Learning from the Extremes:

A Rural Schools Innovation Roadmap

Deliverable 8.1

Rural School Foresight, EU and National Policies

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Executive summary

The European Union (EU) is promoting the development of a high-performing European digital education ecosystem and is seeking to enhance citizens' competences and skills for the digital transition. The Digital Education Action Plan (2021-2027) is a renewed European Union (EU) policy initiative that sets out a common vision of high-quality, inclusive and accessible digital education in Europe, and aims to support the adaptation of the education and training systems of Member States to the digital age.

The main purpose of this document is to examine the national policies and initiatives in rural education for digitalisation in the European countries participating into the Learning from the Extremes project: Bulgaria, Croatia, Cyprus, Finland, Greece, Ireland, Italy, Portugal, Romania and Spain.

By exploring the diverse approaches in these countries, we aim to identify strategies that can contribute to the digital education landscape in the rural European Union, according to the European Union (EU) policy and guidelines.

According to the impact assessment, as presented in D7.1, on the basis the six objectives of the LfE in order to investigate the 'distance travelled' in terms of the digital and innovation transformation of the LfE schools, it seems that the results of the project implementation are in absolute congruence with the current national and European policies.

The Rural Schools Innovation Roadmap, as the key outcome of the project, by offering a concrete overview of what is known so far about the implementation of school innovation and through incorporating these insights into the proposed transformation journey, provides a compelling narrative of the success that has been achieved in relation to the realisation of the national and European objectives pervading the relevant policies.

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1. Introduction

1.1 Purpose of the document

Education and training are the best investments for Europe's future. They play a vital role in boosting growth, innovation and job creation. Europe's education and training systems need to give people the forward-looking knowledge, skills and competences they need to innovate and prosper. They also have an important role to play in creating a European identity, building on common values and cultures. Education should help empower young people to articulate and engage, participate and shape the future of a Europe characterized by democracy, solidarity and inclusion. Digital technology enriches learning in a variety of ways and offers learning opportunities, which must be accessible to all. It opens up access to a wealth of information and resources.

Europe's digital transformation will accelerate with the rapid advance of new technologies like artificial intelligence, robotics, cloud computing and blockchain. Like previous major technological advances, digitization affects how people live, interact, study and work. The main goal is to make the European countries and their education systems fit for the digital age and boosting the provision of basic and advanced digital skills by 2030.

The Digital Education Action Plan (2021-2027) is a renewed European Union (EU) policy initiative that sets out a common vision of high-quality, inclusive and accessible digital education in Europe, and aims at supporting the adaptation of the education and training systems of Member States to the digital age. In this part of the project, Learning from the Extremes studied national policies and identified areas where it could contribute. The specific Preparatory Action has been designed as part of the Digital Action Plan (2021-2027) and it focuses on the development of a high-performing digital education ecosystem, and particularly, on the Strategic Dialogue among member states on enabling factors in digital education. Moreover, the specific preparatory action is expected to contribute to the wider objectives of the European Digital Education Hub, a flagship action of the Digital Education Action Plan 2021-2027. In this framework, the project's team had continuous interactions with a) the Joint Research Centre of the European Union which holds a major role in implementing the SELFIE tool to European Schools, b) the European Education Policy Network, the ERASMUS+ European Policy Network on Teachers and School Leadership and c) the ET 2020 Working Group on Digital Education: Learning, Teaching and Assessment to harmonize the project approach and plans to the EU policies and agendas in the field.

The main objective of this deliverable is to comprehensively outline the national policies and initiatives in rural education for digitalisation across the ten European countries that participated in this project (Bulgaria, Croatia, Cyprus, Finland, Greece, Ireland, Italy, Portugal, Romania and Spain), summarize the outcomes of the foresight work that took place in the last phase of the project and the harmonization with the EU educational policy agenda.

2. European Policies in Digital Education

European Union (EU) is promoting the development of a high-performing European digital education ecosystem and is seeking to enhance citizens' competences and skills for the digital transition. Digital competences and skills are essential to give every individual an equal chance to thrive in life, find employment and to be an engaged citizen. Having digital competences and skills and ensuring the availability of digital infrastructure and equipment have become all the more relevant since the outbreak of the COVID-19 pandemic.

Virtually all future learning and jobs will require some level of digital competences and skills. Constant technological change requires the lifelong development of competences and skills by all learners for Europe to remain economically competitive and to participate in social life. However, on average, two in five Europeans aged 16-74 still lack these skills (Digital Economy and Society Index). Ensuring equality during the digital transition of education and society is vital.

The European Commission (EC) published a proposal for a Council Recommendation on blended learning to support high quality and inclusive primary and secondary education. 'Blended learning' in formal education and training is the term used to describe when a school, educator or student uses more than one approaches inthe learning process. The European Commission (EC) proposes shorter-term measures to address the most pressing gaps exacerbated by the COVID-19 pandemic, as well as a way forward for blending learning environments and tools in primary and secondary education and training, that can help build more resilient education and training systems.

Commissioner for Innovation, Research, Culture, Education and Youth, Mariya Gabriel said: *"Striving for a vision of better quality and inclusive education and training is by no means limited to the COVID-19 context. There is an opportunity now to learn and move forward from the most recent experiences. Today's proposal maps a vision of the education we want to see in Europe. One that supports the overall goals of the European Education Area and Digital Education Action Plan to promote quality and inclusion, green and digital education across Europe. The recommendation aims to guide Member States in strengthening the preparedness and outreach of their education systems to the benefit of pupils and students, their families and the pedagogical staff."*

Blended learning can help to improve the inclusiveness of education, particularly due to its flexibility. It can mean better education provision in remote and rural areas, and for those who are part of traveller communities, or residing in hospitals and care centers, and those engaged in high-performance training. All environments and tools should be equally accessible to minority groups, children with disabilities or from socio-economically disadvantaged backgrounds and should not lead to discrimination or segregation.

According to the European Commission's proposal (2022) for this Council Recommendation, Member States should:

- Provide additional learning opportunities and targeted support to learners facing learning difficulties, with special educational needs, from disadvantaged groups or having been otherwise adversely affected by school disruption. This could include, for example, enhanced individualised support, mentoring systems, additional learning time during the school year and/or holiday period, access to additional learning environments, such as public libraries and community spaces, and to after-school services with pedagogical support. In that context, the

Commission recommends mobilising or recruiting additional staff to allow more time for individual support at school and in after-school activities.

- Prioritise the physical and mental wellbeing of learners and their families, as well as teachers and trainers. This could include developing guidance for mental health and including student and teacher wellbeing and anti-bullying policies in school.
- Boost the development of digital competences of learners, of their families and of teachers and trainers, and encouraging investment at school and community level in available devices and connectivity.
- Support effective partnerships for infrastructure and resources between different education providers, including business, arts, cultural heritage, sport, nature, higher education, and research institutes, the educational resources industry (including technology, publishing, and other curriculum equipment) and educational research.
- Make full use of EU funds and expertise for reforms and investment in infrastructure, tools and pedagogy to increase resilience and preparedness for future-ready schools, in particular Erasmus+, the Recovery and Resilience Facility, European Social Fund Plus, European Regional Development Fund, Digital Europe Programme, Horizon Europe and the Technical Support Instrument. The European Union established the 2021 Recovery and Resilience Facility (RRF) in response to the economic crisis triggered by the coronavirus pandemic. The RRF is a €750 billion fund that is intended to support member states in their efforts to recover from the pandemic and strengthen their economies for the long term. Italy, which was one of the countries hit hardest by the pandemic, decided to use its entire national allocation under the EU's Recovery and Resilience Facility (RRF) to invest in a wide range of measures aimed at improving its economic competitiveness, social and environmental sustainability, and resilience to future crises. The 2021 National Recovery and Resilience Plan included investments to modernize and reform its education system by focusing on digitalisation, improving the quality of teaching and professional development of teachers, and addressing issues of inequality and social inclusion in education. These measures are intended to build a more resilient and adaptable education system that can better serve the needs of students and support the country's long-term economic growth and social development (Official Journal of the European Union, 2021).

Digital education can be an important lever for the EU internationally through sharing of principles, tools and content. With its focus on people, in particular teachers and learners, the EU should lead by example with digital education that is rooted firmly on its values while embracing the opportunities of the digital age. In terms of boosting the human capital and promoting equal training and learning opportunities across the countries of EU, the European Parliament and the Council of European Union [Regulation (EU) 2021/241, 12 Feb 2021] developed a plan that includes investments and reforms, which, among others, are expected to promote the Union's economic, social and territorial cohesion by improving the resilience, crisis preparedness, adjustment capacity and growth potential of the member states, mitigating the social and economic impact of that crisis, and complying with the objective of the EU digital transition, thereby contributing to the upward economic and social convergence, restoring and promoting sustainable growth and the integration of the economies of the Union, fostering high quality employment creation, and contributing to the strategic autonomy of the Union alongside an open economy and generating European added value. In relation to education these objectives are about to help reduce inequalities and regional deviations in school infrastructure and educational results. In particular, rural areas are expected to benefit significantly from the intended investments as these reforms and investments will contribute to the mitigation of the gap between urban and rural areas in

terms of educational opportunities, to the reduction of students in remote areas early school drop, and to the development of the local communities.

Digital transformation is one of the six pillars through which Europan Union, and its Member States recovery is expected to be achieved and their resilience to be enhanced. Reforms and investments in digital technologies, infrastructure and processes will increase the Union's competitiveness at a global level and will also help make the Union more resilient, more innovative, and less dependent by diversifying key supply chains. Proposed reforms and investments should in particular promote the digitalisation of services, the development of digital and data infrastructure, clusters and digital innovation hubs and open digital solutions; lead to the creation of high-quality and stable jobs, the inclusion and integration of disadvantaged groups, and enable the strengthening of social dialogue, infrastructure and services, as well as of social protection and welfare systems; promote education and skills, including digital skills, upskilling, reskilling and requalification of the active labor force, integration programmes for the unemployed, policies of investing in access and opportunities for children and youth related to education.

The European Commission (EC) stands ready to support the implementation of the Recommendation by facilitating mutual learning and exchanges among Member States and all relevant stakeholders within the dialogue forums set up under the European Education Area and the Digital Education Action Plan and on its online platforms and communities for education and training: School Education Gateway and eTwinning. A focus on the development of a blended learning approach in primary and secondary school education will be included in the regular progress reports of the European Education Area and the Digital Education Action Plan 2021-2027.

The European Commission is addressing these issues through the follow actions:

- The Digital Education Action Plan (2021-2027).
- The SELFIE tool (Self-reflection on Effective Learning by Fostering the Use of Innovative Educational Technologies).
- SELFIE for TEACHERS to support teachers' digital competence and to enhance learning in the digital age.
- Collaboration with the European Investment Bank (EIB), for example through the Invest EU program, to enable Member States access to funding for digital and physical infrastructure and to support the development of skills and innovative pedagogies.
- The 2021-2027 Erasmus+ and European Solidarity Corps programmes have been made greener and more digital.
- The Recovery and Resilience Facility supports Member States in addressing their needs in digital education, following the COVID-19 pandemic.
- The European Social Fund promotes the development of digital skills as a vehicle to ensure better and fairer job opportunities for European citizens.
- The new Digital Europe Programme (DIGITAL) focuses specifically on boosting advanced digital skills.

The Council of the EU has set the following EU-level targets for digital education as part of the European Education Area strategic framework for the period 2021-2030, that by 2030 less than 15% of eighth graders across the EU should be low-achievers in computer and information literacy. A European Education Area Strategic Framework Working Group – Digital Education: Learning, training and assessment (DELTA) – has also been established to encourage mutual learning and the exchange of

information and best practices between Member States. Working groups promote voluntary European cooperation in education and training. They offer a forum to exchange experiences and practices on addressing common challenges while respecting the principle of subsidiarity and the diversity of EU Member States. Experts work together to share information about reforms of national education and training systems policies to inspire positive change throughout the EU.

Working groups contribute to the implementation of European Education Area (EEA) actions and reinforce synergies with other EU policies initiatives, including the Digital Education Action Plan (2021-2027), the European Skills Agenda, and the Green Deal. Their outputs will inspire inclusive, holistic and lifelong learning perspectives, and forge closer links between policy and funding and current mandate runs until December 2025. Members of working groups are government officials appointed by EU countries and other participating countries, representatives from EU-level stakeholder organisations, social partners and international organisations, EU bodies, offices, and agencies.

The working groups explore themes in relation to: a) Early childhood education and care, b) Schools, including sub-groups on Pathways to School Success and Learning for Sustainability, c) Higher education, d) Vocational education and training and the green transition, e) Adult learning: opening up opportunities for all, f) Digital education: learning, training and assessment and, g) Equality and values in education and training.

