Medici Evidence Digest #3:

The unemployed

Full report

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Mapping Digital Inclusion

Digital Inclusion: Evidence Digests No. 3
Evidence Digests present information on Digital Inclusion trends and outcomes in an easily digestible form. They act as a guide to conversations between those delivering Digital Inclusion projects and those who wish to learn from them where both can share in an understanding of what the evidence tells us, why and how it should be measured.
In this issue, we explore **evidence of digital inclusion challenges and policy responses (e.g. programmes and projects) in relation to the unemployed**.

Making sense of the evidence about unemployed people's digital inclusion: What matters and to whom?

1. Context

Rapid technological change, the pervasive/ubiquitous use of ICTs and increased digitalisation currently underpinning the EU's on-going and long-term structural transformation towards a knowledge based and digitised economy are already having significant repercussions for the organisation of production and work and associated knowledge, skills and competence requirements. The on-going **'fourth' industrial revolution (4IR)** encompassing technological advances linked to further automation, robotics, machine learning, artificial intelligence (AI), 3D printing as well as the 'Internet of things', is expected to have major and lasting effects on the structure of employment (including job profiles and content, work tasks and associated) in the future.[1] Indeed, it is **leading to a fundamental, drastic and rapid transformation to the world of work** as well as the economy and society more generally.[2]

Digitalisation and the pervasive use of rapidly changing technologies are likely to dramatically reshape the structure of employment and labour markets in the long run, generate as well as 'destroy' jobs and change the types of skills (and skills mix) that workers of tomorrow will need.[3] In general, there is wide agreement that technological advances and digitalisation is in the process of transforming the nature, type and content of work (and associated employment structures and jobs) by, *inter alia*, giving rise to

[1] European Commission, (2018a). *Employment and Social Developments in Europe – Annual Review 2018*, Brussels, https://ec.europa.eu/commission/news/employment-and-social-developments-europe-2018-jul-13_en; European Commission, (2016a). *Employment and Social Developments in Europe – Annual Review 2016*, Brussels, https://ec.europa.eu/social/main.jsp?langId=en&catId=89&newsId=2704&furtherNews=yes; Cedefop (2016). *European sectoral trends the next decade*, http://www.cedefop.europa.eu/en/publications-and-resources/publications/8093

[2] European Commission, (2016a and 2018a). *Ibid.*; European Economic and Social Committee (EESC) (2017). *Impact of digitalisation and the on-demand economy on labour markets and the consequences for employment and industrial relations*, https://www.eesc.europa.eu/en/our-work/publications-other-work/publications/impact-digitalization-and-demand-economy-labour-markets-and-consequences-employment-and-industrial-relations; Nedelkoska, L. and Quintini, G., (2018), 'Automation, skills use and training', *OECD Social, Employment and Migration Working Papers*, No. 202, OECD Publishing, Paris. http://dx.doi.org/10.1787/2e2f4eea-en

[3] Bowels, J., (2014). 'The computerisation of European jobs', *Bruegel Blogs*, 24/7/2014, http://bruegel.org/2014/07/the-computerisation-of-european-jobs/

new jobs – technology generating new employment opportunities (*compensation effect*) – at the same time as making other jobs redundant – technology substituting labour/workers (*substitution effect*).[4]

Although the impact of ICT developments and digitalisation is variable across different occupations and sectors, whatever these actual effects are, there is widespread agreement that **re-qualification/reskilling and upskilling play a key role in**, for example, **mitigating the difficult transitions workers whose skills have been rendered obsolete** by technological progress, **or in equipping people with the relevant high-level ICT skills** to successfully fill in the growing number of ICT specialist jobs.[5] Increased digitalisation has given rise not only to new job profiles (e.g. ICT specialists) and related demand, but also affected (new) skills requirements at all levels (basic, medium advanced) that encompass all sectors and all Europeans.[6]

To this end, the **digitalisation of the EU's economy requires a re-skilling and up-skilling of all its citizens** in general and its workforce in particular. Moreover, **such re-skilling and upskilling should be supported on a continuous basis** since ICT-related and digital skills (together with language skills) are cited as being at greatest risk of becoming outdated.[7] Against the backdrop of the ongoing technological and digital transformation/revolution, digital skills have not only become critical but also ubiquitous in all aspects of personal and professional life, including the workplace. These can ensure that one both capitalises on the new opportunities provided by the ongoing digitalisation of the economy and has the required skills set to survive and thrive in the new work environment. Indeed, the **European Commission regards the acquisition of digital skills as vital for employability, jobs, innovation, competitiveness and growth**.[8]

Moreover, such skills together with easy, affordable and secure access to ICTs underpinned by fast, reliable and high-quality connectivity and broadband coverage are seen as fundamental in supporting the twin green and digital transitions of the EU. Indeed, according to the European Commission's **European Skills Agenda**, the **Covid-19 pandemic has accelerated the digital transition and**, as such, **a step-change in digital skills is required**.[9] To this end, the Agenda sets a specific objective: **by 2025,** 230 million adults (i.e. **70% of the EU's adult population** as opposed to 56% in 2019) **should have at least basic digital skills**.

This is due to the fact that, despite (slow) progress over the past few years, a **large number of European citizens still lack basic digital skills deemed essential for fully participating in today's digital society and economy** and thriving both personally and professionally. According to the latest European Commission data, in **2019, 42% of the EU's population lacked basic digital skills** (see Figure 1 below).[10,11]

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[4] European Economic and Social Committee (EESC) (2017). *Op.Cit.*; European Commission, (2016a and 2018a). *Op.Cit.*; Nedelkoska, L. and Quintini, G., (2018). *Op.Cit.*; Bowels, (2014). *Op.Cit*.

[5] Nedelkoska, L. and Quintini, G., (2018). *Op.Cit.*; European Economic and Social Committee (EESC) (2017). *Op.Cit.*

[6] European Commission, (2016a and 2018a). *Op.Cit.*

[7] Cedefop, (2012). *Preventing skill obsolescence*, Briefing Note, http://www.cedefop.europa.eu/en/publications-and-resources/publications/9070

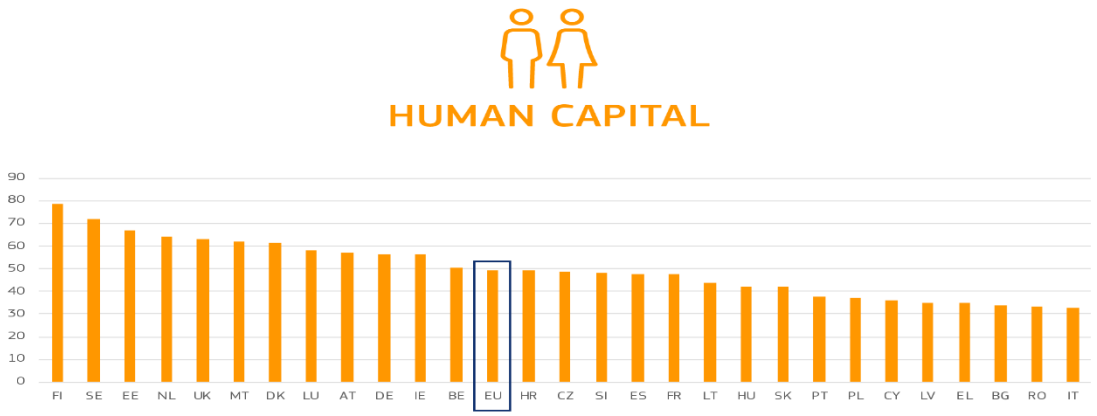
[8] *Ibid.*

[9] European Commission, (2020c). *European Skills Agenda for sustainable competitiveness, social fairness and resilience*, Commission Communication, COM(2020) 274 final, Brussels, 1.7.2020, https://ec.europa.eu/transparency/regdoc/rep/1/2020/EN/COM-2020-274-F1-EN-MAIN-PART-1.PDF

[10] European Commission, (2020a). *Digital Economy and Society Index Report 2020 - Human Capital – Digital Inclusion and Skills*, https://ec.europa.eu/digital-single-market/en/human-capital

[11] According to the European Commission, '*Digital skills* can be defined as "the confident, critical and responsible use of, and engagement with, digital technologies for learning, at work, and for participation in society". They include information and data literacy, communication and collaboration, media literacy, digital content creation (including programming), safety (including digital well-being and competences related to cybersecurity), intellectual property related questions, problem solving and critical thinking.' See - European Commission, (2020b). *Proposal for a Council Recommendation on A Bridge to Jobs - Reinforcing the Youth Guarantee*, Part 1, SWD(2020) 124 final, Brussels, 1.7.2020, https://eur-lex.europa.eu/resource.html?uri=cellar:32c90ad7-bc3b-11ea-811c-01aa75ed71a1.0001.02/DOC_1&format=PDF

Figure 1: Digital Economy and Society Index (DESI) 2020 – Digital skills of EU population in 2019



Source: European Commission - Digital Economy and Society Index Report 2020 - Human Capital, https://ec.europa.eu/digital-single-market/en/human-capital-and-digital-skills

Yet, as both the 2018 European Commission's **Digital Education Action Plan**[12] and its recently published successor, **Digital Education Action Plan 2021-2027**,[13] stress, 90% of jobs today already require some level of digital literacy/skills, with some requiring very high levels of professional ICT skills. However, **35% of the EU's workforce lacks even the basic digital competences** that these jobs require, while 38% of companies report that such digital illiteracy has an adverse impact on their performance.[14] This, in turn, highlights the need to strengthen digital skills horizontally across all skills levels.[15] Indeed, one of the key aims of the **Digital Skills and Jobs Coalition**,[16] set up by the European Commission in December 2016 as one of the ten key initiatives of its **New Skills Agenda for Europe**, is to help all Europeans acquire the necessary digital skills to thrive both personally and professionally and fully participate in today's digital society and economy.[17]

The **importance of digital skills as a key factor for the success of the digital** (and green) **transition** that the EU is currently undergoing, has been further underlined by the **European Skills Agenda for sustainable competitiveness, social fairness and resilience**, published on 1st July 2020.[18] This agenda comprises 12 actions built around four building blocks. The provision of **digital skills** – both basic and advanced – **is a cross-cutting theme of** a number of **these actions** such as *Action 1* (**Pact for Skills**), *Action*

[12] European Commission, (2018b). *Digital Education Action Plan*, https://ec.europa.eu/education/education-in-the-eu/digital-education-action-plan_en
[13] European Commission, (2020). *Digital Education Action Plan 2021-2027 - Resetting education and training for the digital age*, COM(2020) 624 final, Brussels, 30.9.2020, https://ec.europa.eu/education/sites/education/files/document-library-docs/deap-communication-sept2020_en.pdf
[14] *Ibid.*; European Commission, (2018c). *Digital Skills and Job Coalition in a Nutshell 2018*, 31/7/2018, https://ec.europa.eu/digital-single-market/en/news/digital-skills-and-jobs-coalition-nutshell
[15] *Ibid.*
[16] European Commission, (2016b). 'Commission launches Digital Skills and Jobs Coalition to help Europeans in their career and daily life', *Press Release*, 1/12/2016, https://ec.europa.eu/commission/presscorner/detail/en/IP_16_4081
[17] European Commission, (2018c). *Op.Cit.*
[18] European Commission, (2020c). *European Skills Agenda for sustainable competitiveness, social fairness and resilience*, Commission Communication, COM(2020) 274 final, Brussels, 1.7.2020, https://ec.europa.eu/transparency/regdoc/rep/1/2020/EN/COM-2020-274-F1-EN-MAIN-PART-1.PDF

3 (EU support for strategic national upskilling action) and, notably, *Action 6* (Skills to support the twin green and digital transitions).[19]

Moreover, one of the two key strategic priorities of the newly published Digital Education Action Plan 2021-2027 mentioned above is to enhance the digital skills and competences of EU's population in line with the EU's ongoing (and even accelerating) digital transformation.[20] This, *inter alia*, involves the development of

(i) basic digital skills and competences from an early age in terms of
   a. digital literacy, including managing information overload and fighting disinformation
   b. computing education and
   c. good knowledge and understanding of emerging and data-intensive technologies, such as artificial intelligence (AI)

(ii) advanced digital skills which are becoming increasingly important in terms of EU's economic growth and global competitiveness.

The development of such advanced digital skills is deemed of fundamental importance for the future prosperity of the EU and its citizens. As pointed out by the European Commission, the current lack of mid- to specialist digital skills is not only limiting Europe's growth potential – especially vis-à-vis its main global competitors such as the US and China – but also can also hinder its ambition to become a global leader in future technologies that 'build on digital', such as AI or quantum computing.[21]

Significantly, in view of the considerable skills shortages that EU employers face in recruiting staff with advanced digital skills, the provision of such skills which are highly sought for in the labour market – e.g. through upskilling of the unemployed – can considerably contribute to effectively fighting unemployment. As the Commission Staff Working Document accompanying the Plan stresses,

> *'To thrive in a technology-driven economy, Europe needs a digitally competent workforce and a large pool of digital talent with basic and advanced digital skills, including those related to emerging technologies such as Artificial Intelligence*.'[22]

Reflecting the increasing importance of such skills, the EU's Digital Europe Programme, which seeks to accelerate the post-Covid-19 recovery and digital transformation of Europe, also plans to invest €600 million in the development of advanced digital skills by supporting (i) the design and delivery of specialized programmes and traineeships for the future experts in key capacity areas such as data and

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[19] *Ibid.*; European Commission, (2020). *European Skills Agenda Factsheet*, 2/7/2020, https://ec.europa.eu/social/main.jsp?catId=1223

[20] *Digital transition (digitisation)* refers specifically to the conversion of information or data from analogue to digital format. *Digital transformation (digitalisation)*, by contrast, refers to the adoption or increase in use of digital technology by an organisation, an industry, or a country and therefore describes more generally the way digitisation is affecting economy and society. See OECD, (2017). *Going Digital: Making the Transformation Work for Growth and Well-Being*, Report, Paris: OECD publishing, https://www.oecd.org/mcm/documents/C-MIN-2017-4%20EN.pdf

[21] European Commission, (2019). *10 Trends shaping the Future of Work in Europe*, 21/11/2019, https://op.europa.eu/en/publication-detail/-/publication/e77a1580-0cf5-11ea-8c1f-01aa75ed71a1/language-en/format-PDF/source-121729338

[22] European Commission, (2020). *Digital Education Action Plan 2021-2027 - Resetting education and training for the digital age*, Commission Staff Working Document, SWD(2020) 209 final, Brussels, 30.9.2020, https://ec.europa.eu/education/sites/education/files/document-library-docs/deap-swd-sept2020_en.pdf

AI, cybersecurity, quantum and high power computing; and (ii) the upskilling of the existing workforce through short and targeted training courses in key capacity areas.[23]

In addition, the **Digital Education Action Plan 2021-2027** which has also been informed by lessons drawn from (and challenges thrown up by) the unprecedented use of ICTs for work and educational purposes during the Covid-19 crisis **aspires to develop a high-performing digital education ecosystem**.[24] This, *inter alia*, includes effectively addressing issues relating to digital infrastructure and equipment as well as accessibility and connectivity. For example, at present there are still **significant gaps as regards availability of** and access to computers and **connectivity**, especially for **children and young people from low-income families, disadvantaged backgrounds** and **remote areas**.[25]

Yet, there are significant digital skills deficits and mismatches across the EU and between different segments of the EU's population. For example, as **Cedefop's European skills and jobs survey (ESJS)** has shown, even in 2014-15, seven in 10 (71%) adult employees need some fundamental level (i.e. basic or moderate) of digital skills to perform their jobs, while at the same time, about one in three of these employees are at risk of digital skills gaps.[26] Even beyond the EU, according to the **OECD's PIAAC[27] survey** (Survey of Adult Skills) across the OECD countries (which include most Member States), only 31% of adults are deemed to have sufficient problem-solving skills in technology rich environments to make the best of the digital world.[28] This digital skills deficit is particularly noticeable among those aged over 55.[29]

The **digital skills gap is also particularly pronounced among EU's unemployed population** with obvious adverse implications about their employability and job prospects in today's increasingly digitalised economy. Indeed, as a recent Cedefop report highlighted, across the EU the top three subgroups with most potential for upskilling are: the unemployed and the inactive aged 55-64, followed by inactive people aged 35-54. The average risk of low skills in the four skill dimensions considered in the study (i.e. education, **digital skills**, literacy and numeracy) for these groups is between 65% and 73% higher than the risk registered by the overall adult working population aged 25-64.[30] **Unemployed adults** aged 35-54 also have, on average, a high risk of having low digital skills (as well as low education and low cognitive skills (56% higher than the overall population aged 25 to 64).[31] Overall, **unemployed and inactive adults aged 55-64 and 35-54 are at particular risk of being low-skilled in** all skills dimensions examined, including **digital skills**.

