



Inspirational practices for tomorrow's inclusive digital world

Technical Dossier no. 10

May 2019

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Acknowledgements: This technical dossier was commissioned by the Learning and Skills Thematic Network, which is led by ESF Italy and is part of the ESF Transnational Platform, managed by AEIDL on behalf of the European Commission, DG Employment, Social Affairs and Inclusion. The content, analysis, opinions and policy recommendations contained in this publication do not necessarily reflect the views of the contractor or the funding authority.

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Published on behalf of the European Commission, Directorate General for Employment, Social Affairs and Inclusion by the **ESF Transnational Platform**
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Luxembourg: Publications Office of the European Union, 2019

Print ISBN 978-92-76-03014-0 ISSN 2467-3145 doi:10.2767/712071 KE-PB-19-001-EN-C

PDF ISBN 978-92-76-03013-3 ISSN 2467-3153 doi:10.2767/87301 KE-PB-19-001-EN-N

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EXECUTIVE SUMMARY

Digitalisation is not only transforming the economy; it is transforming our society as a whole. The pace of change makes forecasts quickly out-of-date or near impossible. This raises the question whether digitalisation represents a threat or an opportunity. Many questions remain unanswered regarding the future of work, the future of skills, the future of the economy and, finally, the future of Europe. How can we ensure that we maximise the growth potential of the European digital economy, so that every citizen can enjoy its full benefit and no one is left behind?

1. INTRODUCTION

The European Centre for Vocational Education and Training (Cedefop)'s European skills and jobs (ESJ) survey¹ reveals that more than 7 in 10 adult employees in the EU need at least a basic level of digital skills to be able to perform their jobs. Yet, about one in three of those employees are at risk of digital skill gaps. At the same time, the survey indicates that almost half of all employees in low-skilled occupations do not require ICT skills to do their work. Reaping the full benefits of digitalisation will require modernisation of education and training systems but, crucially, more investment in digital capital infrastructure and continuing online learning for groups excluded from the digital economy.

It is important to address this issue and adapt to changes in the nature of work resulting from digitalisation. This can be done through the European Social Fund (ESF), which helps to implement policies through EU funding.

The objective of this dossier is to present the contribution of the ESF Transnational Platform Thematic Network on Learning and Skills to the ambitious policies developed both at EU and national levels: building an inclusive, knowledge-based digital economy and society in Europe.

The Learning and Skills Network has enabled mutual learning since the beginning of 2016. In its policy brief "[Being digitally competent in 2020 and beyond](#)", published in May 2018, the network announced its willingness to "*contribute to the general call to improve the skillset of European citizens by providing better insights and practical solutions to navigate the choppy waters of digitalisation and build an inclusive, knowledge-based digital economy*".



Digitalisation is transforming our economy and society

The objective of the network is to support the implementation of the [Digital Skills and Jobs Coalition](#) among relevant stakeholders and the development of national digital skills strategies that, leveraging upon the ESF, deliver on the goals and actions set out in the New Skills Agenda for Europe².

For this dossier, the Learning and Skills Network has gathered concrete examples of projects and programmes funded by the ESF that have been implemented in EU countries. These examples focus on the main target groups of the Digital Skills and Jobs Coalition:

- citizens;
- the labour force (including ICT professionals); and
- education providers.

Each case study includes a short description, an outline of achievements, learning outcomes, and the potential for transferability.

¹ ESJ survey INSIGHTS No 9, *The great divide Digitalisation and digital skill gaps in the EU workforce*.

² <https://ec.europa.eu/social/main.jsp?catId=1223>

The selected examples offer interesting insights that others may wish to replicate, build on and learn from in order to develop innovative solutions to the challenges of digitalisation. They demonstrate how the ESF, one of the main EU financial tools, can be used in a complementary manner to support concrete policy responses to skills challenges through practice at transnational, national, regional and local level.

To provide context for the case studies, the dossier examines digital skills strategies at national and regional levels. It concludes with some recommendations for the next ESF programming period.

1.1. Transnational cooperation in the ESF

The main purpose of transnational cooperation between Member States under the ESF is to contribute to the quality and effectiveness of policies and deliver reforms, through mutual learning activities, i.e. exchanging information, sharing, assessing and adapting good practices. It also implies working towards common solutions by bringing together people, public administrations, social partners, NGOs and

Armelle Ledan, TN expert



organisations in the field of employment, social inclusion, education, training and lifelong learning. Finally, it helps to build the capacity of public administrations and stakeholders such as NGOs, social partners, academics and individual experts.³

In the current programming period (2014-2020), the European Commission's Directorate-General for Employment, Social Affairs and Inclusion (DG EMPL) has established nine Thematic Networks to guide work on the themes agreed within the Common Framework.⁴ Managed by AEIDL⁵ and jointly facilitated by thematic experts and (in most cases) ESF Managing Authorities, they are mainly composed of representatives from the bodies managing the [ESF Operational Programmes](#). This dossier results from the work of one of them, the Learning and Skills Network.

1.2. The ESF Learning and Skills Network

The Learning and Skills Network is composed of 12 ESF Managing Authorities, as well as other EU stakeholders such as the AGE Platform Europe, the Lifelong Learning Platform, and the European Trade Union Confederation (ETUC), in addition to a representative from DG EMPL and a thematic expert.

The network uses the [New Skills Agenda for Europe](#) adopted in June 2016 as its blueprint policy. It supports a shared commitment and work towards a common vision of the strategic importance of skills to jobs, growth, competitiveness and social cohesion. EU-level action alone will not suffice. Success depends on the commitment and expertise of many players, such as national governments, regions, local authorities, businesses and employers, workers and civil society – and people themselves, as they take up opportunities to make the most of their talents.

The New Skills Agenda for Europe set out 10 actions to make the right training, skills and support available to people. Of these, participants in the network identified the [Digital Skills and Jobs Coalition](#) as a key priority for their respective countries.

³ Extract from "Transnational cooperation in the European Social Fund 2014-2020. An introductory guide".

⁴ The Common Framework is an optional institutionalised EU-level collaboration between Managing Authorities and/or Intermediate Bodies on a limited number of Common Themes with support from the ESF Transnational Platform.

⁵ The European Association for Information on Local Development: www.aeidl.eu.

The Coalition brings together Member States, companies, social partners, non-profit organisations and education providers, who take actions to tackle the inadequacy of digital skills in Europe, beyond the Information and Communication Technology (ICT) sector. It builds on the work of the Grand Coalition for Digital Jobs⁶, the eSkills for Jobs campaign⁷ and the Education and Training 2020 initiative⁸. The European Commission asked all Member States to develop national digital skills strategies by mid-2017 and to set up national coalitions to support their implementation.

Interesting initiatives are already under way, such as the [Digital Opportunity traineeships scheme](#) and the [digital skills initiatives](#). These can be replicated and scaled up across Europe, resulting in the delivery of the [European Digital Skills Award](#) and the European Digital Competence Framework for Citizens ([DigComp](#)) which identify key digital skills in five areas. The European Commission monitors Member States' digital progress, including digital skills, in the [Europe Digital Progress Report](#). The Learning and Skills Network wishes to contribute to the implementation of these initiatives, mainstreaming the role played by the ESF in achieving this aim.

1.3. Background

The Digital Skills and Jobs Coalition has no specific budget to support its activities. Therefore, the European Commission has clearly highlighted, among several funds and financial instruments available at European and national level, the ESF as a major tool for supporting projects that boost digital skills.

The Coalition's main goals by 2020 are to train 1 million young unemployed people for vacant digital jobs, to support the upskilling of the workforce and to modernise education and training.

Besides being a useful resource for members of the Learning and Skills Network, this dossier presents ESF Managing Authorities and stakeholders, in particular those operating on the ground, concrete ways of addressing digital skills challenges. It also shows how the ESF can be used to support policy implementation, especially as they prepare for the next programming period (post-2020):

- by providing [information related to digital skills strategies](#)

⁶ <http://www.eun.org/projects/detail?articleId=676207>

⁷ <https://all-digital.org/projects/eskills-jobs-campaign/>

⁸ https://ec.europa.eu/education/policies/european-policy-cooperation/et2020-framework_en



Learning and Skills Network meeting in Luxembourg

- by sharing [practical knowledge through a collection of inspiring ESF-funded projects](#) related to digital skills, with potential for transferability.

To support the Digital Skills Coalition and emphasise the potential synergies between policy priorities and EU-funded programmes and projects, this dossier replicates the structure of the Coalition, based on target audiences, and focuses on projects related to:

- (1) **citizens** – developing digital skills to enable all citizens to be active in our digital society (digitally-fluent citizens).
- (2) **the labour force**⁹ – developing digital skills for the digital economy, e.g. upskilling and reskilling workers and job-seekers; actions on career advice and guidance.
- (3) **education providers** – transforming the teaching and learning of digital skills in a lifelong learning perspective, including the training of teachers.

This information, which covers several Member States and regions, showcases a wide range of possible responses. In each case these are adapted to the needs of the territory and the challenges faced.

⁹ The third group identified by the Digital Skills Coalition, "ICT professionals", is included in the section dedicated to the labour force.



2. DIGITAL SKILLS STRATEGIES AT NATIONAL AND REGIONAL LEVELS



Young people can quickly acquire high-level digital competencies

What better way to ensure the effective implementation of policies on the ground than by ensuring consistency between policy priorities and their funding through projects?

Most EU Member States have adopted policies to tackle the digital skills deficit in Europe and to exploit the potential of ICTs for the benefit of society as a whole. Several countries have supported digital skills policies by integrating these priorities into their Operational Programmes, translated into relevant ESF calls for projects in this field. ESF support helps deliver national priorities, which vary according to the needs identified in Member States' respective digital skills policy agendas.

The following examples show that when public policies and the ESF are well coordinated, the result is consistency and policy impact, notwithstanding the different possible approaches to such coordination.

In **Italy**, the national plan for digital education (*Piano Nazionale Scuola Digitale, PNSD*), which is in line with the Italian Digital Agenda strategy, is a comprehensive plan for promoting innovation in Italian schools in the digital era. It contains 35 actions to be implemented by 2020 and is part of the '*Buona Scuola*' reform programme, based on the hypothesis that new technologies are a vehicle to promote

active learning for students and innovative practices for teachers.

Within the PNSD, many actions have been funded by the Operational Programme «Education - *Per la Scuola – competenze e ambienti per l'apprendimento* – 2014-2020»¹⁰, which draws on both the ESF and the European Regional Development Fund (ERDF) to finance improvement of the whole education system including its infrastructure – school buildings and equipment. This PNSD is not limited to the deployment of technology; no educational process takes place without intensive teacher-student interaction, and technology cannot be separated from this fundamental human relationship.

In accordance with national strategy, the Italian ESF Managing Authority has used the ERDF for structural investments in physical infrastructure (labs, learning spaces, libraries etc.) and to support technological and methodological innovation. Since 2015, calls have been published with the aim of improving the digital infrastructure in schools by providing broadband connections and Wi-Fi, laboratories and rooms for innovative

¹⁰ With a total of €3.019 billion, of which €1.615 billion comes from the EU budget.

and lab-oriented education, creative workshops, digital libraries etc.

The ESF has been used to fund the majority of the digital education plan actions relating to human capital. This has been made easier by including the PNSD and ESF Managing Authority in the same Directorate of the Ministry of Education. That has enabled institutional coordination, sharing of information between departments and the joint tailoring of the various actions. A specific ESF call was launched in April 2016 to fund extensive digital skills training for staff in all Italian schools at all levels from head teachers to teachers, financial and administrative officers and technicians. Thus, the ESF is a key pillar of the Italian digital education plan.

The Digital Agenda for Lithuania is also reflected in the country's Operational Programme through four priority axes. Here, the ESF is focused on two target groups: (1) giving pre-school and primary schoolchildren access to digital training and tools; and (2) giving all individuals aged 16–74+ access to computer training and electronic services. This is also the result of good coordination between institutions responsible for digital skills development in Lithuania. The country's National Digital Coalition actively contributes to and coordinates the implementation of the Information Society Development Programme 2014–2020 Digital Agenda for Lithuania.

