R4: Collection of case studies and policy recommendations

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1. Introduction

The Collection of case studies and policy recommendations is the final deliverable of the Digilead project, which summarizes many lessons learned and shows a way forward through the development and testing of the Digilead Strategy Toolkit, the Digilead training course, and the Digilead eLearning Platform as well as the many opportunities the partners had to discuss the success stories and challenges European school leaders face. The Digilead consortium partners have collected inspiring practices and performed focus groups with school leadership teams in their countries. The consortium partners come from Bulgaria, Cyprus, Greece, Portugal, and the Netherlands, with the European School Heads Association also bringing the voices of school leaders from many other European countries.

Through this document, the consortium presents ideas that already work and recommends to policymakers on European, EU, national, regional, and local levels how to boost and support school leaders in the successful digital transformation of schools in Europe. While the national realities often differ regarding the political environment, education policy, and available resources, the challenges often remain the same. They can all benefit from ideas developed from the hard-learned lessons by their peers.

2. Good examples of implementations

Good examples and implementations from Cyprus

Participation of teaching staff in distance learning

The use of MS Teams in the learning process. Initiatives for training staff in the philosophy of distance learning course design.

Primary objectives and goals: Training, Checking the school's infrastructure needs, Creating material for supporting the teaching and learning process.

Implementation start period: during the COVID measures period (between March 2020 and the time when the last COVID-related restriction was eliminated in the school)

Key stakeholders involved: school leaders and teachers.

Role of school leaders in the practice: Organizing the training

Main positive outcomes of the practice: Exploiting digital educational content to empower the educational process with audiovisual material. Use of reference texts, images, diagrams, maps, videos, audio and video clips, audio material, simulations, interactive applications, diagrams, maps, diagrams, charts, maps, audio material, simulations, interactive applications

Challenges encountered: Some teachers faced difficulties adapting to new technologies and digital content creation tools, slowing down the training process. Finding high-quality digital educational content that aligns with the curriculum and engages students effectively was challenging. Monitoring student progress and assessing their learning in a remote setting presented difficulties, as traditional methods like in-person exams were not feasible. Keeping students engaged and motivated in a remote learning environment was a constant challenge.

Measurable outcomes: Some teachers faced difficulties adapting to new technologies and digital content creation tools, slowing the training process. Finding high-quality digital educational content that aligns with the curriculum and engages students effectively was challenging. Monitoring student progress and assessing their learning in a remote setting presented difficulties, as traditional methods like in-person exams were not feasible. Keeping students engaged and motivated in a remote learning environment was a constant challenge.

Lessons learned: Comprehensive training for teachers on digital tools and content creation is crucial for successful implementation. Schools should invest in strategies to engage students in a virtual environment, such as interactive content and collaborative projects. Developing new assessment and evaluation methods suitable for remote learning is necessary.

Recommendations

- Allocate resources for ongoing teacher training and support in digital pedagogy.

- Infrastructure Check: Regularly assess and upgrade the school's technological infrastructure to meet evolving needs.

- Encourage teachers to collaborate and share best practices in using digital content effectively.

- Establish robust data security and privacy measures to protect sensitive information.

- Continuously gather feedback from teachers, students, and parents to improve the distance learning experience. Involve parents and the community in supporting distance learning efforts, including providing resources and a conducive home environment.

Digital transformation of my school

The leader gives opportunities to the teachers to increase their knowledge about digital tools they can use in the classroom. Through an Erasmus KA122 project, teachers can travel in Europe and attend seminars about this subject. They also visit other European schools for job shadowing to observe good practices for using ICT in the classroom. When traveling teachers return to school, they share their knowledge and experience with their colleagues. They organize lessons in which they try to implement the new knowledge. Colleagues observe the lessons, and discussions follow. The leader is supportive of this process.

Primary objectives and goals: Increase ICT equipment and improve the school's infrastructure. Support the teaching staff to use ICT in the teaching and learning process. Develop students' and educators' digital literacy skills in today's technology-enabled world.

Implementation start period: pre-COVID measures period (before 2020 March)

Key stakeholders involved: school leaders, teachers, students.