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[23] European Commission, (2020). *Digital Europe Programme*, https://ec.europa.eu/digital-single-market/en/news/digital-europe-programme-proposed-eu82-billion-funding-2021-2027

[24] European Commission, (2020). *Digital Education Action Plan 2021-2027 - Resetting education and training for the digital age*, Commission Communication, COM(2020) 624 final, Brussels, 30.9.2020, https://ec.europa.eu/education/sites/education/files/document-library-docs/deap-communication-sept2020_en.pdf

[25] *Ibid.*; Solidar Foundation, (2020). *Updated Digital Education Action Plan (2021-2027) - A question of education and participation or competitiveness?*, Solidar Foundation Briefing Note, 5/10/2020, https://www.solidar.org/en/publications/briefing-note-updated-digital-education-action-plan-2021-2027-a-question-of-education-and-participation-or-competitiveness

[26] Cedefop, (2016). 'The great divide: Digitalisation and digital skill gaps in the EU workforce', *#ESJsurvey Insights*, No 9, Thessaloniki: Greece, https://www.cedefop.europa.eu/files/esj_insight_9_digital_skills_final.pdf

[27] OECD - Programme for the International Assessment of Adult Competencies (PIAAC), https://www.oecd.org/skills/piaac/

[28] OECD, (2019a). *Going Digital: Shaping Policies, Improving Lives, Summary*, http://www.oecd.org/going-digital/going-digital-synthesis-summary.pdf

[29] OECD, (2019). *Preparing for the Changing Nature of Work in the Digital Era*, March, https://www.oecd.org/going-digital/changing-nature-of-work-in-the-digital-era.pdf

[30] Cedefop, (2020a). *Empowering adults through upskilling and reskilling pathways - Volume 1: Adult population with potential for upskilling and reskilling*, https://www.cedefop.europa.eu/files/3081_en.pdf

[31] *Ibid.*

Significantly, the **Covid-19 pandemic** and the much wider reliance and use of ICTs (e.g. during lockdowns for personal and professional purposes such as remote working) **has increased digital inequality**, not least **by exacerbating the digital skills gap** that already existed.[32] For example, the proportion of Europeans who work remotely shot up from about 5% pre-Covid-19 to about 40% as a result of the pandemic.[33] According to Eurofound estimates, during the pandemic, almost 4 in 10 employees (37%) started teleworking, which for most Member States represented over 30%.[34]At the same time, the European Commission in its recently launched **European Skills Agenda**, emphasises that, as a result of the Covid-19 pandemic, **new inequalities are emerging as many European citizens do not have the required level of digital skills**.[35]

For example, **most public employment services (PES) moved their employment/training intermediation and advice services as well as labour market programmes online** or provided them by telephone.[36] This unavailability of in-person services during the height of the pandemic in spring 2020 which was offset by, for example, provision of online training and career advice and guidance, has had immediate and adverse implications for those with no or low digital skills (and/or no or limited access to ICTs). Indeed, **equity has now emerged as a key concern, as** low-skilled or low-wage workers or **jobseekers who did not have sufficient digital skills or access to (high-speed) internet could not benefit from such online services**.[37]

To this end, as the recent **European Parliament's call for concrete and swift measures to close the digital gap in education** underlines, the pandemic has exposed a growing digital divide which is making existing inequalities worse and leaving behind those who are already at a disadvantage.[38] On a related note, as has been argued, 'the experience of the Covid-19 lockdown will further increase the premium of digital skills.'[39] As the pandemic and associated confinement measures starkly highlighted, digital skills essential not only for working and learning, but also for social interaction, leisure activities, shopping and access to services such as e-health.

The urgent need for digital education that spans the full range from digital literacy to proficiency among the European citizens has also been underlined by the **European Commission's High-Level Expert Group on Impact of the digital transformation on EU labour markets**.[40] Indeed, as discussed in the next section, the urgency of providing such digital education and/or upskilling to European citizens, including the

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[32] European Commission, (2020c). *European Skills Agenda for sustainable competitiveness, social fairness and resilience*, COM(2020) 274 final, Brussels, 1.7.2020, https://ec.europa.eu/transparency/regdoc/rep/1/2020/EN/COM-2020-274-F1-EN-MAIN-PART-1.PDF

[33] Ceurstemont, S., (2020). *Op.Cit.*

[34] Eurofound, (2020). *Living, working and COVID-19: First findings – April 2020*, 6/5/2020, https://www.eurofound.europa.eu/sites/default/files/ef_publication/field_ef_document/ef20058en.pdf

[35] European Commission, (2020c). *Op.Cit.*

[36] ILO, (2020). *COVID-19: Public employment services and labour market policy responses*, ILO Policy Brief, 17/8/2020, https://www.ilo.org/wcmsp5/groups/public/---ed_emp/documents/publication/wcms_753404.pdf

[37] OECD, (2020a). *Skill measures to mobilise the workforce during the COVID-19 crisis*, Policy Brief, 10/7/2020, https://read.oecd-ilibrary.org/view/?ref=135_135193-hgf8w9g731&title=Skill-measures-to-mobilise-the-workforce-during-the-COVID-19-crisis

[38] European Parliament, (2020a). *COVID-19: MEPs call for measures to close the digital gap in education*, Press Release, 23/9/2020, https://www.europarl.europa.eu/news/en/press-room/20200918IPR87428/covid-19-meps-call-for-measures-to-close-the-digital-gap-in-education

[39] Miyamoto, H. and Suphaphiphat, N., (2020). *Mitigating Long-term Unemployment in Europe*, IMF Working Paper WP/20/198, August, https://www.imf.org/en/Publications/WP/Issues/2020/08/21/Mitigating-Long-term-Unemployment-in-Europe-49678

[40] European Commission, (2019a). *Impact of the Digital Transformation on EU Labour Markets*, High-Level Expert Group Report for DG EMPL and DG CONNECT, April, https://ec.europa.eu/digital-single-market/en/news/final-report-high-level-expert-group-impact-digital-transformation-eu-labour-markets

unemployed lies at the heart of a plethora of policies, programmes, initiatives and projects implemented at EU, national, regional, local, sectoral and, even, company levels.

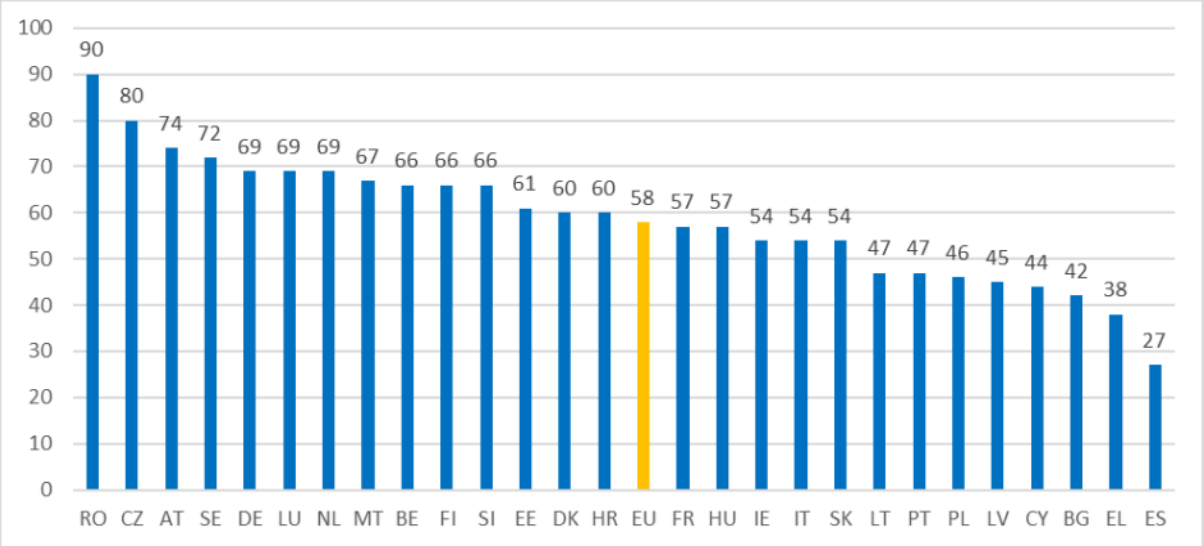
2. Policy responses/projects

Recognising the importance of digital literacy for getting on in life and work, there is a strong policy focus on equipping people – in this case, the unemployed and the inactive – with the necessary digital skills (at all levels) and allow them to, *inter alia*, make the most of the internet and digital technologies. Moreover, the **ongoing digital revolution has not only created the need re-skilling/upskilling European citizens/workers** so as they acquire the necessary ICT-related skills, **but also generated a raft of new job profiles** (e.g. ICT professionals) **whose current and future employment levels** (and prospects) **are on the rise**. For example, demand for science, technology, engineering and mathematics (STEM) professionals in Europe will expand by some 8% until 2025.[41]

At the same time, **European labour markets are characterised by** long-standing and **significant skills shortages in STEM occupations**: in 2017, 40% of enterprises reported recruitment difficulties as regards ICT specialist jobs, while 38% stressed that the lack of digital skills adversely impacted their performance through for example, loss of productivity (for 46%) and fewer customers (for 43%).[42] According to European Parliament estimates, there are currently more than 350,000 vacancies in Europe for highly skilled technical experts in areas such as artificial intelligence, data analytics and cybersecurity.[43] The European Commission's estimates are much higher: vacancies for ICT specialists across the EU exceed one million.[44] As Figure 2 below shows, in 2019, 58% of employers across the EU reported difficulties in recruiting ICT specialists – albeit with considerable variations between countries and companies.[45] For example, two thirds of large enterprises and over half (57%) of small and medium-sized enterprises (SMEs) reported such difficulties.[46]

Figure 2: Hard-to-fill vacancies for ICT specialists (2019)

[41] Berger, T. and Frey, C. B. (2016). *Digitalisation, Jobs, and Convergence in Europe: Strategies for Closing the Skills Gap*. Prepared for the European Commission DG Internal Market, Industry, Entrepreneurship and SMEs
[42] European Commission, (2017a). *A Digital Europe needs Digital Skills Factsheet*, December, https://ec.europa.eu/digital-single-market/en/news/digital-europe-needs-digital-skills
[43] European Parliament, (2019). *Digital Transformation*, European Parliamentary Research Service (EPRS) Briefing, https://www.europarl.europa.eu/RegData/etudes/BRIE/2019/633171/EPRS_BRI(2019)633171_EN.pdf
[44] European Commission, (2019b). *Annual Sustainable Growth Strategy 2020*, SWD(2019) 444 final, Brussels, 17.12.2019, https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52019SC0444&from=EN
[45] European Commission, (2020). *Digital Education Action Plan 2021-2027 - Resetting education and training for the digital age*, Commission Staff Working Document, SWD(2020) 209 final, Brussels, 30.9.2020, https://ec.europa.eu/education/sites/education/files/document-library-docs/deap-swd-sept2020_en.pdf
[46] *Ibid.*



Source: Eurostat (2019) - Percentage of enterprises that recruited or tried to recruit ICT specialists, without financial sector cited in European Commission, (2020). Digital Education Action Plan 2021-2027 - Resetting education and training for the digital age, Commission Staff Working Document, SWD(2020) 209 final, Brussels, 30.9.2020, https://ec.europa.eu/education/sites/education/files/document-library-docs/deap-swd-sept2020_en.pdf

Clearly, the ongoing digital transformation of the EU's economy and its digital (as well as green) transitions all have profound employment implications for its labour markets, while their considerable employment growth potential can help address unemployment, at least to some extent. For example, according to OECD, 40% of new jobs generated between 2006 and 2016 were in digitally-intensive sectors.[47] On a related note, as the European Joint Research Centre (JRC) underlined in a recent report, most occupations that grew in the EU since 2011 are rich in social interactions and require above-average ICT skills.[48]

Since at least basic digital skills are now required by 90% of jobs, the provision of such skills to all EU citizens, including the unemployed is seen as an urgent priority across the EU. This is all the more urgent since the **level of digital skills is particularly low among the unemployed** and those with low to medium formal education.[49] Indeed, both the EU and its Member States have embarked on **major upskilling/ reskilling initiatives aimed at providing the unemployed with the required digital skills** to either (re) enter and progress in the labour market and/or use these as the basis for further upskilling and specialisation in the digitally-intensive occupations and/or sectors.

Indeed, the available jobs in the EU's labour markets are already demanding more non-cognitive and digital skills, and specifically a combination of both. Crucially, as is widely accepted, **a moderate level of digital skills** (e.g. using new digital devices) and **strong non-cognitive – i.e. social, emotional and interpretative skills** (e.g. empathy, communication, teamworking) **will be required for most jobs in the**

[47] OECD, (2019a). *Op.Cit*
[48] JRC, (2019a). *The changing nature of work and skills in the digital age*, https://ec.europa.eu/jrc/en/publication/eur-scientific-and-technical-research-reports/changing-nature-work-and-skills-digital-age
[49] *Ibid.*

future, i.e. up to 2030. During the same period, **over half of the EU Member States** are also expected to suffer from considerable mismatches in advanced digital skills.[50]

Interestingly, **digital skills can make up for the lack of formal higher qualifications**, while the opposite does not hold true.[51] Specifically, as has OECD analysis of the labour market outcomes of digital skills has shown, 'skills and readiness to use ICT for problem solving leads to substantially higher returns even for individuals with low levels of formal qualifications.'[52] At the same time, again based on OECD analysis of its PIAAC database, there is evidence that **better digital skills are systematically related to higher wages**: Workers with no digital skills earn 18% less per hour, on average, than those who perform at even the lowest level (Level 1) of proficiency in the PIAAC survey, i.e. who have basic digital skills.[53] On the other hand, lack of digital skills can considerably damage one's wage prospects.[54]

In view of the above discussion which highlights both the employment-related challenges and opportunities that digital skills (and careers) entail, it is no surprising that, as described in the following section, there is currently such a major policy push in the digital education and/or upskilling of the EU's unemployed population. This can take the form of either national **programmes and strategies aimed at the entire population, including the unemployed** and/or **programmes, policies and/or projects specifically targeted at the unemployed or particular sub-groups** such as the long-term unemployed, older job seekers, unemployed women, young people not in employment, education or training (NEETs).

2.1. National programmes

In view of the EU's ongoing digital transition and associated skills and employment implications, most Member States have introduced

For example, in 2017, Portugal launched the large-scale **Portugal INCoDe.2030 programme** aimed at addressing the significant and growing digital skills deficit among its population (see Table below).[55] This national programme caters for different segments of the Portuguese population, including the unemployed (see Table below).

Table 1: National Digital Competences Initiative e.2030 - Portugal INCoDe.2030 (Portugal)

Project Name	National Digital Competences Initiative e.2030 - Portugal INCoDe.2030
Start/End Date	2017 - 2030
Partners	Portugal INCoDe.2030 is a joint inter-departmental initiative aimed at the provision of integrated digital skills policies. To this end, a wide range of governmental and non-governmental organisations are involved:

[50] *Ibid.*
[51] JRC, (2019b). *The impact of Technological innovation on the Future of Work*, JRC Technical Report, https://ec.europa.eu/jrc/sites/jrcsh/files/jrc117212.pdf
[52] OECD, (2016a). *Innovating Education and Educating for Innovation - The Power of Digital Technologies and Skills*, http://www.oecd.org/education/ceri/GEIS2016-Background-document.pdf
[53] *Ibid.*
[54] JRC, (2019a). *Op.Cit*
[55] https://fit.ie/

	• Ministry of Science, Technology and Higher Education (*Ministério da Ciência, Tecnologia e Ensino Superior/*MCTES) (in the lead) • Ministry of Education (responsible for the education axis of the strategy) • National Institute of Administration (INA), responsible for part of strategy aimed at enhancing public administration's digital skills) • Other Ministries (e.g. Ministry of Economy, Ministry of Finance, Ministry of Labour, Solidarity and Social Security, Ministry of Planning and Infrastructure) • Fundação para a Ciência e a Tecnologia (FCT) (public agency under MCTES supporting science, technology and innovation) • Cohesion and Development Agency • National Agency for Qualification and Vocational Education and Training (*Agência Nacional para a Qualificação e o Ensino Profissional/*ANQEP) • Co-ordinating Council of the System for the Anticipation of Skills Needs • Sector Qualifications Councils • High Commission for Migration • National Youth Council • National Federation of Youth Associations • Industry/Private sector • Municipalities • Civil society organisations (CSOs) • Non-governmental organisations (NGOs)
Project funding	Mix of public, private and EU funding. At least €2,000,000 (public national funding). Part of Axis 3 (Qualification) is funded by ESF: Activity 3.1 and Activity 3.7 (giving adults, workers and the unemployed, including the long-term unemployed, the opportunity to upgrade skills and obtain qualifications)
Project target group	The general population, including workers; the unemployed, including the long-term unemployed; vulnerable groups, e.g. women, the disabled, people with special needs INCoDe.2030 expects to engage at least 20,000 participants in by 2020
Project description	INCoDe.2030 is a national programme launched in April 2017 and further reinforced in 2018 aimed at addressing Portugal's significant digital skills gap by enhancing the digital competences of the country's population, including both workers and the unemployed. Indeed, one of its key objectives is to enhance the digital literacy and inclusion of citizens. INCoDe.2030 also seeks to strengthen Portugal's position in the European Commission's DESI Index (Digital Economy & Society Index), increasing the country's competitiveness by promoting digital skills. To this end, its actions are based on five axes of intervention: (i) inclusion; (ii) education; (iii) qualification; (iv) specialisation; and (v) research. As regards the Inclusion Axis, a number of activities are being implemented. For example, to date 10 *Creative Communities for Digital Inclusion (CCDIs)* – deemed essential for developing and promoting digital

	literacy/inclusion pilot projects across Portugal – have been developed in close collaboration with municipalities and other organisations. CCDIs are expected to help vulnerable and digital excluded communities develop the necessary digital competences and understand the living and working implications of the ongoing digital transformation and particularly artificial intelligence (AI). Currently, through these 10 CCDIs 750 people are benefiting from digital skills training provided by 40 different mentors.[56] Another activity linked to the CCDIs is the *mentoring training programme for the digital inclusion of vulnerable people*. This 22-hour training programme comprises five modules, is delivered by the Faculty of Psychology and Education Sciences of the University of Porto and seeks to train mentors and provide them with essential knowledge and pedagogical tools regarding digital inclusion, socio-economic analysis and technical problems.[57] The *Digital Expertise Self-Diagnosis Tool*, developed by School of Technology and Management of Viseu and co-ordinated by FCT is another action supported by INCoDe.2030. This an online system that allows any citizen to benchmark their level of digital skills, built on the Portuguese dynamic digital competences reference framework that was launched in October 2019 and is in line with the European Digital Competence Framework for Citizens – DigComp 2.0.[58] *Digital skills training* from the user's perspective, including the most vulnerable groups constitutes another major area of intervention under INCoDe.2030. This training, made available by the Institute for Employment and Vocational Training (IEFP), is aimed at helping participants acquire the necessary competences for full digital citizenship, including access to online public services. Particular attention is given to the most vulnerable groups of citizens and to digital mediators by creating specific campaigns aimed at these groups. Indeed, INCoDe.2030 also supports *awareness raising campaigns* aimed at informing citizens about both the importance of digital competences in today's (digitised) world and the availability of digital skills training programmes. The programme's awareness raising campaigns pay special attention to and seek to reach out to information-excluded and/or vulnerable groups as well as address specific group-related issues such as those pertaining to women (e.g. strengthening gender equality in terms of access to and development of digital competences as well as ICT-related careers), the disabled and those with special needs. Finally, INCoDe.2030 also envisages the creation of a *digital resource platform* and *free access to digital training support*. The platform, which will aggregate digital resource and serve as their repository, will be in