In **Portugal**, the government has created the **National Digital Competences Initiative – INCoDe 2030** to improve the country's digital competitiveness during the period 2017–2030. INCoDe 2030 includes a wide range of measures that have been mobilised by various governmental bodies. These measures work alongside civil society initiatives that have similar aims.

The measures are structured around five axes of intervention: 1) Inclusion, 2) Education, 3) Qualification, 4) Specialisation, and 5) Research. Two activities from the third axis are being or will be funded by the ESF:

- identifying the digital competences needed for employability through the development of a system that is able to analyse and anticipate the digital competences needed from the workforce, working closely with the Qualifications Needs Anticipation System and the job market. The Qualification Needs Anticipation System is planned to be funded by the ESF through Operational Programmes (Activity 3.1); and
- giving adults, workers and the unemployed, including

the long-term unemployed, the opportunity to upgrade skills and obtain qualifications through reinforced adult education and training courses, modular training and Recognition of Prior Learning (RPL) processes. These measures involve Qualifica Centres which are financially supported by the ESF via the Portuguese thematic (Human Capital) and regional (Lisbon and Algarve) Operational Programmes (Activity 3.7).

In **Luxembourg**, Digital Luxembourg was launched in 2014. It is a multidisciplinary government initiative working with public, private and academic players to harness digitalisation for positive transformations. It approaches digitalisation holistically, focusing on five key areas: skills, policy, infrastructure, ecosystem and government. Executing the Luxembourg government's digitalisation strategy, Digital Luxembourg enables new projects, supports existing ones and boosts the visibility of nationwide efforts.

The Ministry of Labour, Employment and the Social and Solidarity Economy plays an important part in the government's strategy on digitalisation with regards to employment and the labour force. The ESF Managing Authority is integrated into this Ministry, ensuring that ESF priorities are in line with government policies and strategies. With regards to digitalisation, 1 of the 3 priorities of the ESF OP 2014–2020 is the promotion of new digital skills in order to help jobseekers and workers meet the needs of a changing labour market.

In Italy, new technologies are a vehicle to promote active learning for students





Spain provides an excellent example of the effective coordination of digital skills policy and the ESF. In that country, policy and implementation functions (including ESF) are combined in one organisation, RED.ES, a public corporate entity that is part of the Ministry of Energy, Tourism and the Digital Agenda.

RED.ES develops programmes to stimulate the digital economy, innovation, entrepreneurship, training for young people and professionals, and to support SMEs by encouraging efficient and intensive use of Information and Communication Technologies (ICT). Since February 2013, it has played an essential role in executing and deploying the plans of the [Digital Agenda for Spain](#) and it has a clear goal: to work for digital convergence with Europe through improved public services and the development of the digital economy.

What makes the Spanish approach noteworthy is that RED.ES also acts as the Intermediate Body within the framework of two Operational Programmes: Employment, training and education (POEFE) and Youth employment (POEJ). The main ESF measures focus on the development of new digital skills to promote training for employment and new professionals in the ICT sector. Many of RED.ES's projects have been made possible as a result of funding from the EU, through the ESF and ERDF.

RED.ES is also working on the public consultation to review the New Digital Strategy for Spain, establishing goals for digital inclusion, employment, and new skills and competences.

The Learning and Skills Network has selected the following ESF-supported projects for their quality in terms of implementation and results, their innovativeness and transferability potential, and above all for their “social inclusion” dimension



3. INSPIRING ESF PROJECTS FOR AN INCLUSIVE DIGITAL SOCIETY

The transferability potential of each case study is scored according to the following 'traffic light' system:

- GREEN:** potentially easily transferable
- ORANGE:** potentially transferable, partially and/or with some obstacles and necessity to adapt
- RED:** potentially not transferable

3.1. Digital skills for all – developing digital skills to enable all citizens to be active in our digital society (digitally-fluent citizens)

The 2018 Digital Economy and Society Index (DESI) shows that Europe is getting more digital, but skills gaps remain. Some 43% of Europeans still do not have basic digital skills (44% in 2016), and 13% of them have never gone online, with important disparities between countries despite convergent trends – see Figure 1.

This societal digital divide is addressed in this section, which presents four projects focused on improving the digital skills of citizens to prevent digital exclusion and ensure their full participation in society. Access to services is increasingly done online. This can counterbalance mobility problems (geographical distance, health difficulties,

disabilities) as long as people have the ability to use online services.

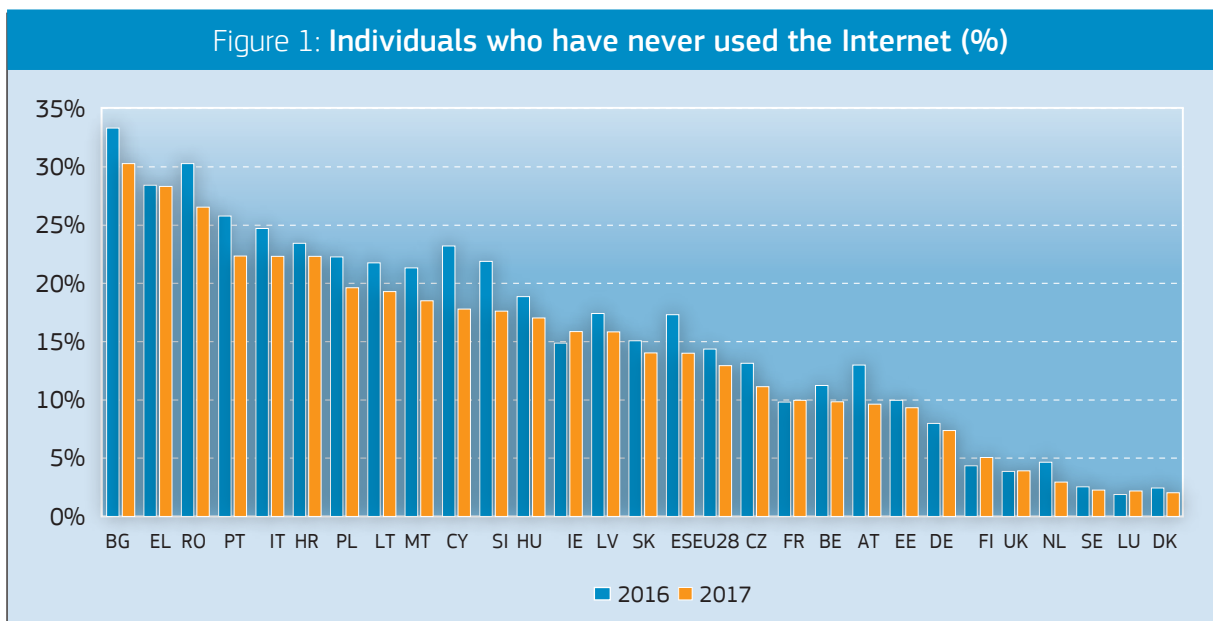
Lack of need or interest, insufficient skills and cost-related barriers are the most common reasons given by households for not having Internet access at home. Lack of skills is an increasingly important factor in this respect¹¹.

Thus, ESF projects pay special attention to the most vulnerable and marginalised populations, such as the elderly, low-skilled or migrants. Being fully equipped with basic digital skills is essential to participate in contemporary society. Being able to use the Internet gives people access to information, public services, training and other essentials of modern life. More importantly, these new capabilities empower citizens and transform them into potential co-producers of those services, who are involved in their design and implementation and able to collaborate in the policy-making process.

Digital Inclusion (Luxembourg)

Despite Luxembourg's high standard of living, statistics show that there are rising socio-economic inequalities

¹¹ EDPR 2017 – Digital Inclusion and Skills: <https://ec.europa.eu/digital-single-market/en/human-capital>



leading to a real disconnection between economic growth and the country's very high population growth.

Our society's dependence on ICT also means those without the skills to use these technologies risk exclusion. The digital divide separates those who have access to ICT, and the skills to use it, from those who have not and are thus excluded from society and social life.

The Digital Inclusion project was set up in 2016, with three objectives:

1. Make information technology available to everybody:

- access to digital communication;
- access to technical equipment; and
- promote digital literacy.

2. Promote social inclusion by providing training and access to digital technology:

- creative activities around technology involving locals and new arrivals; and
- establishing a platform for computer-assisted learning.

3. Contribute to the betterment of the environment by promoting the circular economy:¹²

- re-use and repair donated digital equipment.

The Digital Inclusion project aims to combine digital and social integration of socially-excluded people by giving them access to computers, as well as the autonomy to acquire digital, professional or linguistic skills.

The project has two main activities. The first is to collect, repair and refurbish used computers. These are then distributed to asylum seekers, refugees or residents with low incomes. Thanks to project partners, computers are also installed in shared spaces in refugees' residences. The project is in line with the philosophy of the circular economy and works thanks to a team of volunteers, including both refugees and residents. Outside ESF, the project also carries out activities, such as technical support to refugee residences, loans of IT equipment, donations to other associations, and organisation of events and integration actions.

Since 2018, ESF funding and the support of Luxembourg's Ministry of Labour also enable the project to deliver "Digi4All", a scheme that aims to make Luxembourg resi-

dents more employable through free ICT training. The main target groups are jobseekers and refugees, although it is open to all.

Participants are given access to computers and other equipment, and offered a course focusing on software in the work environment to make them more employable.

Refugees receive individualised support and translation services. Many of them are already familiar with the software, but need to learn how to use it in the language of their country of residence. Workshops led by software engineers help them to learn by doing, which reinforces the autonomy of the beneficiaries.

Beyond professional (re)integration, the project improves social integration by creating a space where asylum seekers, refugees and disadvantaged people in Luxembourg can exchange skills, engage with peers and meet other people. Digi4All also collaborates with all existing integration support platforms.

The project's approach is to be as inclusive as possible regarding vulnerable local populations. Every asylum seeker or refugee who lives in the country can benefit from educational and material support, with equal consideration.

Volunteers work together to repair and refurbish collected IT equipment, learning practical skills in the process. The refugees taking part mainly come from Syria, Iraq, Sudan and Eritrea, while some come from Guinea, Palestine and Romania. There are also volunteers from Luxembourg. Though many of the volunteers are IT professionals, others had no prior contact with information technology and electronics. Some volunteers regularly teach digital literacy courses in the classroom.

The project has established partnerships with a number of public and private sector and social organisations (see box).

Digital Inclusion's team has gender parity and half of the team has a refugee background.

Achievements

Between 2016 and February 2019, Digital Inclusion distributed more than 1 500 re-used computers (including 150 to partner associations). The recipients were mostly from Syria, Iraq, Afghanistan, Eritrea, Sudan and Iran.

¹² <http://ec.europa.eu/environment/circular-economy/>

It gave 693 participants over 2 400 hours training in total in 2018. Of these, 69% were men and 31% women; 93% were migrants, participants with a foreign background, or minorities; and 94% were unemployed or not working.

By recycling about 10 tonnes of computer equipment a year, the project raises awareness among participants, collaborators and donors about recycling and sustainable development.

The Digital Inclusion project has received the following awards: Luxembourg Winner in the 'Social' category of the 2017 StartUp Europe Awards promoted by the European Commission; 2018 Etikaprix from Etika asbl, awarded in the presence of Luxembourg's Minister of Environment; and 2018 ING Solidarity Awards' Jury Prize 'Coup de Pouce'.

Learning outcomes

- the project shows how current social dynamics pose demanding learning challenges for people that can be addressed with an innovative, flexible and inclusive training programme;
- it demonstrates that social inclusion can be fully integrated with emerging trends in employment, such as the circular economy, achieving both sustainable and social goals;
- a tailor-made approach taking into account individual needs does not preclude opening training to all;
- mobilising participants' existing skills, and using them to either train other trainees or repair equipment is a strong way to make people feel valued. It reinforces their personal skills and improves their chances of becoming employed and socially integrated; and
- training for the unemployed and people excluded from the labour market can be efficiently designed and delivered for sectors with high growth potential like digital and the circular economy, while pursuing societal objectives.