Role of school leaders in the practice: As mentioned above, leaders are the key people for the school's digital transformation. They develop the digital strategy for the school along with the teachers. They acquire financial support from external stakeholders to increase ICT equipment and improve the school's infrastructure. They support teachers to participate in Erasmus mobilities and other appropriate training programs to adopt and use advanced technologies in their teaching. They discuss the advantages and disadvantages of teaching and learning with digital technologies.

Main positive outcomes of the practice: Teachers feel more confident now to use ICT in their teaching. They share good practices, and pupils enjoy the lessons more.

Challenges encountered: Sometimes, convincing stakeholders to offer the money needed is difficult. Moreover, teachers can be hesitant to challenge themselves and apply new methods to their teaching.

Lessons learned: Schools must adapt to the new status quo that ICT has brought to today's world.

Recommendations: This generation of students is no stranger to technology, and it is only logical that teaching methods using it will be more effective. Adapting to these new challenges is necessary.

Good examples and implementations from Greece

- Online courses during the COVID-19 pandemic.

All teachers and students had to carry out the school lessons online through the Webex platform. This is made possible as there was already a platform on which the teachers, classes, and students were organized for each school. In a short time, the conduct of the courses became routine. In addition, other digital tools began to create more attractive teaching experiences. Peer learning was useful and successful for both the student and teacher groups.

- Asynchronous platforms were used to enhance the educational process:
  - e-me
  - e-class

  These platforms existed but had not been used. During the pandemic, teachers and students were forced to use them in order to upload assignments and study material. The synchronous platforms framed the process of online courses.

- A few schools used others digital tools, such as:
  - Padlet
  - Kahoot
  - Google forms/quiz
  - Google docs
  - wordwall

  These tools were used to enhance the educational process to attract students' interest and attention. However, it must be pointed out that only a few teachers could use these tools.

- eTwinning projects
  Students learned to use the online platform and different tools of eTwinning. They planned online meetings with peers from other countries and exchanged experiences. This experience developed new friendships, and students felt less isolated.

- Robotics.
  During e-twinning programs, students from different countries communicated online and tried to move the robot. In this way, students got familiar with robotics, actively participated, and were enthusiastic, and finally, it was an opportunity for extensive use of the English Language.
  Initiatives like this are more and more needed in education.

Good examples and implementations from The Netherlands

Teacher support by creating boundaries

If a teacher gets the impression from the subject or first lines of the email that the email is angry or aggressive, they have to delete it and call the parents right away, tell them they have not read the email, but that they got the impression from the start that it was angry and that they would like to schedule a meeting to talk about it. Teachers reported that this already took the first pressure off the emotions of parents, and often the conversation itself was not nearly as heated. It also meant that it did not 'drag on' for the teachers.

Another example of keeping boundaries, is to use the 'delayed sending' function. School leaders can tell teachers that they are not expected to work outside of working hours, however in case they do, or parents decide to send late emails, a school can make it a policy to 'delay sending' the email to within office hours.

Conversations on cyberbullying

A school with many issues around cyberbullying organized a meeting for students where they showed messages that were previously sent in a student group chat with the names blurred and asked the students what they thought of the messages. Schools reported that it made a massive impact on the 'bully' when all the classmates said that a certain message was 'not okay'.

Good examples and implementations from Portugal

WebTV AELE

WebTV AELE is a project designed to provide informative updates, engaging news, and highlights to Lousada community of schools. To achieve this, we've installed televisions in six of our schools, broadcasting pertinent information and activities. This includes school updates, events organized by the municipality, enriched with text, images, and videos for the community to witness these moments. Our content is continually refreshed, enabling students to access news at their convenience and check if their activities have been featured. This content is managed through a dedicated platform. In addition to the mentioned information, we also provide weather forecasts, real-time updates, and current news from RTP (Portuguese Radio TV) through RSS feeds. This begun after the post-COVID measures period (commencing after the school's last COVID-related restriction has been lifted).

Objective/Goal: To disseminate and share information and activities within the school community.

Key stakeholders involved: school leaders, teachers, students, parents, local government.

Role of School Leaders: To share the information with the other schools. This collaborative approach not only fosters a sense of unity but also promotes the exchange of best practices and innovative ideas.

Outcomes: The primary outcome of this internal school TV initiative is the heightened engagement of both teachers and students. Through this initiative, we have witnessed an increase in their participation and involvement in various aspects of school life. Teachers are more enthusiastic about

utilizing the TV platform to share educational content and news, while students are actively engaged in watching, participating, and staying informed about school activities. This enhanced engagement not only enriches the overall learning experience but also fosters a stronger sense of community within the school. It encourages collaboration, communication, and a shared commitment to making the most of this innovative educational resource.