[56] https://www.incode2030.gov.pt/en/activities/inclusion

[57] The training programme consists of five modules and covers the following topics: Digital Competence and Digital Inclusion; Digital Inclusion of Vulnerable People: strategy frameworks; Mentoring devices, Logic model and relationships; Emotions, communication and interaction; and Active participation in the Digital Economy and Society, see https://www.incode2030.gov.pt/en/featured/mentoria-incode2030-accredited-training-course-digital-inclusion-registrations-are-now-open

[58] https://ec.europa.eu/jrc/en/digcomp/digital-competence-framework

	Portuguese and openly accessible. Its tools aim to meet the needs of different population groups and will be informed by user-centred design.
Project results	According to the first interim review[59] of the independent External Review Committee set up for the programme (see below), INCoDe.2030 is a coherent and very ambitious programme whose strengths include (i) the strong commitment to deliver INCoDe.2030, from all levels of implementation; (ii) the involvement of all regions/areas of the country; (iii) its strong links to industry and "real world"; (iv) the strengthened role of Polytechnic Institutes in forging closer links with companies so as to provide training fit for the digital economy ; (v) and its ambitious Research Programme (Axis 5). As regards Axis 1 (Inclusion), the Committee's recommendations include the following: (i) the need to ensure strong representation from the public library administration and higher education systems. If supported properly, the existing library system infrastructure already in place can be leveraged to reach vulnerable groups. (ii) the need for actions to address gender balance/equality issues and unconscious bias across all five Axes of the programme and not include them exclusively in this axis. According to the latest European Commission's DESI Report for Portugal[60], the 2018 programme results included the following: • a pilot project of e-learning training course for unemployed with 545 successful participants (2017), • 12,586 successful participants in digital skills improvement training courses that integrate online content and services (including modular training, life-long training and inclusion training) • 40 courses with 649 successful participants focusing on programming, information security, data science, digital marketing, etc.
Medici cluster	C The INCoDe.2030 programme is evaluated annually by a panel of independent experts – the External Review Committee[61] – against a set of detailed goals/targets/objectives for 2020, 2025 and 2030. These targets refer to five areas: (i) investment; (ii) access; (iii) human capital; (iv) usage; and (v) training and certification. For example, INCoDe.2030 programme include quantified targets such as[62] • 20,000 enrolments in digital literacy programmes by 2020

[59] *High Level External Review Committee, (2019). High Level Review Committee - Interim Report presentation, 31/7/2019,* https://www.incode2030.gov.pt/sites/default/files/high_level_review_committee_interim_report_2019_0.pdf

[60] European Commission, (2019c). *Monitoring Progress in National Initiatives on Digitising Industry - Country report – Portugal,* VVA for the European Commission, https://ec.europa.eu/information_society/newsroom/image/document/2019-32/country_report_-_portugal_-_final_2019_0D313AC4-9C8E-F45B-AA1BFF19CC713C17_61218.pdf

[61] INCoDe.2030 External Review Committee, https://www.incode2030.gov.pt/en/evaluation-committee

[62] OECD, (2018). *Skills Strategy Implementation Guidance for Portugal: Strengthening the Adult-Learning System*, OECD Skills Studies, OECD Publishing, Paris, https://www.oecd.org/skills/nationalskillsstrategies/Action-Report-Portugal.pdf

	• 2% of GDP invested in R&D by 2025 (and 3% by 2030) and • 80% of the population with basic digital skills by 2030
Project website	https://www.incode2030.gov.pt/

Source: Portuguese Government, (2017). Portugal INCoDe.2030 – National Digital Competences Initiative e.2030, https://www.incode2030.gov.pt/sites/default/files/incode2030_en.pdf; Portuguese Government, (2019). AI Portugal 2030, National Digital Competences Initiative e.2030, https://www.portugal.gov.pt/download-ficheiros/ficheiro.aspx?v=5476a28b-cb00-4b20-b233-ad888206e1b3; European Commission, (2019). Monitoring Progress in National Initiatives on Digitising Industry - Country report – Portugal, VVA for the European Commission, https://ec.europa.eu/information_society/newsroom/image/document/2019-32/country_report_-_portugal_-_final_2019_0D313AC4-9C8E-F45B-AA1BFF19CC713C17_61218.pdf

Likewise, Luxembourg's **DIGI4ALL project** which is closely linked to the country's **Digital Inclusion initiative**[63] is also primarily targeted at jobseekers (and refugees) (see Table below). Through its IT classes and workshops, the Digi4All project aims to equip participants – typically jobseekers and other vulnerable groups such as refugees – with essential digital literacy skills and computer knowledge with a view to addressing Luxembourg's digital divide and skills gap. Significantly both Luxembourg's DIGI4ALL project and Digital Inclusion initiative have been identified by the European Commission as good practice examples of digital inclusion.[64]

Table 2: DIGI4ALL (Luxembourg)

Project Name	**DIGI4ALL project, Luxembourg**
Start/End Date	2018 - 2019
Partners	• Digital Inclusion a.s.b.l. (the social enterprise implementing the project) • Luxembourg's Ministry of Labour • ADEM (Luxembourg's PES) • OEuvre Nationale de Secours Grande-Duchesse Charlotte • Private sector organisations (State Street Bank, Banque de Luxembourg, Baker McKenzie, BGL BNP Paribas, Prisma, and CompuTrade) • NGOs (Red Cross and Caritas)
Project funding	**Total cost**: €350,000 **ESF**: €175,000
Project target group	Primarily jobseekers

[63] https://digital-luxembourg.public.lu/initiatives/digital-inclusion

[64] Ledan, A., (2019). *Inspirational Practices for Tomorrow's Inclusive Digital World*, Technical Dossier No 10, ESF Transnational Platform, May, file:///C:/Users/k.hadjivassiliou/Downloads/gp_daily_WEB_KEPB19001ENN_002.pdf.en.pdf

Project description	Through its IT classes and workshops, the Digi4All project aims to equip participants – typically jobseekers and other vulnerable groups such as refugees – with essential digital literacy skills and computer knowledge with a view to addressing Luxembourg's digital divide and skills gap. Indeed, the Digi4All project is a key part of the country's Digital Inclusion initiative and contributes to its broader goals. These include the provision of access to digital communication and technical equipment to all citizens and the promotion of social inclusion through digital technology and development of digital literacy skills for all. To this end, the Digital Inclusion initiative has expanded its offer with a programme of ICT-e classes and workshops The Digi4All project's IT classes and workshops were provided by Digital Inclusion a.s.b.l. in collaboration with the Ministry of Labour and the ESF. Although Digi4All classes were primarily designed for jobseekers, they were open to everyone. The classes covered subjects which helped participants develop autonomous computer use in both in daily life and at work. As such, they focused on digital and media literacy as well as broader employability skills. Significantly, they also included established IT qualifications such as European Computer Driving Licence (ECDL) (and associated test).
Project results	According to Digital Inclusion a.s.b.l. – the social enterprise implementing Digi4All, the programme widened access to 'digital society among people who did not have the tools or knowledge before, and also improved access to the job market. It complemented Digital Inclusion's efforts to equip Luxembourg residents who could not otherwise afford it with IT equipment'.[65]
Medici cluster	A
Project website	https://digital-inclusion.lu/

Source: DG EMPL, Digital Inclusion offers IT skills to everyone - Digi4All project, 16/12/2019, https://ec.europa.eu/esf/main.jsp?catId=46&langId=en&projectId=3197; Ledan, A., (2019). Inspirational Practices for Tomorrow's Inclusive Digital World, Technical Dossier No 10, ESF Transnational Platform, May, file:///C:/Users/k.hadjivassiliou/Downloads/qp_daily_WEB_KEPB19001ENN_002.pdf.en.pdf

Finland's ***Digiaikakauden Taidot*** (The Digital Age Skills programme) is a national initiative also aimed at enhancing the digital skills of the unemployed and other vulnerable groups (See Table below). Here in line with the long tradition of the important role that liberal adult education has played in improving basic and digital skills in that country, the Finnish government together with the National Agency for Education (EDUFI) is supporting the well-established network of 'liberal' education centres[66] to

[65] http://digital-inclusion.lu/digi4all-program-info/

[66] These include adult education centres, community colleges, learning/study centres, folk high schools, sports centres, summer schools/universities, etc.. See EACEA – Finland, https://eacea.ec.europa.eu/national-policies/eurydice/content/adult-education-and-training-25_en

provide the unemployed and those at risk of unemployment as well as low-qualified adults and migrants with essential digital competences.[67]

Table 3: Digiaikakauden Taidot (The Digital Age Skills programme) (Finland)

Project Name	Digiaikakauden Taidot (The Digital Age Skills programme) (Finland)
Start/End Date	2018 - 2020
Partners	• Ministry of Education and Culture (which initiated the programme) • National Agency for Education (EDUFI) (responsible for coordinating and allocating the funding directed for digital skills education) • Adult education providers, including folk high schools, community colleges, learning centres and other free adult education institutions (which have to submit proposals to access the funding available)
Project funding	€7,000,000 To date, 84 training projects have been funded.
Project target group	The unemployed and those at risk of unemployment as well as job seekers in general; low-level primary education adults; immigrants; and the elderly
Project description	This is a new go national programme aimed at strengthening the basic and digital skills of Finland's employed and unemployed adults by providing funding (e.g. through training vouchers and supporting various training/upskilling projects) for training and other types of support. By offering so-called 'low-threshold' (basic) education and supporting lifelong learning, it aims to prevent inequalities and foster digital inclusion; provide positive learning experiences to those who are disengaged from education and/or have low educational attainment; and strengthen participants' basic and digital skills as well as broader civic skills. To this end, the programme is funding new educational programmes, courses and training models focused on digital competences. The programme supports various adult education institutions so that they provide free and low-threshold (basic) digital skills training to adults, including unemployed adults. To access the programme's funding, these adult education institutions have to submit proposal to the Finnish National Agency for Education (EDUFI) which is responsible for the coordination and distribution of funding aimed at digital skills education. Once the funding is allocated, adult education institutions are expected to work with NGOs and third sector training providers to deliver the digital skills training. This covers both basic and more advanced digital skills with a focus on areas with pronounced skills shortages such as AI and cybersecurity.

[67] Nordic Network for Adult Learning (NVL), (2019). *Basic digital skills for adults in the Nordic countries,* https://epale.ec.europa.eu/sites/default/files/basic_digital_skills_for_adults.pdf

Project results	N/A
Medici cluster	
Project website	https://minedu.fi/-/digiaikakauden-taidot-ohjelma-kaynnistyy-koulutuksiin-haettavissa-7-miljoonaa

Source: European Commission, (2019). Monitoring Progress in National Initiatives on Digitising Industry - Country report – Finland, VVA for the European Commission, https://ec.europa.eu/information_society/newsroom/image/document/2019-32/country_report_-_finland_-_final_2019_0D3030C8-E1C1-39A6-5D48192F99EE4DD4_61204.pdf; NESTA, (2018). Digital Frontrunners Spotlight: Finland, https://www.nesta.org.uk/blog/digital-frontrunners-spotlight-finland/

Quite a few programmes and projects focus on specific sub-groups among the unemployed population, most notably women, young people not in employment, education or training (NEETs), older jobseekers, migrants/refugees and the long-term unemployed.

2.2. Programmes aimed at particular sub-groups of the unemployed population

Quite a few programmes and projects focus on specific sub-groups among the unemployed population, most notably **women, young people not in employment, education or training (NEETs), older jobseekers, migrants/refugees** and the **long-term unemployed**.

2.2.1. Programmes aimed at the long-term unemployed

Given the well-documented scaring effects of long-term unemployment, it is not surprising that many Member States have been targeting the long-term unemployed in their digital upskilling programmes and initiatives. For example, since 1999, Ireland's **Fast Track for - Information Technology programme for long-term unemployed (FIT)** has been providing quality ICT-related training to **long-term unemployed and those at risk of long-term unemployment** as well as early school leavers from disadvantaged communities (see Table below). By pioneering its own methodology for working closely with employers to understand their skills requirements through granular analysis of the skills, knowledge and competencies required which, in turn, informed its wide range of training provision, FIT ensures that its courses are relevant to actual employer requirements and address genuine (and significant) ICT-related skills shortages.

At the same time, by engaging with and providing the long-term unemployed with in-demand ICT skills as well as with essential soft skills (through a model of 'wrap around' of soft skills training) and on-going

career progression and job placement support (e.g. mentoring) for up to three years, FIT's programmes have proved very effective in re-integrating such jobseekers into the labour market and helping them secure quality employment. Indeed, the European Commission has identified FIT as one of the most effective employability initiatives in Europe.[68] Likewise, the OECD has also singled FIT out as an effective example of labour market re-integration of the long-term unemployed.[69]

Table 4: Fast Track to Information Technology (FIT) Training for Employment Programmes (Ireland)

Project Name	Fast Track to Information Technology (FIT) Training for Employment Programmes (Ireland)
Start/End Date	1999 - ongoing

Partners	The programmes are developed and promoted by FIT (Fastrack to Information Technology) – a not-for-profit, industry-led representative organisation of Ireland's technology sector – whose mission is to promote an inclusive 'smart economy' by creating career progression routes to marketable technical skills for people at risk in Ireland's labour market.[70]
	To this end, FIT works closely with
	• the Irish Government,
	• education and training providers,
	• national agencies such as
	  ○ SOLAS (the State agency for the further education and training sector)
	  ○ Quality and Qualifications Ireland (QQI) (national agency responsible for qualifications and quality assurance in further education and training and higher education)
	  ○ Léargas (the National Agency for Erasmus+ in Adult Education, School Education, Vocational Education and Training, and Youth)
	• Education and Training Boards,
	• employers and their associations, including the ICT sector,
	• Regional Skills Fora and local development agencies, and
	• community organisations.

Project funding	
Project target group	Various segments of the Irish population, including the long-term unemployed and jobseekers at risk of (long-term) unemployment, vulnerable workers who require ICT-related upskilling/reskilling (for greater job security) as well as new labour market entrants and early school leavers from disadvantaged communities.

[68] https://www.theparliamentmagazine.eu/news/article/eskills-crossing-the-digital-divide; https://www.jobsexpo.ie/innovative-ict-training-from-fit-find-out-more-at-jobs-expo-cork/

[69] OECD, (2016b). *Skills for a Digital World*, Background Report for the 2016 Ministerial Meeting on the Digital Economy, https://www.oecd-ilibrary.org/docserver/5jlwz83z3wnw-en.pdf?expires=1597695456&id=id&accname=guest&checksum=2F00A7659E0937C4C4F823260B9D0D7B

[70] Fast Track to Information Technology (FIT), (2018). *FIT ICT Skills Audit 2018*, https://fit.ie/wp-content/uploads/2019/08/10170-FIT-2018-ICT-Skills-Audit-Design-F.pdf

Project description	A number of FIT courses aim at the labour market re-integration of the long-term unemployed through ICT skills training. To this end, FIT It develops and promotes technology-based programmes and career development opportunities for Irish job seekers. FIT works in close partnership with Through regular skills audits / needs analysis with its industry partners, FIT determines the impact and skills employment opportunities arising from emerging technology trends and designs training programmes that enable a broad and diverse cohort of people acquire in-demand tech skills identified. Designed for further education and training provision these programmes are delivered with the support and collaboration of Education and Training Boards (ETBs) nationally. FIT tech programmes while responsive to industry demands are built in accordance with requirements and standards of the National Qualifications Framework. FIT equips participants with the necessary technical competencies and people skills when entering the job market. To this end FIT actively support all aspects of participation – such as developing the course content, recruiting and shortlisting candidates, providing career progression and job placement supports, culminating in ongoing mentoring for up to three years. All FIT Training for Employment Programmes are focused on the securement of quality employment not only for job seekers and new entrants into the labour force but also for those vulnerable in the workforce requiring upskilling/reskilling for job security. FIT Training for Employment Programmes cover a wide range of topics, all with a technology focus. FIT courses range from introductory digital programmes QQI Level 4 modules to more technically advanced QQI Level 5 and 6 specific IT skills Programmes which may also be industry certified (CompTIA, Microsoft, CCNA, SAP). Courses are delivered in conjunction with participating ETB's and contracted training providers.[71]
Project results	To date, over 21,000 job seekers have completed FIT skills development programmes. Of these, more than 15,500 have secured quality employment.[72] Indeed, FIT programmes have historically been characterised by very high progression rates (70%), especially in view of the profile of many of participants (e.g. long-tern unemployed or at risk of long-term unemployment)[73]
Medici cluster	C
Project website	https://fit.ie/

[71] https://fit.ie/what-we-do/
[72] https://fit.ie/who-we-are/
[73] Fast Track to Information Technology (FIT) Ltd, (2012). *FIT Programme presentation*

More recently, in spring 2019, Spain launched *Plan Reincorpora-T 2019-2021* which is a three-year national plan aimed at preventing and reducing long-term unemployment (see Table below).[74] Significantly, a main training action of the programme (Measure 21) concerns the development of digital skills among the long-term unemployed so that they are able to best respond to current (and future) labour market requirements as regards possessing sufficient digital literacy skills.