Transferability potential

Digital Inclusion's holistic approach to digital integration in Luxembourg can be transferred to a variety of contexts. Its combined approach to IT, social inclusion and the circular economy does not require large investments, but the willingness to make it happen and committed networks of partners from the public, private and social economy sectors.

Project name	"Digital Inclusion (Digi4all)"
Partnership	Luxembourg's Ministry of Labour ADEM Œuvre Nationale de Secours Grande-Duchesse Charlotte US Embassy private sector organisations (State Street Bank, Banque de Luxembourg, Baker McKenzie, BGL BNP Paribas, Prisma, and CompuTrade) NGOs (Red Cross and Caritas)
Period	01/2018 - 12/2019
Project funding	Total cost: €350 000 ESF: €175 000
Further info	https://digital-inclusion.lu/ www.facebook.com/DigitalInclusion-Asbl/

Smart@cities, co-producing digital and inclusive public services for all (Wallonia, Belgium)

The "Smart Cities" project in Tournai (Wallonia) is bridging the digital divide by developing and integrating new information and communication technologies (NICT) into the municipal management of services to citizens through awareness-raising and training activities.

Smart cities are emerging all over Europe. These are places where traditional networks and services are made more efficient through the use of digital and telecommunication technologies, benefitting inhabitants and businesses.

"There is not one single definition, but life in a smart city is essentially about well-being"

Andreea Strachinescu, Head of Unit for new energy technologies, innovation and clean coal at the European Commission's Directorate-General of Energy¹³

Digital Wallonia sets the framework for all of the Walloon Government's actions for the digital transformation of the region. It has harnessed more than €500 million over four years for implementation. As part of Digital Wallonia, Eurometropolitain e-campus, a further and higher education provider that specialises in the digital domain, led the Smart@cities project in Tournai, a city of around 70 000 inhabitants.

¹³ <https://energypost.eu/europe-aims-to-have-300-smart-cities-next-year/>

It all started in mid-2015, with two citizens' information forums where around 150 people came together to answer the question: "Smart' Tournai: a smart city, what is it in practice?"

The innovative dimension of this project lies in its dual and complementary approach, addressing both providers and users of local public services: providing the necessary skills to municipal employees to make public services better, and involving citizens in the conception and development of these services.

The project created training courses for municipal staff. Each module developed proficiency in a new digital tool (geolocation, e-signatures, the citizen digital account, interactive terminals, etc.). These training sessions not only increase the digital skills of public sector employees, they also foster innovation by encouraging them to think: "what tools could we develop in our department?" or "How could NICT be used to simplify administration?".

Tools developed through this process are then tested in workshops with representative panels of citizens, whose feedback is used to improve services.

The project also held open information sessions to inform citizens about the Smart Cities approach and allowed them to try out new digital tools for the delivery of municipal services.

Achievements

Every year since 2015, the project has trained 50 municipal employees to use new digital tools and held two public information sessions, attended by 150 to 200 citizens.

The training courses have enabled public sector employees, sometimes with few digital skills, to discover digital tools and innovations that they can use to improve the efficiency of their work. For instance, using an app to assess the filling rate of rubbish bins in the city centre in order to improve coverage.

A portal of the digital services provided to citizens has been developed, including a collaborative dimension that allows the citizen-partner to enrich the information available on the website and ensure it matches their needs.

Learning outcomes

- training of workers with few digital skills in their professional context can be a way to reach an audience

sometimes little aware of these types of tools and increase their motivation, creativity and participation;

- application of the "smart city" concept to medium-sized cities, as well as capitals and large cities, can make them more efficient and attractive; and
- involving citizens in the conception and co-production of the local public services they use ensures a better fit with their specific needs, smarter territorial development and greater social cohesion.

Transferability potential

If well planned, it would be easy to transfer the tailored and targeted training programme for employees and workers - with a special focus on people who are not used to NICT, such as the elderly.

The connection with citizens' needs, testing and feedback, is key in this project, as well as the particular attention paid to those affected by the digital divide.

The social inclusion dimension, which is the main strength of this project, also needs to be maintained.

Project name	"Smart@cities"
Partnership	Eurometropolitan e-campus, City of Tournai, Multitel research centre
Period	2015 – 2020
Project funding	Total cost: €377 610 ESF: €184 395
Further info	https://www.ee-campus.be/ https://www.mytournai.be/bienvenue/

'Lighthouse keepers', local digital champions bring the over-50s online (Poland)

The proportion of people with poor digital skills increases with age. While 79% of people living in the EU-28 use the Internet at least once a week, only 57% of people aged 55-74 do, compared with 96% of 16-24 year-olds.¹⁴ Those with low education levels or on low incomes continue to be at risk of digital exclusion. Despite undeniable recent progress, more must be done to fight it.

¹⁴ Eurostat 2016 data.

In 2010, close to 13 million Poles lacked elementary digital skills. In response, the innovative “Digital Poland of Equal Opportunities programme” (PCRS), established Europe’s largest grass-roots initiative of universal digital education for people aged 50+.

This nationwide project was delivered thanks to nearly 3 000 ‘lighthouse keepers’. These Polish local digital champions are trusted, creative local community leaders/animators who introduce over-50s from their own communities to the digital world.

Each ‘lighthouse keeper’ received certified training and created a local action plan for his/her own initiative, realised in cooperation with NGOs and local authorities. The most important aspect of the job is to recognise the needs of the community, so that activities are tailored to those needs.

The activities are carried out using public Internet access points, such as libraries, fire stations, or Internet cafes. The over-50s find it easier to learn in such conditions than on a formal course conducted by IT experts. Especially because in many cases it is a one-on-one interaction rather than educator-group.

In addition to the ‘lighthouse keepers’, the programme mobilised 13 ‘Ambassadors’¹⁵ who proved essential to get the required political support for such a wide initiative at country level.

Achievements

The project certified 2 942 ‘lighthouse keepers’ in Poland, significantly exceeding the objective of 2 600. As a result of the training, a group of local leaders took part in a nationwide programme of activities aimed at raising the digital competence of people at risk of exclusion and stimulating demand for broadband Internet access. This project is not only reducing digital divisions it is also contributing to the creation of a civil society sensitive to the needs of an ageing Polish population.

¹⁵ The 13 ‘ambassadors’ included: Ombudsman for civil rights, Prof. Irena Lipowicz; Prof. Danuta Hübner - chairwoman of the Regional Policy Committee of the European Parliament; Dr Włodzimierz Cimoszewicz - Senator of the Republic of Poland, former Prime Minister of the Republic of Poland; Prof. Michał Kleiber - President of the Polish Academy of Sciences and Jerzy Koźmiński - President of the Polish-American Freedom Foundation, former Ambassador of the Republic of Poland to the USA.

Building on its model for over-50s, the project will continue from 2019 onwards, funded as a “good practice dissemination”, targeted at the 18+ working population. Local citizens will be able to get Internet and other digital skills training. Laboratories will also create and collect local historical and cultural resources (photos, films, etc.).

Learning outcomes

- transforming and modernising existing professions by adding a digital dimension to ensure a smooth transition into the digital era, capitalising on heritage and acquired knowledge rather than replacing it;
- using locally well-known and recognised digital animators, and stressing the human dimension of all learning processes, appear to be efficient ways to reach a digitally remote population, whether the distance is mental or physical; and
- creating local digital development plans ensures that they best match local needs and makes people more willing to participate.

Transferability potential

Relevant to other EU countries, struggling with the same problem of digital exclusion. Potential difficulties in finding the right ‘lighthouse keepers’, recognised and legitimate in their local community (personal skills, social capital and settled locally).

Needs political understanding, acceptance and support at high level for a nationwide project.

Also needs local infrastructure where meetings, training and workshops can take place.

Project name	Lighthouse Keepers of Digital Poland
Partnership	Association “Cities on the Internet” Ministry of Administration and Digitisation Local authorities and NGOs
Period	2007 – 2013
Project funding	Total cost: €8 600 000 ESF: €7 310 000
Further info	https://latarnicy.pl/all-digital.org/polish-lighthouse-keepers world summit on info society digital Poland ppt

MyPolis, enhancing civic participation, democracy 4.0 (Portugal)

Portugal has been a democratic country since 1974, when the ‘carnation revolution’ ended a 40-year dictatorship. Young adults played a key role in those events, but political engagement among the youth of today is in decline. Some 43% of citizens do not vote in elections, with 70% of young adults abstaining from casting a ballot. This lack of engagement could have serious consequences for democracy and the rule of law.

MyPolis identified a communication gap between politicians and citizens, especially young adults, as a key factor in the general lack of civic engagement and distrust in politics. Traditionally, politicians use newspapers, TV and election manifestos to communicate ideas. Most Millennials do not read newspapers, watch TV and would not read a 200-page policy proposal.

The project set out to develop a way to make civic engagement easier and more intuitive for citizens. The political debate has moved to social media, but on Facebook or Twitter opinions are not mediated and quantified and the platforms are no replacement for voting in assessing public opinion. This generates frustration and a sense of ineffectiveness and most citizens would like to have a tool to easily, directly and quickly convey their opinion to policymakers.

Responding to this need, the MyPolis app is bringing civic engagement into the 21st century. It lets citizens vote on political proposals, making their voices heard, while politicians are provided with feedback from citizens and civic engagement is fostered. Politics can be simple, fun and, above all, for everyone. Gamification logic is used to foster engagement among students and other youth groups.

MyPolis complements a municipality's online and mobile presence with a field work methodology to foster participation: it is a citizenship activator rather than a software provider. This differentiates MyPolis from other mobile apps for citizenship. Its form of civic engagement is cheaper than traditional opinion polls and provides municipalities with a clear view of what citizens want for their city, a vision enriched by direct feedback from field work.

Achievements

ESF enabled MyPolis to be implemented in the city of Lagos (Algarve). It is also available in Sintra and Oeiras.

The project also developed a web and mobile app with the Portuguese government. Launched in October 2018, “Academia MyPolis” is being tested in six schools in Portugal. The app was launched with a citizenship tournament celebrating the 70th anniversary of the Universal Declaration of Human Rights and 40 years of Portugal's accession to it. Academia MyPolis may be further developed with ESF support in the new programming period.

MyPolis has won the following entrepreneurship competitions in Portugal: Digital Democracy Award from the European Commission Representation in Portugal; Montepio Acredita Portugal; Santa Casa da Misericórdia de Lisboa Award in Montepio Social Tech; Startup Portugal Momentum; Startupin.

Learning outcomes

- innovating in the field of democracy by creating a digital voting tool can help reach out to the new generation of (eligible) voters and foster their citizenship; and
- complementing an online tool with field work and human presence helps activate citizenship and better reflects the views of young adults.

Transferability potential

MyPolis is easily transferable and scalable, as this was planned from its inception and it is a key element of the business model and vision. Some degree of customisation is possible, following a modular approach to offer different features to citizens and decision-makers. MyPolis will be launched in five European cities in 2019.

Project name	MyPolis
Partnership	Lagoa Municipality Casa do Impacto Vodafone Maze Citizenship and Equality Secretary of State and Agency for Administrative Modernisation
Period	2018-2021
Project funding	Total cost: €119 903 ESF: €67 146
Further info	https://mypolis.tech/ https://www.facebook.com/mypolis.eu https://twitter.com/mypolis_eu

3.2. The labour force – developing digital skills for the digital economy

According to the latest research by the World Economic Forum (WEF), OECD and Cedefop¹⁶, a disruptive change will occur in the next few years as automation and robotics change the world of work. And Europe is no exception.

Today, 11% of the labour force has no digital skills at all and 37% of people in the labour force – farmers, bank employees, and factory workers alike – lack sufficient digital skills, despite the increasing need for such skills in all jobs.

Digital skill levels need to be raised among employees in all economic sectors, as well as among job-seekers, to improve their employability. Demand for digitally-skilled employees is growing by around 4% a year. Europe also lacks skilled ICT specialists to fill the growing number of ICT job vacancies in all sectors of the economy. ICT jobs account for 3.5% of total employment today. Shortages of ICT professionals in the EU could reach 500 000 unfilled vacancies by 2020 if no decisive action is taken.