Challenge: One of the central challenges we face is how to effectively motivate and support teachers in sharing their educational activities and experiences. This task involves not only ensuring that teachers feel confident and empowered to contribute but also creating a system that facilitates the seamless dissemination of their valuable insights and practices.

Recommendations:

- Regularly update the information.

- Prioritize the dissemination of images and videos.

- Consider using 65-inch TVs for effective broadcasting.

Interdisciplinary Plan at Mário Fonseca group of schools

The process of interdisciplinary collaboration involves the exploration and development of Essential Learning Outcomes common to various subjects. It aims to optimize teaching time by delving into shared content from different perspectives and applications. Following the successful experiences of the previous academic year, several proposals are already outlined, with the possibility of creating additional ones. This effort aligns with the objectives of the MAIA project, which will be implemented in the current academic year. Coordinating this initiative is centralized under the role of the Class directors. To document this entire process, a dedicated platform has been created for this purpose. This initiative started before COVID-19 pandemic.

Objective/Goal: Collaborative work among teachers; Collaborative work between teachers and quality learning;

Key stakeholders involved: school leaders, teachers, students, local government.

Role of School Leaders: facilitated and encouraged the group to develop and implement the project.

Outcomes: The outcomes of this process of interdisciplinary collaboration are multifaceted and yield significant benefits for both educators and students. One of the primary outcomes is the enhancement of collaborative work among teachers. By working together across different subjects, educators foster stronger professional relationships, share innovative teaching methods, and gain a broader perspective on pedagogy. This collaboration promotes a culture of continuous improvement and mutual support among the teaching staff.

Moreover, the collaborative approach also translates into improved learning outcomes for students. When educators coordinate their efforts to explore common learning objectives, students benefit from a more cohesive and integrated educational experience. They can connect ideas across various subjects, enhancing their critical thinking skills, problem-solving abilities, and comprehension of complex topics. As a result, students not only acquire knowledge but also develop the capacity to apply it in a more holistic and meaningful manner.

Ultimately, interdisciplinary collaboration leads to higher-quality learning experiences for students, providing a well-rounded education that prepares them to navigate the interconnected world of knowledge effectively.

Challenge: The challenge of sharing and working collaboratively across disciplines can be multifaceted. It involves overcoming institutional and logistical barriers that can hinder effective communication and cooperation. These difficulties can include conflicting schedules among educators, differences in teaching methodologies.

Recommendations: We have the quarterly reports available for analysis, allowing us to track the project's progress. Collaborative efforts are pivotal in advancing the quality of learning.

Link: https://articulardmf.wixsite.com/meusite

Connecting schools to municipality IT services

In late 2019, the IT department of the Municipality of Lousada established agreements with the Ministry of Education, particularly with the Internet Service Provider responsible for elementary schools and kindergartens. These agreements were aimed at enhancing connectivity between municipal services and the elementary schools under its administrative jurisdiction.

Objective/Goal:The objective was to establish a robust communication infrastructure that could serve a dual purpose. Firstly, it needed to facilitate a swift and efficient response from the municipal IT team to the IT support requirements of primary schools and kindergartens. This responsiveness was crucial to ensure that any technical issues or challenges faced by these educational institutions could be promptly addressed, minimizing disruptions to teaching and administrative processes. Secondly, the communication infrastructure also aimed to meet the needs of operational personnel, particularly in terms of coordination and human resources management. This included streamlining communication channels, enhancing coordination efforts, and improving the management of human resources within the municipality. The goal was to create a system that not only promoted IT support but also facilitated effective collaboration and resource allocation, ultimately enhancing the overall efficiency and effectiveness of municipal services.

Key stakeholders involved: school leaders, local government.

Outcomes: The increase of the proximity between the IT users and the IT support team.

Challenge: In addition to the technical difficulties associated with computer networks, the challenge of involving several organizations of different areas and all the bureaucracy involved were the main challenges encountered.

Recommendations: A good infrastructure, the proximity of an IT support team and the involvement of local authorities may be key factors in a successful digital transformation. Be aware that digital transformation initiatives are only possible when a solid foundation is translated into a capable network infrastructure, adequate IT resources and people who share the same vision.