This major push towards promoting digital literacy among the long-term unemployed should also be seen through a prospective/futuristic lens. Specifically, as the Plan underlines, Spain's Internet Analysis and Economic Development Observatory (ADEI) estimates that between 2016 and 2030, the country's digital transformation will create 3.2 million jobs, while another 600,000 jobs entail a high degree of human interaction and/or require emotional intelligence and empathetic thinking and have little likelihood of being replaced by machines. As a result, as part of the Plan, the Spain's national PES (*Servicio Público de Empleo Estatal)* will work with partners to develop and/or strengthen various professional training for employment initiatives aimed at ensuring the digital upskilling of the long-term unemployed so that they can take advantage of such labour market developments. The latter will also be guaranteed priority access to such digital upskilling programmes.

Table 5: Plan Reincorpora-T 2019-2021 - Triennial Plan for Preventing and Reducing Long-Term unemployment (Spain)

Project Name	Plan Reincorpora-T 2019-2021, Triennial Plan for Preventing and Reducing Long-Term unemployment (Spain)
Start/End Date	2019 - 2021
Partners	The Plan has been developed by the Ministry of Labour, Migration and Social Security, in collaboration with other Ministries, the High Commissioner for the Demographic Challenge, the Spanish Federation of Municipalities and Provinces and Spain's 17 Autonomous Communities (as well as the Spanish enclaves of Ceuta and Melilla on the northern shores of Morocco's Mediterranean coast). Social partners have also been consulted.
Project funding	**Total budget**: €4,000 million (of which €781.2 million comes from the 2019 budget) This is further broken down as follows: • €1.309 million is earmarked for active labour market policy (ALMP) measures • €2.691 million will be used for measures aimed at enhancing the employability of the long-term unemployed, including digital skills training. In particular, the budget for the latter amounts to €138 million. The €2.691 million budget also includes funding for social protection measures and plan-related evaluation activities

[74] Servicio Público de Empleo Estatal (SEPE), (2019). *Plan Reincorpora-T 2019-2021, Triennial Plan for Preventing and Reducing Long-Term unemployment*, https://www.sepe.es/HomeSepe/que-es-el-sepe/comunicacion-institucional/publicaciones/publicaciones-oficiales/listado-pub-empleo/plan-reincorporat-paro-larga-duracion

Project target group	• *The long-term unemployed and the inactive*, e.g. the disabled; those over 45+; women; those at risk of poverty and social exclusion; those living in rural areas; etc. These should be aged 30+ and have been unemployed for 12 months or more in the last 18 months. • *People who are vulnerable in the labour market,* e.g. people made redundant in company restructuring processes; the disabled; women who are victims of gender violence; vulnerable people in low-income households; workers who do not reach the National Minimum Wage (NMW) threshold; people in domestic work and working as non-professional carers of dependent persons; people unemployed for 9 months in the last 18 months registered in the Special Farming Category; etc.
Project description	Plan Reincorpora-T 2019-2021 (Get-Yourself-Back-to-Work Plan) is an Integrated Employment Plan which also falls within the framework of the UN's '2030 Agenda Sustainable Development Goals'. The overarching aim of the Plan is to help (i) the long-term unemployed and vulnerable groups with integration difficulties (re)enter the labour market and (ii) prevent vulnerable groups from becoming unemployed and/or long-term unemployed. That said, the Plan also encompasses a wide range of employment related objectives, including the need to equip the long-term unemployed with the necessary digital skills which have become essential in the face of the ongoing digitalisation of economy and society. The Plan which takes an integrated and cross-cutting approach to addressing long-term unemployment includes 63 measures structured around the following six axes: 1. Guidance (16 Measures:1-16) 2. Training (7 Measures: 17-23) 3. Employment opportunities (23 Measures: 24-46) 4. Equal opportunities in accessing employment (3 Measures: 47-49) 5. Entrepreneurship (6 Measures: 50-55) 6. Improving the institutional framework (e.g. PES modernisation) (8 Measures: 56-63) The Plan's 63 measures support specific actions designed to enhance the employability of long-term unemployed people and those whose labour market situation is vulnerable and/or prevent one's (recent) job loss from resulting in long-term unemployment. As mentioned earlier, one of the Plan's main training actions relates to the digital education/upskilling of the long-term unemployed. The aim here is to equip them with the necessary digital skills that are required by current and future technological, digital and production/work organisation changes. Specifically, *Servicio Público de Empleo Estatal (SEPE)* (Spain's national PES) will develop and/or reinforce different employment-related professional training initiatives aimed at ensuring the digital upskilling of the long-term unemployed. In doing so, based on the European Framework of key competences for lifelong learning, common standardised content as regards digital skills will be included in training programmes. The aim is that

	the long-term unemployed participating in such training will, upon completion, acquire the necessary digital skills and improve their professional qualifications. The Plan foresees a twin-track approach as regards the digital upskilling of the long-term unemployed. Specifically, the latter are helped to acquire a) basic and sufficient knowledge for the use of technology as a work tool, essential for accessing the vast majority of jobs. To this end, basic and intermediate level training courses in Microsoft solutions (Excel, Word, PowerPoint, Outlook and Internet) will be on offer to the long-term unemployed b) specific knowledge linked to particular technology specialist jobs (programming languages, development of applications, robotics, etc.). For such upskilling, specific and specialised training actions will be offered to the long-term unemployed. Interestingly, the Plan also seeks to reduce the gender digital divide and support the acquisition of digital skills by (long-term unemployed) women. In this case, the Plan foresees that the professionals who help and/or advise the long-term unemployed (e.g. PES counsellors/advisors) will advise and encourage women to participate in such specific and specialised training actions, by also prioritising relevant requests (from women). In addition, as part of the Plan's Measure 47 (Support for Women in Rural Areas), a specific programme aimed at equipping women in rural areas with digital skills will be promoted.
Project results	N/A However, by 2021 the Plan's relevant quantitative target is to help at least 10% of the long-term unemployed enhance their employability by improving their digital skills and 15% by improving their basic skills, obtaining, at least, a Level 1 professional certificate. Moreover, according to the latest (2020) Commission assessment, the Reincorpora-T Plan for the long-term unemployed is on track.[75]
Medici cluster	A Plan Reincorpora-T Monitoring Committee has been set up and is tasked with the monitoring and evaluation of the Plan. The Plan will be monitored bimonthly and a first programme evaluation will be conducted after its first year of operation. The Plan Reincorpora-T Monitoring Committee will include representatives from • The Ministry of Labour, Migration and Social Security. • The Ministry of Health, Consumer Affairs and Social Welfare

[75] European Commission, (2020). *Country Report – Spain 2020*, SWD(2020) 508 final, Brussels, 26.2.2020, https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52020SC0508&from=EN

	• The National/State Spanish Public Employment Service (SEPE). • The (Regional) Public Employment Services of the Autonomous Communities • Social partners (see below) • The Spanish Federation of Municipalities and Provinces (FEMP) • Institute of Women and for Equal Opportunities (IMIO) • Spanish Youth Council (CJE) Interestingly, the social partners will be involved in the planning and evaluation of the Reincorpora-T Plan. To this end, an action plan linked to the Annual Employment Policy Plan (PAPE) will be developed and its implementation monitored on a quarterly basis. In addition, the SEPE Executive Committee will serve as the Permanent Monitoring Committee
Project website	https://www.sepe.es/HomeSepe/Personas/encontrar-trabajo/plan-reincorpora-T.html

Source: Servicio Público de Empleo Estatal (SEPE), (2019). Plan Reincorpora-T 2019-2021, Triennial Plan for Preventing and Reducing Long-Term unemployment, https://www.sepe.es/HomeSepe/que-es-el-sepe/comunicacion-institucional/publicaciones/publicaciones-oficiales/listado-pub-empleo/plan-reincorporat-paro-larga-duracion; Servicio Público de Empleo Estatal (SEPE), (2019). Plan Reincorpora-T 2019-2021, Presentation, https://www.sepe.es/HomeSepe/que-es-el-sepe/comunicacion-institucional/publicaciones/publicaciones-oficiales/listado-pub-empleo/plan-reincorporat-paro-larga-duracion; EACEA, (2020). Spain - National Reforms related to Transversal Skills and Employability, https://eacea.ec.europa.eu/national-policies/eurydice/content/national-reforms-related-transversal-skills-and-employability-70_en; European Commission, (2020). *Country Report – Spain 2020*, SWD(2020) 508 final, Brussels, 26.2.2020, https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52020SC0508&from=EN

Apart from major digital upskilling initiatives such as those described above, there is also a plethora of smaller scale projects – funded by EU, national/regional and/or sectoral funds – that are also targeted at the long-term unemployed. For example, EU funding such as Erasmus+ and the European Social Fund (ESF), have for long supported the development of digital skills among the long-term unemployed in order to tackle their skills deficit and/or obsolescence, enhance their employability and improve their employment prospects. The Table below presents the **Ask4Job project** which is an example of an Erasmus+ project seeking low-skilled, long-term unemployed adults acquire digital skills.

Table 6: Adult Skills for Job-Oriented Breakthrough (Ask4Job) (Erasmus+ Project)

Project Name	**Adult Skills for Job-Oriented Breakthrough (Ask4Job)**
Start/End Date	2017 - 2020
Partners	The consortium consists of 11 organisations from nine partner countries: • Ente Di Ricerca e Formazione (ERIFO) (Italy) (lead co-ordinator) • Instalofi Levante SL (Spain) • Turgutlu Kaymakamligi (Turkey) • Best Cybernetics Single Member Private Company (Greece) • Directorate of Secondary Education of Chania (DSEC) (Greece)

	• Foxpopuli (Sweden) • Vilnius Gabrielė Petkevičaitė-Bitė Adult Education Centre (Lithuania) • Akademia Humanistyczno-Ekonomiczna w Lodzi (Poland) • Institute for Private Enterprise and Democracy Foundation (Poland) • Business Foundation for Education (Bulgaria) • All Digital (Belgium)
Project funding	€367,077
Project target group	**Primary Target Group**: Long-term unemployed adults **Secondary Target Groups**: career/job counsellors and adult education providers
Project description	Ask4Job is an Erasmus+ strategic partnership for adult education (under Erasmus+ Key Action 2: Cooperation for innovation and the exchange of good practices). The aim of the project is to create an educational pathway that supports the development of digital skills – mapped to DigComp – and cognitive skills among low-skilled, long-term unemployed adults.
Project results	The project has produced a number of outputs: kph However,
Medici cluster	
Project website	https://www.ask4job.net/

Source: Project website: https://www.ask4job.net/; Erasmus+ Project Database, https://ec.europa.eu/programmes/erasmus-plus/projects/eplus-project-details/#project/2017-1-IT02-KA204-036755

2.2.2. Programmes aimed at unemployed women

There is a concerted effort to bridge the digital gender divide both at EU and national/ regional levels so that one achieves greater gender diversity and equality as regards access to ICTs/internet, acquisition and opportunity to use of digital skills at all levels (basic, intermediate, advanced), and support for career choices and progression in ICT-related sectors and/or professions. For example, across the EU women are under-represented at all levels and in all professions in the ICT-related sectors, particularly in leadership and decision-making positions.[76] Yet, as mentioned above, these are the sectors characterised by considerable employment growth in the past, at present and in the future as well as by a large number of unfilled job vacancies. Yet, unemployed women lacking even basic digital skills are, therefore, barred from taking advantage of the enormous ICT-related employment opportunities that currently exist.

[76] European Commission, (2017a). *Op.Cit*

Moreover, their lack of digital skills makes them less likely to benefit from the "leapfrog" opportunities, employment potential and (additional) income-generating possibilities that Internet, digital platforms, mobile phones, and digital services offer today through bypassing traditional technologies and using digital alternatives.[77] For example, online job vacancies (OJVs) portals such as Indeed and Monster[78] and social media/ networking sites such as LinkedIn, Twitter and Facebook which have become increasingly important recruitment channels in recent years also require a certain level of digital skills.[79] Linked to this is the fact that employers are increasingly using some form of digital media in their recruitment processes, including their corporate websites for online submission of CVs/applications, online screening and assessment, video interviewing, etc.[80]

The causes of the digital gender divide are multiple, structural and often intersect, e.g. gender and low income and/or lack of education and digital skills. In general, gender-based digital exclusion is, *inter alia*, associated with lack of or inadequate access to ICTs; unaffordability of equipment, applications and Internet connection; lack of digital/ICT-related skills; gendered career choices and stereotypes coupled with inherent gender biases and socio-cultural norms.[81] This is exacerbated by the fact that women tend have lower confidence in their own digital skills as opposed to men who are more confident in that regard, more interested and active in digital technologies and, consequently, considerably more likely to take up jobs in the digital sector.[82] For example, only around 17% of the almost 8 million ICT specialists in the EU are women, while the number of women graduating from ICT studies has been decreasing over the last decade.[83] Indeed, existing literature speaks of a pronounced gendered digital (career) path that needs to be urgently addressed.[84]

It is against this backdrop that there has been a massive effort at both EU and national/regional as well as sectoral levels (e.g. ICT sector) to bridge the digital gender divide by, *inter alia*, enhancing women's (and girls') access to digital technologies, applications and tools; improving their digital competences spanning all levels – basic, intermediate and advanced – and from an early age (e.g. primary school); providing them with information, advice and guidance about ICT-related career paths; increasing female participation in ICT-related education/studies; fighting ICT-related gender stereotyping; promoting positive gender norms offline and online as well as positive female role models in the tech sector; etc.

Addressing the digital skills gap and associated career choices of women is a common policy approach across the EU, not least because of the significant role they play in enhancing one's employability in today's digital economy. For example, as mentioned earlier, it is estimated that 90% of jobs need at

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[77] OECD, (2018). *Bridging the Digital Gender Divide - Include, Upskill, Innovate*, 7/5/2020, http://www.oecd.org/internet/bridging-the-digital-gender-divide.pdf

[78] https://www.talentlyft.com/en/blog/article/298/top-55-global-job-boards

[79] Cedefop, (2019). *The online job vacancy market in the EU - Driving forces and emerging trends*, Luxembourg: Publications Office. Cedefop research paper; No 72, https://www.cedefop.europa.eu/files/5572_en.pdf

[80] Eccleston, J., (2013). 'Employers embrace digital recruitment media', *Personnel Today*, 30/1/2013, https://www.personneltoday.com/hr/employers-embrace-digital-recruitment-media/

[81] OECD, (2018). *Op.Cit*

[82] European Parliament, (2020b). *Rethinking Education in the Digital Age*, Study by the Panel for the Future of Science and Technology, European Parliamentary Research Service (EPRS), https://www.europarl.europa.eu/RegData/etudes/STUD/2020/641528/EPRS_STU(2020)641528_EN.pdf

[83] EIGE, (2018). *Women and men in ICT: A chance for better work–life balance*, Research Note, https://eige.europa.eu/publications/women-and-men-ict-chance-better-work-life-balance-research-note

[84] EIGE, (2018). *Gender equality and digitalisation in the European Union*, https://eige.europa.eu/publications/gender-equality-and-digitalisation-european-union

least basic computer skills, while as the European Digital Skills Survey indicates that on some job categories, more than 90% of jobs require specific digital skills.[85] Moreover, acquiring in-demand digital skills, women have then the opportunity to take advantage of the (tight) digital market, the significant ICT-related skills shortages, the unmet (and growing) employer demand for digital experts and the plethora of ICT-related jobs (and unfilled vacancies). For example, across the EU, there is currently a shortage of there is a gap of 291,000 professionals in cybersecurity alone.[86]

According to the European Commission there is currently a gender gap of 11% in terms of digital skills, with the gap being higher for above basic skills and especially for older women (aged 55+).[87] As mentioned earlier, across the EU there is a large and growing number of programmes and projects that specifically aim at equipping women, including unemployed women, with digital skills at all levels. For example, the ICT-related training and career guidance provided by **Interface3** to women, including (long-term) unemployed women and women returners to the labour market, has been singled out as a good practice example both at EU level (e.g. by EIGE)[88] and internationally (e.g. by the OECD) (see Table below).[89]

Table 7: Interface3 (Belgium)

Project Name	**Interface3 (Belgium)**
Start/End Date	1988 – ongoing
Partners	Interface3 is supported by 20 financial partners and 23 educational partners.[90] These include • Actiris, the Brussels Regional Office for Employment (PES) • Government of the French Community (Ministry of Education and Equal Opportunities) • Federal Public Service for Social Integration • La Cocof, French Community Commission • Bruxelles Formation, the official vocational training body for French-speaking workers and jobseekers in the Brussels-Capital Region • Le Cefora, Training Centre of the CP218 (Joint Committee for Employees), set up in 1990 by the social partners in the CPNAE (National Joint Committee) to promote training and employment • Evoliris, Reference Centre for ICT jobs in the Brussels Capital Region • La Fondation Roi Baudouin • Venture Philanthropy Fund Interface is supported by 70 private companies. Sponsors and companies sharing their expertise with Interface3 include

[85] European Commission, (2017b). *ICT for Work: Digital Skills in the Workplace*, Ecorys & DTI Report for DG CONNECT, https://ec.europa.eu/digital-single-market/en/news/ict-work-digital-skills-workplace
[86] European Commission, (2020c). *Op.Cit.*
[87] European Commission, (2019d). *Women in Digital*, https://ec.europa.eu/digital-single-market/en/women-ict
[88] EIGE (2014). *Good Practice Example - Interface3*, https://eige.europa.eu/gender-mainstreaming/good-practices/belgium/interface3
[89] OECD, (2016b). *Op.Cit*
[90] https://www.interface3.be/en/text/interface3-in-figures

	• Microsoft • Serco • Verizon • DLA Piper
Project funding	National and EU (ESF) funding. The various partners from public, private and third sectors also contribute.
Project target group	Women with low education levels or facing other social disadvantages who seek to enter or re-enter the labour market, i.e. unemployed women, including long-term unemployed, women returners or women looking to move in an ICT-related sector and/or a profession requiring ICT skills. Each year, Interface3 trains 120 unemployed who seek ICT-related employment.
Project description	Interface3 is a non-profit centre for continuing training and socio-professional integration that has become the reference point in Belgium for equipping (unemployed) women with the skills to access a range of ICT jobs. It targets unemployed women from disadvantaged backgrounds in order to enhance their employability in the ICT sector or in profession requiring ICT skills through ICT training. Indeed, as has been pointed out by EIGE, 'Interface3 focuses on social inclusion through access to quality employment and pays attention to the accumulation of disadvantages for certain groups of women, due to the intersection of gender and other social inequalities.'[91] Interestingly, its focus on disadvantaged women such as those with low level qualifications for whom it offers training specifically adapted to their learning needs is driven by its desire to both enhance their employment chances, in the expanding ICT sector and/or profession requiring ICT skills and combat the under-representation of women in them. In that way, it also contributes towards closing the significant ICT-related gender gap by fighting the gendered stereotypes associated with the ICT sector. Significantly, Interface3 adopts a comprehensive approach to training its female cohorts in that it does not limit its training only on digital literacy and ICT/ technical skills. This is complemented by mentoring and coaching on soft skills and core competencies, as well as French language courses for foreigners. It also includes training in other skills valued by employers such as project management skills. Interface3 offers modules on awareness raising, initiation (taster courses) and training in ICTs. It also provides orientation modules that allow women to explore careers in different computing professions, and offers qualifying and certified training schemes that lead to employment in computing professions (such as systems and network administrator, web application designer, webmaster) or in professions that intensively use computing tools (such as administrative assistant).