2.1 Digital Education Action Plan (2021-2027)

The Digital Education Action Plan (2021-2027) is a renewed European Union (EU) policy initiative that sets out a common vision of high-quality, inclusive and accessible digital education in Europe, and to support the adaptation of the education and training systems of Member States to the digital age. The Action Plan, adopted on 30 September 2020, is a call for greater cooperation at European level on digital education to address the challenges and opportunities of the COVID-19 pandemic, and to present opportunities for the education and training community (teachers, students), policy makers, academia and researchers on national, EU and international level.

The initiative contributes to the Commission's priority 'A Europe fit for the Digital Age' and to Next Generation EU. It also supports the Recovery and Resilience Facility, which aims to create a greener, more digital and resilient European Union. The Digital Education Action Plan is a key enabler to realizing the vision of achieving a European Education Area by 2025. It contributes to achieving the goals of the European Skills Agenda, the European Social Pillar Action Plan and the '2030 Digital Compass: The European way for the Digital Decade'.

The Digital Education Plan sets out two strategic priorities and fourteen actions to support them:

- **Priority 1:** Fostering the development of a high-performing digital education ecosystem:

  Action 1: Structured Dialogue with Member States on digital education and skills. Council recommendation on the key enabling factors for successful digital education and training.
  Action 2: Council Recommendation on blended learning approaches for high-quality and inclusive primary and secondary education.
  Action 3: European Digital Education Content Framework.
  Action 4: Connectivity and digital equipment for education and training.
  Action 5: Digital transformation plans for education and training institutions.

Action 6: Ethical guidelines on the use of AI and data in teaching and learning for educators.

- **Priority 2:** Enhancing digital skills and competences for the digital transformation:

Action 7: Common guidelines for teachers and educators to foster digital literacy and tackle disinformation through education and training.
Action 8: Updating the European Digital Competence Framework to include AI and data-related skills.
Action 9: European Digital Skills Certificate (EDSC).
Action 10: Council recommendation on improving the provision of digital skills in education and training.
Action 11: Cross-national collection of data and an EU-level target on student digital skills.
Action 12: Digital Opportunity Traineeships.
Action 13: Women's participation in STEM.

As part of the Next Generation EU strategy, the updated Digital Education Action Plan is an important part of the recovery from the COVID-19 shock. It will provide a coherent and integrated framework for addressing the gradual transition of education and training to the digital age by addressing challenges in education and training arising from the COVID-19 crisis and the overarching digital transformation. The Action Plan will help steer specific interventions through Commission programmes such as Erasmus, Digital Europe, Horizon Europe or the Structural Funds by informing specific programme priorities. It will present a long-term vision for its actions. It intends to include a coordination and implementation modality. The Action Plan should offer a co-ordinated policy response at EU level that adds value to actions at Member State level. It should involve stakeholders at various levels (EU, national, regional, local) and involve more closely citizens in its future implementation.

2.2 European Digital Education Hub

To support both priority areas on The Digital Education Action Plan (2021-2027), the Commission has established a European Digital Education Hub strengthening cooperation and exchange in digital education at the EU level.

Digital transformation has changed society and the economy with an ever-deepening impact on everyday life and demonstrated the need for higher levels of digital capacity of education and training systems and institutions.

The COVID-19 pandemic has further accelerated the existing trend towards online and hybrid learning. It uncovered new and innovative ways for students and educators to organise their teaching and learning activities and to interact in a more personal and flexible manner online. In parallel, the uptake of digital technologies for education revealed challenges and inequalities between those who have access to digital technologies and those who do not (including individuals from disadvantaged backgrounds), and challenges related to the digital capacities of education and training institutions, teacher training and overall levels of digital skills and competences.

These changes called for a strong and coordinated effort at the EU level to support education and training systems to address the challenges identified and exacerbated by the COVID-19 pandemic, while putting forward a long-term vision for the way ahead for European digital education.

A study by the Organisation for Economic Co-operation and Development (OECD) in 2018 found that on average less than 40% of educators across the EU felt ready to use digital technologies in teaching, with divergences between EU Member States. More than one third of 13–14 year-old students who participated in the International Computer and Information Literacy Study (ICILS) in 2018 did not possess the most basic proficiency level in digital skills. A quarter of low-income households have no access to computers and broadband, with divergences across the EU affected by household income (Eurostat, 2019 in https://education.ec.europa.eu/focus-topics/digital-education/action-plan). 95% of the respondents of the Open Public Consultation of the Digital Education Action Plan consider that the COVID-19 pandemic marks a turning point for how technology is used in education and training (Digital Education Action Plan, Open Public Consultation, 2020).

3. National Policies

On the basis of the outcomes of the foresight work that took place in the last phase of the project, in accordance with European policies and guidelines, this section focuses on national policies and initiatives meant to enhance inclusion and bridge the digital gap in rural education of each country participating in this project.

3.1 Bulgaria

Over the past five years, Bulgaria has undertaken several reforms to improve the quality of its education system and provide equal opportunities for all students, as described in the "Executive summary" of the Organisation for Economic Co-operation and Development (OECD) Reviews of Evaluation and Assessment in Education. The country has introduced a new curriculum, policies to develop the teaching profession and attract new teachers, a new school funding model, a dual vocational education and training (VET) system and a compulsory pre-primary year, among others. To ensure that these reforms lead to large-scale improvement in students learning, Bulgaria will need to continue aligning its policies to ensure that they are coherent and provide additional support to help education actors adapt their practice. Policy makers will also need to target resources more effectively, to ensure they flow to the areas where they are most needed, namely the most vulnerable students, the most sought-after teachers and to supporting the lowest-performing schools" (Guthrie et al., 2022).

Dropout rates and early school leaving are higher in rural and remote areas, and learning outcomes also differ significantly by geographic location. At the same time, the percentage of students classified as early school leavers (18–24 year-olds who completed lower secondary education and are not involved in further education) is also high in rural areas, reaching as much as 24.5%, compared to an EU average of 11% (Eurostat). It seems that the dropout rate and percentage of early school leavers are also correlated with municipality size: large municipalities and provinces perform better than small ones (Desislava et al., 2017 in Guthrie et al., 2022). Indeed, students in rural areas also lag when it comes to learning outcomes, which may partially explain the higher percentage of school leavers and dropout rates in these areas. According to PISA 2018 results, 15-year-old students in urban areas scored as much as 115 points higher than those in rural places, compared to an OECD average of 48 points (OECD, 2019 in Guthrie et al., 2022).

There are regional and national support programmes specifically for ICT for schools such as computerization, software, Wi-Fi and internet access. However, there is no special programme for rural schools. Although there was a programme a few years ago supported by the State Agency for e-Governance, it finished in 2020. Also, there are regional and national support programmes specifically for teachers and school staff, but professional training is funded based on requests more often focused on pedagogy and less on technologies or ICT.

The National Development Programme BULGARIA 2030 is a strategic framework, determining the vision, priorities and general goals of the development policies in all sectors of the socio-economic development of Bulgaria in the period 2021-2030. The National Development Programme BULGARIA 2030 sets out three strategic goals for the implementation of which it groups the government intentions into five areas (axes) of development and sets 13 national priorities. The document describes in detail the areas of impact that will be subject to targeted interventions by 2030, ranked by priorities and sub-priorities and accompanied by result indicators, indicative financial resources,

sources of funding and relevant UN Development Goals. In addition, an ex-ante impact assessment on key macroeconomic indicators of the implementation of the planned interventions is presented, as well as a mechanism for monitoring and control of the implementation of the strategic document.

- *Digitalisation and educational innovations*
  Using ICT for the formation of digital competences, motivation for learning and higher educational outcomes will be a key policy. Support will be given to the development of innovations at all stages and levels of education. At the heart of the governance of the education system at all levels will be the integrated approach.

- *Digitalisation*
  Measures will be taken to introduce curricula tailored to the digital transformation of education and the economy, to ensure access to digital learning content and e-textbooks with added reality, as well as to link digital skills with civic literacy, cybersecurity, digital ethics, and to introduce and develop artificial intelligence systems in school, vocational and higher education. Initiatives for accessible digital education and improvement of digital competences will be promoted.

- *Educational innovations*
  Innovations will be introduced and developed at all stages and levels of education and in all spheres of life of the educational institutions, and a culture of innovation implementation will be developed with all policy instruments. Networks of innovative educational institutions will be created and developed, open educational resources will be used and integration between education and business will be carried out for training in innovative professions.

- *Digital connectivity*
  Digital networks: The aim of the sub-priority is to build very high-capacity networks, which will provide a platform for providing a variety of digital value-added services, while ensuring that no part of the country or group in society will be left without adequate digital connectivity. Measures will be taken to support digital connectivity in remote and sparsely populated areas by stimulating investment by private Internet operators to provide internet access to end-users in these areas. The actions will also be concentrated in the development of high-speed mobile internet in the country, including the timely release of a radio frequency sector allowing investments for the introduction of 5G mobile networks in the country. Gigabit connectivity for transport arteries and settlements will be ensured, facilitating access to and use of public services and improving synergies and coordination between different sectors through innovative applications.

  Digital infrastructure: The aim of this area is to build effective cloud infrastructure, data sharing tools, architectures and mechanisms for managing thriving ecosystems for data sharing and artificial intelligence. Investments should cover actions with a significant impact on data spaces covering data sharing architectures (including data exchange standards, best practices, tools) and governance mechanisms, as well as energy-efficient and reliable cloud infrastructures and associated services, with a view to facilitating combined investments.

  Digital inclusion: The goal of this sub-priority is to address the territorial imbalances associated with broadband penetration. This will also help to reap the economic and social benefits of information and communication technologies (ICT) in overcoming distance and development bottlenecks, especially in backward areas. Efforts will be made to support digital connectivity in remote and

sparsely populated areas as well as in centres of social life. The scope of the initiative providing free public internet access will be extended.

- *Strategic planning and monitoring of regional and spatial development*
  Development, implementation, monitoring and evaluation of the system of documents for strategic planning of regional and spatial development. Implementation of a roadmap for a new approach in state policy for regional development. Provide homogeneous geodetic infrastructure, geodetic, cartographic and cadastral information to meet state needs in the field of strategic planning, the development of sustainable development measures and investment planning. Strategic planning of measures that take into account local specificities in different sectors of the economy, as well as creation and/or improvement of the regulatory conditions for providing green infrastructure and improvement of the rules and norms for the design, construction and operation of water supply and sewerage systems. The NGO sector and local communities will be widely involved in shaping and implementing local policies. Intermunicipal cooperation will be expanded, as well as PPPs for joint implementation of infrastructure, social and cultural projects, as well as for facilitating and supporting contacts and initiatives of local businesses.

- *Community-led local development*
  Community-led local development (CLLD) is carried out through integrated and multi-sectoral local development strategies based on the characteristics of the specific territory and developed on the basis of local needs and potential. The territorial scope of this area of impact includes all rural areas and other territories of the country, which will be included in the regulatory act for the implementation of CLLD. Measures related to promoting social inclusion, preserving and protecting the environment and promoting resource efficiency, including activities for risk prevention and management and exploiting the potential of cultural heritage, encouraging the introduction of innovations in practice, sustainable and quality employment and labour mobility, increasing the competitiveness of local economies and opportunities for local business creation, improving the quality of education and increasing the qualifications of the population will be supported.

According to the National Development Programme BULGARIA 2030 above, Bulgaria developed two high-level policy strategies that set goals for the education sector. The first which identifies the government's general priorities over a ten-year period, such as:

- Inclusion in education.
- Empowering teachers.
- Improving the quality of education.
- Lifelong learning.
- Using innovation and information and communication technology (ICT) in education.
- Governance and network building.

The second policy, the Strategic Framework for the Development of Education, Training and Learning in the Republic of Bulgaria (2021 – 2030) (hereinafter, the Strategic Framework for Education), is more sector-specific and implementation-oriented. Priorities of the Strategic Framework for Education are:

- Effective and lasting inclusion.
- Motivated and creative teachers.
- Competencies and talents.
- Realisation in the professions of the present and the future (labour market relevance).
- Lifelong learning.

- Educational innovation, digital transformation and sustainable development.
- Effective and efficient management and participation in networks.

3.2 Croatia

Croatia covers an area of 56 594 km², 99.24% of which is rural. Of the total area, around 40% is agricultural land while forests cover 36%. The population is around 3.9 million with more than half living in rural areas (European Commission, 2023).

The "Rural Development Programme (RDP) of the Republic of Croatia for the Period 2014-2020" has defined 16 measures aiming at fostering competitiveness of agriculture, ensuring sustainable management of natural resources and climate change as well as at achieving balanced territorial development of rural areas, including creation and preservation of jobs. The total allocation for the Rural Development Programme amounts to 2.383 billion euros, 2.026 billion euros of which are financed from the EAFRD and the rest from the national budget of the Republic of Croatia (European Structural and Investment Funds).