Good examples and implementations from Bulgaria

The digital transformation in Bulgarian schools is still at an initial phase. The government invests in infrastructure, digital content and training of teachers and school leaders; however, the top-down approach does not correspond to the school specificity and the real needs of schools and their staff. Many schools miss a strategic approach for digitalization, and many of the identified best practices and results are due to individuals' initiatives, both of directors and teachers. While there is funding, available through various national programmes, its utilisation depends on the availability of project management skills of the pedagogical staff.

Recommendations for practitioners:
• The Leadership role in Implementation Strategies

School leaders play a crucial role for providing necessary plans, activities and resources for successful digital transformation, adapted to every school' specifics. Therefore, they have to provide a creative environment and effective communication, leading their teams to achieve challenging goals for implementing technological advancements in all school processes.
The school leader should carefully plan and manage digital implementation, properly communicating with teachers. A change in the environment can only happen when new technologies are used, and teachers improve their qualifications, taking specialized training for using electronic tools in their everyday lecturing practice.
• Effective Technology Use

Digital tools and resources should be used since the primary schools as the early years are crucial for shaping fundamental cognitive skills in pupils, fostering individual qualities and forming initial habits of information literacy. The digital tools and resources, when aligned with age-appropriate content and curriculum, offer a platform for tailored lessons, promoting interactive learning, work in teams and active participation from both students and teachers.

Recommendations for Policy makers

Access to Funding and Resources
• Adequate Funding: Allocation of sufficient resources for technology adoption.
• Equitable Access: Policies to ensure all schools, regardless of size or location, have access to necessary resources.
• Infrastructure Investment: Policies that promote robust digital infrastructure and high-speed internet.
Policy Framework
• Data Privacy and Security: Policies to safeguard student data and privacy.
• Digital Literacy Curriculum: Digital literacy education integration into the curriculum.
• Open Educational Resources: Policies supporting the use of open educational resources (OER) to reduce costs.
Collaboration
• Public-Private Partnerships: Suggest policies to foster collaboration between educational institutions and industry.

3. Recommendations for practitioners

School leaders have a crucial role in supporting the digital transformations of schools. The Digilead project aims to guide this challenging task with the Digilead Strategy Toolkit, the Digilead training course, and the Digilead eLearning Platform. The following general recommendations for European school leaders for successful digital school transformation are all discussed in detail in the Digilead project outputs.

Have a plan!

Many schools have been forced to digitalize during the school closure period without time for preparation and planning; however, now, the opportunity is there to take a step back and create a plan. Implementing the digital transformation of a school without a well-thought-out plan can lead to inefficiencies, resistance, and potential failures. Having a comprehensive plan is essential for several reasons. Firstly, **a plan** provides a **strategic vision** for how digital technologies will be integrated into the educational environment, aligning the implementation with the broader mission and image of the school. It also ensures e**ffective resource allocation**, including budgeting for technology purchases, professional development, infrastructure improvements, and ongoing support.

Moreover, a plan establishes a **timeline** and identifies **milestones** for implementing digital transformation, allowing for a gradual adoption of technology, and ensuring that critical milestones are met on time. Planning facilitates **stakeholder engagement**, including **teachers, students, parents, and the community.** It provides a framework for involving these stakeholders in decision-making, ensuring their input is considered, and addressing any concerns or resistance. Digital transformation often requires educators to acquire new skills, and a well-structured plan includes **provisions for professional development,** ensuring that teachers are adequately trained to integrate technology into their teaching methods effectively.

Additionally, planning is crucial for assessing the **school's infrastructure readiness,** identifying necessary improvements, and outlining the steps needed to create a robust digital environment. The responsibility to protect sensitive data comes with the increasing use of digital tools. A plan includes **strategies for addressing data security and privacy concerns**, outlining policies and practices to safeguard information, and complying with relevant regulations. **Effective communication and change management** are also integral components of a well-developed plan, with strategies for communicating the goals and benefits of digital transformation to the school community, managing expectations, and addressing any resistance to change.

Furthermore, a plan establishes mechanisms for **ongoing evaluation and feedback,** allowing school leaders to assess the digital transformation's effectiveness, identify improvement areas, and adjust the plan based on real-world experiences and evolving needs. This proactive approach also considers potential challenges or setbacks during implementation, minimizing disruptions and ensuring a more resilient implementation process.