[91] EIGE, (2014). *Op.Cit*

	Overall, Interface3 designs, organises and delivers 11 skills training courses, 10 of them exclusively for women and one for both men and women.
Project results	Interface3 has been successful in attracting a wide diversity of (disadvantaged) women in terms of age, education level, ethnic origin and migrant background. Every year, 75 to 100 women which have been trained by Interface3 secure ICT jobs.[92] According to Intrerface3, the employment rate of female participants by the end of ICT-related skills training is 70%, i.e. on average, about 70% of female trainees secure employment within six months after completing the training.[93] This masks variations in the employment rate which ranges from 62% for women with low education levels, and 75% for those with at least a secondary education qualification. [94] Given the low-qualified and disadvantaged profile of its trainees as well as the perennial female under-representation in ICT jobs, such employment rates are arguably impressive. Indeed, as EIGE has stressed, 'Interface3 reduces gender inequalities and addresses women in poverty by enabling women with low qualifications to access jobs in a growing sector in which women are under-represented. This has positive impacts in terms of both gender desegregation in employment and the reduction of gender poverty gaps.'[95] A number of factors have contributed to Interface3's success over time. These include the high level of involvement and collaboration of partners from public, private and third sectors. These partners are actively engaged in Interface3's work, e.g. by offering sponsorship, providing placement opportunities, contributing to the design of the training programmes, etc. Crucially, they play a vital role in the trainee recruitment. Moreover, the partnerships that Interface3 has forged over time with an array of key stakeholders such as other training centres, employment agencies, foundations, and enterprises have been instrumental in helping the organisation developing new, state-of-the-art training modules, update teaching tools and approaches, experiment with new educational methods, and find new and upcoming niches of employment, especially in the rapidly evolving and dynamic world of ICTs. Indeed, the high relevance, quality and regular updating of Interface3's training modules in close collaboration with the ICT sector, the provision of company-based traineeships/internships by a large number of enterprises, and the preparation of women for certified qualifications are among the strengths of the Interface3's approach.[96] Other strengths include Interface3's orientation modules that enable women to experiment with different ICT professions; the fact that Interface3 does not require its trainees to have undergone training or to have achieved a certain attainment level in education (e.g. in the form of

[92] *Ibid.*
[93] https://www.interface3.be/en/interface3
[94] EIGE, (2014). *Op.Cit.*
[95] *Ibid.*
[96] *Ibid.*

	qualifications); the time it allows women trainees learn at their own pace and, consequently, close their technology gap; and having women as ICT teachers which helps address gendered stereotypes associated with ICTs.
Medici cluster	
Project website	https://www.interface3.be/

Source: Interface3 website, https://www.interface3.be/; OECD, (2016). Skills for a Digital World, Background Report for the 2016 Ministerial Meeting on the Digital Economy, https://www.oecd-ilibrary.org/docserver/5jlwz83z3wnw-en.pdf?expires=1597695456&id=id&accname=guest&checksum=2F00A7659E0937C4C4F823260B9D0D7B; EIGE, Good Practice Example - Interface3, https://eige.europa.eu/gender-mainstreaming/good-practices/belgium/interface3

The EU has also promoted the digital emancipation, including digital literacy and digital careers, of girls and women through its programmes and associated funding. European programmes such Erasmus+ and funding such as the European Structural and Investment Fund (ESIF), notably the European Social Fund (ESF), have provided long-standing and considerable support towards the digital inclusion of women. For example, the Erasmus+ **eSKILLS4ALL project** seeks to support low-skilled (unemployed) women in their search for employment by providing them with the necessary digital skills to address current ICT-related skills mismatches (see Table below).

Table 8: eSKILLS4ALL (Erasmus+ project)

Project Name	eSKILLS4ALL
Start/End Date	2017 - 2020
Partners	The consortium consists of six partners organisations from five EU countries: • CIVIC Computing (UK) (lead co-ordinator) • CIVIS Plus (Greece) • ANTENNA (ANT1) (Cyprus) • Emphasys centre (Cyprus) • WIDE (Women in Digital Empowerment) (Luxembourg) • North-East Regional Development Agency (Romania)
Project funding	€302,537 (Erasmus+)
Project target group	*Direct target group:* Unemployed adults with a focus on (low-skilled, long-term unemployed) women *Indirect target group:* Adult education providers
Project description	eSKILLS4ALL is an Erasmus+ strategic partnership for adult education (under Erasmus+ Key Action 2: Cooperation for innovation and the exchange of good practices). It seeks to support low-skilled (unemployed) adults – especially women – in their search for employment or a better job by providing them with the necessary digital and employability skills,

	addressing relevant skills mismatches and effectively combating long-unemployment. To this end, through its five-module training, eSKILLS4ALL adopts a holistic approach which involves a multi-assessed e-tool based on an interactive and dynamic (learning) platform. The e-tool will be used during training for: participant's profile creation, online learning, e-digital bank, assessments and the Open Badges that will validate the newly acquired digital skills. The e-SKILLS4ALL learning platform offers five training modules: (i) problem solving; (ii) digital content creation; (iii) communication and collaboration; (iv) online safety; and (v) information and data literacy. when accessing this platform, users – low-skilled unemployed adults (women in particular) – are introduced to an innovative on-line and in-house "e-SKILLS4ALL-SUPPORT-HUBS" service that will support them in their search for employment by equipping them with employability skills and by building bridges with the labour market. e-SKILLS4ALL helps users first record their current digital skills (through self-assessment); second, acquire or upgrade their digital skills related to employability in order to bridge the skills gap and meet the labour market digital needs; and third, validate their new digital skills through the Open Badges eco-system.[97] In addition, the project is expected to set up the eSKILLS4ALL NETWORK where various stakeholders (i.e. companies, training agencies, public employment services, etc.) will offer guidance and advice for future employment prospects.
Project results	According to project information, eSKILLS4ALL has implemented, evaluated and validated its digital Up-Skilling Programme with 15 low-skilled adults from each partner country. In total, over 100 people were trained face-to-face and on-line in each partner country and they have provided some positive feedback. According to the internal evaluation of the project's digital upskilling programme, eSKILLS4ALL has achieved significant impact. Specifically, the evaluation showed the following: - the project provided career guidance and orientation to the target group. - The participants; motivation to follow a career in the digital field was increased, as well as their understanding of the importance of having a high level of digital competences in any job or career. - Their learning capacity in relation to other skills areas such as problem solving, and soft skills was developed as part of the activities. - Their CVs and profiles are strengthened as they now have validated digital and employability skills through the Open Badges recognition mechanism, while transparency, transferability and permeability in other fields are enabled. - There has been a great collaboration with the Cyprus Refugees Council and UNCHR (United Nations High Commissioner for Refugees) which is now listed as one of the main stakeholders of the project.

[97] http://www.openbadgenetwork.com/

Medici cluster	
Project website	https://eskills4all.eu/

Source: eSKILLS4ALL project website, https://eskills4all.eu/; Erasmus+ Project Database, https://ec.europa.eu/programmes/erasmus-plus/projects/eplus-project-details/#project/2017-1-UK01-KA204-036712; eSkills4All, (2020). IO6: Digital Upskilling Pathway Programme: Implementation, evaluation and validation using the Open Badges eco-system, https://eskills4all.eu/sites/eskills4all.eu/files/IO6-%20Digital-upskilling-pathway-Pilot-Final-report.pdf; Giannacourou, M., Fabry, E. and Udała, K., (2019). Study of Innovative Approaches - Contribution to Employment of NEETs/Target Groups, Women4IT project, June, https://women4it.eu/wp-content/uploads/2019/09/2.7-Study-of-innovative-approaches.pdf;

2.2.3. Programmes aimed at NEETs/Unemployed Disadvantaged Young People

Unemployed young people, especially those not in employment, education or training (NEET) has been another key target group for policies aimed at fostering digital inclusion through, *inter alia*, equipping them with digital skills that are essential for living, working and fully participating in today's society and economy. Although across the EU younger cohorts are much more digitally/media literate than older age groups, even today more than one in five young people aged 16-29 lacks basic digital skills – with this figure reaching one in two in Romania and Bulgaria (see Figure 3).[98] Moreover, as indicated by the **International Computer and Information Literacy Study (ICILS)**, the **digital competence proficiency level of more than one third of 13-14 year-olds who took part was not high**.[99]

Indeed, as underlined by the European Commission's **Education and Training Monitor 2020**, published on 12th November 2020, 'contrary to the commonly held view that today's young people are a generation of "digital natives", the ICILS results indicate that young people do not develop sophisticated digital skills just by growing up using digital devices'.[100] According to this report, underachievement in digital skills, in terms of inability to understand and perform even the most basic ICT operations, is widespread in the EU: in 2018, 62.7% of Italian pupils did not manage to pass the underachievement threshold, although these were also on average one year younger than in other countries. However, underachievement in digital skills was also high among pupils from other EU countries such as Luxembourg (50.6% of pupils), France (43.5%), Portugal (33.5%), Germany (33.2%) and Finland (27.3%).[101]

Significantly, highlighting the importance of equipping pupils and students with sufficient digital skills from early on in their education trajectory, the European Commission's **Digital Education Action Plan 2021-2027 has introduced a new EU target for student digital competence:**

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[98] European Commission, (2020b). *Op.Cit*

[99] *European Commission, (2020). Digital Education Action Plan 2021-2027 - Resetting education and training for the digital age, Commission Staff Working Document, SWD(2020) 209 final, Brussels, 30.9.2020, https://ec.europa.eu/education/sites/education/files/document-library-docs/deap-swd-sept2020_en.pdf*

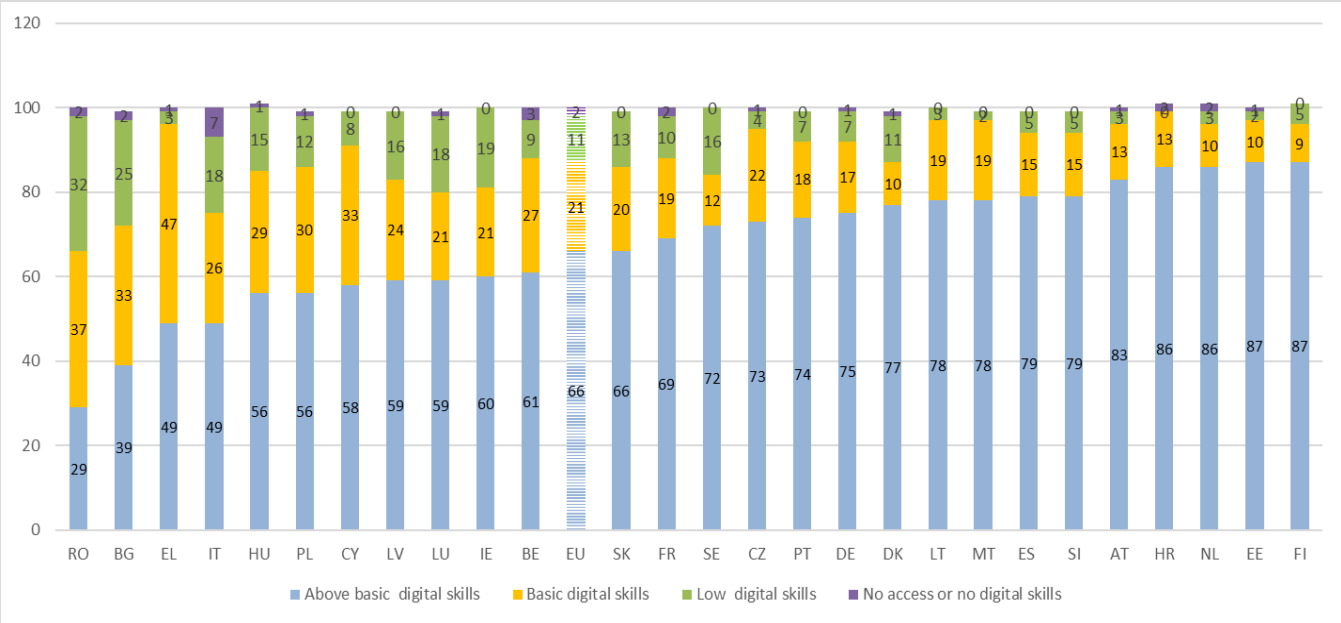
[100] European Commission, (2020). *Education and Training Monitor 2020, Volume 1: EU level Analysis*, 12/11/2020, https://op.europa.eu/en/publication-detail/-/publication/92c621ce-2494-11eb-9d7e-01aa75ed71a1/language-en

[101] *Ibid.*

- by 2030, the share of 13-14 year-old students who underperform in computer and information literacy should fall under 15%.[102]

In general, in 2019, a **fifth of young people across the EU reported not to have basic digital skills**.[103]

Figure 3: Percentage of EU students, by digital skills level and country (2019)



Source: cited in European Commission, (2020). Digital Education Action Plan 2021-2027 - Resetting education and training for the digital age, Commission Staff Working Document, SWD(2020) 209 final, Brussels, 30.9.2020, https://ec.europa.eu/education/sites/education/files/document-library-docs/deap-swd-sept2020_en.pdf

At the same time, a growing body of evidence shows that the digital divide is increasingly related to one's socio-economic status and years of experience of using devices (beyond simple access).[104] This is, in turn, linked to the consistent and statistically significant relationship between socio-economic status and pupil achievement, whereby pupils with higher socio-economic status, as measured, for example, by parents' educational attainment, their occupational status and number of books at home, are positively linked to pupil achievement.