According to the report "Rural Development Programme (RDP) of the Republic of Croatia for the Period 2014-2020", the education level in rural areas is, on average, much lower than in urban areas (European Union, 2019). It seems there has been a lack of general information and a low level of education and knowledge in rural communities. This is evident in the limited application of research knowledge and the scarce interest among people who live in rural areas and work in agricultural business, in developing, testing, implementing and disseminating latest knowledge and innovations. To support the rural areas population, investments in the setting-up, improvement or expansion of local basic services including leisure and culture, and the related infrastructure were planned as well as investments in the construction and/or reconstruction and/or equipping of facilities related to education. Complementary, regarding vocational education and training, support for the development and provision of formally recognized vocational education courses targeted at the agricultural sector or rural stakeholders would be provided from the European Social Fund (ESF), whereas the European Agricultural Fund for Rural Development (EAFRD) would provide specific, informal knowledge transfer and vocational training.

Moreover, the existing social infrastructure is generally in poor condition and underutilized. In general, the state of basic facilities, social and physical infrastructure in rural areas is inadequate to underpin the needs of rural communities and unless improved will continue to be a factor in the abandonment of rural communities and lack of social inclusion.

The programme provides for support for investments in the setting-up, improvement or expansion of local basic services for the rural population including leisure and culture, and the related infrastructure. This includes the following:

- investments in the construction and/or reconstruction and/or equipping of facilities for sports and leisure activities, such as community centres, fire-fighting centres, hiking shelters, cultural centres
- investments in the construction and/or reconstruction and/or equipping children's playgrounds, sports facilities and supporting facilities, facilities for recreational fishing, recreational areas on continental part along rivers and lakes, bike trails, tourist information centres, thematic routes and parks etc.

- investments in the construction and/or reconstruction and/or equipping of facilities related to preschool child care and education (kindergartens etc.)
- investments in public areas (public green areas, walking trails, walking zones, open drainage canals, local food market, squares, cemeteries etc.).

The implementation of the operation shall be consistent with relevant local strategic/development documents and in accordance with local development plans, contributing to Focus Area 6B: Fostering local development in rural areas.

In relation to connectivity, Croatia is slightly behind the EU average in total standard and total standard fixed broadband coverage (97,5 % in Croatia vs 99,4 % in the EU-27 and 94,1 % in Croatia vs 95,5 % in the EU-27 respectively), but significantly behind the EU average in total NGA coverage (19,1 % in Croatia vs 53,1 % in EU-27), according to Europe Broadband Coverage study for ICT infrastructure.

The Croatian National Broadband Strategy, in accordance with the Digital Agenda for Europe (DAE), has established 50% NGA as its Europe 2020 target. The number and density of broadband connections is unevenly distributed across Croatia, i.e. there is significant disparity between the urban (city of Zagreb) and the tourist areas on the one hand, and the interior rural areas on the other. Overall, Croatia performs particularly badly with respect to rural penetration in comparison to other EU countries and remains far from the 100 percent EU household take-up target for 2020. (World Bank, 2021).

Croatian National Plan for Broadband Development 2021–2027, adopted in March 2021, responds to the European Gigabit Society objectives 2025 and partially to the 2030 digital targets. The National Plan for Broadband Development 2021-2027 aims at providing the download speeds of at least 100 Mbps to all households with the possibility to upgrade to 1 Gbps, and 1 Gbps for government offices and public buildings such as schools and health facilities. The 5G networks are to cover all main cities and towns and major highways. The plan responds to the European Gigabit Society objectives 2025, partially the 2030 digital targets and the 5G for Europe Action Plan (European Commission, 2023). Shaping Europe's digital future. Broadband in Croatia (https://digital-strategy.ec.europa.eu/en/policies/broadband-croatia).

According to the report of "Rural Development Programme (RDP) of the Republic of Croatia for the Period 2014-2020", there was a lack of general information and a low level of education and knowledge in rural communities. This is evident in the limited application of research knowledge and the scarce interest among people who live in rural areas and work in agricultural business, in developing, testing, implementing and disseminating latest knowledge and innovations. To support the rural areas population, investments in the setting-up, improvement or expansion of local basic services including leisure and culture, and the related infrastructure were planned as well as investments in the construction and/or reconstruction and/or equipping of facilities related to education. Complementary, regarding vocational education and training, support for the development and provision of formally recognized vocational education courses targeted at the agricultural sector or rural stakeholders would be provided from the European Social Fund (ESF), whereas the European Agricultural Fund for Rural Development (EAFRD) would provide specific, informal knowledge transfer and vocational training.

In March 2015, CARNET (Croatian Academic and Research Network) introduced the "e-School Programme" aiming at systematic and regular use of the most modern technology in learning and teaching, and adequate infrastructure and computer equipment in all schools in Croatia. The

programme also focused on the development of numerous digital educational contents and e-services for teaching and business processes, along with a series of trainings for the development of digital competencies of school employees. The programme, the full name of which is "e-Schools: Complete informatization of school business processes and teaching processes for the purpose of creating digitally mature schools for the 21st century", began in March 2015 with a pilot project in which 151 Croatian schools participated. The pilot project "e-Schools: Establishment of a system for the development of digitally mature schools" was implemented until the end of August 2018. The main result of the pilot project was an increase in the level of digital maturity of 10 percent of Croatian primary and secondary schools. Based on the experiences and results of the pilot, in September 2018, CARNET started implementing the second phase of the programme "e-Schools: Development of a system of digitally mature schools (Phase II)" worth HRK 1.3 billion. By the decision of the Ministry of Science and Education, teaching and business processes in all schools in the Republic of Croatia financed from the state budget would be digitally transformed by October 2023. The general goal of the e-School programme contributes to strengthen the capacity of the primary and secondary education system with the aim of training students for the labour market, further education and lifelong learning. The specific goals of the e-School programme, which will contribute to the general goal, are to: a) ensure a purposeful, reliable and secure ICT environment adapted to the needs of schools in the Republic of Croatia, b) improve the efficiency and coherence of processes in the educational system, c) improve digital competences that contribute to the digital maturity of schools, d) improve the strategic leadership of schools to increase their digital maturity. In order for schools to increase the level of digital maturity, the role of principals, teachers and other employees who are ready to use new technologies and teaching approaches is crucial.

In digitally mature schools, teachers use technology to improve teaching, develop their own digital content, and provide support for independent learning and the development of critical skills in students, who are at the centre of the teaching process. Students thus actively participate in classes with increased motivation to learn and continue their education, thus becoming more competitive on the labour market. Management of e-Schools is efficient and transparent, and communication and exchange of e-documents between the school, its stakeholders and founders are much simpler.

At the end of March 2023, the Government of the Republic of Croatia adopted the “National Plan for the Development of the Education System until 2027” and the accompanying “Action Plan for the implementation of the National Plan for the Period until 2024”. The National Plan defines the implementation of the strategic goal and priority areas of public policies for the education sector from the “National Development Strategy of the Republic of Croatia until 2030”. The umbrella strategic document within the strategic goal "Educated and employed people" lists the accessibility of early and preschool education, the acquisition and development of basic and professional competences, the improvement of higher education and the prospective labour market as priority areas of public policies.

A total of more than EUR 2 billion is planned for the implementation of the measures of the National Plan, and the main source of funding for projects in the field of education will be European Union funds for the period from 2021 to 2027, as well as the “National Recovery and Resilience Plan”. The foreseen financial resources represent a significant step forward in investments in the field of early and general education and care and enable the implementation of key reform processes in the system. Key areas of intervention include governing and improving the system at central level (legal, organizational, financial framework and quality assurance mechanism), and providing support to education providers

(infrastructural, material, and human resources capacity building) and to learners (access to the system, success in the system and transition through the system).

The National Development Strategy of the Republic of Croatia until 2030 includes the strategies to be followed to ensure accessibility, equity and quality for all children. Education, in addition to imparting knowledge and skills, plays a key role in preparing future adults for life in the community, primarily through instilling common values and accepted norms of behaviour. In the same way, education contributes to the development of personality and the potential of children and students, encouraging them to be creative, think critically, and express themselves with confidence and lifelong learning. Thus, education contributes to overall social cohesion and building future self-aware and socially responsible citizens. For all these reasons, education is the most powerful tool for achieving social and economic change, especially when it involves all its citizens, because the world of tomorrow assumes complex and dynamic changes with shared responsibility. Education is therefore a social and economic investment with the highest and most lasting return, both for society and the economy, at all educational levels and in all forms of education, formal and informal. The formal education system is on two tracks: it should contribute to changes and development through quality education, and at the same time it should build and change itself. In addition to providing systematic upbringing and education, one of its fundamental tasks is teaching, educating, and raising children and young people. At the same time, training for lifelong learning should be ensured, primarily for easier adaptation to the unpredictable future and rapid changes due to globalization, changes in the labour market and the impact of information and communication technologies, migration, as well as various crises and unexpected situations.

Since Croatia is a country with an insignificant number of students who are excluded from primary and secondary school, further improvement and modernization of the primary and secondary education system, consistently and coherently designed through educational processes, represent the greatest reform potential that will be further strengthen in the period. The goal is to increase the time students spend in the teaching process, that is, to increase the effective time spent learning and achieving the given educational outcomes. The reform processes will be improved: on the one hand, the structure of national curricula will be defined with the planned optimal and maximum load of students to achieve the expected educational achievements, and on the other hand, gradually adapt educational institutions. The goal is to apply the curriculum approach according to the learning outcomes and adapt the educational work approach to the student.

In accordance with the human resources development policy, opportunities for the training of teaching staff will be expanded to strengthen the relevance of the teaching process and facilitate the adaptation of teaching staff to the high demands placed on them by the reform of the education system. Special attention will be paid to attracting and retaining quality educational workers, with special emphasis on those for whom there is a shortage in the educational system (e.g. STEM, vocational education, adult education, and other teaching professions in deficit).

In short, some of the implementation priorities set in the field of education policy are the following:

- Increasing the accessibility and equity in the high-quality system of upbringing and education to every child and student to realize the right to quality upbringing and education from an early age and to ensure quality standards and resources to support children exposed to the risk of social exclusion.

- Improving reform processes by defining the structure of national curricula and adapting educational institutions to a curriculum approach based on learning outcomes and an approach to educational work adapted to the student.
- Improvement and modernization of the primary and secondary education system to increase the effective time spent in learning and achieve the set educational outcomes.
- Development of comprehensive support for children and students and prevention of dropping out of the education system and entering neither in employment nor in education or training (NEET) group, with an emphasis on vulnerable groups and children and students with developmental disabilities.
- Increasing the quality, efficiency and relevance of the vocational education system through strengthening and promoting work-based learning, excellence and flexibility.
- Development of basic competencies, including "learning how to learn" competencies and entrepreneurial competencies.
- Encouraging and rewarding innovative, creative and enterprising endeavours of educational staff and students.
- Strengthening the information and communication infrastructure in educational institutions and the digital literacy of students and educational staff.
- Development of a complete and computerized system for ensuring the quality of education and increasing the level of digital maturity of schools (Accelerating the digital transition by developing digital processes in public administration, education and business, and reducing the digital divide between urban and remote rural areas. European Commission 2023).

3.3 Cyprus

Cyprus is the third largest island in the Mediterranean Sea after Sicily and Sardinia. It is a small country; therefore, no schools are considered as 'remote'. National strategy for mountain communities defines guidelines and priorities through specific actions which include education and digital technology aiming at serving people and strengthening support mechanisms. Actions related to education are:

- *Virtual School in Troodos*

Promotion of distance learning supported by the new digital Media (Distance Education) which can help alleviate spatio-temporal, geographical, social and economic difficulties in the educational process. The ever-decreasing cost of using technology helps to implement such an action.

- *Teacher training network*

Establishment and operation of two (2) Educational Youth Multifunctional Centres of Troodos Mountain Communities: Multipurpose spaces will be created according to the standards of the learning centre of the future, which provides 6 learning and work zones: Develop, Exchange, Create, Investigate, Present, Interact. This is a measure of formal and informal education, and its structure will operate according to the standards of the action "the STEAMers" in collaboration with the Cyprus Youth Organization. Additionally, within the Educational Youth Multifunctional Centre of Troodos Mountain Communities and in collaboration with the Cyprus Youth Centre the following will jointly operate: Youth Information Centre (which will operate according to the standards and rules of the European Youth Information and Counselling Agency (ERYICA) and Youth Makerspace (access of young people to high-level and state-of the-art equipment to develop prototypes and implement their business ideas).

- *Distance learning supported by new digital Media*

Vocational Guidance, Counselling and Vocational Education Centres will operate within the Educational Youth Multifunctional Centre of Troodos Mountain Communities and in collaboration with the Ministry of Education and Culture.