Cooperation with stakeholders

The following groups need to be considered as **stakeholders** in a school's **digital transformation**: **teaching** and non-teaching school **staff**, **students**, **families** of students, **policymakers**, **tech industry**. A school **leader** needs to cooperate with **stakeholders** when planning the **digital transformation** of a school for several **crucial reasons**. First and foremost, **stakeholders** bring diverse perspectives and expertise to the table. Involving them in the planning process ensures that decisions are well-informed and consider a range of viewpoints. This collaborative approach leads to more comprehensive and effective strategies for integrating **technology** into the **educational environment**. Furthermore, engaging **stakeholders** in planning helps build a sense of ownership and commitment to the **digital transformation** initiative. When individuals or groups feel their input is valued, they are more likely to support and actively participate in the implementation, fostering a positive and cooperative atmosphere throughout the school community. Cooperation with **stakeholders** is essential for aligning **digital transformation** efforts with the school's **educational goals** and mission. It ensures that **technology integration** supports the overall vision of the school and its commitment to **student success**. This alignment is crucial for creating a cohesive and purposeful approach to the use of **technology** in **education**. **Stakeholders** can also contribute valuable financial, technical, or human resources to support the **digital transformation**. By involving them early in the planning process, school **leaders** can identify potential sources of support and leverage available resources effectively, contributing to the success and sustainability of the initiative. Moreover, collaboration with **stakeholders** helps address concerns and resistance during the **digital transformation** process. **Stakeholders** may have varying perspectives or reservations about the changes, and involving them in the planning stage provides an opportunity to address these concerns, communicate the benefits of **digital transformation**, and create strategies for overcoming resistance. Different **stakeholders**, including **teachers**, **parents**, **students**, and **community members**, may have different needs and expectations regarding the **digital transformation**. Cooperating with them allows school **leaders** to customize plans, ensuring that the initiative meets the specific requirements of various **stakeholders** and creating a more inclusive and supportive implementation process. In the context of professional development, which is crucial for successful **technology integration**, collaboration with **teachers** and **staff** is essential. Involving them in the planning process helps identify their professional development needs, ensuring that educators are adequately trained to integrate **technology** effectively into the curriculum. Finally, collaboration with various **community stakeholders**, such as **parents**, **local businesses**, and **community organizations**, is essential because schools are integral to their communities. Involving these **stakeholders** helps create a broader support network for the **digital transformation** initiative and fosters a sense of unity and shared responsibility for the school's success.

Clear Policies

Creating **clear policies** is essential when planning the **digital transformation** of a school for several reasons. First and foremost, **clear policies** provide explicit guidance and direction for all **stakeholders** involved in the **digital transformation** process. They help set expectations and establish a framework for decision-making and implementation. These **policies** also play a crucial role in ensuring consistency in decision-making across different departments, grade levels, and classrooms, promoting fairness and equity throughout the school. Moreover, schools are subject to various legal and regulatory requirements, especially regarding **technology use**, data privacy, and security. **Clear policies** help

ensure the school follows these laws, reducing the risk of legal issues. Additionally, **policies** serve as a tool for **risk management**, allowing schools to identify potential risks associated with **digital transformation** and establish protocols to mitigate those risks effectively. **Clear guidelines** have become instrumental in **technology**, where data security and privacy are paramount. They outline expectations and procedures for handling sensitive information and protecting students, staff, and the school community from potential breaches and unauthorized access. Furthermore, **policies** assist in effective **resource allocation** by providing a roadmap for budgeting and resource distribution, covering areas such as **technology purchases**, **professional development**, and ongoing support. **Communication** is vital in any transformative process. **Policies** serve as a communication tool, ensuring that all **stakeholders** know the expectations and guidelines related to **digital transformation**. This transparency builds trust and helps manage expectations within the school community. Additionally, **policies** can outline expectations for **professional development** related to **technology integration**, fostering a culture of continuous learning among educators. Well-defined procedures allow for adaptability and scalability, as they can be updated to address new challenges and opportunities presented by evolving **technology**. This adaptability ensures that the school's **digital strategy** remains relevant and practical. Importantly, **policies** provide a basis for **accountability**. When expectations are clearly outlined, it becomes easier to assess whether individuals or departments are meeting those expectations, contributing to evaluating the success of the **digital transformation** initiative. Lastly, involving the school community in creating **policies**, including parents and students, ensures that the guidelines reflect the values and expectations of the broader community. This collaborative approach fosters a sense of ownership and engagement, aligning the **digital transformation** initiative with the collective vision and aspirations of the school community.