Technology may destroy some jobs and create others, but its greatest effect is transforming jobs and content. On average, just 9% of jobs are at high risk of automation, but at least 70% of the tasks in all jobs could be automated.¹⁷ The big danger is that part of the working population, notably those with low skills, do not benefit from this change, and even worse, are permanently cut off from the labour market and become excluded.

The projects on the following pages show how the ESF is helping to tackle and overcome this challenge, focusing on the most vulnerable groups such as the low skilled, young people, or migrants. Some projects also demonstrate the efficiency and effectiveness of a global approach, at company or even national level.

Personalisation of learning paths requires a major change in the organisation and delivery of education and on-the-job learning, recentering it around personal progress.

¹⁶ *The Future of Jobs Employment, Skills and Workforce Strategy for the Fourth Industrial Revolution*, World Economic Forum (WEF), January 2016.
Skills for a Digital World, policy brief on the future of work, OECD, December 2016.

¹⁷ Cedefop Briefing note, "People, machines, robots and skills", July 2017.
<http://www.cedefop.europa.eu/en/news-and-press/news/insights-skill-shortages-and-skill-mismatch>

Anticipating the skills of the future (Flanders, Belgium)

The introduction of new technologies impacts skills needs, and 43% of EU employees told the European Skills and Jobs (ESJ) survey that they had recently experienced new technologies at work.¹⁸

In 2016, the Flemish Government in Belgium launched a cluster policy to unlock unused economic potential and increase the competitiveness of Flemish companies through active and sustainable cooperation between actors. One aspect of the policy is the so-called 'spearhead clusters', which take a future-oriented sectoral approach to forecast skills needed, today and in the future.

These large scale and ambitious clusters for specific domains are based on a partnership between companies, knowledge institutions and government (also called the triple-helix). They will serve as an 'antenna', making sure that information about current and future competency needs flows to relevant actors. The availability of necessary skills and sufficiently qualified and agile employees is essential to develop these triple-helix organisations. An economic transformation often means a change in terms of jobs and skills. This creates new professions or changes in existing professions under the influence of changing regulations, products and services, production processes and innovation.

Within the SCOPE project, promoters submit proposals for the implementation of a strategic prognosis about future competence needs. The prognosis developed in the project gives an insight into the changes in jobs and skills that are expected in the cluster, the company network or the research centre. The Flemish Agrifood sector for instance, uses the SCOPE project's forecast tool to anticipate the skills needed to move to smart "Agriculture 4.0". The Smart Digital Farming sub-project has identified a number of expected evolutions in the sector. The competency prognosis will examine these challenges, substantiate them and put forward possible solutions.

Learning outcomes

- developed an antenna function to deliver a skills prognosis for a whole sector. This enables a rapid response

¹⁸ <http://www.cedefop.europa.eu/en/news-and-press/news/insights-skill-shortages-and-skill-mismatch>

with tailor-made training programmes that can benefit several companies, increasing and adapting the general level of skills in the sector; and

- the sectoral partnership approach creates an ecosystem where relevant and updated information rapidly flows between companies, cluster antennae and training providers.

Transferability potential

Being able to anticipate and respond to rapid changes in skills requirements is a common challenge throughout Europe, and this model could be transferred to other countries or regions.

Project name	SCOPE
Partnership	Companies Knowledge institutions Government Training actors (including Syntra Vlaanderen and VDAB)
Period	2014-2020
Project funding	Total cost: €67 980 ESF: €22 992
Further info	https://www.smartdigitalfarming.be/

It is also worth paying attention to another Flemish project that has just started: **“Social Partners on the digital fast track”**. Various international social partners in Germany, France, Spain and the Czech Republic will exchange knowledge, good practices and knowhow on digitalisation and the role of the social partners within this transition, and they will develop an international comparison.

Digital Path to Work for migrants – peer tutor skills and digital basic skills (Finland)

Until the early 1990s, there was little-to-no immigration to Finland. In recent years, arrivals from the Middle East and North Africa (MENA) region – in particular Syria – have been increasing, creating new integration challenges.

Sivis Study Centre and Sedu both have a track record of providing digital skills to different groups. Sivis is also well-known for providing migrant education. The two organisations recognised that migrants with low digital skills require significant support before their integration into education or employment.

They decided to join forces to create a project that helps migrants acquire digital skills to support them in entering vocational education and training, finding employment, and integrating into Finnish society through volunteering. Sivis Study Centre has a network made up of numerous member organisation that can offer different kind of activities to migrants in the voluntary sector. These activities give migrants the opportunity to learn how Finnish society works and to get to know Finnish people.

The first phase of the project was to define the basic digital skills that migrants will need, and to identify a method of studying them in small groups without any professional teacher, using the Finnish language. The aim of the digital skills model was not to teach Finnish as a second language, but to allow the groups of participants to learn Finnish digital vocabulary.

The second step was the development of a transferrable model for peer tutors. This Peer Learning Model includes the “basic digital skills for work” framework, which has been created together with employers and on which the content of the peer learning groups is based.

The project then trained peer tutors in digital skills. The trained tutors worked in pairs or threes to guide a peer learning group of migrants interested in acquiring digital skills. Groups mainly learned by doing and by working together. Participants received a diploma if they completed 20 hours of study (5-10 peer group meetings).

Achievements

Carried out throughout the whole country, the project team built extensive networks with migrant associations, and other organisations and projects.

The project organised 13 peer learning groups for migrants with a total of 170 participants (6 to 13 participants per group).

The project organised peer tutor training in Oulu, Helsinki and Seinäjoki. Each tutor facilitated a group close to where they lived (Oulu, Seinäjoki, Helsinki, Lapua, Kauhajoki and Ähtäri).

Learning outcomes

- this peer learning model, in which one learns with other people in the same situation, is helpful for migrants, or people who are not in formal education or employment

(for example, women who are at home with children). This creates trust and avoids stigmatisation; and

- the model includes a definition of digital skills needed in the workplace, self-evaluation tests, guidelines for peer facilitation etc. The model is simple to apply in any organisation without tutoring from its designers.

Transferability potential

Fully transferable, because transferability was designed into the Peer Learning Model from the beginning, a key element of the project.

Project name	Digital Path to Work
Partnership	Sivis Study Centre Sedu NGOs: Red Cross, Mannerheim League for Child Welfare, and Eri-laisten Oppijoiden liitto
Period	2014 – 2020
Project funding	Total cost: €221 975 ESF: €177 580
Further info	http://digipolkutoihin.blogspot.fi/ https://www.ok-sivis.fi/hankkeet/digipolku-toihin.html

Activate Empleo (Spain)

Youth unemployment rates are generally much higher than unemployment as a whole. In some countries, the rate among under-25s is more than double the average. In 2016, more than 6.3 million young people (aged 15-24) in the EU were not in employment, education or training (NEETs), two-thirds of whom were unemployed.

Spain has the second highest rate of youth unemployment in the EU (44%).¹⁹ Among the many initiatives seeking to address this challenge, two projects funded by the ESF under the Youth programme are of particular note. Both show the importance of a strong partnership between the public and private sectors.

Activate Empleo is a project jointly designed by EOI and Google Activate to provide a training pathway on digital transformation for employment in Spain. EOI (School of Industrial Organisation) is a public foundation that is delivering Spain's digital skills strategy on behalf

of the Ministry of Economy, Industry and Competitiveness. The project helps young people acquire the skills necessary to find a job in the digital sector. The total ESF budget managed for the period 2014-2020 is around €38 million.

Activate Empleo is structured in three phases. The first phase is an online course on 'Digital Transformation for Employment'. This is followed by personalised tutorials. Finally, and most importantly, companies that take on participants on a six-month apprenticeship or contract to use their digital skills receive a grant of €5 000.

Achievements

More than 400 young people have taken part in the project, which was awarded the Congreso Nacional de Innovación y Servicios Públicos (CNIS) prize in recognition of its coordination of public and private sectors to achieve Digital Transformation.

The project has had a direct impact on the employability of young people, making early school leavers and young people who have lost their jobs more employable. There is a special focus on those with a moderate level of education. It has also enabled highly-educated young people to reskill to better fit the labour market.

Learning outcomes

- shows effective collaboration and coordination between public and private sectors for Digital Transformation (recognised with the CNIS prize); and
- the combined and integrated use of online training (massive open online courses - MOOCs) with personalised advice means that participants receive a uniform standard of training and guaranteed individual mentoring, no matter where they live.

Transferability potential

EOI intends to continue the project within Spain when EU funding comes to an end. The organisation has developed national programmes for ICT training for adults and is thus well placed to expand Activate Empleo in a similar manner. EOI was a finalist in the Education and Training area at the REGIO Stars Awards 2017.

¹⁹ <https://ec.europa.eu/social/main.jsp?catId=1036>

Project name	Activate Empleo
Partnership	EIO Google Activate
Period	2014 – 2020
Project funding	Total cost: €1 392 000 (€751 568 for training; €640 320 to support companies to hire young people) ESF: €1 002 240
Further info	https://www.eoi.es/es/cursos/26013/curso-de-transformacion-digital-para-el-empleo-ambito-nacional https://cursos.formacionactivate.es/transformacion-digital/

Youth employment digital professionals (Spain)

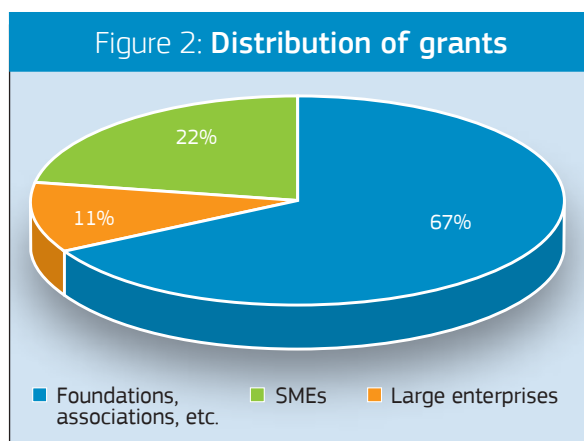
The Digital Professional Programme is one element of the [Digital Agenda for Spain](#) that RED.ES, the ESF intermediate body, has been helping to deliver since 2013. As part of this programme, the Young Digital Professionals project offers training in digital industries and new business models to unemployed young people. And it partners with companies, associations or foundations that commit to hiring 16-30 year-olds registered on the National Youth Guarantee System who are not in employment, education or training (NEET). The partner entities must have carried out professional projects related to ICT or the digital economy and developed training projects in these fields, during the two years prior to their application.

Companies, associations and foundations taking part undertake to employ, contract or provide work experience to at least 30% of students for at least six months afterwards. The organisations benefit in their digital transformation by helping to increase the pool of professionals qualified in this field.

The project aims to involve around 7 700 young people not in training, and not in employment in the previous four weeks. They should preferably have some knowledge of ICT or the digital field.

Achievements

Young Digital Professionals has funded 27 companies to deliver 32 eligible projects that have implemented 74 actions in 14 Autonomous Regions.



Learning outcomes

- the project focuses on promoting entrepreneurship by giving young people digital skills that help them enter the labour market and access new professions (analytics, robotics, big data, cybersecurity); and
- the combination of grants for training activities and workplace experience has been successful and gives students added motivation.

Transferability potential

There is significant scope to transfer a model that combines grants for companies with training activities and workplace experience.

Project name	Youth Programme Digital Professionals
Partnership	RED.ES Spanish companies, especially SMEs Municipalities and Regions
Period	2014 – 2020
Project funding	ESF: €20 million
Further info	https://www.eoi.es/es/cursos/26013/curso-de-transformacion-digital-para-el-empleo-ambito-nacional https://cursos.formacionactivate.es/transformacion-digital/

Building the future: digital skills for all employees (Flanders, Belgium)

Today, 93% of European workplaces use desktop computers and there is almost no job that does not require at least basic digital skills. To illustrate, in 2016, half of European construction workers needed basic digital skills to perform their jobs. And yet, the vast majority of workplaces (88%)

have not taken any action to tackle the lack of digital skills of their employees.²⁰

In Flanders, an ESF call was launched to encourage and support lifelong learning in companies and organisations. The call was open to SMEs and large enterprises and focused on three fields: digital skills, basic skills (literacy, numeracy, basic digital skills), and social skills.