- *Creation of educational material*

Development of digital networks. Broadband Development with access to high-speed broadband networks.

Moreover, there are programmes funded by the European Commission for green and digital transition. These national strategies promote digital education and skills, notably by upgrading digital infrastructure and tools in schools, providing teachers with digital training and upskilling and reskilling programmes for different parts of the Cypriot society.

There are national support programmes that are targeted specifically at ICT for schools but there is no distinction between rural and urban schools. They promote nationwide Digital Competency of All Schools, Teachers, Students, Citizens in convergence with the Deputy Ministry of Innovation and Digital Strategy.

National policies for education in rural regions in Cyprus include:

- Equal access to quality education: The government aims to ensure that students in rural regions have the same opportunities for quality education as their urban counterparts. Efforts are made to develop and maintain schools in rural areas, providing them with adequate infrastructure, qualified teachers, and necessary resources.
- Establishing Rural Education Development Units (REDUs): REDUs are dedicated units that oversee the development and implementation of education policies in rural regions. These units collaborate with schools, local communities, and other stakeholders to address the specific needs of rural schools and students.
- Multi-grade classrooms: Due to the lower population density in rural areas, it may not be feasible to have separate classrooms for each grade level. Hence, multi-grade classrooms are set up to accommodate students from different grade levels. Teachers are trained to effectively handle these classrooms and ensure that each student receives appropriate instruction.
- Transportation facilities: To ensure access to education, the government provides transportation facilities to students residing in remote rural areas. This allows students to commute to schools in nearby towns or cities.
- Special programmes and scholarships: Specific programmes and scholarships are offered to encourage enrolment and retention of students in rural areas. These programmes may include financial support, mentorship, and academic assistance to help students overcome any obstacles they may face in their educational journey.
- Promoting vocational and technical education: Recognizing the importance of developing skills relevant to the local economy, vocational and technical education programs are promoted in rural regions. These programmes equip students with practical skills and knowledge, enabling them to pursue employment opportunities within their rural communities.

- Encouraging community involvement: The government encourages the active participation of local communities in the development and management of schools in rural areas. This involvement can range from volunteerism, fundraising, and supporting school initiatives, ensuring a sense of ownership and accountability for education outcomes.
- Broadband and digital connectivity: The government focuses on improving digital connectivity in rural areas to facilitate online learning and access to educational resources. This helps bridge the digital divide and provides equal opportunities for students in rural regions.

These policies aim to address the unique challenges faced by rural regions in Cyprus and ensure that all students have equal access to quality education opportunities.

Cyprus' Recovery and Resilience plan

Following the unprecedented crisis caused by the COVID-19 pandemic, Cyprus' recovery and resilience plan has responded to the urgent need to foster a **strong recovery**, while making Cyprus' economy and society more **resilient and future ready**. In response to the energy market disruption caused by Russia's invasion of Ukraine, the Commission launched the REPowerEU Plan. The Recovery and Resilience Facility is at the heart of its implementation and its funding. Under REPowerEU, EU countries are updating their recovery and resilience plans with new measures to save energy and diversify the EU's energy supplies.

The reforms and investments in Cyprus's plan are helping it to become more sustainable, resilient and better prepared for the challenges and opportunities of the green transition and digital transition. Regarding the latter, the plan aims at coping with the digital challenges including connectivity, development of digital skills in all population groups and improvement of digital public services. As far as the digital skills are concerned, the plan promotes a) digital education by upgrading digital infrastructure and tools in schools (with an investment of 50,4 million euros), and b) providing teachers with digital training and upskilling and reskilling programmes (with an investment of 15 million euros) for different parts of the Cypriot society. (European Commission, 2021)

Cyprus Broadband Plan

Cyprus' broadband plan sets strategic objectives for 2021-2025 and includes legislative and regulatory interventions as well as practical support for the development of broadband infrastructure (European Commission 2021). More particularly, Cyprus National Broadband Plan is the roadmap for developing broadband infrastructure in the country, but also for the uptake of high-speed and ultra-high speed broadband services by citizens and businesses. The Broadband Plan includes a set of legislative, regulatory and support actions for the development of state of the art broadband infrastructure, fully aligned with the Cyprus Digital Strategy 2021-2025. (Republic of Cyprus, 2021). The National Digital Strategy on the other hand, sets forth the aspirational vision for Cyprus to become a fit-for-the-future society and knowledge-based economy, enabled by digital technologies. Its strategic objectives are i) a vibrant, sustainable and resilient digital economy, ii) an open, democratic and inclusive digital society, iii) a green digital transition and iv) the shift of government's thinking towards the digital era, through user-centred, secure and innovative approach (Republic of Cyprus, 2021).

3.4 Finland

Finland has large, sparsely populated areas with long distances between them. Addressing the strong existing depopulation trend and improving the viability of rural areas as attractive places to live requires investments in rural infrastructure services as well as to address youth unemployment and out-of-labour rates in rural areas in general (European Commission, 2020). Even though Finland is tagged as an innovative and knowledge-oriented society with a strong emphasis on digitalisation and research, modernizing the sector by promoting and exchanging knowledge, innovation and digitalisation are essential. The broadband connectivity through the Next Generation Access (NGA) networks in rural areas is very low and it is necessary to achieve the Green Deal target of 100% coverage of fast broadband by 2025 (European Commission, 2020).

In education, a golden means must be found between togetherness and networks and available teaching offerings. Distance learning enables a wider range of studies and facilitates lifelong learning. In terms of the accessibility of the education, the students who are in need of special support and the linguistic accessibility must be taken into account. The distances also must be taken into account in the education at the second stage and in the implementation of compulsory education.

An evaluation study carried out by the Finnish Education Evaluation Centre (FINEEC) strongly indicates that new innovative ways of organizing and developing school networks must be sought in order to secure the availability of basic education.

In addition to teaching, the local school is a place for many activities and thus a significant part of the municipal services, and an important factor for the well-being and health of the entire community. Correspondingly, the effects of closures are inverse, as studies have shown that the inactivity of children and young people in rural areas is linked to long journeys to school.

Research and statistics show that:

- In 2021, comprehensive school age children made up 10.1% of Finland's population, which was 1.1% fewer than in 2000 in rural areas.
- 66% of the closures of comprehensive schools in 2010–2018 were in rural areas.
- A total of 605 comprehensive schools decreased between 2012 and 2022. At the end of 2022, there were 2,039 active comprehensive schools.
- The number of schools decreased in 220 municipalities (in the 2010s) and centralisation has been strongest in the smallest municipalities.
- School closure has the most negative impact on communities in rural areas, suggesting that self-reinforcing negative demographic trends will intensify with closure.
- The school has demographic implications. School closure contributes to the decline in the population of the surrounding community, intensifying this proportional to the situation before school closes.
- In the 2010s, differences in population development were considerable by school change category and by municipality group.
- From the perspective of immigration, it does not seem that municipalities that have made even major changes to schools would be subject to significantly less immigration in the future. Based on this, the intensity of the change in schools does not have a clear impact on the attractiveness of the entire municipality.

In Finland, over 2000 schools have been closed during the last two decades as a part of small town and rural depopulation. Most of the closed schools have been small with less than 50 pupils and they have

mostly been located in the rural areas (Autti and Hyry-Beihammer, 2014). The issue remains a controversial one in public debate over the last two decades, in Finland. The results indicate that in Finland after school closure, the population of the surrounding community has decreased, raising questions not only about the individual schools, but about the vitality of the municipality and its development in general.

Finland's national policies and strategies about education until 2030 are:

- Equality in education: access to cultural, library and sports services. Opportunities for activities for different populations and age groups.
- Child participation rate by age group: quality of early childhood education and care.
- Education level of the population: International and national learning and competence assessments, pass rate.
- Participation in training: including formal training, non-formal and informal learning. Quality of lifelong learning Transition from education to work.
- The impact of culture on the economy and well-being.
- The education system and learning international and national evaluations.

Until 2030 Finland will be the most multiliterate country in the world. Due to the fact that the number of persons with ineffective reading skills has increased especially among young people, concrete measures are required at the national, regional and local levels to reverse the direction. The National Literacy Strategy 2030 programme describes the measures that should be taken to strengthen multiliteracy.

The three guidelines of the National Literacy Strategy are:

- Creating and strengthening structures for literacy work.
- Strengthening multiliteracy competence.
- Encouraging reading and diversifying literacy.

In the National Literacy Strategy, the concept of multiliteracy is used to discuss reading literacy. The concept of multiliteracy includes the idea that all literacy skills are equally valuable and necessary. Reading and producing texts requires multiliteracy, that is the ability to read, understand, interpret, write and produce multimodal texts in different environments and by using different tools and media. The National Education Evaluation Centre (Karvi) has also evaluated the effects on schools' changes in rural and island regions. Regional and national support programmes targeted specifically at capacity building for teachers and school staff is concerned, universities organize teacher training and there is also a portal where they can search for courses that build teacher capacity, but these are not specifically focused on teachers in rural areas though.

In conclusion, there has been an overall organized rural policy in Finland for 33 years as a part of the national regional development package, which includes not only rural policy, but also urban and island policy. Tools and recommendations are provided to support better decisions at national, regional and local level.

3.5 Greece

Greece is primarily a mountainous country with more than 300 larger or smaller mountains. However, the islands are the main characteristic of its morphology. There are approximately 6,000

islands and islets scattered in the Greek Seas, only 227 islands of which are inhabited. Due to Greece's geographical position, rugged relief, and distribution between the mainland and the sea, there are many remote and rural schools with a small number of students. There are also many schools in rural areas that have only one teacher for students of different ages and educational levels.

The economic crisis has led to reduction in funding for remote schools which combined with their high operating costs led to a merger with neighbouring schools in spite of the local communities' opposition. A further problem is the fact that the teachers appointed to small schools often have little or no previous teaching experience and accept the position in these remote areas as a transitional period in their teaching career.

In Greece, a large number of schools, primary and secondary, are concentrated in the two largest cities, and thus, the geographical fragmentation of the country results in a large geographic dispersion of schools. In primary education, 18% of kindergartens and elementary schools are located on islands, 3.5% are inaccessible, and 55% of them are located in island areas. Regarding secondary education, 34% of school units are located in the two largest cities, 18% are located on islands, 6% of schools are inaccessible and 55% of them are located in island areas (Hellenic Ministry of Education, Religion and Sports).

There are several national policies and initiatives in Greece to address the specific needs and challenges of education in rural regions. Some of these include:

- *Infrastructure development:* The Greek government has prioritized infrastructure development in rural areas to ensure that schools have proper facilities, resources, and technology. This includes renovating and constructing new school buildings, improving access to water and electricity, and providing necessary equipment for educational activities.
- *School transportation:* To address the issue of transportation in rural regions, the government has established a school transportation system to ensure that students can commute to and from school safely and efficiently. This includes providing buses and other means of transportation for students who live in remote areas.
- *Teacher recruitment and retention:* The government has developed programmes to attract qualified teachers to rural regions and provide incentives to encourage them to stay.
- *Curriculum adaptation:* The national curriculum has been adapted to meet the specific needs of rural students and to reflect the cultural and economic context of rural regions. This includes incorporating local perspectives, traditions and practices into the curriculum, as well as emphasizing practical skills and vocational education that are relevant to rural livelihood. New school legislation emphasizes skills development and strengthens quality assurance. Legislation passed in June provides revisions for curricula and textbooks for all levels aiming at the development of 21st century skills, structured around four thematic pillars: environment, well-being, creativity and citizenship education. Digital skills development and language learning (English) has been introduced in pre-primary education and reinforced throughout.
- *Distance learning and digital education:* To overcome geographical barriers and ensure access to quality education, the Greek government has invested in digital infrastructure and developed online learning platforms. This allows students to access resources and participate in interactive learning experiences, regardless of their location.
- *Community engagement:* National policies also stress the importance of involving local communities in the development and implementation of educational initiatives. This includes

working collaboratively with parents, local authorities, and community members to identify the specific needs of rural regions and to develop strategies to address them.

Greece national support programme "Digital Transformation and Digitisation of Education", 2021-2027, focuses on content, infrastructure and services provided and is part of an overall reform strategy in terms of updating curricula, streamlining services and monitoring educational outcomes.

This investment is divided into the following four (4) axes:

- Digital Content in Schools.
- Digital equipment in schools.
- Professional development of teachers.
- Digital services in schools and universities.

Under the third axe, for the period of 2022-2023, there was a training programme for a total of 120,000 teachers in digital services, digital skills development and new educational content which will be developed under axis 1 and the infrastructure/equipment to be acquired under second (2) axis. In addition, a specific programme focusing on the training of 35.000 teachers specialised in special education, differentiated teaching and inclusive education, in order to familiarise them with the new digital content and equipment has been implemented

Transforming conventional curricula and educational content into open source, interactive, universally accessible digital environments with embedded artificial intelligence, provision for dynamic upgrading and opportunities for developing synergies with communities of educators will be also supported by the "Digital Transformation and Digitisation of Education" programme.

