In the same vein, we could assume that the ability to use technology for personal purposes does not necessarily entail an ability to use ICTs in work related contexts. The analysis of the PIAAC study in fact conclude that about two thirds of the workforce do not have the necessary digital skills to use ICTs as a means to solving work related tasks.

Several initiatives have been launched by the Commission to push a digital competence agenda: the Grand Coalition for Digital Jobs, with stakeholders launching pledges to enhance digital skills and job placements, or the Opening up education initiative, pushing for innovative teaching and learning. However, there is still a strong need to address the skills of the general population at large, as initiatives as the Grand coalition focus on ICT professionals and fail to recognise the fact that technologies are central not just to a category of workers but

<sup>32</sup> PIAAC is a study carried out by the OECD and involves Adults. It tests their numeracy and literacy levels, and from 2012 onwards also their problem solving ability in digital environments.

<sup>33</sup> [http://ec.europa.eu/education/policy/strategic-framework/doc/piaac\\_en.pdf](http://ec.europa.eu/education/policy/strategic-framework/doc/piaac_en.pdf)

to all job profiles already in the present. The need for digital competence development initiative is particularly urgent for low skilled adults who might face unemployment.

### Implications for policy

Given the current economic crises, and given the premises of skills and vacancies mismatching, given the rising digitalisation of society which is not followed by a higher digital competence level of the population, brief recommendations are here provided with the scope of proposing a fostering of digital skills for employability. The following actions are suggested:

At European level:

- **the endorsement of a unique common reference framework of digital competence** as DIGCOMP, linked to the European Qualifications Framework and to EUROPASS, to create a shared language and understanding between education and employability and among different initiative for fostering digital competences of non-ICT professionals;
- **the creation of guidelines and job profiles** to support the implementation of such a framework for employability and to better address the specific needs of employers, employees and job seekers;
- **the recognition of digital competence as an ability that goes beyond operational skills** and that support several aspects of everyday life, whose learning can activate other key competences (like learning to learn or a sense of initiative) and whose full command implies a safe, responsible, critical and creative use of technologies;
- **the promotion of the recognition of competences acquired in non-formal and informal settings**, as the vast majority of the population did not receive a formal education on digital competence, and those who have might need to update their knowledge and skills;
- the development of **evaluation tools** and approaches that cover the transversal aspects of digital competence.

At local level:

- the endorsement of the proposed European framework by national ministries of education, labour and employment;
- the embedding of digital competence in a transversal way to formal education curricula – like literacy or numeracy;
- the adoption of the proposed European framework as the framework of reference to design vocational, occupational or continuing training curricula for adults;
- the adoption of the proposed European framework at the level of job seeking agencies for the matching of actual competences and specific profiles;
- the development of training and evaluation resources in local languages that match the European framework's proficiency levels.