An ongoing project funded through this call shows how digital upskilling can be facilitated at company level. The Smet Group, a specialist in underground earth works such as boring tunnels, made digital skills training available to all employees, regardless of position or prior skills level. This benefits the company by increasing its ability to cope in a rapidly-changing digital world: and it benefits employees, who receive a learning certificate and have more options within the company or when they change jobs.

Learning outcomes

- combining the company's objectives with those of its workers: it is very important to continuously improve the basic digital knowledge of employees in any sector, not only to achieve organisational targets but also to develop people's skills and careers.

Transferability potential

Belgium is the only EU Member State to fund digital skills training at company level for all employees. Thus, this innovative approach could be interesting for others who wish to test an efficient and new way of training workers in-house.

Project name	Building the future: digital skills
Partnership	Smet Group
Period	2017 – 2018
Project funding	Total cost: €103 570 ESF: €100 000 max. per project
Further info	https://smetgroup.be/partnerschap-met-esf/

Fit4CodingJobs (Luxembourg)

The IT sector is fast developing in Luxembourg and people with digital skills are in high demand. Fit4CodingJobs

²⁰ European Commission, 10 May 2017, 'ICT for Work: Digital Skills in the Workplace', <https://ec.europa.eu/digital-single-market/en/news/newreport-shows-digital-skills-are-required-all-types-jobs>

follows on from a 2-year ESF project called Fit4Coding, which won the 'best practice' category at the 2017 European Digital Skills Awards. The new project implements updated web development training, now in English and with an increased focus on employability. It aims to train job seekers registered with ADEM (the Luxembourg employment agency) to become web developers within two years.

ADEM oversees recruitment through information sessions and pre-selection tests (general IT knowledge, web culture and logical skills). There are no academic requirements, and the pre-selection is open to candidates from all backgrounds. Candidates with results of 70% and above are invited to an individual motivation interview.

Three profiles are identified for this training:

- young people who don't have a strong academic education but are passionate about computers or programming;
- IT or communication/marketing professionals impacted by digital transformation. This training brings them new relevant skills; and
- IT generalists more advanced in their careers who consider being a one-stop shop for small businesses.

The training, organised by NumericALL, a coding school, takes place in the Technoport, a start-up incubator, with excellent infrastructure and a stimulating environment where trainees can informally connect with people from startups. Training is full-time, five days a week, with 490 hours of trainer-led classes. Professional developers with specific expertise teach the modules. Participants are evaluated on an ongoing basis through course work.

The training is complemented by an employability module, where all the participants are coached to convincingly present themselves as competent resources for companies. This involves enhancing their tools (CV, social network profiles, networking and communication techniques) and guiding them to take control of their career and to develop positive behaviour and a proactive mindset ("I am a solution for your company"). In addition, each trainee is matched with a volunteer from the local IT world who provides mentoring during and after the training.

NumericALL organises its own meetups to galvanise the alumni community, regularly invites startups and other companies into the classroom, and encourages trainees to

attend digital events organised in Luxembourg. Players in the digital landscape make up the jury panels for the final project defence.

While the certification is not officially recognised by the government, its reputation is growing amongst employers. The high employment rate confirms the relevance of the training. Several companies have made repeated recruitments. The latest major event, celebrating 100 developers becoming certified, gave the floor to the employers who spoke about their most recent recruitment from Fit4CodingJobs.

Achievements

The project is very likely to achieve its target of 90 people to be trained over two years. Since 2018 over 200 people have been reached, 106 interviews held and 68 trainees have come on board.

Around 80% of participants found a job within six months of completing the course, confirming the value of the employability module.

Equal opportunities: participant profiles show significant diversity: more than 20 nationalities, an above-average gender diversity for the IT sector (18% female) and a wide age range (18 to 55 year-olds). The training venue (Technoport) is accessible to disabled participants.

Learning outcomes

- the programme is the first of its kind in Luxembourg. Responding to the needs of a fast-paced and evolving sector by providing skillsets of a new kind, for profiles sometimes far from the employment market, and offering a learning opportunity that has technical, operational and social dimensions;
- the tech languages in this training are in high demand and constantly evolving;
- feedback from alumni and hiring companies has allowed the content to evolve;
- soft skills developed through the employability module are as important as technical skills;
- the intense format makes people immediately operational; and
- the pedagogy stimulates learning capacities and “learning how to learn”.

Perception of the programme has turned from it being primarily a social impact initiative to being a skills provider for the market.

Transferability potential

Web development is a global opportunity across Europe. There is a shortage of developers in most countries. The demand for digital technology professionals has grown by 4% annually in the past 10 years, according to the New Skills Agenda for Europe. According to Eurostat data, about 8 million people were employed in 2015 as ICT specialists, representing 3.5% of total employment in the EU. Europe's Digital Progress Report 2017 showed that the share of ICT jobs in total employment rose 35% between 2005 and 2015. The Commission predicted that the gap between the demand and supply of ICT specialists will grow from 373 000 in 2005 to about 500 000 by 2020.

Project name	Fit4CodingJobs
Partnership	NumericAll ADEM
Period	01/2018 - 12/2019
Project funding	Total cost: €560 700 ESF: €280 350
Further info	http://www.numericall.com/ https://www.youtube.com/watch?v=QI9NqpBJu8M https://gouvernement.lu/fr/actualites/toutes_actualites/communiqués/2018/09-septembre/13-fit4coding-jobs.html

Bootcamp Code Academy (Portugal)

Youth unemployment in Portugal remains above 30%. However, thousands of vacancies for technology-related jobs such as software developers remain unfilled because of a skills and income gap. Eurofound²¹ estimates that each NEET costs the Portuguese government €8 053 per year.

Code For All / Academia de Código was founded to reduce skills and income gaps by teaching coding literacy. Starting in Lisbon, it has held a series of 14-week bootcamps that have turned talented people who were out of work or in low-skilled jobs into software developers. More than 50 companies have recruited participants in the bootcamps. Code For All has also developed classroom software that helps teachers with no previous coding experience to teach kids computer science.

²¹ The European Foundation for the Improvement of Living and Working Conditions.

ESF support is enabling Code For All to expand its activities into rural areas. It has set up a bootcamp in Fundão, where per capita income is around half that of Lisbon. The 14-week immersive training programme will teach people in the small town to program in Java and JavaScript.

Code For All bootcamps are inclusive and open to any Portuguese resident, regardless of gender, nationality and age. The students don't need prior knowledge of computer science or coding. In fact, the vast majority of students have no prior knowledge at all. All the students do go through a rigorous admission process to test computer science basics and resilience before the bootcamp.

Achievements

The project has instigated a funding bootcamp in a town in a poorer, rural region. More than 140 people have taken part (198 are foreseen by the end of the project), of whom over 90% were unemployed.

It has given women and men who were unemployed or in dead-end jobs new careers as software developers, increasing their income and sense of professional fulfilment.

More than 25% of participants in Code For All bootcamps are women. In Fundão, female participation was initially close to 15%, but thanks to the project's concerted efforts it has reached 20% in the last three bootcamps.

Training talented people that do not have prior knowledge or experience in computer science in just 14 weeks is not easy. During the bootcamps, the main challenge is to restore the self-esteem and self-confidence of very talented people who ended up out of work or in dead-end jobs. An intensive soft skills training approach overcomes this problem.

Code For All helped stop the depopulation of Fundão, a small town in the centre of Portugal. Its population is now growing, including new people from other countries attracted by new software houses that have started up in the town. The ecosystem is flourishing. The project is changing lives and entire communities that were formerly dependent on low paid, insecure, agricultural work.

Learning outcomes

- the expense model is costly, time consuming and doesn't take into account the real value of the service provided by Code For All of transforming a highly talented NEET

person, with a huge cost for society, into an employed person with huge benefits both for the individual as well as the community.

Transferability potential

The Code For All bootcamps business model has transfer potential, as long as the content, language and culture are adapted to local markets.

Course contents have been developed in consultation with Portuguese employers and to meet the national market's need for Java and JavaScript programmers. Students who go through the bootcamps have the essential tools that will allow them to perform better in their future jobs.

Notwithstanding, the curriculum could easily be adapted, as long as the trademark Code for All Bootcamp culture is maintained.

Project name	Bootcamp Code Academy
Partnership	Code For All Fundação Calouste Gulbenkian Assop (Associação Shared Services & Outsourcing Platform) IEFP (Instituto de Emprego e Formação Profissional) Maze
Period	2017 – 2020
Project funding	Total cost: €723 500 ESF: €614 975
Further info	www.academiadecodigo.org www.ubbu.io https://www.youtube.com/channel/UCFeFYbYuXZNcfSsYZ2Nbl_YA

Bridge the digital gap: basic digital training of the adult population (Hungary)

After the launch of the Digital Success Programme (2016–2020), Hungary developed a new Digital Education Strategy in mid-2016 to address education and skills development at all levels – including lifelong learning. The main goal of the strategy is to give everyone the basic digital skills necessary for the labour market. Hungary also launched a National Digital Jobs Coalition in December 2016. Only 50% of the country's population has basic digital skills and levels are well below the EU average for people over 55 (21%) and those with a basic education (25%).

The “Bridge the digital gap” project is part of Hungary’s Digital Education Strategy. It aims to provide training in basic digital skills to 260 000 people by 2020, covering all regions of Hungary except Central Hungary, where Budapest is located and levels of basic digital skills are higher. The Digital Competence Framework (DigComp) can help with self-evaluation, setting learning goals, identifying training opportunities and facilitating job search. The project is testing DigComp as a general, novel framework for digital skills.

The project included a pilot phase, which translated DigComp 1.0 into Hungarian and developed a training package for the two basic levels of the framework, with study materials and a self-assessment tool, approved by the National Office for Vocational Training and Adult Learning in May 2016. The training package IKER I-II was tested by three pilot groups before it went public.

IKER is the acronym of the Digital Competence Reference Framework in Hungarian. IKER I-II is a certified, 35-hour, adult training course, open to the low-skilled working age population (16-65 years old) and financed by the 2014-2020 Economic Development and Innovation Operative Programme (GINOP). The course content is in line with Europass digital proficiency levels based on DigComp and consists of the following:

- **IKER1:** “First steps into the digital world”, addresses Europass A level basic skills.
- **IKER2:** “I use information tools on my own independently”, addresses Europass A level more advanced skills.

Achievements

By the end of January 2019, almost 149 000 people - including 102 000 women - had received training from some 280 training providers.

Participants were satisfied with the content and the speed of the training, and many recommended the course to others in a similar situation. It made them more confident in the basics of using a computer, the Internet and e-mail.

The value for the labour market was to enable people to take the first steps towards having the flexibility needed in a rapidly-changing digital world.

Learning outcomes

- the project provides significant support to low-skilled adults; and

- it gives the implementing authorities a robust preparation for the rollout of the full scale DigComp 2.1 reference framework in Hungary.

Transferability potential

DigComp 2.1 has been introduced in several Member States already. The Hungarian approach could be interesting for those countries where there are a relatively large number of low-skilled adults still lagging in terms of basic digital skills.

Project name	Bridge the digital gap: basic digital training of adult population
Partnership	Ministry for Innovation National Authority of VET and Adult Learning ICT Development Agency Service providers: Public VET Centres, adult education providers, NGOs, for-profit training institutions, language schools and some universities
Period	2017 – 2020
Project funding	Total cost: 22 900 000 HUF ESF: 19 465 000 HUF (85%)
Further info	https://www.nive.hu/index.php?option=com_content&view=article&id=641#system-message-container

3.3. Education and training providers – transforming the teaching and learning of digital skills in a lifelong learning perspective, including the training of teachers

Digital technologies are an essential part of today’s teaching and learning processes. They imply significant changes in education and training, based on a lifelong learning approach, in order to better prepare young people for work and society.