Risk mitigation approach

A **school leader** must adopt a **risk mitigation approach** rather than violating **child rights** as described in the **United Nations Convention on the Rights of the Child** in the name of **security** when planning a school's **digital transformation**. **School leaders** have a **legal** and **ethical responsibility** to protect the rights and well-being of **students**, and violating **child rights**, even in the name of **security**, can lead to **legal consequences** and damage the school's reputation. A **risk mitigation approach** allows **school leaders** to balance **security** with protecting **privacy**. It involves implementing measures that ensure **student safety** without compromising their rights to **privacy** and **freedom**. Respecting **children's rights** builds trust and confidence within the **school community**. **Parents**, **students**, and **staff** are more likely to support **digital transformation initiatives** when they feel assured that **children's rights** are prioritized and protected. Fostering a positive **learning environment** is essential for **student development**, and violating **child rights** in the name of **security** can create an atmosphere of mistrust and surveillance, negatively impacting the overall **educational experience** for **students**.

Many **schools** prioritize values such as **respect**, **dignity**, and **inclusivity**, and a **risk mitigation approach** aligns with these values by ensuring that **security measures** are implemented in a way that respects the rights and dignity of every **student**. If not carefully implemented, specific **security measures** can lead to **discrimination** or **stigmatization** of groups of **students**. A **risk mitigation approach** considers potential negative impacts and strives to create a **secure environment** without unfairly targeting any **student demographic**. Prioritizing **child rights** through a **risk mitigation approach** contributes to the long-term trustworthiness of the **school**, as **parents** and **students** are more likely to engage positively

with the **school's digital transformation** when they feel confident that their rights are safeguarded. **Schools** must comply with various **regulations** related to **child rights**, **data privacy**, and **security**. A **risk mitigation approach** ensures that the **school** is compliant with these **regulations**, avoiding **legal issues** and potential fines associated with violations.

Digital transformation in **education** should enhance the **learning experience**, and a **risk mitigation approach** focuses on implementing **security measures** that do not hinder the **educational effectiveness** of **technology integration**, ensuring that **students** can benefit from innovative **learning tools** and **resources**. **Schools** also contribute to developing **responsible digital citizenship** among **students** by respecting **children's rights**. Teaching **students** about their rights and the **ethical use of technology** is essential to their **digital literacy education**. In conclusion, a **risk mitigation approach** is essential for **school leaders** planning **digital transformation**, as it prioritizes **child rights**, protects **privacy**, and fosters a positive and **secure learning environment**. This approach ensures that **security measures** are implemented thoughtfully and aligned with the **school's values** and **legal obligations**.

Policy Recommendations

EU Level

Supporting international research on all aspects of digitalization

Supporting international research on all aspects of **digitalization**. **Support international research** on **digitalization** for informed **policies** affecting **schools**. **Collaborating globally** is essential for understanding **trends**, sharing best practices, and addressing challenges in **education technology**. This approach enables **policymakers** to access cutting-edge knowledge, ensuring **policies** align with the latest research findings. Collaboration also facilitates the development of global **standards** and **ethical frameworks** for data use in **schools**, promoting responsible practices. **Policymakers** can contribute to and benefit from international initiatives, ensuring that **policies** support **inclusive** and **ethical digital education**. Connecting globally helps **policymakers** anticipate and respond to emerging **technologies**, fostering **innovation** in **school environments**. Overall, **supporting international research** is crucial for shaping effective and forward-thinking **policies** in the dynamic landscape of **digital education**.

Supporting the development of new methods

Support the development of new methods in **digitalization** to ensure **schools** benefit from the latest innovations. This proactive approach fosters **global collaboration**, allowing **policymakers** to contribute to and learn from **international initiatives**. It also addresses unique **educational challenges**, promoting **adaptability** and ensuring **European schools** remain at the forefront of **digital learning**.