Greece is undergoing a digital transformation as part of a multifaceted plan to fully digitize the country by 2025, with the Ministry of Digital Governance as the driving force and the aim to support convergence with the European Union average Digital Economy and Society Index (DESI). The Digital Transformation plan for 2020-2025 is documented in the “Digital Transformation Bible”, outlining the principles and framework that the government has developed to facilitate the digitization of Greek’s society and economy. The plan consists of 450 projects supported by €6.4 billion of EU Recovery Fund money, to speed up the digitization of the public and private sectors and boost Greece’s digital readiness.

According to the Bible, the vision for "Digital Greece" will be based on the exploitation of the potential of ICT as a tool of modern governance and a lever for development. Through coordinated actions, the necessary infrastructure will be constructed and bold interventions for digital transformation will be implemented, in order to respond effectively to modern challenges of the digital era (Digital Transformation Bible 2020-25).

Overall, these national policies aim to reduce educational disparities and provide equal opportunities for students in rural regions of Greece.

3.6 Ireland

For Ireland, “access to good quality public and other services is essential to encourage people to continue to live in rural areas, towns and villages, and to support the sustainability of rural

communities" and this endeavour requires a whole-of-government approach (Government of Ireland, 2021, p. 61).

The most important national programme for the development of rural areas in the country is the "Rural Future Rural Development Policy 2021-2025" (Government of Ireland, 2021), a forward-looking policy addressing the challenges rural areas are facing as well as the opportunities which exist for their economies and communities. It is implemented through 150 commitments delivered by Government Departments, State Agencies and Local Authorities, in order to enhance the quality of life in rural areas, as well as to build resilient and sustainable rural communities and economies through investment and support.

The Rural Future policy's goals are closely connected to the UN Sustainable Development Goals (SDGs), and consistent with the commitment to human rights and equality in the country, aiming at:

- Optimising the opportunities for rural communities from high-speed broadband.
- Supporting improved quality employment and career opportunities in rural areas.
- Assisting the regeneration, repopulation and development of rural towns and villages.
- Enhancing the participation, leadership and resilience of rural communities.
- Supporting the sustainability of Ireland and coastal communities.
- Nurturing the culture and heritage.

In parallel with the National Broadband Plan, the Rural Future Development Policy 2021-2025 can transform rural Ireland, by helping the country to sustain and increase the population in those areas, revitalise town centres, reduce commuting times, lower transport emissions and improve the quality of life in general. Digitalisation and new technologies will further support this endeavour (OECD, 2018).

As far as teaching and learning is concerned in particular, the Inspectorate conducted an evaluation of the infrastructure and use of ICT in primary and post-primary education schools in school year 2005-2006, which resulted in a number of key recommendations for policymakers and policy advisors (DES, 2008). According to the evaluation report:

- The level of ICT infrastructure in schools needs to be improved by equipping not just all schools but all classrooms with an appropriate level of ICT infrastructure.
- Improvements in ICT infrastructure will need to be supported by the introduction of a national ICT technical support and maintenance system for schools as well as by supporting the schools' capacity to regularly upgrade their infrastructure.
- The pedagogical dimension of the ICT advisors' role in an education centre could be more appropriately provided by the relevant school support services, in liaison with the ICT school co-ordinators.
- Support services should give priority to the integration of ICT in teaching and learning by working more closely with schools, and with school ICT co-ordinators, to determine staff training needs and assist in organising appropriate professional development courses for teachers.
- Additional guidance should be provided to schools and teachers of students with special educational needs so that the needs of learners may be matched more appropriately with the technology available.
- There needs to be an increased emphasis on the application of ICT in teaching and learning in teacher education at pre-service, induction and continuing professional development stages.

- Schools and teachers should regularly review the use of ICT in their work, ensuring greater integration of ICT within teaching and learning activities.
- Teachers should exploit the potential of ICT to develop students' skills, including the higher-order skills of problem-solving, synthesis, analysis, and evaluation.
- Principals should encourage and facilitate suitable ICT training for teachers.
- Schools should plan for the maintenance and upgrading of their ICT systems.
- Computer rooms should be used to maximum effect.
- A designated staff member should be responsible for ICT development.
- Teachers should try to integrate ICT more in their planning and preparation for teaching.
- Schools need to ensure that ICT is used to support students with special educational needs in the most effective and appropriate way.
- Schools should exploit the benefits from ICT in their assessment and administrative procedures.

Due to the importance of connectivity in facilitating remote learning being highlighted during the COVID-19 pandemic, and the experience gained, the availability of high-speed broadband services will allow rural schools to benefit from the live streaming of classes and the use of innovative educational tools, enabling equal engagement through distance learning. The Department of Education is delivering guidance on the use of digital technologies in schools, including through national frameworks such as the Digital Learning Framework, and provide Continuous Professional Development programmes for teachers and school leaders.

The Digital Strategy for Schools 2015-2020 sets out ambitious visions for embedding ICT in Irish schools. Based on those visions, the National Council for Curriculum and Assessment (NCCA) is exploring coding in the context of wider primary curriculum developments, in order for Irish students to be part of a generation of "digital natives".

A two-year action research project aimed at supporting small rural schools (DES, 2021). The innovative project aims to encourage small schools to cluster together in local groups, enabling them to collaborate and identify common challenges and trial innovative solutions. This project is being developed by a working group of school management bodies and teachers' unions with the Department for Education, as part of the programme of work of the Primary Education Forum (PEF).

Six project clusters of small schools will be formed, supported by part-time local coordinators sponsored by the education partners, working with a national coordinator under the guidance of a steering group. As an integral part of the project an evaluation will take place and a final report, including analysis of scalability of actions undertaken, will be compiled. Some examples of innovative approaches that may be taken by school clusters in the action research project include:

- Sharing teaching and learning of aspects of the curriculum, including exploring how ICT can link the cluster schools.
- Closer collaboration between schools for the purposes of pupils sharing and experiencing common activities and special educational needs (SEN) provision.
- Considering how best to support maintenance matters such as IT systems/services and assessing and sharing procurement and costs.
- Exploring aspects of school leadership such as a number of schools under the management of one school principal, existing support in the system for teaching principals and the empowerment of middle leadership teams across clusters.

In 2021, the National Broadband Plan (NBP) was key aspect of the government's strategy across areas which include climate, agriculture, education, transport, tourism, sustainable growth, jobs and health, designed to contribute to minimise the existing digital divide between urban and rural communities in Ireland (Department of the Environment, Climate and Communications, 2020). In this framework, the Department of Education's National Broadband Plan, aim at delivering high speed broadband services to all premises in the country, was the largest infrastructural project in rural Ireland since rural electrification. It was thus expected to have a transformative effect in rural communities and most remote parts of the country, ensuring equality of access to on-line services, improving social cohesion and economic growth.

Under the Schools Broadband Programme, 98% of primary schools were provided with some level of broadband connectivity, with all post-primary schools and a number of special schools provided with high-speed symmetrical connectivity of 100 Mbp/s or more. The NBP would help address connectivity issues and bring many benefits to rural primary schools, including improved collaboration and engagement across the school sector, collaboration with other schools, including on the islands, enhancing networking, and opening up capacity for teachers to embed digital technologies in teaching and learning (Government of Ireland, 2021).

National Broadband Ireland (NBI) had initially set a target of connecting schools by the end of 2022 but the roll-out of high-speed broadband to 679 rural primary schools was not completed in time. As a result, NBI sought to fast-track the delivery of broadband to rural schools and according to the new plan the majority of the schools would have wireless connections by the end of April 2023 and the remainder would have fibre connection by the middle of 2024.

Ireland national development programme and related policies are Project Ireland 2040, the National Economic Recovery Plan, the Climate Action Plan. The Project Ireland 2040 in particular, comprises (a) the National Planning Framework (NPF) setting out a spatial strategy to accommodate an anticipated growth of one million in Ireland's population by 2040 in a sustainable and balanced way, with an additional 600,000 people at work; and (b) the National Development Plan (NDP), which will provide infrastructural investment to support the National Planning Framework. One of the ten strategic outcomes of the Project is strengthened rural economies and communities.

To optimise digital connectivity in rural areas, the Government is also delivering the Digital Innovation Programme which is designed to encourage local authority led projects in order to support digital development, that is to promote and support the seven pillars of digital maturity:

- Digital Skills
- Infrastructure
- Innovation and Entrepreneurship
- Digital Economy and Employment
- Digital Services
- Community and Culture
- Digital Transition

The school sector is one of the top priorities of the Irish government as far as innovation of infrastructures in rural areas is concerned, taking into consideration the fact that rural schools make up the majority of the country's primary school sector, with nearly 2,000 out of just over 3,200 of the State's primary schools located in those remote areas. The majority of them are small schools,

employing four teachers or less. As such, they are especially valued in their communities since they provide a vital link to local heritage and history, help sustain rural populations and often act as a link for sports and social activity. For this reason, schools play a wider role in the communities and many of them offer their facilities outside of school hours for different uses and users. Given their importance to their communities, the government is committed to avoiding the closure of small schools and facilitates amalgamations where possible or seeks opportunities to repurpose the school for community benefit.

"Delivering Equality of Opportunity in Schools" (DEIS) plan (DES, 2020) includes schools located in both urban and rural areas and provides additional resources and supports to improve educational outcomes for disadvantaged students, including those in rural areas. The plan sets out the department's vision for education, aiming to provide better opportunities for those in communities at risk of disadvantage and social exclusion.

A number of related initiatives include:

- Access to a range of professional development supports - Teacher Education Section, PDST, CSL
- Funding under School Books Grant Scheme
- Access to School Meals Programme
- Small Schools Policy
- Rural Transport Scheme
- "Gaeltacht Schools" initiative, which aims to preserve and strengthen the Irish language and culture, particularly in rural areas (DES, 2016). The policy responds to the objectives of the Government's 20-Year Strategy for the Irish Language 2010-2030 and the 5-Year Action plan for Irish 2018-2022 to promote, revive and strengthen the use of Irish. The schools which will be recognized as Gaeltacht schools, are required to provide equal opportunities for those in remote areas through online and blended-learning programmes, among others.
- The PEACE PLUS programme (https://www.seupb.eu/peaceplus) is another policy aiming at contributing to a more peaceful, prosperous and stable society in Northern Ireland and the border counties of Ireland. Its strategic objective is to build on the opportunities and address the needs arising from the peace process, with a two-fold aim: to boost economic growth and stimulate social and economic regeneration, and to promote social inclusion, particularly for those at the margins of economic and social life.

3.7 Italy

According to data drawn upon the European Data Journalism Network, in certain areas of Italy the distance between school and the households' places of residence is so far, as well as the lack of or poor transportation in these areas, that make students' access to school very difficult. Due to the territorial organization of Italy, and in many cases the lack of infrastructure and services, access to public transport is not a simple matter. The time required to reach transportation makes mobility very difficult in certain parts of the country and this is one of the causes of the depopulation of entire areas. Difficulty in transportation has also an impact on students, especially in the areas where the school is far from their residence. In areas where the transportation is limited there is a small number of students who attend school and the teaching staff's turnover is high. This affects the quality of teaching

and students' learning experience, whereas the social impact on these provinces is significant too, as human capital is gradually impoverished.

One of the objectives of a modern-day country is to guarantee quality education in every part of its territory, and consequently, also small schools can and must be schools of quality. Small schools are not only those school complexes with a reduced number of students, but also schools characterized by isolation, by difficulties in accessing essential services, and by the progressive depopulation of the areas where they are located. In the outlying regions of Italy, for example in the mountains and on the small islands, schools are organized following the same educational model as schools in large towns and cities. This situation is to be found across vast areas, given that, due to Italy's morphological features, 76.8% of the country consists of mountains and hills. It, therefore, becomes important to think of a different paradigm for these widespread educational situations, focusing on the possibility of realizing learning environments that are qualitatively suitable for the development of inclusive pedagogical and educational objectives. Removing schools from an isolated area often means dooming the latter to abandonment and marginalization, irreparably jeopardizing its capacity for development, obliging young families to find other accommodation, which radically alters their life project.

In case of Italy, the digitalisation of the education system started in the mid-2000s. Interactive whiteboards started being introduced later in classrooms, followed by the digital register in 2012 and the National Plan for School Digitalisation in 2015. More specifically, the Ministry of Education and Merit (MUIR- Ministero dell' Instruzione e del Merito), based on La Buona Scuola (Law 107/2015), an operational vision that reflects the Government's position with respect to the most important innovation challenges of the public system as the innovation of the school system and the opportunities of digital education, and following the Regulation of the European Parliament and the Council of European Union (2021) regarding the contribution to development potential, job creation and economic, social and institutional durability, developed a National Digital School Plan (2015) (Piano Nazionale Scuola Digitale — PNSD).