On 7 December 2016, the European Commission adopted a [Communication on improving and modernising education](#) in order to provide a high-quality education for all. This highlighted the benefits of digital technologies for offering new ways of learning. It was complemented in January 2018 by the [Communication on the Digital](#)

Education Action Plan, which outlined how the EU can help individuals, educational institutions and education systems to better adapt for life and work in an age of rapid digital change. The plan focuses on:

- making better use of digital technology for teaching and learning;
- developing relevant digital competences and skills for digital transformation; and
- improving education through better data analysis and foresight.

Training for educational and organisational innovation²² (Italy)

In Italy, the ESF has funded the majority of the actions relating to human capital in the national plan for digital education (PNSD). One of the projects it has supported is '*Formazione all'innovazione didattica e organizzativa*' (Training for educational and organisational innovation), a strategic action offering tailored training to all schools' staff.

The project answers the need for a long-term vision for education in the digital age linked to the challenges that Italian society faces in promoting lifelong and lifewide²³ learning. Those challenges are mainly connected to: 1) increasing the quality and relevance of learning, making it more interactive and connected through digital means; 2) increasing the impact of educators through digitalisation; and 3) addressing inequalities through better digital access and lower cost. They have been outlined in the High-Level Conference "Education in the digital era" held by the European Commission under the Italian Presidency in December 2014, the World Economic Forum's report *New Vision for Education (March 2016)*²⁴, as well as studies such as The European House-Ambrosetti's *Education for the 21st century* (2014).

Since 2016/17, this ESF-funded project has developed a national training plan to give staff at all schools in Italy the skills to manage their schools' digital transformation.

Achievements

€25 million has been invested in 5 748 activities, totalling around 126 000 hours of training. Participants were asked to complete a user satisfaction survey, which also gauged

their perception of how useful the training had been for their work.

Answers from around 100 000 participants were analysed and confirmed that they felt they had bridged the digital divide that existed before the training and they felt more competent to use Information and Communication Technology (ICT).

The follow-up survey also confirmed that participants agreed there was a need for further training to fully use the technologies and methodologies proposed in the modules. The majority of teachers believed that they had improved their preparation, in particular with regard to getting more out of ICT applications, methodologies and active or collaborative teaching methods. It is important to highlight the widespread conviction among all participants that the information learned during the training activities will be highly useful in their work context.

Learning outcomes

The innovative aspect of this project lies in its systematic digital inclusion of all school staff, not just teachers, a common goal shared by all trainers of the programme. In terms of areas in need of improvement, some key things can be highlighted: the complexity of the implementation programme and the many professional and managerial responsibilities assigned to schools; the 'parallel' launch of the different action plans; and, most importantly, the lack of a comprehensive and systematic plan for the continuous training of teachers and school managers who implement digitalisation projects. Another critical point has been the lack of suitable trainers for the entire project in the south of Italy.

Transferability potential

Other Member States with the same priority could easily transfer this model. The large budget is due to the large number of schools in Italy. Similar results can be achieved with less money if fewer schools are involved. An area of attention when transferring the model would be the selection of trainers.

²² *Formazione all'innovazione didattica e organizzativa*.

²³ *Learning outside the traditional classroom setting*.

²⁴ <https://www.weforum.org/reports/new-vision-for-education-fostering-social-and-emotional-learning-through-technology>

Project name	Training for educational and organisational innovations
Partnership	Around 8 000 primary and secondary schools, regional/local or national training providers, universities, regional/local companies
Period	2014 – 2020
Project funding	Total cost: € 25 657 380 ESF: € 13 312 626
Further info	http://www.istruzione.it/scuola_digitale/index.shtml http://www.istruzione.it/pon/avviso_formazione.html http://www.istruzione.it/scuola_digitale/futura-catania-2018.shtml http://www.istruzione.it/scuola_digitale/futura-roma-2018.shtml

e-Schools: establishing a system for developing digitally-mature schools (Croatia)

Croatia's e-Schools programme aims to introduce ICT into the country's school system by 2022.

Croatia recognises the importance of ICT to its economic development. The e-Schools programme is thus a key focal point for the implementation of Cohesion policy in Croatia.

e-Schools is building capacity in primary and secondary education in Croatia to prepare pupils for the labour market, further education and lifelong learning. The programme is divided into two phases: a pilot project from 2015-2018 in 10% of the country's schools, followed by full implementation from 2019-2022, subject to the results of the pilot.

The 'digital maturity' of schools is a concept that is gaining greater significance in education as technology becomes increasingly important. The use of ICT is now planned and implemented by individual schools, in accordance with local and state policies. Digitally-mature schools have a systematised approach to ICT use in school planning and management, as well as in their educational and business processes. Such schools operate in a supportive environment, with sufficient financial resources and adequate ICT equipment for classrooms, laboratories, employees and students. Digitally-mature schools take a systematic approach to developing the digital competences of staff and students.

The e-Schools pilot phase contributes to various objectives, including helping schools to be managed in an efficient and transparent manner, developing digitally competent teachers who can apply innovations to their own pedagogical practices, and developing digitally-competent students capable of going on to further or higher education or successfully entering the labour market.

The Croatian Framework for the Digital Maturity of Schools is based on the European Framework for Digitally Competent Educational Organisations²⁵, created in 2015 to facilitate transparency and comparability between various European initiatives. It can be used to assess the digital maturity of schools in five areas and according to five levels. Schools evaluate their own progress and also receive an external evaluation. There is a support system for schools in place throughout the journey to digital maturity.

Both the pilot and major stages of the e-Schools project are financed by EU Structural Funds, with the ESF²⁶ accounting for 85% of the funding and ERDF²⁷ 15%.

Achievements

The pilot phase was implemented in 151 elementary and high schools in Croatia, involving over 7 000 teachers and more than 23 000 pupils.

ERDF funding equipped the participating schools with the latest ICT equipment, such as interactive and presentation classrooms, over 1 200 hybrid computers for STEM teachers, over 10 000 tablet computers for students and teachers, and over 1 000 computers for school staff, as well as the necessary WLAN infrastructure in school buildings.

ESF funding enabled the e-Schools pilot to develop digital education content, including:

- e-content for 16 different STEM subjects with over 100 different modules; and
- 240 teaching scenarios and 72 digital book reports

It also helped deliver 1 900 workshops, e-classes and webinars to build the capacity of headteachers, teachers, support staff and school administrators to implement ICT in schools.

²⁵ *Promoting Effective Digital-Age Learning: A European Framework for Digitally-Competent Educational Organisations*

²⁶ *Operational Programme Efficient Human Resources (OPEHR)*

²⁷ *Operational Programme Competitiveness and Cohesion (OPCC)*

Learning outcomes

- the pilot phase shows that, although extremely challenging, it is possible to combine ESF and ERDF interventions to achieve coherent and cost-beneficial investments in education. A coordinated implementation of infrastructure and education is indispensable to ensure that the foundation of education remains the teacher, and the primary focus remains the student. ICT infrastructure and equipment will be discarded unless teachers and other school staff are equipped with the skills to use it and are prepared for new technologies, services and teaching approaches;
- the creation of digitally-mature schools means continually investing in digital skills training for teachers, from their initial training, through on-the-job professional training, to personal support in the local community and from state authorities; and
- Purposeful use of technology in education should be in line with current and future social changes. It encourages students to actively participate in the learning process, unlike traditional teaching. It also facilitates critical thinking, problem solving and collaboration, makes information more accessible, improves content visualisation, and can be more easily adapted to students' individual needs.

Transferability potential

The results of the pilot phase of the programme suggest that Croatia's experience with e-Schools is relevant to all Member States that are planning, or considering, large-scale investment in ICT-supported education projects.

While reinforcing the importance and the key role of teachers in any education-related project, e-Schools also provides a blueprint on how to achieve measurable progress in a limited time-period and with limited financial resources.

Researchers from the Department of Psychology at Rijeka University analysed the impact of the pilot phase and this output fed into the preparation of the second phase, an approach that could be applied elsewhere.

Lessons can be learned from the programme's comprehensive approach, support networks, and understanding that teachers and pupils are then main focus of investment in education.

Teaching scenarios developed within the project could be translated and used by other Member States to help achieve purposeful use of ICT technology in the classroom.

Last but not least, e-Schools developed a Digital Maturity Framework that is in line with the EU framework. It not only addresses Croatian education challenges through EU standards, it is also transferable to any other Member State. The end result should be a narrowing of the digital divide between schools in Croatia and the rest of the EU.

In order to assess progress made in the introduction of ICT in education, the European Commission published its '2nd Survey of Schools: ICT in education' in early 2019.²⁸ The study assesses progress made in mainstreaming ICT in education (benchmark) and defines a conceptual model for a 'highly equipped and connected classroom' (HECC), presenting three scenarios.

Project name	e-Schools: establishing a system for developing digitally-mature schools
Partnership	Croatian Academic and Research Network – CARNet Ministry of Science and Education
Period	2015 – 2018 (pilot)
Project funding	Total cost: HRK 306 852 (pilot) ESF: €67 135; ERDF €193 689
Further info	https://www.e-skole.hr/en/

In-service Training of Teachers in the utilisation and application of Digital Technologies in teaching practice (Greece)

Over the last 20 years, Greece has developed and implemented a nationwide system for integrating digital technologies in education, in particular in teaching practice. Almost all Greek teachers have benefitted from this.

The need for primary and secondary school teachers to develop basic ICT knowledge and skills was first addressed in Greece through an initiative called A-Level ICT Teacher Training. This ran from 2000-2004 and was followed in 2005 by in-service training to enable teachers to use and apply digital technologies in teaching practice - so-called 'B-Level' training. The in-service training programme was upgraded in 2016 and extended to all teaching disciplines with enriched and refreshed content.

²⁸ 2nd Survey of Schools: ICT in Education

The “B-Level ICT in-service training” project follows EU guidelines for the introduction of ICT in schools. Greece is applying a single training model across the whole country, rather than devolving the process to regional or local administrations. The training of trainers is an important part of the project.

Training programmes for primary and secondary school teachers are delivered through teacher training support centres. These are organised by discipline and cluster specialisms. There are 4 clusters for B-1 Level ICT training and 13 for B-2 Level (the training of trainers). The project makes extensive use of infrastructure previously funded by the EU.

Participants take part in a 3-hour training session every week, outside school hours. They are taught in groups of 10-15 by qualified B-Level ICT educators in the Greek teacher trainers’ registry. ESF funding has enabled the project to train 300 new B-Level trainers to ensure nationwide coverage.

The new trainers have been selected through an open call for highly-qualified teachers with extensive experience of using ICT for educational purposes. To become qualified B-Level trainers they go through a 6-month training programme (350 teaching hours) at university teacher training centres (UTTCs) affiliated with higher education institutions. The training centres were selected through an open tender and are organised in 12 “thematic” clusters, each one hosting teachers of the same or related specialties.

The innovative aspect of the new programme lies in the use of a **blended teaching/learning system**, a combination of live distance learning sessions, recorded distance learning activities and where possible, a few face-to-face meetings. One of the reasons for adopting this method is linked to the countrywide expansion of the programme and to the specific geography of Greece, with lots of remote areas and thousands of islands, that would make local delivery of training difficult and expensive.

After successfully completing their training, the new trainers are invited to participate in a certification process to join the registry of B-Level ICT teacher trainers.

Achievements

Some 27 500 primary and secondary school teachers have received B-Level ICT training since 2016 (about 20% of all

Greek school teachers). The project aims to have trained 35 000 teachers by mid-2019.

The project also updated, expanded and adapted the existing library of teaching and support materials.

This training programme has been well-received by the education community. Its popularity is linked to its holistic approach, combining infrastructure, tools, support systems and certification.