This also relates to the ability of the young person's family to even afford to have a computer and the associated connectivity costs. For example, in 2018, **12.8% of households with income below 60% of median equalised income could not afford to have a computer** – which rose to 3.4% for households with dependent children. In contrast, 2.1% of households with income above 60% of the median

[102] European Commission, (2020). *Digital Education Action Plan 2021-2027 - Resetting education and training for the digital age*, Commission Communication, COM(2020) 624 final, Brussels, 30.9.2020, https://ec.europa.eu/education/sites/education/files/document-library-docs/deap-communication-sept2020_en.pdf

[103] European Commission, (2020). *Digital Education Action Plan 2021-2027 - Resetting education and training for the digital age*, COM(2020) 624 final, Brussels, 30.9.2020, https://ec.europa.eu/education/sites/education/files/document-library-docs/deap-communication-sept2020_en.pdf

[104] *European Commission, (2020). Digital Education Action Plan 2021-2027 - Resetting education and training for the digital age, Commission Staff Working Document, SWD(2020) 209 final, Brussels, 30.9.2020, https://ec.europa.eu/education/sites/education/files/document-library-docs/deap-swd-sept2020_en.pdf*

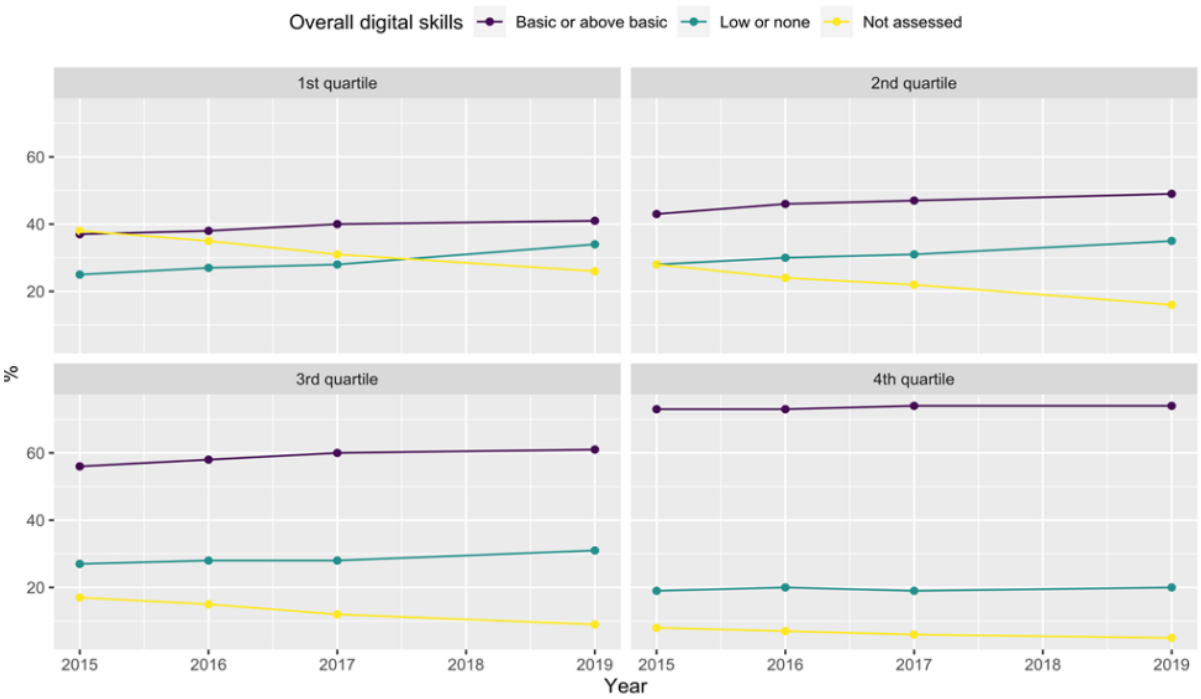
equalised income could not afford a computer, while on average, 3.9% of households in the EU-27 could not do so in 2018.[105]

In general, as both EU and OECD research has consistently highlighted, **disadvantaged groups such as those from low-income or migrant backgrounds 'have less access to computers at home**[106] and **start using digital devices later in life and with a lower frequency** compared to their more advantaged peers.[107] Overall, **education and income of parents tend to be positively correlated with young people's access to digital technologies and associated level of digital skills**.[108]

Consequently, economically and/or or socially disadvantaged young people are more likely to have no or low digital skills.[109] For example, as the recently published European Commission's **Digital Education Action Plan 2021-2027** highlights, in 2019, **young people with low education levels were more than three times as likely to underachieve in digital skills** than their peers.[110] This has also been underlined by the also recently published European Commission's **Education and Training Monitor 2020**, according to which **pupils from lower socioeconomic backgrounds on average perform more poorly in computer and information literacy** than their peers from more privileged backgrounds.[111] Indeed, as Figure 4 below shows, the **level of one's digital skills is strongly linked to being a member of higher income households**, i.e. those belonging in the two upper quartiles.[112]

Figure 4: Level of digital skills in the EU by household income (2015-2019)*

[105] European Commission, (2020). *Education and Training Monitor 2020, Volume 1: EU level Analysis*, 12/11/2020, https://op.europa.eu/en/publication-detail/-/publication/92c621ce-2494-11eb-9d7e-01aa75ed71a1/language-en
[106] OECD, (2020). *The impact of COVID-19 on education - Insights from Education at a Glance 2020*, Andreas Schleicher, 30/6/2020, https://www.oecd.org/education/the-impact-of-covid-19-on-education-insights-education-at-a-glance-2020.pdf
[107] Biagi, F. and Rodrigues, M., (2017). *Digital technologies and learning outcomes of students from low socio-economic background: An analysis of PISA 2015*, JRC Science for Policy Report, https://publications.jrc.ec.europa.eu/repository/bitstream/JRC106999/jrc106999_effectiveedu_wp4_final.pdf
[108] European Commission, (2020). *Digital Education Action Plan 2021-2027 - Resetting education and training for the digital age*, Commission Staff Working Document, SWD(2020) 209 final, Brussels, 30.9.2020, https://ec.europa.eu/education/sites/education/files/document-library-docs/deap-swd-sept2020_en.pdf
[109] European Commission, (2018d). *Digital Education Action Plan*, SWD(2018) 12 final, Brussels, 17.1.2018, https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52018SC0012&from=EN
[110] *Ibid.*
[111] European Commission, (2020). *Education and Training Monitor 2020, Volume 1: EU level Analysis*, 12/11/2020, https://op.europa.eu/en/publication-detail/-/publication/92c621ce-2494-11eb-9d7e-01aa75ed71a1/language-en
[112] European Commission, (2020). *Digital Education Action Plan 2021-2027 - Resetting education and training for the digital age*, Commission Staff Working Document, SWD(2020) 209 final, Brussels, 30.9.2020, https://ec.europa.eu/education/sites/education/files/document-library-docs/deap-swd-sept2020_en.pdf



Source: Eurostat (2019) – Individual level of digital skills by household income cited in European Commission, (2020). Digital Education Action Plan 2021-2027 - Resetting education and training for the digital age, Commission Staff Working Document, SWD(2020) 209 final, Brussels, 30.9.2020, https://ec.europa.eu/education/sites/education/files/document-library-docs/deap-swd-sept2020_en.pdf

*Note: Chart based on aggregate data for EU-27. Data is available for all Member States, except for Denmark and Sweden in 2015

Yellow line: Percentage of individuals living in households with no internet access

Black line: Level of digital skills

Linked to this is the fact that young people who do not even have access to ICTs tend to disproportionately be poor, female and/or live in rural areas. For example, there are **great disparities** both between and within countries **as regards the connectivity rate of households in rural areas which in 2019 stood at 86% across the EU**.[113],[114] Likewise, despite some progress, **broadband coverage in rural areas continues to be lower than national coverage**.[115] Specifically, rural fixed coverage improved marginally from 88% in 2019 to 90% in 2020, while high-speed broadband increased from 52% to 59%

[113] Eurostat, (2019). *Survey on ICT usage in households and by individuals*, https://ec.europa.eu/eurostat/web/digital-economy-and-society/data/database

[114] Across Member States internet access ranges from 99% to 62% and internet use from 99% to 58%. See European Commission, (2020). *Digital Education Action Plan 2021-2027 - Resetting education and training for the digital age*, Commission Staff Working Document, SWD(2020) 209 final, Brussels, 30.9.2020, https://ec.europa.eu/education/sites/education/files/document-library-docs/deap-swd-sept2020_en.pdf

[115] European Commission, (2020). *Broadband Coverage in Europe 2019 - Mapping progress towards the coverage objectives of the Digital Agenda*, https://ec.europa.eu/digital-single-market/en/broadband-connectivity

respectively.[116] Even so, **10% of households in rural areas are still not covered by any fixed network and 41% by any fast broadband technology**.[117]

Obviously, given this urban rural divide as regards connectivity and broadband coverage, young people living in rural and remote areas suffer a distinct disadvantage in easily accessing job opportunities that are increasingly advertised online. As the European Commission has recently stated,

> *'for those living in rural and remote areas, and young people especially, the internet's "information highway" is a road out of isolation, a pathway to education, understanding, wider opportunities and a richer life…Good connectivity can be the difference between young people and families putting down roots in rural areas or leaving them to seek better education and work opportunities.'*[118]

Broadband access and coverage – a key factor in today's increasingly digitised economy and society – also **varies in line with household income**. Eurostat data shows that **in 2019** the **average EU proportion** of households **with a broadband internet connection was about 97% in the highest income quartile** as opposed to around **74% for those in the lowest income quartile**.[119]

Disabled young people fare even worse accounting for over half of those who have never used the internet.[120] At the same time, they also experience difficulties in terms of (inadequate) accessibility of technology and digital educational material; availability of and access to assistive technology; technical support provided to students with disabilities; and (less-developed) teacher competence on disability and accessibility matters.[121]

Given the radical changes in the nature, organisation and place of work that new technologies and digital transitions are bringing about, digital literacy has become an increasingly essential basic skill alongside literacy, numeracy and other key competences. Indeed, lack of digital skills – often alongside lack of adequate basic skills – among young people constitutes an additional and increasingly considerable obstacle to their labour market entry/integration and progression.[122]

It is, therefore, not surprising that across the EU there has been a major policy push for equipping young people, including NEETs most of whom are at higher risk of social exclusion, with the necessary digital skills for employment, learning, communication, leisure, access to services, etc. in order to ensure their full digital participation in society. The fact that, as mentioned earlier, the significant employment opportunities that the ongoing digital transition of the EU's economy has generated and is expected to

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[116] European Commission, (2020). *Digital Education Action Plan 2021-2027 - Resetting education and training for the digital age*, Commission Staff Working Document, SWD(2020) 209 final, Brussels, 30.9.2020, https://ec.europa.eu/education/sites/education/files/document-library-docs/deap-swd-sept2020_en.pdf

[117] European Commission, (2020). *Digital Economy and Society Index (DESI) – EU-28 values (including UK)*, https://ec.europa.eu/digital-single-market/en/news/digital-economy-and-society-index-desi-2020

[118] European Commission, (2020). *Rising to the rural connectivity challenge*, 28/7/2020, https://ec.europa.eu/digital-single-market/en/news/rising-rural-connectivity-challenge

[119] European Commission, (2020). *Digital Education Action Plan 2021-2027 - Resetting education and training for the digital age*, Commission Staff Working Document, SWD(2020) 209 final, Brussels, 30.9.2020, https://ec.europa.eu/education/sites/education/files/document-library-docs/deap-swd-sept2020_en.pdf

[120] European Commission, (2018d). *Op.Cit.*

[121] European Commission, (2020). *Digital Education Action Plan 2021-2027 - Resetting education and training for the digital age*, Commission Communication, COM(2020) 624 final, Brussels, 30.9.2020, https://ec.europa.eu/education/sites/education/files/document-library-docs/deap-communication-sept2020_en.pdf

[122] European Commission, (2018d). *Op.Cit.*

continue to create in growing numbers makes the provision of digital skills to young people all the more urgent and imperative.

A large number of large, medium and small-scale programmes and projects aimed at equipping young people, including NEETs, with digital skills at all levels – basic, intermediate and advanced. For example, a major large-scale initiative which has also been identified as good practice by the European Commission is Italy's ***Crescere in Digitale (CiD)*** **programme** (see Table below).[123]

Table 9: Crescere in Digitale (CiD) (Growing digitally) (Italy)

Project Name	**Crescere in Digitale (CiD) (Growing digitally) (Italy)**
Start/End Date	2015 – 2018 *but* 2nd generation of the programme – *Crescere in Digitale 2.0* – was launched in 2018 and will be operational until 2022
Partners	In 2015, Google launched the **Grow with Google** project aimed at enhancing digital skills in Europe and Africa. In order to localise project's content/activities and maximize its relevance and impact, Google partnered up with expert partners in each participating country. In Italy, Unioncamere (Association of Italian Chambers of Commerce) partnered with Google to develop and implement the ***Crescere in Digitale (CiD)*** project which is promoted by the Italian Ministry of Labour and Social Policies and is managed by ANPAL (*Agenzia Nazionale per le Politiche Attive del Lavoro* – National Agency for Active Labour Policies – under the supervision of the Ministry of Labour and Social Policies)
Project funding	Financed by the National Operational Programme 'Youth Employment Initiative' and private partners **Total budget**: €10,613,760 **ESF**: €10,613,760
Project target group	Unemployed young people aged 15-29, including NEETs, registered with Italy's Youth Guarantee (*Garanzia Giovani*) Programme[124]
Project description	The CiD programme is the latest 'Grow with Google' programmes implemented in Italy over time and builds on them, especially the *Eccellenze in Digitale* initiative. This training programme sought to, *inter alia*, to improve the digital literacy, increase the (rather low) take-up of

[123] Youth Enterprise Programme (YEP), (2019). *Handbook of New Practices and Approaches at European Level to support Entrepreneurship of Young People with Fewer Opportunities*, https://youngenterpriseprogram.files.wordpress.com/2019/05/io1_ingdefinitivo.pdf; Nigro, C., (2017). *Involving Private Companies and Social Policies in Digital Transformation, The strategic actions' evolution of Italian CCI System*, Presentation, https://www.hgk.hr/documents/digital-techzagreb28112017-carmine-nigro5a1fb8e604d75.pdf

[124] https://www.anpal.gov.it/garanzia-giovani

	digital technologies and enhance the competitiveness of Italy's small and medium-sized enterprises (SMEs). The CiD programme seeks to address both the demand and supply of digitally literate labour. In doing so, it aims at addressing some key challenges and stereotypes/preconceptions about the low awareness and take-up of digital technologies among Italian SMEs – demand side – and the idea that unemployed (young) people did not have the necessary skills – supply side – for the workplace. Moreover, at a time of dramatically high youth unemployment levels in Italy – 40.3% in 2015 and 37.8% in 2016[125] – CiD aimed at improving the employability of unemployed young people, especially NEETs by equipping them with in-demand digital competences and by training them to become 'digitisers'. The CiD programme provides training and company-based traineeships for young people in order to support businesses – especially SMEs – in the digital economy. Specifically, it • provides *50-hours of free online training* offered to all Italian NEETs registered with the Youth Guarantee Programme which, since mid-2017, has been co-ordinated and managed by ANPAL. This online training course covers a variety of topics such as the digital economy; online tools (website, social, video, cloud, e-commerce), website development, social networking and online advertising strategies; practical examples and case studies • an *online test* where those who have completed the online course are selected for a company-based traineeship. This online test takes place once a month, include 100 questions and last one hour. Those who successfully pass the test receive a training certificate that can be included in his/her CV • *local job matching* to match trainees who have successfully passed the test with SMEs. To this end, *local training laboratories* are organised and hosted by the Chambers of Commerce and funded by the Youth Guarantee programme. At these training labs, the young trainees receive in-person training on how to interact with entrepreneurs, prepare for job interviews and self-employment opportunities and meet with SMEs interested in recruiting them. Indeed, the labs are the place where such SMEs interview prospective trainees in person, with the aim of employing them for a six-month paid traineeship. • a *six-month paid company-based traineeship* for each of the selected young people who receive €500 per month for the duration of the placement.[126] The initial aim was to provide 3,000 company-based traineeships by 2018, while under CiD 2.0 this number is reach 5,000 such placements by 2020.[127]

[125] Statista, (2020). *Annual youth unemployment rate in Italy from 2004 to 2020*, April, https://www.statista.com/statistics/776931/youth-unemployment-rate-in-italy/

[126] Round, A., (2018). *Building the Workforce of the Future*, IPPR, June, https://www.ippr.org/files/2018-06/1529407840_google-digital-skills-june18.pdf; Holmes, O., (2017). *Crescere in Digitale & Crescere Imprenditori*, Brussels Presentation, 30/6/2017, https://slideplayer.com/slide/13051590/

[127] Youth Enterprise Programme (YEP), (2019). *Op.Cit*

Project results	The reach of the programme was considerable: about 100,000 people *started* the online training, which was open to all unemployed people aged under 30, including NEETs, at a time where the unemployment rate among this age group was dramatically high. Demand among SMEs to take on a CiD trainee was also high.[128] According to the European Commission, in its two years of operation, CiD helped train 105,000 young people in more than 6,500 enterprises.[129] The CiD programme has proved quite effective in enhancing the employment chances of participating NEETs. By July 2017, 31% of them had been hired following the six-month traineeship, out of whom approximately 50% were taken on by the same enterprise where they had completed their traineeship.[130] Indeed, because of the positive results of CiD, a second generation of the programme (*Crescere in Digitale 2.0*) was among the six new employment measures introduced in 2018.[131] Its aim is again to enhance the employability of NEETs by providing them with in-demand digital skills which through the company-based placement they can then apply in real work settings (SMEs). This is, in turn, expected to lead to a higher likelihood of the trainees being retained by the SMEs and, as 'digitisers' contribute to companies' increased innovation, competitiveness and growth in the digital economy. CiD has also been recognised as a good/best practice at EU level.[132]
Medici cluster	C - Data collection and evaluation of impact are an important part of CiD (see previous box).[133]
Project website	https://www.crescereindigitale.it/

Source: European Commission, (2019). Crescere in Digitale Project Fiche, https://ec.europa.eu/esf/main.jsp?catId=46&langId=en&projectId=2997; Round, A., (2018). Building the Workforce of the Future, IPPR, June, https://www.ippr.org/files/2018-06/1529407840_google-digital-skills-june18.pdf; Brittin, M., (2018). 'Helping 1 million Europeans find a job or grow their business by 2020', M Brittin Google Blog, 15/3/2018, https://blog.google/topics/grow-with-google/helping-1-million-europeans-find-job-or-grow-their-business-2020/; European Commission, (2016). 16 outstanding projects in the European Digital Skills Award 2016 final, DG CONNECT, https://ec.europa.eu/digital-single-market/en/news/16-outstanding-projects-european-digital-skills-award-2016-final

[128] Round, A., (2018). *Op.Cit*
[129] European Commission, (2018e). *Digital Economy and Society Index (DESI) 2018*, Staff Working Document, SWD(2018) 198 final, Part 5/6, Brussels, 18.5.2018 http://europeanmemoranda.cabinetoffice.gov.uk/files/2018/05/ST-9364-2018-ADD-4-EN.pdf
[130] Nigro, C., (2017). *Op.Cit*
[131] National Agency for Active Labour Market Policies (ANPAL), (2019). *PES Capacity Questionnaire - Country Factsheet - Italy*, European Network of Public Employment Services, October 2019, http://dashboard.pes-benchlearning.eu/factsheets/IT_PES_Factsheet_2019.pdf
[132] Youth Enterprise Programme (YEP), (2019). *Op.Cit.*; Nigro, C., (2017). *Op.Cit.*
[133] Round, A., (2018). *Op.Cit.*

European programmes such as Erasmus+ has also supported a plethora of smaller scale projects. For example, the Erasmus+ **MINDtheGAPs project** aimed at100 disadvantaged young people aged 15-18 at risk of social exclusion, including NEETs, seeks to provide them with basic digital skills (see Table below).