This plan initiates the use of multiple sources of resources in favour of digital innovation, starting from the resources of the European Structural Funds (PON Education 2014-2020) and from the funds of law 107/2015 (La Buona Scuola, 2015), and intends to develop a successful and effective collaboration between the resources and projects engaged and conducted by the MIUR and those of other Ministries and other government offices, regions and local bodies, while producing a perceptible impact throughout the country, from North to South, in the city and in the province. It responds to the call to build a vision of education in the digital age, through a process that, for schools, is related to the challenges that society faces in interpreting and supporting life-long learning (LLL) and in all contexts of life, formal and non-formal (life-wide). The plan is organized into three intervention areas:

- *Tools:* these actions aim to provide schools with cutting-edge digital technology-based learning environments where innovative teaching techniques can be experimented with and implemented.
- *Skills and Content:* these actions are focused on boosting students' digital skills and promoting the creation of high-quality digital education content.
- *Training:* these actions are meant to facilitate learning and digital innovation through training programmes for school personnel.

The National Digital School Plan is not a simple deployment of technology. No educational step can in fact ignore intensive teacher-student interaction and technology cannot distract itself from this

fundamental "human relationship". According to it, school is understood as an open space for learning and not just a physical place, as well as a platform that puts students in a position to develop the skills for their life. The heart of the plan consists of a vision that describes education in digital era, where there is a path shared of cultural, organizational innovation, social and institutional that wants to give new energy, new connections, new skills to Italian schools. In this vision, "digitalisation" is an enabling tool, connector, and flywheel of change. Digitalisation must therefore be embedded in an idea of innovation, of an open and inclusive school in a society that changes. It responds to the call to build a vision of education in the digital age, through a process that, for schools, is related to the challenges that society as a whole face in interpreting and supporting learning throughout life (life-long) and in all contexts of life, formal and non-formal (life-wide).

Technologies become enabling not only in training and learning, and in administration, but also in the connection of all the environments of the school e.g., classrooms, common areas, laboratory spaces, individual spaces and informal spaces, whilst simultaneously this has repercussions that extend to the territory. The main objectives of the plan are the skills of the students, their learning, their results, and the impact they will have on society as individuals, citizens, and professionals. These objectives will be continually updated in terms of content and methods, to respond to the challenges of a rapidly changing world, which increasingly requires mental agility, transversal skills and an active role for young people. For this, it is necessary that all school staff and not just teachers, should get involved and supported to embrace the necessary challenges of innovation: methodological-didactic challenges for teachers and organizational challenges for school leaders and administrative staff.

The National Digital School Plan is a call for collective effort involving not only those who already run an innovative school, a school of the future that adheres to the students' needs but also those who face challenges, have needs and try to build or intend to build a school of innovation. The national goal is to build a school capable of supporting change and innovation, where digital forms of teaching and learning will have a leading role. At the same time, the relevant stakeholders must follow the right trajectories of innovation, make better use of available resources, and discover new ones.

The 2015 National Digital School Plan (Piano Nazionale Scuola Digitale — PNSD) is currently engaged in a multilevel strategy for the adoption, in all schools, of digital curricula, European reference frameworks on digital competences (DigComp and DigCompEdu), innovative teaching methodologies, innovative learning environments. It also embraces the new scenarios designed by the National Recovery and Resilience Plan and by the European Structural Funds.

The 2025 National Strategy for Innovation Technological and Digitization is based on the premise that the country's digital transformation is anchored in the growth and diffusion of digital culture. It adds that "the epidemic's devastating effects made it increasingly clearer how crucial the use of digital technology is for both social and economic life and education". Within the "2025 Italy" framework, the "2020 Repubblica Digitale", a strategic initiative that "aims to reduce the digital divide and promote education on future technologies", is expanding rapidly and intends to constitute an organic and comprehensive response to the issue of digital skills". As part of the "Repubblica Digitale" initiative, the 2020 National Strategy for Digital Skills and its 2020 Operational Plan were developed to represent an organic and complete response to the issue of digital skills.

The 2020 National Strategy for Digital Skills "Digital Education" represents "computer culture and digital skills" as an "essential requirement for full citizenship". Therefore, it states that both the public and private sectors should invest in developing digital skills, as they are crucial for economic growth,

international competitiveness, the creation of public value, and national prosperity. Additionally, schools, universities, and the media should help combat all forms of digital illiteracy.

The 2020 Operational Plan states that the 2020 National Coalition for Digital Skills is an important resource for achieving the objectives of the digital skills strategy. The National Coalition is made up of a variety of entities, including public entities, third-sector organizations, individuals, and territorial networks, which are working together to achieve the goals of the digital skills strategy. By bringing together a diverse group of stakeholders, the National Coalition can leverage its members' resources and expertise to implement innovative projects aimed at promoting digital skills.

To promote strategies aimed at making the Internet a safer place for younger users, encouraging positive and aware use of it, the Ministry of Education, Universities and Research (MIUR) has launched the "Connected Generations" initiative, supported by the European Commission, to provide schools with a set of didactic tools, of immediate use, including: training activities (online and face-to-face) aimed specifically at school communities (teachers, children, teenagers, parents, educators) who will undertake a dedicated course; information and awareness-raising activities carried out in collaboration with the State Police to explore the issues of safe navigation on the Net. Schools wishing to participate in the initiative can log on to www.generazioniconnesse.it and follow the instructions provided to register for the project. Through a guided process and specific work materials, the schools registered in “Connected Generations” undertake a path to bring out the strengths and weaknesses of the institution itself, on issues related to the Project, by filling in a self-assessment questionnaire available on the website www.generazioniconnesse.it. The questionnaire is a tool which allows the institute to identify its needs, areas for improvement and the actions to be undertaken to arrive at the development of a personalized project called "Plan of Action". This Plan will allow educational institutions to focus their Three-Year Plan of the Educational Offer to define: own approach to issues related to digital skills, online safety and the positive use of digital technologies in teaching; the rules of conduct and procedures for the use of information and communication technologies (ICT) in the school environment, measures for prevention, and measures for the identification and management of problems connected to an unconscious use of digital technologies.

Digital competency frameworks: The 2020 National Strategy for Digital Skills states that Italy adheres to the European Digital Competence Framework for Citizens (DigComp), which is a tool to improve the digital competence of citizens and the 2017 Digital Competence Framework for Educators (DigCompEdu) as “it is necessary to leverage on what has already been achieved, taking into account the limits of an approach exclusively based on self-assessment and moving towards the use of evaluation and qualification systems”. The DigCompEdu, the European digital competence framework for teachers and educators, designed for teachers of all education levels, is aimed to support and encourage the effective use of digital tools to improve and innovate teaching and learning processes. “Teachers’ training can become more effective with the adoption of structured training programmes on digital skills; the European DigCompEdu framework represents a good reference for the measurement of digital skills among teachers and educators”.

The 2020 School Decree No.22 (Decreto Scuola) was enacted along with the 2020 Scuola Solidale Digitale initiative in response to the COVID-19 pandemic. The Ministry of Education set up a web page with a knowledge bank of initiatives for schools. These spanned from mentions of schools’ experiences #lascuolanonsiferma; lists of e-learning platforms (e.g., Google Suite, Facebook, Weschool, etc); resources supporting students with disabilities (Progetto Tris, Dida Labs Prezi, Institute for Learning Technologies ITD, etc.), multimedia content (Rai Scuola, Rai Cultura, Treccani scuola, Fondazione

Reggio, etc.); and webinars. The National Institute for Documentation and Innovation in Educational Research (INDIRE) with other two networks developed Flipped Classroom, a project adopted by 592 schools, through which lessons with associated homework are provided via videos and other digital resources.

Peer learning and collaboration became vital: some teachers mentored colleagues via webinars and on Facebook. The community La scuola per la scuola (The school for the school) has produced over 90 free webinars involving more than 18,000 teachers sharing good practices. In Turin, the association Next-Level records videos of dialogues with teachers and students, which are then published in La Stampa, a national newspaper. Primary and secondary schools also share good practices. In Lombardy, the ITE Tosi of Busto Arsizio hosts events and training initiatives for teachers, with good practices and materials distributed on its website, My different school. In Genoa, the Institute of Educational Technologies (ITD) of the National Research Council supports teachers by giving training on distance teaching with an equity lens.

3.8 Portugal

In Portugal there are national initiatives aiming at the digital transformation of schools but there are no regional or national rural development programmes specifically targeting education. Portugal's Action Plan for Digital Transition considered Digital Education a strategic area of intervention. With the pandemic, a national recovery plan was created, "Plano 21|23 Escola+", which had a strong digital component with a specific action, "+Digital", and a national program, "Digital Capacity Building of Schools".

The "+Digital" specific action was a Digitalization Programme for Schools, including:

- Provision of individual equipment adjusted to the needs of each educational level for use in a learning context and the guarantee of free mobile connectivity for students, teachers and trainers of the National Qualifications System, providing quality Internet access at school, as well as Internet access anywhere.
- Access to quality digital educational resources (for example, school textbooks, activity books, interactive classes, interactive tests, preparation for exams, performance analysis, diagnosis and proposal of learning paths, progress report for guardians and dictionaries).
- Invest in the training of teachers, National Qualifications System trainers and information technology technicians in each school, through a digital teacher training plan, which guarantees the acquisition of the skills necessary for teaching in this new digital context.

The national programme "Digital Capacity Building of Schools", has four (4) axes:

- Digital Training for Teachers

The aim is to train and motivate teachers to develop and improve their digital skills, enable them to confidently use digital technologies and put them at the service of high-quality education and training. Provide training in the digital area to all teachers in primary and secondary education, appropriate to the level of proficiency of teachers, contribute to their professional development and create the conditions for the transversal integration of technologies in the different curricular areas of primary and secondary education, aiming at the continuous improvement of the quality of learning and the innovation and development of the education system, are some of the purposes of the digital training of teachers.

- Digital Development of Schools

To cope with the ongoing digital transformation, schools should prioritize the integration of digital technologies into their routines. To this end, based on an internal reflection, involving the various stakeholders, schools should consider different dimensions and define their own global digital development strategy, building and implementing their Digital Development Action Plan, which should consider three (3) dimensions: a) organizational, b) pedagogical, c) technological and digital.
Developed in a training environment, the Digital Development Action Plan for Schools is an instrument for reflection and changing practices in educational organizations and as a strategic reference to support decision-making and monitoring the work carried out in schools, in digital area. Integrating digital into teachers' professional and pedagogical practices, students' learning practices and the exercise of citizenship should be a reality in all schools, ensuring greater equality and inclusion of citizens and enabling them to be able to use digital technologies. technologies and digital infrastructures, with trust and security.

- Digital Educational Resources

This was promoted within the scope of the Digitalization Program for Schools, one of the measures of the Action Plan for the Digital Transition (PTD), of 21 April 2020 (Council of Ministers Resolution No. 30/2020).

The Digital Textbooks Pilot Project (Projeto-Piloto Manuais Digitais - PPMD) is an initiative that aims to accompany and monitor a progressive dematerialization of textbooks, so that textbooks in digital format can be used by students and teachers in all Portuguese schools. The PPMD is framed in a perspective of transformation and improvement of teaching and learning processes, with the support of digital technologies and educational resources.

Through this project, it is expected that students and teachers will have access to:

- Multiple digital educational resources, in different formats and different typologies (animations, simulations, three-dimensional videos or others).
- The combined provision of textbooks in digital format with a platform where complementary multimedia resources can be accessed.
- Adapted solutions for students who meet specific special needs, enabling the mobilization of support measures and support for learning.

The main objectives of the Digital Textbooks Project are:

- Modernize the education system, providing a paradigm shift in education, towards more student-centred learning, which allows to respond to current and future challenges.
- Improving student learning by offering diversified learning pathways.
- Promote the development of students' skills, namely in terms of multiple literacies, the use of information and communication technologies and "learning to learn".
- Promote the development of digital teacher training.

With regard to the availability of more and varied educational resources, in various digital formats, this could:

- Enhance other teaching and learning dynamics.
- Help create a more interactive and collaborative learning environment, benefiting students with different performances.
- Enable learning experiences that are more flexible and adaptable to students' interests, prior knowledge and learning styles.

- Support formative assessment by providing online assessment tools as well as learning support material.
- Encourage self-directed and self-regulated learning, promoting student autonomy.