Learning outcomes

- successful integration of ICT in education does not depend solely on the digitisation of available resources (books etc.), nor on the existence of physical and technological infrastructure (computer rooms, broadband, etc.), nor on a combination of these factors. Teacher training is essential to the successful integration of ICT in education;
- organisation of teacher training needs to be methodical, with a clear understanding of the profile of a trainer, and of desired learning outcomes. Avoid pandering to trends in education (such as the use of robotics), as they may not have the same value by the end of a training programme;
- it is necessary **to create appropriate educational and supporting material** for the classroom. Where relevant, school books and curricula should be adapted to the new type of lesson;
- it is helpful to update school administrative systems to manage training activities. Promote a **digital** ecosystem in which pedagogic and didactic use of digital technologies will be realised;
- training teachers to apply ICT in teaching and learning means more than just fostering skills in using educational software and managing platforms; rather it means that **trainers should be able to reshape their course and to critically take into account modern advances in digital technologies** and their impact on students. It is a profound process of transforming a teacher into a critical user of digital technologies; and
- the model enables the creation of **e-learning communities involving teachers** from different schools all over the country, once their training is completed.

Transferability potential

This model can be useful for countries that need distance learning and **blended training methods** due to specific

mobility barriers (remote areas for instance). It allows a critical mass of teachers of the same subject to be connected at country level.

Making use of distance learning and existing school infrastructure gives Member States economies of scale for training actions, reducing their costs.

Project name	In-service Training of Teachers in the utilisation and application of Digital Technologies in teaching practice
Partnership	Computer Technology Institute and Press (CTI) – “Diophantus” design, management, monitoring; The Institute of Educational Policy (IEP) - design material, content; University Teacher Training Centres (UTTCs) - implementation of training; Ministry of Education (strategic structure-policy level); educational institutions (structures); bodies for managing and conducting training and certification that participated on a national scale, e.g. universities, lifelong learning institutions etc.- implementation
Period	April 2016 – July 2019
Project funding	Total cost: €13 398 217 ESF: €10 377 321
Further info	https://e-pimorfosi.cti.gr/en/ http://b-epipedo2.cti.gr/en/the-project/about-b-level-in-service-teacher-training-in-ict-eng https://www.facebook.com/b.epipedo.tpe

Development, implementation and dissemination of digital education new curriculum (Lithuania)

Lithuania, prioritises the use of digitalised content and tools among pre-schoolers and children in primary education, and the use of computers and electronic services among the 16-74+ population.

The National Digital Coalition of Lithuania actively contributes to and coordinates the implementation of the Information Society Development Programme 2014–2020

“Digital Agenda for Lithuania”. The Digital Agenda aims to use the opportunities offered by ICT to improve quality of life, make enterprises more productive and ensure that 85% of Lithuania’s population can access the Internet and 95% of businesses have high-speed Internet. ESF programmes for 2014–2020 contribute to the development and testing of educational content and organisational models in pre-school, primary and secondary education, one of the big challenges Lithuania wishes to tackle.

Lithuania set priorities in the field of education in order to achieve long-term and ambitious objectives. The State Education Strategy 2013–2022 key priorities influence the entire digital education policy, in particular the following:

- establishing an educational community, in which teachers and lecturers are reflective, constantly develop and work in a highly effectively manner;
- developing an educational culture driven by data analysis and self-evaluation, that in turn will ensure effective interaction among stakeholders in education; and
- ensuring that learners (pupils, students and young people in general) have the best opportunities to realise their individual potential in full. This includes providing appropriate support to pupils who experience learning difficulties.

In this context, digitalisation can be seen as a tool, a way to assist teachers and pupils more effectively. The two successive projects below provide a useful illustration of this in practice, first creating a digital platform and learning environment, then reforming the curriculum content:

“Dissemination model for curriculum content” (2011–2015)

The project’s goal was fourfold:

- to develop a model for the dissemination of curriculum content;
- to develop and adapt innovative digital learning tools for primary and secondary education;
- to develop and implement methodologies that will help teachers effectively use digital teaching tools in education; and
- to train and advise teachers on the use of those learning tools in the educational process.

The project adapted and developed innovative digital teaching and training tools. It also created a methodology and set up criteria to evaluate digital teaching aids and digital textbooks.

The introduction of digital teaching materials in Lithuanian secondary schools involved establishing a web platform (<https://sodas.ugdome.lt/>) which provided digital teaching materials, and training for teachers and education advisers working with digital teaching materials.

Achievements

More than 3 500 teachers from all Lithuanian secondary schools were trained in the use of digital tools in the classroom.

119 teachers (consultants) were trained to help other teachers use digital teaching tools effectively.

20 digital teaching materials were acquired and adapted. A criterion kit for the evaluation of digital teaching aids and digital textbooks was developed and a methodology created for adapting and developing digital teaching materials.

Ultimately, the project created and supported a single eLearning environment, the [Sodas online portal](#). This is integrated with a textbook database, a database of training resources, and an existing educational portal www.e-mokykla.lt. The portal also contains a forum for the education community, a calendar, a task reminder system and questions for pupils and teachers (public and private). The portal can be used with a variety of mobile devices.

Learning outcomes

Having a portal eLearning environment that is accessible and well integrated with all other educational and training resources is an efficient way to support the whole education community. This breaks 'silos' and ensures well-coordinated development.

“Development and implementation of the new education curriculum”

This project, which began in 2018, is seeking to update the secondary school curriculum and ensure its effective implementation. It gives schools the necessary assistance to do this through an integrated holistic strategy, comprising several actions;

- **“development of general programmes and supplementary material”**. This involves optimising content to exclude unnecessary topics and material. The content is continuously updated to take into account the latest scientific developments as well as pupils' achievements;
- **“update, development and adaptation of digital education content”**. This includes different teaching

measures and resources, linking them with curriculum content. Easy, accessible, flexible and continuously updated digital learning resources will be developed as part of the process of updating the curriculum;

- **“supply of methodical materials for schools implementing the updated curriculum content”**. The project will create a tool to assess the progress of schoolchildren and aid planning. The tool will also be used to differentiate and individualise education, foster students' research activities, and develop pupils' creativity and innovation;
- **“supply of methodical materials for education management organisations”**. The project will facilitate cooperation between institutions to help teachers and support staff implement renewed and digitised content as required; and
- **“Follow-up of the implementation of updated curriculum content”**. Finally, it will also monitor the implementation of updated educational content.

Achievements

The project started in May 2018 and is funded by ESF and Lithuania's Ministry of Education, Science and Sport, with a planned duration of up to 48 months.

All secondary schools in Lithuania, around 1 080 schools in total, will be able to use e-tools and the new curriculum.

Some 2 035 teachers and 260 specialists in municipal education departments and education centres will take part in training sessions. Digital training close to their homes and ongoing assistance are both crucial to motivate teachers to develop curriculum content in their schools.

Users of this digital content will be invited to provide suggestions for updating and improving it after the end of the project. Experts and evaluators at Lithuania's Education Development Centre (UPC) will further monitor the quality of digital resources. UPC will be responsible for maintaining and updating the digital content of the “Educational Garden”.

Learning outcomes (foreseen)

- by implementing change nationwide, Lithuania is showing how digitalisation can support the reform of secondary education and curricula in a very integrated manner, incorporating tools, services and new content. Digitalisation is the tool that enables significant reform of the whole curriculum in Lithuania; and

- teachers will be provided with methodological material through digital content (a website) and training. As in other countries, online training is the most efficient way to reach all teachers in Lithuania, especially those in isolated and remote regions.

Transferability potential

The project's experiences can be transferred to other countries seeking to adapt the school curriculum to new technologies and future needs. This will of course require some adaptation to their own curriculum context and needs.

Project name	Development and implementation of the new education curriculum
Period	2014-2020
Project funding	Total cost: €7 810 930 ESF: €7 810 930
Further info	www.e-mokykla.lt Sodas online portal

Project name	Dissemination model for curriculum content
Period	2007-2013
Project funding	Total cost: €3 037 500 ESF: €3 037 500
Further info	www.e-mokykla.lt Sodas online portal

Apps for Good (Portugal)

Apps for Good is an open-source technology education movement where students and teachers work as a team to create apps for smartphones and tablets to solve community problems. Learning is student-driven, with high-quality content focused on technology and entrepreneurship.

Unlike the previous case study from Lithuania, which concerned a publicly-funded integrated digital education portal, this example illustrates the exponential development of new platforms and methods for training and learning offered by actors outside the formal education establishment. New forms of partnership between school actors, and between public and private actors are rejuvenating curricula, experimenting with new intersections between disciplines, and already having a positive impact on employability.

The pilot project was launched in Portugal in 2015 at the invitation of the Directorate-General for Education,

implemented by CDI (Centre for Digital Inclusion) Portugal and Apps for Good (an international programme based in London that was founded in 2010). The aim now is to expand the programme to 162 schools in the North, Central and Alentejo regions of Portugal.

The project is implemented in schools using a digital platform where all the content necessary for the development of ideas can be found. Users can access the support of expert volunteers with relevant real-world experience. The project should contribute to civic awareness, social inclusion and future employability, reduce the number of school early-leavers and demotivation rates, and make society more active, participative and inclusive. Apps for Good shows students and teachers the potential that technology has to transform the world and the communities in which they operate, to create a new generation of "digital makers" and "problem-solvers".

The project supports the transformation of young people's ideas into real products (apps) that have direct benefits to the community (for good). This changes the established pedagogical paradigm. Apps for Good Portugal promotes the match between schools (students) and the real industry context through an expert community. The programme features: 1) a content platform; 2) face-to-face methodological training for educators; 3) regular monitoring for educators (online and in-person); 4) a final competition between schools (Awards); and 5) alumni groups: fellowship and ninja.

The educational proposal of Apps for Good is more than coding. It is a programme that brings coding and problem solving together with the development of communication skills, teamwork and resilience. It aims to create a new generation of problem solvers and digital makers: students with the skills and confidence to build, market and launch digital tools to solve communities' problems.

Achievements

Apps for Good Portugal is now in its fifth edition. For 2018-19, the course framework is being followed by 180 partner schools across Portugal, who are training 450 educators and 3 000 10-18-year-olds. They are supported by 1 100 experts from more than 40 countries.

Apps for Good students gain the skills and confidence to become technology entrepreneurs and they are also active

agents in creating solutions towards the development of sustainability goals.

The Impact Report for the 2017-18 programme shows that 80% of participants believed that increasing awareness about technology was a way to solve social problems and enhance skills. In terms of personal development, they reported improved problem-solving skills (80%), teamwork (85%), communication (76%) and technical skills (75%).

Apps for Good also promoted the development of ICT skills for educators in all dimensions defined by the UNESCO framework: working more collaboratively (73%), more confident in teaching (72%), more satisfied/involved (84%), closer to students (84%) and with more knowledge about students' capacities (89%).

In Portugal, 45% of participants in 2018-19 are female.