Table 10: MINDtheGAPs - Media Literacy Towards Youth Social Inclusion (Erasmus+ project)

Project Name	**MINDtheGAPs - Media Literacy Towards Youth Social Inclusion**
Start/End Date	2020 -2021
Partners	The project consortium consists of five partners from four countries: • Know and Can Association (Bulgaria) • Universidade do Porto (Portugal) • APLOAD Lda (Portugal) • Orta Karadeniz Kalkinma Ajansi (Turkey) • Hogskolen I Innlandet (Norway)
Project funding	€111,067
Project target group	• *Primary target group:* 100 disadvantaged young people aged 15-18 at risk of social exclusion, including NEETs facing educational and/or learning difficulties, early school leavers, low-qualified young adults, young people with poor school performance, young people with financial and/or cultural obstacles in terms of social and/or labour market inclusion. • *Secondary target group:* school communities/residential care institution staff: managers, administration staff, education counsellors, parents, surrounding communities, students aged 12-16 and teachers
Project description	MINDtheGAPs is an Erasmus+ strategic partnership for youth project (under KA2, Cooperation for innovation and the exchange of good practices). Its main objectives are to contribute to the promotion of equal opportunities to young people in vulnerable situations, including those living in residential care institutions, and support the development of media literacy and critical thinking among them, so that to enhance their digital social and/or labour market inclusion. Providing disadvantaged young people with such media literacy and critical thinking skills is deemed essential for enabling them to thrive and fully participate in today's information society, to successfully access the labour market and to be socially and digitally included. To this end, the project will: (i) study young people's intersectional disadvantages that ensue from multiple disadvantages linked to demographic characteristics (e.g. gender, race, religion, education level, learning disabilities, family income), geographical contexts and citizenship status. (ii) develop tools to educational institutions help them implement inclusive

	education approaches and promote common values through digital media; (iii) promote effective use of existing tools to promote citizenship education; (iv) deepen knowledge about inclusive educational innovative approaches regarding media literacy with young people living in residential care institutions; (v) promote cross-border mobility and inter-cultural contact among young people and (educational and/or institutional care) staff to experience European identity to prevent radicalisation leading to violent extremism through the promotion of common values as a vector of social inclusion; (vi) raise awareness about the risks and opportunities of the internet and social media; (vii) produce practical recommendations with regard to the development of effective media literacy and critical thinking practices both in formal and informal education and training contexts among young people in socially vulnerable situations; and (viii) disseminate the knowledge generated by the project to policy makers, state care institutions, schools, teacher associations, European networks, education administrative staff, etc. The project uses a participatory intervention based on programming training and multimedia open educational resources development to empower young people to develop media literacy, critical thinking and to be able to share knowledge and collaboratively solve problems in partnership with young people (aged 15-18) from other European countries, in a non-formal context. MINDtheGAPS is expected to produce: • *Youth Media Literacy (promising) Practices Handbook* – a digital handbook about media literacy and critical thinking practices both in formal and non-formal education and training contexts involving young people • *Open educational resources* – (i) short video stories to raise awareness about media literacy including human rights, children's and young people rights online, cyber security, intellectual property rights, multiculturalism and gender issues, violence prevention, European identity, etc; (ii) interactive games about media literacy to be played by young people aged 12-16 ainside or outside schools • *Assessment/testing materials* – a conceptual framework, usability tests and evaluation form for digital resources targeted at young people from a multicultural perspective including special attention to cultural discourses, gender representation, semantics/written language, iconography, interculturality • *Distance learning platform*
Project results	N/A
Medici cluster	

Project website	http://digitaliteracy.eu/mindthegaps/

Source: MINDtheGAPs Project website, http://digitaliteracy.eu/mindthegaps/; Erasmus+ Project Database, https://ec.europa.eu/programmes/erasmus-plus/projects/eplus-project-details/#project/2019-2-PT02-KA205-006226;

Likewise, the Erasmus+ project **'Digital Competences for New Jobs' (DC4JOBS)** has also sought to promote digital literacy vulnerable young people aged16-24, while fighting skills mismatches and young unemployment in selected Member States (see Table below).

Table 11: Digital Competences for New Jobs (DC4JOBS) (Erasmus+ project)

Project Name	**Digital Competences for New Jobs (DC4JOBS)**
Start/End Date	2017 - 2019
Partners	The project consortium consists of seven partners from six countries: • CGE Erfurt e.V. & Bürgerhaus Bennohaus (Germany) • Breakthrough (the Netherlands) • Emphasys Centre (Cyprus) • EuroEd Academic (Romania) • Municipality of Ogre (Latvia) and • Clictic S.L. (Spain)
Project funding	€205,070 (Erasmus+)
Project target group	Young people 16-24 years with a specific focus on vulnerable young people including NEETs, young people at risk of marginalization and young people with a migrant background, including newly arrived immigrants and young refugees, early school leavers, etc.
Project description	DC4JOBS is an Erasmus+ strategic partnership for youth project (under KA2, Cooperation for innovation and the exchange of good practices). Its main objective is to promote digital literacy, while fighting skills mismatches and young unemployment in Germany, Cyprus, Netherlands, Latvia, Spain and Romania. To bridge the gap related to skill mismatch between education and jobs, the project developed a number of tools, including an interactive platform, and undertook a number of activities to help young people acquire or upgrade their digital skills in line with current labour market needs so to enhance their employability. One of the project's key objectives was reached through a multi-assessed e-tool (https://dc4jobs.tucampusdeformacion.com) based on an interactive and dynamic platform which it developed and which could be accessed through the project's website by young people wishing to gain or enhance their digital competences. To support young people in their search for employment, the project sought to equip them with employability skills (Pilot testing) and building

	bridges with the labour market through the creation of the on-line and in-house "DC4JOBS - One-Stop-Support-Centre' which offers services developed by the project: i.e. DC4JOBS SKILLS AUDIT, professional ICT training for providing and/or upgrading digital skills and career guidance integrated in the existing organisational infrastructure. The project's six learning modules and ICT training course aimed at facilitating young people's transition from school to work as well as re-skilling and up-skilling their digital skills and career guidance. The modules enable young people to improve information and skills in information and data literacy, digital communication, digital content creation, safety, soft skills and problem solving skills. The project was also expected to set up the DC4JOBS network where various organisations, stakeholders, agencies, public employment services etc. would offer guidance and advice for future employment by signing a Memorandum of Commitment to support young people's employability prospects.
Project results	According to project partners, feedback from young participants in the DC4JOBS training course and platform was positive and were appreciated by them as opportunities to exercise their independence in learning and use state-of-the-art technology.[134]
Medici cluster	A
Project website	http://dc4jobs.eu/

Source: DC4JOBS Project website, http://dc4jobs.eu/; Erasmus+ Project Database, https://ec.europa.eu/programmes/erasmus-plus/projects/eplus-project-details/#project/2017-1-DE04-KA205-015273; Colibaba, A. et al, (2020). New Opportunities for Young People to Fight Unemployment: The "Digital Competences for New Jobs" Project, Innovation in Language Learning Virtual Conference, https://conference.pixel-online.net/ICT4LL/acceptedabstracts_scheda.php?id_abs=4291; Clictic S.L., (2020). DC4JOBS Assessment Tool, http://dc4jobs.eu/wp-content/uploads/2020/01/IO3-DC4JOBS-ASSESSMENT-TOOL_Final-Report.pdf

2.2.4. Programmes aimed at older job seekers

In contrast to younger age cohorts, older job seekers often lack even basic digital skills to fully engage with the digital world, including the world of work. According to the latest European Commission data, only 35% of those aged 55-74 and 30% of the retired and the inactive possess basic digital skills, despite these being essential for full participation in today's society and economy.[135] Similarly, as a recent

[134] Colibaba, A. et al, (2020). *New Opportunities for Young People to Fight Unemployment: The "Digital Competences for New Jobs" Project,* Innovation in Language Learning Virtual Conference, https://conference.pixel-online.net/ICT4LL/acceptedabstracts_scheda.php?id_abs=4291

[135] European Commission, (2020a). *Op.Cit.*

Cedefop report indicated, unemployed and inactive adults aged 55-64 and 35-54 are at a particular high risk of having low digital skills, at 70% and 60% respectively.[136]

Moreover, by the very fact that older job seekers are not in employment - and indeed are much more likely to be long-term unemployed – and have been a long period out of formal education means that they are at much greater risk of skills obsolescence – especially as regards digital skills in view of the current rapid pace of technological change and digital transformation.[137]

Significantly, older workers (55-65) are most at risk to become long-term unemployed or inactive when their lose their job, with age of the unemployed person being the most predictive variable for the risk of long-term unemployment.[138] For example, in the UK, unemployed older workers experience more long-term unemployment, with 32.4% of people over 50 unable to find a job for longer than 12 months, in comparison to the UK's average of 19.7%.[139]

At the same time, older job seekers face a range of barriers in terms of re-entering the labour market, including age discrimination in employers' recruitment and selection procedures Crucially, the latter are also increasingly associated with new forms of ICT-related age bias: for example, 'digital natives' – people who have grown up with digital technology and are comfortable using it – are now more often listed among minimum requirements in job adverts.[140] Yet, older job seekers are less likely to be regarded as such 'digital natives' in contrast to younger people.

On a different but related note, at present, public employment services (PES) are undergoing a process of digitalisation of their services, tools and methods.[141] Indeed, a number of PES across the EU are using ICTs to profile and target services at their various target groups such as the unemployed and employers.[142] To this end, their job seeker profiling, job matching and recruitment processes increasingly involve digital methods and tools. For example, since 2015, the Dutch PES (UWV) has been using an online-based profiling tool (Work Profiler), a digital personal job plan (Personal Work Folder) and a digital platform for each jobseeker to help with structuring job search and labour market integration activities.[143]

Similarly, VDAB, the Flemish PES has developed a system of automated skill-based job matching whereby jobseekers are automatically matched with job vacancies based on detailed descriptions of jobs and skills requirements.[144] Along the same lines , the German PES (BA) offers an online job and

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[136] Cedefop, (2020a). *Op.Cit.*
[137] OECD, (2016). *Op.Cit.*
[138] European Commission, (2012). *Long-term Unemployment*, EEO Review
[139] NESTA, (2020). 'The risk older workers face in the wake of COVID-19', Charles McIvor Blog, 14/7/2020, https://www.nesta.org.uk/blog/risk-older-workers-face-wake-covid-19/
[140] AGE Platform Europe, (2015). *AGE Platform Europe – Position paper as regards the Council recommendation on the integration of long-term unemployed*, 3/12/2015, https://www.age-platform.eu/sites/default/files/AGE_Position_long-term_unemployment-Dec2015.pdf
[141] OECD, (2020b). *Public Employment Services in the Frontline for Jobseekers, Workers and Employers*, 28/4/2020, https://read.oecd-ilibrary.org/view/?ref=131_131935-qg47t7rrfi&title=Public-employment-services-in-the-frontline-for-jobseekers-workers-and-employers
[142] European Commission, (2020). *Lifelong guidance policy and practice in the EU*, 7/4/2020, https://ec.europa.eu/social/main.jsp?catId=738&langId=en&pubId=8284&furtherPubs=yes
[143] European Commission, (2016c). *The 'Work Profiler' and the 'Personal Work Folder'– A digitalised master plan for integration into the labour market*, PES Practice Fiche for DG EMPL, https://ec.europa.eu/social/main.jsp?catId=1080&langId=en&practiceId=65
[144] European Commission, (2014). *Blended Service Delivery for Jobseekers – Toolkit*, July, PES to PES Peer Review, EU Mutual Learning Programme for Public Employment Services, https://ec.europa.eu/social/main.jsp?langId=en&catId=101&newsId=2075&furtherNews=yes

applicant exchange tool (*Jobbörse*) which is used for automatic job matching based on 40 criteria.[145] Again, this evolution towards more digitised PES services may also constitute an important barrier for older job seekers and with limited digital skills.[146]

Along similar lines, in 2017, the Swedish PES (*Arbetsförmedlingen*) launched Jobtech,[147] an open data platform that provides access to a wide range of datasets compiled by the PES. These include employment/occupation forecasts, current and past job adverts posted through PES, and a dynamic competence map created by algorithmically analysing 6.3 million job adverts.[148] The aim is, *inter alia*, to (i) address the fragmentation of labour market information (LMI) from a variety of sources by aggregating such information; (ii) widen access to LMI for the diverse target groups of PES such as the unemployed, workers, employers, etc.; and (iii) contribute to the development of new career services as well as to individual career choice and development through the use of the platform's open data.[149]

The information is presented in a standardised format which, in turn, makes it possible to use the same data by different actors and for different purposes. For example, the unemployed can use the platform to safely store and share personal career related information that can be accessed by a range of relevant actors. For example, he/she would be able to send their CV to recruitment agencies or employers. Crucially, through the use of artificial intelligence, machine learning and algorithms, the Jobtech team working with PES analysts is developing new ways of collecting and analysing LMI with the aim of providing continuous and granular analysis of the skills required by employers.[150]

Consequently, it is not surprisingly that a number of EU and national/regional programmes/ projects are actively seeking to enhance the digital skills of older job seekers (and workers), in an effort to plug the digital skills gap of older cohorts and increase their employment chances. For example, the Erasmus+ **Media Literacy 45+ project** explicitly targeted low-skilled /low-qualified unemployed adults 45+ in five Member States (EL, ES, IT, PT and RO) (see Table below).

Table 12: Media Literacy 45+ (Medlit45+) (Erasmus+ project)

Project Name	Media Literacy 45+ (Medlit45+)
Start/End Date	2017 - 2019
Partners	The project consortium consists of seven partners from six countries: • Asociatia Nationala de Dezvoltare Continua a Tineretului din Romania (Romania) • PRISM – Promozione Internazionale Sicilia-Mondo (Italy)

[145] Cedefop (2018). *From Long-Term Unemployment to a Matching Job - The Role of Vocational Training in Sustainable Return to Work*, https://www.cedefop.europa.eu/files/3076_en.pdf; ILO, (2015). *Public Employment Services in Europe – Germany*, https://www.ilo.org/wcmsp5/groups/public/---ed_emp/---emp_policy/---cepol/documents/publication/wcms_434599.pdf

[146] European Parliament, (2015a). *Employment and Skills Aspects of the Digital Single Market Strategy*, November, https://digitalindustryalliance.eu/wp-content/uploads/2018/03/IPOL_STU2015569967_EN.pdf

[147] https://jobtechdev.se

[148] NESTA, (2018). *Digital Frontrunners – Designing inclusive skills policy for the digital age*, https://digitalskillsformation.org.au/wp-content/uploads/2020/06/NESTA-A-blueprint-for-designing-inclusive-skills-policy-for-the-digital-age-2019_.pdf

[149] European Commission, (2020). *Lifelong guidance policy and practice in the EU*, 7/4/2020, https://ec.europa.eu/social/main.jsp?catId=738&langId=en&pubId=8284&furtherPubs=yes

[150] Olrik, J., (2018). *Want to know what future job skills we need? Machine learning can help*, NESTA, 12/12/2018, https://apolitical.co/en/solution_article/want-to-know-what-future-job-skills-we-need-machine-learning-can-help

	• KMOP Kentro Merimnas Oikogeneias Kai Paidiou (Greece) • EEO Group S.A (Greece) • Canary Wharf Consulting Ltd (UK) • Magenta Consultoría Projects S.L.U (Spain) • Sociedade Promotora de Estabelecimentos de Ensino Lda (Portugal)
Project funding	€183,557.25 (Erasmus+)
Project target group	• low-skilled /low-qualified unemployed adults 45+ in Romania, Greece, Portugal, Spain and Italy • employment/career counsellors and/or relevant authorities, organisations and companies working with low-skilled/low-qualified unemployed adults, e.g. Public employment services (PES) staff, recruiters, VET providers)
Project description	Medlit45+ is an Erasmus+ strategic partnership project (under KA2, Cooperation for innovation and the exchange of good practices). The projects aimed at: • Developing the digital/media competences of low-skilled/low-qualified unemployed adults aged 45+ through innovative tools so that they are motivated and able to build a robust online professional identity to strengthen their access to employment, leading to social & economic inclusion • Enhancing the knowledge of employment/career counsellors and/or relevant authorities, organisations and companies working with low-skilled/low-qualified unemployed such as PES, recruitment agencies and VET providers and equipping them with a new approach and tools for supporting and interacting with middle-aged unemployed persons through social media. The project expected to achieve the above aims through the implementation of the following activities: 1. Development of a framework for developing digital skills through social media for low-skilled/low-qualified unemployed persons over 45 2. Development and pilot implementation of online resource platform for building the digital competences of low-skilled/low-qualified unemployed persons over 45, including 3. Development and dissemination of manual for professionals on how best to support unemployed people aged 45+
Project results	According to the project documentation, over 150 users were involved in the pilot testing phase and through the dissemination activities it was

	possible to reach around 2,000 people among stakeholders and general public.[151]
Medici cluster	
Project website	https://medlit45.eu/

Source: Medlit45+ website, https://medlit45.eu/; Erasmus+ Project Database, https://ec.europa.eu/programmes/erasmus-plus/projects/eplus-project-details/#project/2017-1-RO01-KA204-037220; Medlit45+ project, (2019). Medlit45+ Project Brochure, https://medlit45.eu/wp-content/uploads/2019/07/Presentation-brochure-for-IO3_EN.pdf

2.2.5. Programmes aimed at unemployed migrants/refugees

In addition, in response to the recent increased migration flows, a growing number of programmes/projects are also aimed at addressing the digital (and labour market) inclusion of (unemployed) migrants and/or refugees. Apart from focusing on enhancing their social and labour market integration, many of these programmes also to plug the significant ICT-related skills shortages resulting from the fact that demand is rapidly outpacing supply – the EU already has around 1,000,000 vacancies for digital technology experts.[152,153]