Supporting the upscaling of methods that are proven to be working well

Supporting the upscaling of methods that are proven to be working well Support the upscaling of successful **digital education methods** for widespread improvement. This approach fosters **collaboration**, **dissemination**, and further investing in **proven practices** across **European schools** to ensure sustainability and responsibly use limited financial and human resources. **Policymakers** can leverage successful models, maximizing impact and creating a cohesive, high-quality **digital education experience**. **Supporting the upscaling** of effective methods is essential for **innovation** and **improvement** in **European education**.

National Level

Complete update of pre-and in-service teacher training

Urgently update pre-and in-service **teacher training** for successful school **digital transformation**. The fast-paced evolution of technology demands that **educators** possess the latest skills to integrate digital tools into teaching effectively. Regularly refreshed **training** ensures **teachers** can navigate new technologies, fostering confidence and proficiency. This proactive approach also addresses the **digital divide** among students, promoting equitable access to educational resources. Moreover, updated

teacher training aligns with broader **educational goals**, cultivating a digitally literate and adaptable workforce crucial for the 21st-century global economy.

Curriculum alignment

National-level **policymakers** in Europe must urgently address the outdated aspects of **school curricula** that fall short of meeting the needs of the 21st century. Many current **curricula** need to include crucial components for fostering **digital literacy**, **critical thinking**, and **interdisciplinary learning**. It must equip students with essential **digital skills**, leaving them unprepared for a world where technology is integral to life and work. Moreover, the absence of a focus on **ethical** and **responsible technology use** hinders the development of responsible digital citizens. **Policymakers** must prioritize immediate updates to ensure that **education aligns** with the demands of the digital era, empowering students for diverse future pathways.

More autonomy for schools

Granting more **autonomy** to schools is crucial for the successful **digital transformation**, and national **policymakers** play a vital role. **Autonomy** allows schools to tailor their **digital strategies**, responding quickly to emerging trends and fostering innovation. It empowers **educators** to experiment with different tools and methodologies, enhancing the learning experience. Customized **professional development** becomes possible, ensuring **teachers** are well-prepared for the digital era. **Autonomy** also encourages community engagement, aligning digital initiatives with local expectations. It fosters a sense of accountability and ownership among **school leaders**, promoting commitment to successful and sustainable digital initiatives. Flexible **resource allocation** ensures strategic deployment for technology infrastructure and staff development. Empowering **teachers** through **autonomy** enhances their professional agency and fosters collaboration. Recognizing the importance of local context, **autonomy** enables schools to make decisions informed by unique community needs. **Autonomy** ensures adaptability to evolving student needs, making it a fundamental strategy for successful digital transformation.

Appropriate resource allocation for infrastructure and personnel

National **policymakers** play a vital role in **school digital transformation** by ensuring resources for infrastructure and personnel. Adequate funding is crucial for integrating technology seamlessly, providing all **schools** equal access to digital tools. **Educator proficiency** and availability is essential, requiring investment in **professional development programs**. Ongoing resource allocation is needed for maintenance, technical support, and data security. Funding is also essential for **curricular resources**, accessibility tools, and continuous innovation through research and development initiatives.

Local Level

Support system for synergies between industry and schools

Establish a **support system** for synergies between **industry and schools** to drive successful **digital transformation**. **Collaboration with industry** ensures **schools** stay updated on technological advancements, aligning educational programs with workforce needs. This partnership provides

professional development opportunities for **teachers**, access to industry resources, and curriculum enhancement to prepare students for practical applications and real-world challenges. Moreover, it facilitates internships, work placements, and entrepreneurial inspiration, fostering innovation. The feedback loop from **industry** helps adapt educational programs to evolving needs, while **career guidance** and community engagement strengthen ties between **schools** and the local workforce, contributing to the overall advancement of the community.

Infrastructure optimization

Optimize **school infrastructure** for successful **digital transformation**. This ensures reliable access to technology, promoting equitable learning opportunities and seamless integration of digital tools into the curriculum. Well-optimized infrastructure facilitates efficient data management, supports remote learning capabilities, and includes provisions for technical support, maintenance, and security measures. **Scalability** is essential, allowing **schools** to accommodate future growth and technological advancements. **Policymakers** should also prioritize professional development support for **educators**, fostering innovation and adaptability in the ever-evolving landscape of **digital education**.