Learning outcomes

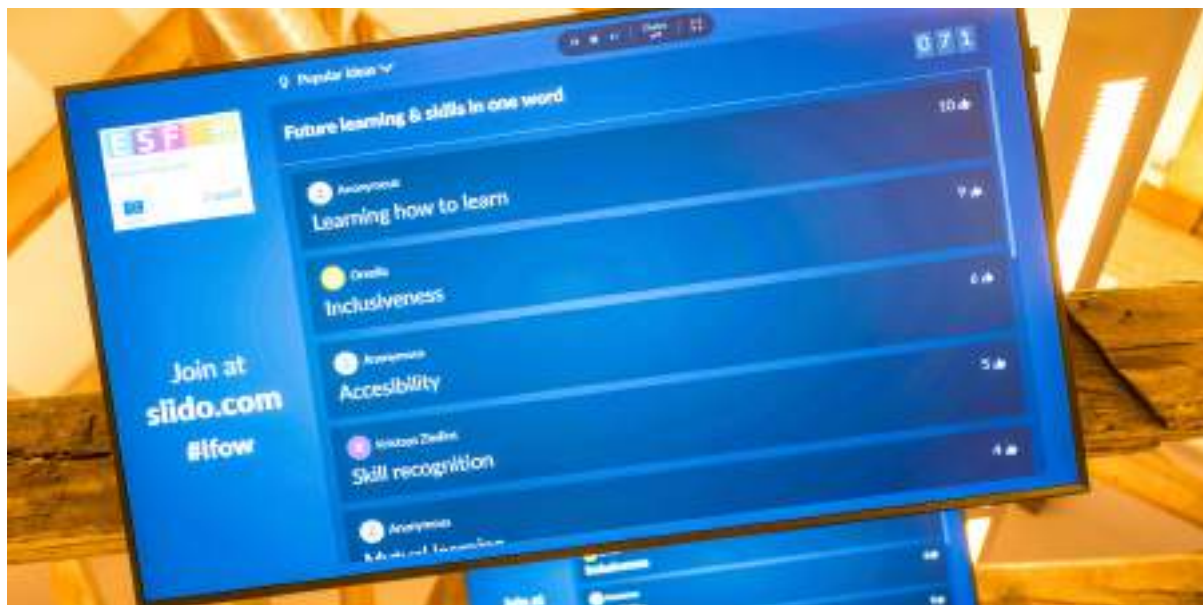
- Apps for Good is changing the educational model: an open-source technology education movement where students and educators work as a team to create apps to solve social problems;
- it is designed to introduce student-centred teaching methods and increase educators' confidence to teach;

- its pedagogy pillars are: 1) student-driven learning: students work in teams to solve a problem they choose and are passionate about; 2) coding & technology: use technology to create innovative solutions; 3) real-world context: students are given industry development practice to launch a real product. They experience a complete cycle of product development with the support of experts; and
- acquiring digital and soft skills narrows the gap between job market needs and students' skills apps.

Project name	Apps for Good
Partnership	Calouste Gulbenkian Foundation; REN; DNS Association.pt
Period	2016 – 2018
Project funding	Total cost: €250 000 ESF: €148 870
Further info	www.cdi.org.pt www.appsforgood.org/portugal An Impact Evaluation Report is available at both the above websites. YouTube: CDI Portugal https://www.flickr.com/people/cdi_europe/



4. RECOMMENDATIONS FOR THE FUTURE ESF PROGRAMMING PERIOD



Digital skills needs: individual, sectoral and territorial assessment

Projects must be well designed to ensure that digital skills needs are met. It is first necessary to identify at individual and/or territorial level the digital skills that need to be acquired and any barriers to their acquisition. All stakeholders (policymakers, providers and users) need to be involved in this process. The participatory approach should include a mechanism that allows stakeholders to identify and update digital skills needs, for instance by involving citizens in the conception and development of public services.

A sector-, territorial- or cluster-level approach to digital skills provision can be efficient and cost-effective. It enables the delivery of customised training programmes that benefit the whole sector or territory, as well as enabling workers to develop their skills and boost their careers.

At company (or even municipal) level, new forms of in-house training are enabling workers of all ages, functions and skill levels to upskill. This often leads to new organisational dynamics and more innovation.

In education, interactive system-platforms enable teachers to participate in identifying their own training needs. Such platforms can also be used to anticipate future needs.

Digital skills to ensure social inclusion

Digital inclusion is an absolute priority for Member States.

Projects can promote social inclusion in two ways: by opening the project to all, especially when targeted at citizens or focused on basic digital skills; or by targeting specific audiences threatened by digital exclusion. Awareness-raising campaigns and on-the-ground mediation are the best ways to ensure that project actions reach the people most in need of those basic skills.

Social inclusion can be fully integrated with emerging trends in employment and contribute to sectors with a high growth potential, such as the circular economy, achieving both sustainable and social goals. Digital skills are needed in all sectors, from farming to coding.

Young people can quickly acquire high-level digital competencies such as coding and web development, since they tend to be more familiar with the digital world than their elders. Projects that include tailor-made, intensive training, with tutoring and work experience can help even low-skilled early-school leavers and young people not in employment, education or training (NEETs) on the path towards this goal.

It is also important to make digital skills part of **adult education** as well.

Some parts of the population are particularly exposed to the digital divide, such as the **elderly, the low-skilled and migrants**. This increases the risk of social exclusion.

- As well as lacking digital skills, many older Europeans lack interest in acquiring them. One means of overcoming this barrier is to enable **intergenerational learning**, where young people with digital skills show older people how they can be of use in daily life. Such learning-by-doing has proven very efficient.
- It is important that **accessibility for persons with disabilities**²⁹ is routinely taken into account in teaching to harness the potential of digitalisation for all.
- Provision of digital skills to **migrants** needs to be supported by language training, which is more efficient when directly connected to digital training. Recently-arrived migrants often have high-level digital skills already, but need language support to integrate into the workforce of their new country. Linking migrants and the local population through training or voluntary work also helps with social integration.
- Digitalisation is having a profound effect on the labour market at all levels. Low-skilled workers are particularly at risk of losing their jobs. Training should not be limited to ICT jobs or functions, but rather involve all personnel at company or sector level.

Equal access to digital knowledge, training and services

As several ESF projects have shown, online training, ranging from MOOCs (massive open online courses) to individualised coaching, can overcome physical and geographical barriers. It can significantly reduce costs for people on a low income, living in remote areas, or with reduced mobility due to health, age or handicap.

Another key factor for vulnerable groups is easy and affordable access to equipment. Training that takes places in community centres, libraries or other public service locations can ensure welcome human support. Equipping people with recycled computers can be a cost-efficient way to guarantee better access to digital services, including training, while contributing to sustainable development at the same time.

²⁹ Application of the EU Directives on accessibility of public sector websites, the European Accessibility Act, the UN Convention on the Rights of Persons with Disabilities.

New ways of learning in the digital world

Opportunities brought about by digitalisation of education and training, such as MOOCs, need to be combined with more personalised support (coaching, tutoring), especially for more vulnerable groups. Working in small groups through peer learning is also powerful as it reinforces trust and avoids stigmatisation. **Blended methodologies**, complementing online tools with field work and human presence show good results.

All the projects featured in this publication stress the human dimension of learning processes, emphasising the central role of teachers as well as the whole education and training community. Teacher training, particularly on digital skills, methodologies and soft skills should be reinforced, in line with lifelong learning principles.

It is important to recognise the validity of **informal and non-standard ways of learning digital skills** (e.g. social media, web search). Several projects have shown that companies recognise the value of people having such skills even in the absence of official validation or certification.

Integrated approach for digital learning ecosystems

ICT infrastructure and equipment are indispensable for developing a digitally-mature educational and training ecosystem. But they are not enough on their own: teachers-trainers, and other school staff must be equipped with the skills to use them as well as appropriate soft skills for a digitalised world. Students and trainees need to learn to cope with rapid changes in the nature of work. Projects have shown that it is possible to combine ESF and ERDF support to achieve this in a cost-efficient and consistent manner.

Partnerships to co-produce, experiment, innovate and empower

Partnerships should occur from design to implementation, to the evaluation of results. Including the complementary expertise, competencies and perspectives of all stakeholders can be a complex process, but it is crucial.

A strong collaboration between **policymakers** (in charge of Digital Coalitions, the national digital agenda or other digital policy programmes) and **ESF Managing Authorities** is fundamental when designing programmes and projects. Various models of collaboration are presented

here, ranging from being part of the same ministry, to the merging of policy and implementation functions within the same organisation. In projects at local or national level, policy support has been key to establishing a vision and creating momentum for digital transitions.

Coordination **between different EU programmes and sources of funding** such as ERDF and ESF ensures that there is complementarity and consistency between the development of digital infrastructure and equipment and the skills needed to use them.

Involving **citizens** in the conception and co-production of the digital public services they use improves those services while also empowering citizens.

New forms of partnership between the **public education sector and new private digital learning operators** create more innovative curricula and modernise ways of learning. Combining digital and soft skills narrows the gap between job market needs and students' skills.

Strong partnerships between **education and training providers and the private sector** are key to achieving digital transformation, and reducing the digital skills gap by combining training activities with workplace experience. Linking training activities to enterprises active in the digital field, even locating them in digital start-up incubators, creates a stimulating environment and provides skillsets of a new kind that are attractive to young people.

Sectoral and territorial partnerships between government, knowledge centres and companies (triple-helix) makes it possible to better anticipate and update necessary digital skills. The creation of an ecosystem with fast and frequently-updated information flows fosters economic and social development.

Involving **social partners** is also important to map the digital competences needed and to discuss the challenges faced by enterprises and employees.

The **social economy sector** when connected to committed networks of partners from the public and private sectors, provides interesting work opportunities for digitally and socially marginalised people, increasing their employability and social integration in local communities, while contributing to social goals.



Using videoconferencing for teaching in Croatia

Practical recommendations for future ESF Operational Programmes:

- Strengthen the links between Ministries in charge of digitalisation policies and ESF Managing Authorities, to guarantee that ESF-supported actions in the realm of digital skills are embedded in an overall national policy framework.
- Ensure that digital skills development is a priority in all ESF Operational Programmes, with an appropriate budget allocated to tackle this important societal challenge.
- Design ESF calls based on the identification of real needs, with a focus on people threatened by digital exclusion, as well as the sectors and territories most in need. This could mean developing specific calls to address specific needs.
- Launch ESF calls in order to support experimentation and innovation concerning (new) digital skills and new (digital) jobs, to provide new answers and ensure that digitalisation is of benefit to all.

The ESF Transnational Platform hopes that this publication will be an inspiration for the next ESF programming period (2021-2027) and that the transferability of the featured projects and their potential to be scaled up will help to spread knowledge across borders in the EU.

Technical dossiers online at <https://ec.europa.eu/esf/transnationality/library>:

0. TRANSNATIONAL COOPERATION in the ESF 2014-2020 – An introductory guide – November 2015

This guide describes the Common Framework for transnationality in the ESF in the 2014-2020 period, including the common themes, calls for proposals, thematic networks, and how the ESF can contribute to Macro-Regional Strategies. It concludes with a list of National Contact Points.

1. THEMATIC NETWORKING – A guide for participants – April 2016

This user guide to the nine thematic networks that support transnational co-operation in the ESF sets out the stakeholders involved, and suggests principles and tools for animating their interaction.

2. ESF TRANSNATIONAL CALLS – Writing and managing calls for proposals – February 2017

A step-by-step guide to designing transnational calls for proposals in the ESF, from added value, institutional capacity and priorities, through design, partner search and the TCA, to assessment.

3. INTEGRATED SERVICES – Early lessons from transnational work in the European Social Fund – October 2017

Drawing on evidence from the employment, inclusion, youth employment, governance and partnership thematic networks, this dossier presents the theoretical and practical arguments for service integration.

4. CO-PRODUCTION – Enhancing the role of citizens in governance and service delivery – May 2018

This dossier articulates the various 'co-trends' and shows how they are being applied in inclusion, migrant integration, social enterprise, community development and social innovation.

5. SYSTEMS THINKING for European Structural and Investment Funds management – May 2018

This handbook explains how to apply the Vanguard Method to improve service quality in managing European funds.

6. Tackling Long-Term Unemployment through RISK PROFILING AND OUTREACH – May 2018

This discussion paper from the Employment Thematic Network reviews approaches to risk profiling and outreach, summarises their benefits and challenges, and gives case examples.

7. REVIEW OF THE EUROPEAN CODE OF CONDUCT ON PARTNERSHIP (ECCP) – Thematic Network on Partnership – May 2018

The main aims of the review were to assess the usefulness of the ECCP, learn more about the challenges encountered in its implementation, and develop recommendations to embed the partnership principle into the next European Structural and Investment Funds (ESIF) programming period.

8. FEMALE (UN)EMPLOYMENT AND WORK-LIFE BALANCE – November 2018

This paper examines gender equality issues in employment (including segregation, the pay gap, entrepreneurship and care responsibilities), describes ESF projects which address it, and concludes with the ESF Employment Thematic Network's recommendations.

9. Addressing youth unemployment through outreach, activation and service integration – November 2018

This dossier consolidates the three sharing papers published by the Youth Employment Thematic Network on outreach, activation and service integration. It features studies of Ohjaamo in Helsinki, Rubikon Centrum in Prague, So Stay in Gdańsk and MRC Pathways in Glasgow.

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