Against this backdrop, a number of programmes and initiatives as well as projects seek to provide unemployed migrants and refugees with the necessary digital skills to enter and progress in today's labour market. For example, the **French pilot project Refugeeks**[154] – identified by European Commission and the EU Digital Champions as a good practice example and presented in the below – is aimed at vulnerable refugees who wish to enter the labour market and have experienced social exclusion. [155]

Table 13: Refugeeks (France)

Project Name	Refugeeks (France)
Start/End Date	2016 - 2020
Partners	Created in March 2016, by Simplon – a certified French social enterprise (*entreprise solidaire d'utilité sociale/ESUS*) which provides the ICT training, the project involves other partners such as Alliance Française which

[151] Medlit45+ project, (2019). *Medlit45+ Project Brochure*, https://medlit45.eu/wp-content/uploads/2019/07/Presentation-brochure-for-IO3_EN.pdf

[152] European Commission, (2020d). *A new Industrial Strategy for a globally competitive, green and digital Europe*, COM(2020) 102 final, Brussels, , 10.3.2020, https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52020DC0102&from=EN

[153] Verdi, G., (2020). *Digital Skills and Refugees: Towards a European Approach*, European Student Think Tank, June, http://www.esthinktank.com/wp-content/uploads/2020/06/Digital-Skills-and-Refugees-Towards-a-European-Approach.pdf

[154] https://simplon.co/refugeeks-fr

[155] European Commission, (2018f). *Building Digital Skills throughout Europe – Model Project Postcards*, file:///C:/Users/k.hadjivassiliou/Downloads/Model_Project_Postcards.pdf

	provides the language training according to the French National repository of competences (*'référentiel de compétences'*). Upon course completion, business partners help participants to find ICT-related employment.
Project funding	Funded by social enterprises
Project target group	Unemployed refugees/migrants
Project description	Refugeeks is an intensive Web Development training programme which also provides relevant certification upon completion. [156] During the programme, refugees join free of charge other students in a three to seven-month digital technology course, with up to four refugees in each class of 24.[157] The course focuses on technical digital skills, but also includes individual coaching and a one-month internship. Significantly, participating refugees also receive 200-300 hours of (French) language training, experience French life and practice their French with the other students. The language training course includes both generic language/grammar/communication modules and modules focused on types of professions using digital skills. At the same time, if required, participating refugees can receive social support aimed at their effective integration, e.g. in relation housing.
Project results	Around 60 refugees participated in the Refugeeks pilot in Paris. 75% of students successfully completed the programme in 2017 Upon completion of the Web development course, about two in three found employment – in the form of permanent (CDI) or temporary (CDD) employment contracts – or undertook further training or started their own business. In 2017-2020, Simplon intends to disseminate the Refugeeks programme to 30 sites across France and in other countries.
Medici cluster	A
Project website	https://simplon.co/refugeeks-fr

Source: European Commission, (2018). Building Digital Skills throughout Europe – Model Project Postcards, file:///C:/Users/k.hadjivassiliou/Downloads/Model_Project_Postcards.pdf; InnoVal, (2018). France – Refugeeks Programme, Simplon, http://inno-val.eu/wp-content/uploads/2018/10/InnoVal-case-studies_FRANCE_Refugeeks.pdf

Another project identified by the European Commission as best practice in the field of digital inclusion aimed at unemployed migrants and refugees is Germany's **ReDI School of Digital Integration** (see Table

[156] InnoVal, (2018). *France – Refugeeks Programme, Simplon*, http://inno-val.eu/wp-content/uploads/2018/10/InnoVal-case-studies_FRANCE_Refugeeks.pdf
[157] European Commission, (2018f). *Op.Cit*

below).[158] Interestingly, the ReDI School has also been identified as best/good practice in a number of other reports, while it has also attracted considerable media attention and publicity.[159,160] The school provides its (migrant and refugee) students with free quality education through IT, programming and coding courses and helps them develop a wide range of digital skills in order to enhance their employment chances in the tight German digital labour market.

Table 14: ReDI School of Digital Integration (Germany)

Project Name	ReDI School of Digital Integration (Germany)
Start/End Date	2016 – ongoing
Partners	The school – originally called "Refugees on Rails" – was set up in February 2016 and has been developed through cooperation between the Berlin and Munich tech community.[161] Over time, it has developed close links with ICT/digital and start-up sectors and professional networks.
Project funding	Mixed funding, including financial and in-kind donations/sponsorship from companies. Supporters of the ReDI School include • around 100 companies (e.g. Accenture, Cisco, Microsoft, Klöckner & Co, Schmidt Kranz Group); • charitable foundations (e.g. Coca-Cola Foundation, Chanel Foundation, Deutsche Bahn Stiftung, JP Morgan Foundation, Société Générale Foundation, Deutsche Bahn Foundation, Villum Foundation, Rotary Foundation); • local government such as the City of Munich (through its flagship programme *Münchner Beschäftigungs- und Qualifizierungsprogramm - MBQ*); etc.[162]
Project target group	Tech-interested immigrants, refugees and asylum seekers (as well as locals); adolescents and young people including young migrants and refugees (aged 18-30)
Project description	ReDI School of Digital Integration is a non-profit tech school (social enterprise) located in Berlin, Munich, Duisburg, Copenhagen and, more recently, Düsseldorf. The school's main objective has been to provide its (migrant and refugee) students with free quality education through IT and coding courses and help them develop a wide range of digital skills, including advanced digital skills in order to enhance their employability in the tight German digital

[158] European Commission, (2019). *Skills for Industry - Skills for Smart Industrial Specialisation and Digital Transformation*, October, https://skills4industry.eu/sites/default/files/2019-11/EA0419517ENN%20-Skills%20for%20Smart%20Industrial%20Specialisation%20and%20Digital%20Transformation%20-%20Brochure.pdf

[159] DiversITy Series, (2019). *Promoting e-skills training for a diverse tech workforce - Country report for Germany,* February, https://eskills4diversity.com/fileadmin/diversity/images/reports/country_report_de_final.pdf;

[160] ISDL, (2019). *Best practices of immigrant integration – Examples from 5 countries*, May, *https://www.isdlearning.eu/wp-content/uploads/2019/08/ISDL_BEST_PRACTICES_English_V8.pdf*

[161] https://digitalsocial.eu/case-study/36/redi-school-of-digital-integration

[162] ReDI School of Digital Integration, (2020a). *ReDI School of Digital Integration Portrait*, https://a11e0a06-2fa2-417a-9a9f-6ccbf93cb336.filesusr.com/ugd/206b5b_a9f3cbf02b87464ba3ccb4d97a761ed8.pdf

	labour market. To this end, it also organises networking events with companies and provides its students with access to professional and mentoring networks, including in the IT sector Indeed, a crucial feature in ReDI's model has been its close links with private sector companies which provide not only financial (and/or in-kind) support, but also work-based placement such as apprenticeships and internships and ultimately employment to students. Ton broaden its students' horizons and enrich their learning experience, the school also hosts creative and/or IT-related workshops, organises tech-talks, supports innovation projects and/or corporate training projects and runs short-term summer courses. Another important feature of ReDI is the fact that together with the free high-quality digital training it provides (e.g. in coding), it also places an emphasis on also developing soft skills among its students. In general, the combination of high-quality digital and soft skills training; the close collaboration with companies and associated networking and placement opportunities as well as the on-going support to students (e.g. through mentoring) are all considered vital for their fast-track integration into jobs. The school caters to various levels of digital skills, from absolute beginner to advanced. The curriculum and associated programmes are flexible, while the students are allowed to learn at their own pace by registering for one or two free courses at a time.[163] The school also lends laptops, software programmes and materials that students need during their studies, while students are offered placements in co-working spaces, so that they are both in good work environments and have the opportunity to make new (professional) contacts. ReDI's programmes encompass a range of courses and workshops across different types of software development. The school runs the following programmes • ReDI Digital Career Programme • ReDI Digital Women Programme • ReDI Digital Youth Programme • ReDI Kids & Teens Programme Each programme lasts 3-5 months and can also include one to three weekly evening classes (of 2-3 hours) which are especially tailored to migrants and refugees. The school also uses MOOC content from the main international providers, combined with teaching support provided by a network of volunteer teachers. The range of IT-related courses is broad and covers Java, Javascript, Python, HTML & CSS, Swift, IoT in Action, Salesforce Fundamentals, UX Design, Cloud, Computer Basics.

[163] Mason, B., (2018). *Tech Jobs for Refugees – Assessing the Potential of Coding Schools for Refugee Integration in Germany*, Migration Policy Institute (MPI), October, https://www.bosch-stiftung.de/sites/default/files/publications/pdf/2018-11/TechJobsRefugees_Final.pdf

	In each semester, around 550 experts volunteer to teach at the ReDI School and support the students in their integration process.
Project results	Since 2016, the school has trained more than 3,000 students with over 40 different nationalities.[164] In spring-summer 2020, the school had 884 students in total, broken down as follows. [165] • *ReDI Digital Career Programme*: 325 (18 classes) • *ReDI Digital Women Programme*: 231 (18 classes) • *ReDI Kids & Teens Programme*: 328 In a survey of the school's alumni in which 112 people participated, 57% were in a job, while a further 28% were enrolled in higher education.[166] According to the school's latest impact study[167] about its graduates' destinations, in June 2020, • 32% were working full-time • 5% were working part-time • 32% were combining work with study (BA, MA, PhD) • 9% were university students • 3% were undertaking an apprenticeship • 2% were undertaking an internship • 15% were unemployed In 2018, the Financial Times Germany named ReDI School one of the 100 most innovative initiatives in Europe.[168]
Medici cluster	
Project website	https://www.redi-school.org/

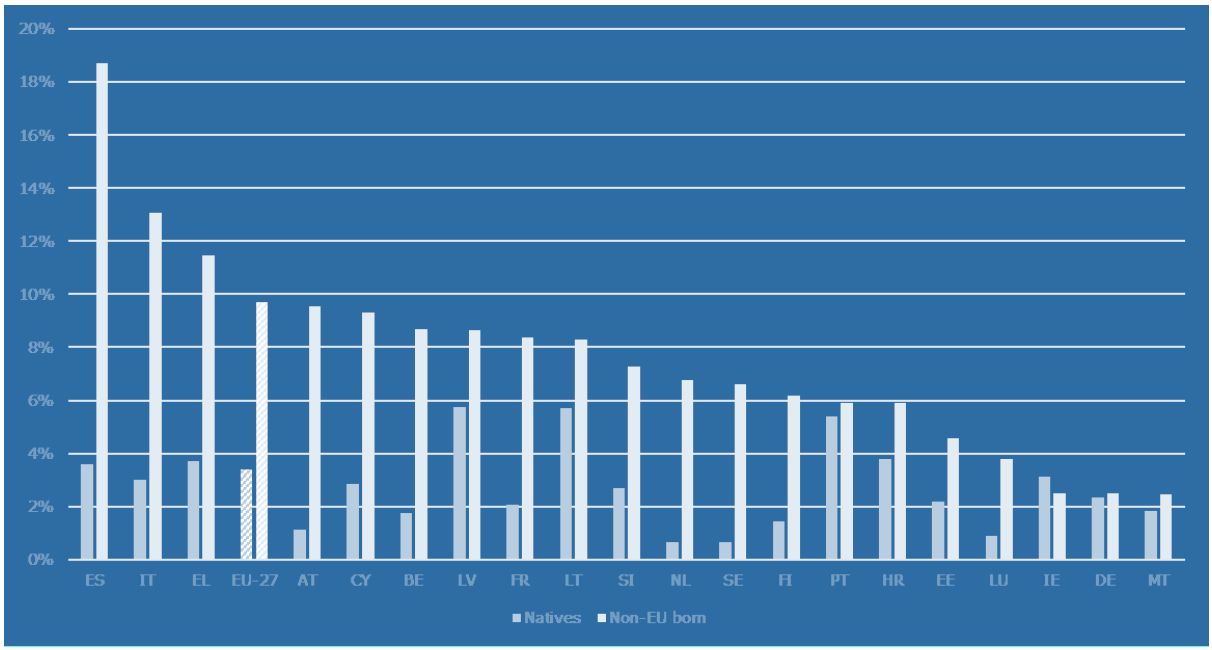
Source: ReDI School of Digital Integration website, https://www.redi-school.org/; ReDI School of Digital Integration, (2020). ReDI School of Digital Integration Portrait, https://a11e0a06-2fa2-417a-9a9f-6ccbf93cb336.filesusr.com/ugd/206b5b_a9f3cbf02b87464ba3ccb4d97a761ed8.pdf; ReDI School of Digital Integration, (2020). ReDI School of Digital Integration Factsheet, https://a11e0a06-2fa2-417a-9a9f-6ccbf93cb336.filesusr.com/ugd/206b5b_c134449cb2a141d2b77b2d298c535e19.pdf; ISDL, (2019). Best practices of immigrant integration – Examples from 5 countries, May, https://www.isdlearning.eu/wp-content/uploads/2019/08/ISDL_BEST_PRACTICES_English_V8.pdf; Digital Social Innovation in EU – Case Study 36: ReDI School of Digital Integration, https://digitalsocial.eu/case-study/36/redi-school-of-digital-integration

It is worth adding here that, as the recently published European Commission's Education and Training Monitor 2020 underlined, those of migrant background also face ICT-related access barriers. As the Figure below shows, in 2018, the share of persons not able to afford a computer was higher amongst

[164] ReDI School of Digital Integration, (2020b). *ReDI School of Digital Integration Factsheet*, https://a11e0a06-2fa2-417a-9a9f-6ccbf93cb336.filesusr.com/ugd/206b5b_c134449cb2a141d2b77b2d298c535e19.pdf
[165] *Ibid.*
[166] https://digitalsocial.eu/case-study/36/redi-school-of-digital-integration
[167] ReDI School of Digital Integration, (2020b). *Op.Cit*
[168] ReDI School of Digital Integration, (2020a). *Op.Cit*

non-EU born persons than natives in all but one EU Member State in 2018. Overall, **in 2018, across the EU 9.7% of non-EU born persons could not afford a computer compared to 3.4% of EU natives.**[169]

Figure 5: Share of persons who cannot afford a computer, by group of country of birth (2018)

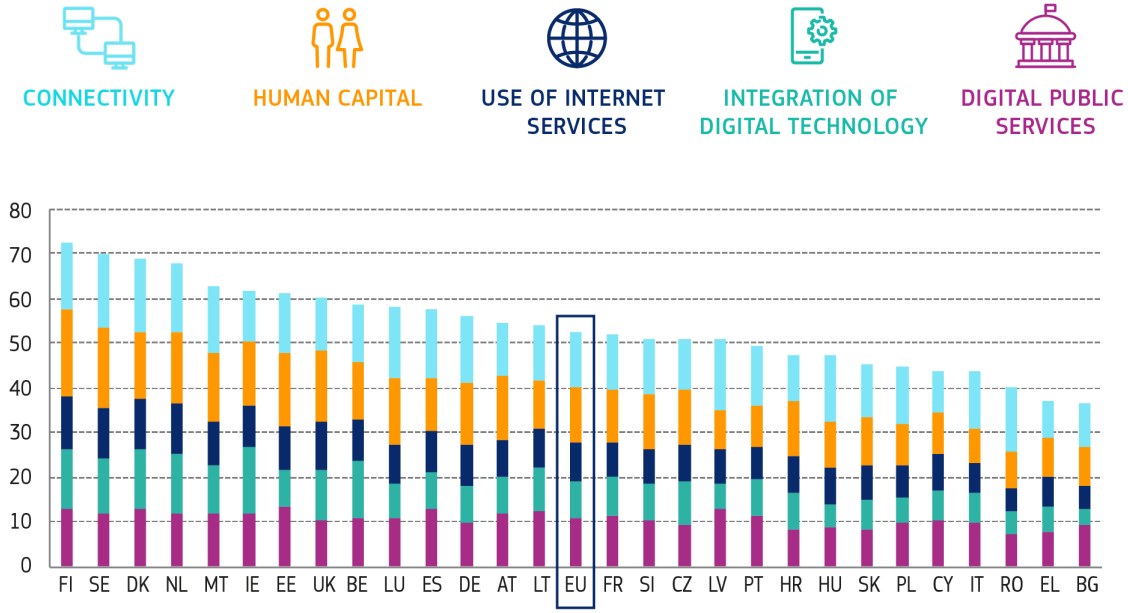


Source: European Commission, (2020). Education and Training Monitor 2020, Volume 1: EU level Analysis, 12/11/2020, https://op.europa.eu/en/publication-detail/-/publication/92c621ce-2494-11eb-9d7e-01aa75ed71a1/language-en

Overall, the discussion in the preceding sections has highlighted the fact that significant challenges remain as regards the digital inclusion of disadvantaged groups, including the unemployed and the inactive. Such challenges exist across the EU, albeit to different extent depending on the stage of digital development of a particular Member State. As the Figure below shows, there is great variation between EU countries as regards their digital progress across a number of parameters, including digital skills, connectivity, use of internet services, and digital public services, all of which have a bearing on digital inclusion. On the basis of the EU's Digital Economy and Society Index (DESI) 2020, Finland, Sweden, Denmark and the Netherlands have the most advanced digital economies in the EU have the most advanced digital economies in the E, while at the other end of the spectrum are Bulgaria, Greece, Romania and Italy, all of which have the lowest DESI scores.

Figure 6: Digital Economy and Society Index (DESI) 2020

[169] European Commission, (2020). *Education and Training Monitor 2020, Volume 1: EU level Analysis*, 12/11/2020, https://op.europa.eu/en/publication-detail/-/publication/92c621ce-2494-11eb-9d7e-01aa75ed71a1/language-en



Source: European Commission, Digital Economy and Society Index (DESI) – DESI 2020, https://ec.europa.eu/digital-single-market/en/digital-economy-and-society-index-desi#:~:text=DESI%202020&text=Over%20the%20past%20year%2C%20all,by%20Malta%2C%20Ireland%20and%20Estonia.