There are also other reasons that may favour the use of digital textbooks, such as the fact that pupils have access to a variety of multimedia resources and formats (video, animation, simulation, image, audio), the reduction of the weight of backpacks, as all digital educational resources, from various subjects, can be accessed via computers and/or mobile devices, and also, the fact that they can contribute to a very sharp decrease in resources printed on paper. Paper textbooks are replaced by digital, with access to the digital educational resources available on the platforms (explanatory videos, simulations, multimedia presentations, interactive tests with automatic feedback for autonomous study, among others). The Digital Textbook is available for PC, tablet and smartphone and can be used online or offline, requiring an internet connection to activate and download it. The classes maintain a combination of digital and analogue (notebooks, books, writing material, drawing material, etc.), as what is intended is that digital textbooks and other digital educational resources can enrich learning environments, improving student learning. The transport, storage, times and schedules of use of the student's digital equipment in the classroom (computer and Internet connection hotspot) are defined by the school, according to the available conditions and the specificities of its Educational Project.

The Digital Academy Programme for Parents is an initiative of E-REDES, in partnership with DGE, which gives parents/EE the possibility to attend training actions that promote digital skills and it is intended, therefore, to provide families with basic digital skills that facilitate the school monitoring of their children and that also provide them with integration tools, essential in today's society. In the first phase of the pilot project, which took place in the 2020/2021 school year, 9 School Groupings/Non-Grouped Schools (AE/Ena) participated, in a total of 48 classes, 213 teachers and 1050 students. In the second phase, held in 2021/2022, 24 AE/Ena participated, in a total of 189 classes, 1034 teachers and 3753 students. In the third phase, 2022/2023, the expansion involved 68 AE/Ena, for a total of 575 participating classes, 2254 teachers and 11 437 students. In the current academic year, 2023/2024, the fourth phase of the project begins, with 104 AE/Ena adherent, and it is expected that more than 20,000 students will be involved.

SeguraNet Project, the use of equipment and the Internet also requires the creation of safe and healthy learning environments, which promote safe and critical use of technologies, with students well informed about behaviours appropriate to online environments.

Training for school staff and not only in different areas such as:

- Practice sharing workshops – PPMD dedicated to sharing practices between teachers and Directors of AE/Ena involved in the Pilot Project. The Workshops, developed as a Short-Term Training Action (AFCD), lasting 4 hours, are related to the themes: Active learning methodologies, Flexible learning spaces, Differentiated pedagogical assessment strategies, Use of digital portfolios in an educational context.
- MOOC – Massive Open Online Courses - MOOC “Active learning with the use of digital technologies and textbooks": Course in the E-Learning modality, with all sessions in an asynchronous online format, developed on the NAU Platform. Addresses the themes of PPMD, Active Methodologies, Flexible Spaces and Digital Portfolios, it presents shares of practices carried out by schools participating in the PPMD, since 2020/2021.
- 2023/2024-MOOC “Active Learning and Innovative Teaching in Flexible Learning Spaces”: Course in E-Learning modality, with all sessions in an asynchronous online format,

developed on the NAU Platform. This course is an adaptation, for the national context, of the Active Learning and Innovative Teaching in Flexible Learning Spaces course, organized and launched in 2022 by the European Schoolnet Academy (EUN). It addresses the themes of active Methodologies and flexible Learning Spaces.

- Workshop- "Digital Textbooks using active methodologies": B-learning workshop (the first and last sessions take place in person), accredited by the CCPFC, 50 hours. Organized by DGE, it can be developed by interested CFAEs, through provision of An2.
- Technical Training (Publishers): publishers organize training sessions aimed at teachers, students and parents/EE, at the request of schools, in order to facilitate the use of their digital textbooks and respective platforms.

➢ Digital Education Laboratories (Laboratórios de Educação Digital - LED)

The Digital Education Laboratories (LED), framed in Component C20 of the Recovery and Resilience Plan (PRR), aim at educational and pedagogical innovation, the development of digital skills, as well as the promotion of learning recovery, within the scope of what is defined in Plan 21|23 School+, Axis "Teaching and Learning", domain +Educational Resources, on the specific action "Recover with Digital". The installation of Digital Education Laboratories (LED) in educational establishments with 2nd and 3rd cycles of primary education and/or secondary education should contribute to supporting schools in the integration of digital technologies in the teaching and learning process.

It is intended that LEDs are spaces to support learning, which provide teachers and students with contact and the use of technological resources and equipment, in close articulation with the development of curricular and/or extracurricular activities. With these resources and equipment, students can carry out practical activities, research and organize information, model, manipulate variables, conduct experiments, analyse results, automate processes, create artifacts and solutions, among others, enhancing their learning experience and the development of their skills. To support these pedagogical dynamics, several learning scenarios/guides, among other materials, applicable to various disciplinary and interdisciplinary contexts, will be made available to schools so that teachers can, from these examples, create/adapt their own scenarios and implement them with their students.

3.9 Romania

Romania, as part of the European Commission's 2021-2027 Digital Education Action Plan, has recently allocated €881 million for digitalisation of education as part of its Recovery and Resilience Plan. The funds will be used for improving digital pedagogical skills, educational content, and equipment and resources in accordance with the three (3) priorities of the Digital Education Action Plan:

1. Making better use of digital technology for teaching and learning.

2. Developing relevant digital skills and competences for digital transformation.

3. Improving education systems through better data analysis and foresight.

Higher education institutions in Romania have shown, during the Covid-19 pandemic, a very high capacity to adapt to digital teaching models, but they require additional resources and dedicated training to support this model. Romania has 54 public and 35 private universities located in 24 cities and serving over 550,000 students. Business administration, law, engineering, and industrial technologies are the most common academic programmes.

National tests show poor educational outcomes in schools in Romania, confirming the poor results seen in the tests set by the OECD Programme for International Student Assessment (PISA) 2018. Access to quality education is unequal. Discrepancies in the results of national exams indicate structural inequity in the education system. The impact of socioeconomic status on educational outcomes is high, and equivalent to about 3 years of schooling (i.e., children from higher socioeconomic backgrounds perform at an educational level equivalent to being 3 years older than their peers from lower socioeconomic backgrounds). This perpetuates inequalities from one generation to the next. There is a 39-pp. difference in underachievement rates between students from high socioeconomic backgrounds (10.8% underachievement) and students from low socioeconomic backgrounds (49.8% underachievement). This underachievement gap in Romania is the highest in the EU (EU average: 19.3 pps). Providing education in the language of Romania's national minorities, in particular minorities from disadvantaged backgrounds, is held back by the lack of sufficient resources and staff. Overall, the inequality of the Romanian education system affects future participation in civic and economic life and holds back the development of the labour force.

Romania continued its efforts to improve the quality of education, and in July 2022, a new draft law on education was submitted for public consultation. The new law constitutes the legislative basis for the comprehensive education reform proposed by the 'Educated Romania' programme, which contains modernization proposals across all levels and areas of education. Children's clubs and school sports clubs will become official parts of the school. The draft law plans to gradually integrate students with special educational needs into mainstream education. The intention was for the new law to be implemented by the 2023/2024 school year. The baccalaureate in the new form is expected to be in place in 2027.

Policies to recruit and retain teachers face significant challenges. Romania's ambition to improve educational outcomes rely largely on its existing teaching force, which is relatively young (European Commission, 2022). In recent years, Romania's policy toward teachers has focused on improving the process of recruitment and selection of future teachers, in particular for schools located in rural and economically disadvantaged areas. Reforms and policies were aimed at increasing financial incentives and other measures to make the profession more attractive. Progress on these policies is limited due to the large number of schools in rural areas, which remain unattractive to highly qualified teachers. In addition, neither initial nor continuous teacher education are sufficiently aligned with classroom needs (European Commission, 2022). Throughout 2021-2023, several programmes have been rolled out to support the initial education and professional development of Romania's teachers. The National Recovery and Resilience Plan (NRRP) will contribute to the development of teachers' skills, with a special focus on digital skills. Moreover, Romania's PROF project to professionalize the teaching career will run between 2021 and 2023. Its objective is to ensure professional mentorship throughout a teacher's career by providing training and development for teaching skills for 28 000 teachers. Another programme, 'Motivated teachers in disadvantaged schools', offers training for teachers, support staff, and school managers who need to develop skills and knowledge to be able to work in disadvantaged schools or use atypical teaching methods.

Romania reorganizes its quality-assurance system to improve the performance of its education system. The evaluation of Romania's previous strategic framework for education showed that the performance of its education system had been affected by:

- Frequent changes among top-level decision makers.
- Limited financial resources.

- Outdated legal framework.
- Focus on students from disadvantaged groups.

To improve the quality of the education system, in 2022 the government reorganized the Romanian Agency for Quality Assurance in School Education (ARACIP). This was an important step in implementing the 'Educated Romania' programme. Educational stakeholders should now be better represented in the ARACIP, including pupils, parents, trade unions and the private sector. The ARACIP will also continue periodic evaluations of schools. The ARACIP's process for external evaluation of schools was also reorganized in order to ensure greater efficiency and professionalism.

Significant changes in the organization of the school year and student assessment came into effect beginning on 2022/2023. As part of the new structure, five learning periods of 6-8 weeks were replaced with the traditional semesters, which were considered too long for children. A similar approach is being applied in Belgium and France, where pupils benefit from the shortened learning periods, while the total number of school days remains the same. In addition, a 'Green week' was introduced to raise children's awareness of climate change and the environment. Along with the new school-year structure, Romania decided to implement a new assessment system, which will be better aligned to the learning modules. The objective was to end the current practice of requiring pupils to complete a written assignment every semester ('semester theses') and replace this requirement with standardized evaluations at school level at the beginning and end of the school year. Strengthening the student-assessment system may pave the way for a more evidence-based approach in education reform. Reorganizing the structure of the school year and its assessment system should be followed by: (i) setting up a monitoring system and (ii) developing a new methodology for school evaluation by collecting data and information. These additional changes would make it easier to implement more targeted evidence-based interventions and improve the quality of education in the country.

In 2021, only 50% of adolescents in Romania aged 16-19 had basic or above-basic digital skills. This meant that Romania was ranked last among EU countries for digital skills. The EU average was 69% in this age group having basic or above-basic digital skills, and Romania's performance was below 80% of the EU's 'Digital Decade' target for 2030. Computer science and digital education are an important part of both the 'Educated Romania' programme and Romania's NRRP. The NRRP will finance school laboratories and digital equipment: over 6 000 schools will receive funds under the NRRP for equipping computer labs and online learning. Several measures to promote digital skills have already been implemented with the support of European structural funds. These measures include the CRED project (2017-2022), co-financed by the European Social Fund+, which developed near 6 800 open-access educational resources, facilitating access to teaching materials, free electronic textbooks, and good practices in education. A dedicated database (red.educred.ro) was also set up to collect information about learning and training activities for teachers. In addition, the ROSE project (2015-2024) continues to support investments in electronic equipment provided to secondary schools, in particular disadvantaged schools. Despite these developments, significant gaps remain, including the availability of IT devices and internet connections.

Alignment with the European agenda on the digitization of education the strategy for the digitization of education - S.M.A.R.T.- Edu aims to be anchored in the following European initiatives and programs, which support the role of digital technology in the development of education and training systems:

- The European Commission's communication regarding the new Action Plan for Digital Education 2021-2027 - "Resetting Education and Training for the Digital Age".

- Communication from the European Commission regarding the creation of a European Education Area until 2025.
- The new European Skills Agenda for sustainable competitiveness, social equity and resilience.
- Council recommendation on vocational education and training for sustainable competitiveness, social equity and resilience.
- UNESCO Recommendation on Open Educational Resources.

The Strategic Initiative for Digitization of Education in Romania SMART-Edu 2021-2027 was developed and went into the public consultation stage in 2020. The aim is to reduce digital gaps and increase socio-economic inclusion, by increasing digital skills and internet use among the general population and disadvantaged groups and by organizing training sessions adapted to the needs of each community.

The strategy focuses on the following pillars:

- The development of digital skills at all levels of cross-curricular education, through specialized subjects, through formal and non-formal activities.
- Supporting the initial and continuous digital training of teaching staff.
- Improving the digital infrastructure to reduce connectivity gaps (connecting to the Internet, creating internal networks, providing equipment, providing technical support).
- Stimulating educational units and institutions for educational offers with specializations and digital qualifications suitable for the jobs of the future.
- Creating digital educational tools, encouraging innovation to adapt creative, interactive, student-centred educational solutions.
- Creating attractive Open Educational Resources.
- Developing and multiplying public-private partnerships by participating in digital networks, including with European and international bodies.
- Exchange of best practices on local, national e-learning educational platforms, respectively on international platforms (SELFIE, e-Twinning, s.a.).
- Encouraging and promoting initiatives on online safety, data protection, cyber hygiene, IT ethics.
- Developing the strategic foresight framework for the green economy and adapting to the jobs of the future.

The goals that the strategic initiative proposes are the following:

- 90% of the Romanian population to be digitally literate.
- Training of 82% of the population between the ages of 20 and 34 for emerging jobs, in order to successfully enter the labour market.
- Equipping all educational units in Romania with infrastructure and technological resources adapted to permanent changes.

Digital education is a key goal for quality, accessible and inclusive assessment of teaching and learning, as well as the need for a strategic approach to digital skills acquisition at all levels of education.

3.10 Spain

In Spain there are rural development programmes that are targeted specifically at education. Organic Law 1/1990, of October 3, on the General Organization of the Educational System (LOGSE), establishes the principle of equality in the exercise of the right to education and proclaims among its purposes the achievement of the full development of the student's personality. The same Law also determines the need to develop compensatory action policies in relation to people, groups or territorial areas that are in an unfavourable situation, making express reference to rural schools and the educational compensation actions initiated with Royal Decree 1174/1983, April 27, on Compensatory Education.

The implementation of the stages of Early Childhood Education and Primary Education and the demands that they entail has led the Ministry of Education and Science to adopt the decision to progressively generalize the model of Grouped Rural Schools (Colegios Rurales Agrupados – CRA) as the most appropriate structure to organize schooling in the rural area. Likewise, for adequate support to educational centres, the areas and functions of the different external support services have been reorganized and coordinated.

In recent years, different compensatory measures have been developed that have allowed a qualitative improvement in the specific educational offer for students in rural schools. Among these actions, those aimed at promoting the personal and social development of these students have had special relevance, offering alternatives to the difficulties that arise from belonging to a disadvantaged economic, social, cultural or geographical environment.

This line includes the actions of the Rural Centres for Educational Innovation (CRIE) and others with similar characteristics and objectives, included since its inception in the Compensatory Education Programme. These centres, through the periodic coexistence of students from different areas and rural schools, have had as priority objectives the contribution to the improvement of the process of personal evolution and socialization of students from rural areas, and at the same time, supporting the development of the school curriculum.

Given that actions of this type, among others, are a valid instrument to achieve the levels of attention and quality that rural schools need, in relation to what is stated in article 10.3 of Royal Decree 299/1996, of February 28, organization of actions aimed at compensating inequalities in education, the creation and operation of Rural Educational Innovation Centres was considered important. Rural Educational Innovation Centres were created for the first time with the Order of April 29, 1996.

The Rural Centres for Educational Innovation (CRIE) are public centres located in strategic rural areas (or small municipalities) and that depend on the Ministry of Education.

Its purpose is to complete the educational action carried out in the area's schools by carrying out complementary activities based on innovative methodologies, the use of technologies and different themes (art, robotics, etc.). In addition, they seek to promote interaction between students from dispersed schools by organizing periodic get-togethers.

The CRIE welcomes students who study in the different small and incomplete rural schools in the same region. In recent years, this has changed a little and they also offer their services to educational centres in neighbouring urban areas, especially if they barely have inhabitants or are in a situation of social, economic and cultural exclusion.

The Rural Educational Innovation Centres have as fundamental objectives to:

- Enhance and promote the personal development of students, and especially their socialization abilities.
- Programme and carry out, together with the teachers at rural schools, complementary curricular development activities to those carried out in these schools.
- Collaborate in the development of curricular innovation and teacher training activities that result in an improvement in educational practice in schools in rural areas.
- Promote, in coordination with schools, activities to energize the educational community and encourage parental participation.

The Rural Educational Innovation Centres prepare an Annual Action Plan, following the instructions issued for this purpose by the General Directorate of Pedagogical Renewal, and taking into account the educational and curricular projects of the participating centres. The instructions of the General Directorate of Pedagogical Renewal establish, in addition to the general framework for the development of activities, the calendar of coexistence, the conditions of participation, the selection criteria and the coordination mechanisms necessary to guarantee the participation of students.

The teaching staff of the Rural Centres for Educational Innovation is made up of officials from the teaching staff appointed on secondment for a period of three years, selected by merit-based competition and with the specialization profiles established by the General Directorate of Renewal. The teaching staff is composed of a number between three and six teachers, depending on the characteristics of the area of attention of the Rural Centre for Educational Innovation, the number of students in the centres and the type of activities that in each of these. From among the members of the teaching staff, the Provincial Directorate of the Ministry of Education and Science appoints a director, who exercises the leadership of all the staff assigned to the centre and assumes the tasks inherent to its administration, as well as the functions that are assigned to him. At the end of the academic year, the teaching team prepares the centre's activities report, which will be approved by the Provincial Directorate before being sent to the General Directorate of Pedagogical Renewal.

There are many Rural Centres for Educational Innovation in Spain. For instance, Castilla y León has Rural Educational Innovation Centres in Ávila, Burgos, León, Páramo del Sil (León), Berlanda de Duero (Soria) and Zamora. In those Centres:

- The educational action aimed mainly at Incomplete Early Childhood and Primary Centres and Grouped Rural Centres.
- Through an annual provincial call, rural centres request their participation in the CRIE, establishing a calendar of coexistence (from October to June) for the requesting centres.
- Each coexistence is made up of groups of 50 students of the same educational level from different areas and rural schools.

In addition, for the European Commission, in rural and remote areas, the role of digital education in boosting learning experiences is particularly crucial, making education more accessible and interesting. Through eTwinning, rural schools can enhance their global cooperation, pupils' digital skills and intercultural understanding. Therefore, many Spanish rural schools have integrated eTwinning as part of their daily routine.

There are also support programs that are targeted at broadband for rural areas in general terms, but not specifically schools, such as the so-called "Programa Único", and support programs that are targeted at ICT for schools, such as the national "Escuelas conectadas" (Connected Schools) Program -

Red.es, as a result of collaboration with the education authorities, is developing the Connected Schools initiative, which was launched in 2015 to extend and consolidate the use of Information and Communication Technologies (ICT) in the Spanish education system, in accordance with the objectives of the Digital Culture in School Plan of the Digital Agenda for Spain and of the Report of the Commission for the Reform of Public Administrations. The Connected Schools initiative equips schools with ultra-fast broadband internet access as well as high-capacity internal wireless networks. It enables students and teachers in schools to make widespread use of ICT and digital content in teaching-learning processes. The agreement is co-financed by the European Regional Development Fund (ERDF).

Furthermore, E-Dixgal is a digital education initiative focused on integrating new technologies in all educational processes in Galicia, an autonomous community of Spain. In that quite mountainous area, in the current 2023/2024 academic year, more than 60,000 students from 600 schools are benefiting from this initiative. The students, teachers and families participating in this initiative have a series of elements that allow them to develop digital teaching: digital classrooms, equipment for students and teachers for personal use, a virtual learning environment, a variety of digital content, training programs, intercommunication and collaboration tools.

Digital Spain 2026 and the Recovery, Transformation and Resilience Plan approved in July 2021 of the Recovery Plan by the European institutions has given the definitive momentum to the digital agenda, thanks to the significant financial stimulus of the European Next Generation EU funds for the modernisation of the productive fabric.

Structured in 10 policy levers, 30 components and more than 200 measures, the Recovery Plan incorporates an important agenda of investments and structural reforms, which are interrelated and feed back to achieve four cross-cutting objectives: to move towards a greener, more digital, more socially and territorially cohesive and more egalitarian Spain. To this end, it is structured around four main axes:

- Ecological Transition
- Digital Transformation
- Social and territorial coherence
- Gender Equality

4. Conclusion

According to the impact assessment, as presented in D7.1, on the basis the six objectives of the LfE in order to investigate the 'distance travelled' in terms of the digital and innovation transformation of the LfE schools, it seems that the results of the project implementation are in absolute congruence with the current national and European policies.

In more detail, as far as **Objective 1: "Connect Students"** is concerned, evidence shows that there is substantial increase in Active Student Engagement, in student teacher relationship and in Student Voice. Factors, such as increased access to digital tools, increased outlets for creativity, more inclusiveness and increased opportunities for class participation have probably led to the perception among students that they have a bigger role to play in their classrooms than before the project. The themes of increased student motivation and increased collaboration occur repeatedly, and students, when empowered to use the new technology, they quickly took on more leadership roles in the classroom, often showing teachers newly discovered functions and use cases, or coming up with new projects. The role of teachers is seen as facilitators and learners themselves, embracing new ways of using technology. This extends to students becoming leaders outside of the school, teaching parents and siblings to use the new technology.

Many schools have implemented collaborative tools such as interactive whiteboards to foster collaboration among students and teachers. The use of such technology has seen increases in class involvement in activities such as brainstorming, and digital presentations. The interactive whiteboards enable students to share their work with the class through their own device and receive live feedback from teachers. Teachers also spoke about the observable effects of the new technology on digital literacy within the classroom, highlighting the efforts of many schools within the project to enhance students' digital abilities and integrate technology into their learning journey. As a result, schools seem to champion the promotion of digital skills to prepare students for the digital age. Students are actively involved in the process, benefiting from a dual perspective as learners and teachers.

The project has also connected students to the wider community since all schools used their newfound technology to strengthen ties between the school and the community, through teaching children about the local area, inviting community members to technology demonstrations, setting up evening classes for parents to learn how to use the new technology and creating collaborative learning environments. The emphasis is on fostering collaboration among teachers, students, parents, and the wider community to create a positive impact and promote educational innovation. Schools are becoming community hubs for both learning and technology, further connecting students to stakeholders beyond the doors of the school.

Similarly to students, positive trends were also seen in terms of **teacher development** (Objective 2) since evidence show significant increase in teacher development, teacher self-efficacy, technology use, positive view of technology and confidence in technology. The evidence suggests a change in mindset among teachers in general about their awareness, approach to and adoption of technology as a tool for learning, as well as an increase in the Professional level, indicating that schools integrated many of the aspects of the LfE proposed approach.

This also indicates that teachers and school staff engaged in the open schooling approach, their engagement in innovation and e-maturity approaches by being involved or/and scheduled their capacity building activities in order to be supported in this transformation journey.

Teachers across different counties have enthusiastically embraced technology integration in their schools with the supportive school community playing a pivotal role in encouraging teachers to embrace technology, resulting in increased creativity and motivation among both educators and students.

The use of the various platforms, educational material, online learning resources, and teacher forums during, and in some cases because of the project had also a positive impact on teachers' work. The new technology has facilitated new learning experiences, increased access to information, language translation, engaging student projects and increased use of classroom management systems. The integration of technology has **made teaching and learning more efficient, saving time** (objective 3) and reducing paper usage. It has also provided teachers with greater flexibility and control in the classroom while having mobile devices in the classroom has also changed the dynamic of the class.

The technology has also afforded teachers increased access to resources that provide educational material, online learning resources, and teacher forums for sharing ideas. The use of technology has improved students' learning experiences by enabling independent research, online safety awareness, and engaging assignments. Additionally, technology has facilitated language translation and access to information, benefiting students' careers. Improved Wi-Fi connectivity and access to online resources have particularly enhanced teaching and learning in subjects like math and foreign language. The increase in **access to digital tools** (objective 4) is shown prominently in the increased use of technology as well as in the improvement shown in their digital literacy.

Teachers have adopted and embraced new teaching approaches. Increase in facilitative learning underscores the positive impact of technology on students' motivation and learning. We see teachers becoming facilitators and learners who embrace technology, empowering students to take leadership roles. Recognizing students as digital natives, teachers empower students to take the lead in utilizing technology, allowing them to share their knowledge not only with classmates and teachers but also with their parents, making learning purposeful. As teachers seek guidance from students on technology related tasks, a transformative and collaborative learning environment emerges.

Teachers have shown significant increases in self-efficacy, resulting in **better quality of teaching** (objective 5), combing the use of technology with more traditional learning methods, and adopting a holistic approach to the use of technology, which in turn exhibits a very mature approach to digital transformation.

Teachers described the LfE project as playing a crucial role in improving teacher training and collaboration across various domains such as authentic learning and assessment, virtual reality, robotics and augmented reality. Diverse training sessions, covering areas such as digital drawing, and Chromebook and Clevertouch use, have collectively led to significant digital and professional development among teachers. New equipment has sparked teacher enthusiasm, showcasing its potential to diversify classes and enhance teaching. More cohesive and collaborative structures put in place across schools has resulted in a change of structure which is expected to increase **professional support opportunities** (objective 6) for teachers and other stakeholders within the community.

Training sessions involving multiple schools, makerspaces and libraries were found to be mutually beneficial for host institutions and participants, whereas the community portal made available to teachers has given them a window into the practices of other teachers. Professional support of the

national coordinators in each country has also increased the awareness for schools of other funding opportunities at national and international level.

The Rural Schools Innovation Roadmap, as the key outcome of the project, by offering a concrete overview of what is known so far about the implementation of school innovation and through incorporating these insights into the proposed transformation journey, provides a compelling narrative of the success that has been achieved in relation to the realisation of the national and European objectives pervading the relevant policies described above.

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