



Agile  
EDU

# Policy recommendations for meaningful use of data in education



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**Publisher:** European Schoolnet (EUN Partnership AIBSL)  
Rue de Trèves, 61  
1040 Brussels, Belgium

**Author:** Lidija Kralj, European Schoolnet

**Editor:** Roger Blamire, European Schoolnet

**Design:** Mattia Gentile, European Schoolnet

**Please cite this publication as:**

Kralj, L., & Blamire, R. (2025). Policy recommendations for meaningful use of data in education.

Published in November 2025.

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# Summary

This publication sets out a series of recommendations to help policy makers make use of digital data in education. It is an output of the Agile EDU project, bringing together a diverse consortium of public authorities, universities, and civil society organisations across Europe, aiming to support inclusive and high-quality digital education aligned with the European Commission's Digital Education Action Plan 2021–2027.

Agile Edu is a three-year initiative (2022-2025) comprising six partners: European Schoolnet (coordinator), University College Copenhagen (Denmark), University of Oslo (Norway), Portuguese Ministry of Education (Portugal), Foundation Empieza por Educar (Spain) and the Swedish Association of Local Authorities and Regions (Sweden). In addition, there are four associate partners: Swedish National Agency for Education, the Finnish National Agency for Education, and the French and Slovenian Ministries of Education.

The recommendations emerge from a range of project activities: literature reviews, case studies, learning stories, expert workshops, and structured stakeholder dialogues at national and European levels. They are grouped in five thematic areas:

## **Strategic planning and governance & Digital data ecosystem development**

Recommendations in this area emphasise the need for coherent digital strategies and robust governance frameworks at national and European levels. They call for standardised practices in data collection, management and protection, aligned with GDPR and the AI Act. Recommendations include developing strategic frameworks, fostering innovation and ensuring equitable access to digital education through coordinated efforts across governance levels.

## **Collaboration and Data culture**

Fostering a collaborative educational data culture within and across educational institutions is essential for purposeful data use. Recommendations highlight the importance of multi-level stakeholder engagement, unified platforms, and shared responsibilities. Establishing data teams, interdisciplinary partnerships and teacher-student collaboration can create a supportive environment for data-informed decision-making.

## **Ethical considerations and transparency & Leveraging technology to support pedagogy**

Ethical data practices and transparency are central to building trust in digital education. Recommendations in this area call for clear accountability frameworks, informed consent models, and continuous evaluation of technology's impact. They encourage the responsible use of AI and EdTech, stakeholder involvement in procurement and open data initiatives to ensure that technology enhances learning without compromising privacy or equity.

## **Infrastructure, standardisation, security, and data quality**

Reliable infrastructure and standardised data practices are essential elements of a secure and efficient digital education ecosystem. Policy makers are encouraged to strengthen cybersecurity, improve data interoperability, and ensure high-quality data for informed decision-making. Recommendations also support the creation of unified platforms and technical guidelines to facilitate seamless data exchange and collaboration between stakeholders.

## Professional development and Data literacy

Empowering educators and other stakeholders with the skills to use data effectively is vital for sustainable digital transformation. Recommendations in this area aim to promote comprehensive and ongoing professional development programmes, integration of data literacy into initial teacher education and collaborative learning communities. They underscore the importance of ethical awareness, inclusion, and evidence-based practices to foster a culture of informed and equitable data use in education.

Each theme is explored through recommendations at macro (European and national) and meso (regional and local) levels. Micro-level (school and classroom) guidance is provided in a complementary document.

Taken together the policy recommendations advocate **coherent digital strategies, robust data governance, ethical data practices, and inclusive professional development**. They emphasise the importance of stakeholder collaboration, transparency, and the responsible use of educational data to foster equity, innovation, and pedagogical relevance in all educational settings.

Agile EDU

# AGILE WITH DATA

## POLICY RECOMMENDATIONS TO PROMOTE THE MEANINGFUL AND ETHICAL USE OF DATA IN EDUCATION

The infographic is organized into three main levels: Macro (European and National), Meso (Regional and Local), and Micro (School and Individual). Each level contains three specific recommendations with illustrative icons and brief descriptions of their impact.

**MACRO**  
RECOMMENDATIONS FOCUSING ON THE EUROPEAN AND NATIONAL LEVELS

- DEVELOP A DIGITAL STRATEGY THAT INCLUDES EDUCATIONAL DATA**  
THIS WILL REDUCE FRAGMENTED DATA POLICIES AND PROMOTE DATA EXCHANGE BETWEEN STAKEHOLDERS AND COMPLIANCE WITH GDPR/AI ACT
- SUPPORT OPEN DATA INITIATIVES AND RESEARCH**  
RESEARCHERS CAN USE OPEN DATA TO BETTER UNDERSTAND LEARNING MECHANISMS AND DEVELOP EFFECTIVE EDUCATIONAL TOOLS
- MONITOR COMMERCIAL INTERESTS OF DATA-DRIVEN EDTECH AND EVALUATE THEIR IMPACT**  
CHOOSING AND USING TECHNOLOGY SHOULD BE DRIVEN BY AN ANALYSIS OF ITS PEDAGOGICAL BENEFITS AND IMPACT ON THE LEARNER.

**MESO**  
RECOMMENDATIONS FOCUSING ON THE REGIONAL AND LOCAL LEVELS

- ENHANCE DATA QUALITY AND INTEROPERABILITY**  
IF NATIONAL STRATEGIES STANDARDISE PROCEDURES AND INFRASTRUCTURE, LOCAL AND NATIONAL AUTHORITIES CAN USE IT FOR TAKING BETTER-INFORMED DECISIONS.
- ENHANCE TRANSPARENCY AND PRIORITISE ETHICAL CONSIDERATIONS**  
THIS WILL MAINTAIN TRUST, SAFETY AND ACCOUNTABILITY, AND PROTECT SCHOOLS AND CHILDREN'S INTERESTS IN FACE OF DIGITAL SUPPLIERS.
- FOSTER MULTI-LEVEL COLLABORATION**  
ENGAGE SCHOOL DISTRICTS, EDTECH AND NATIONAL AUTHORITIES IN COLLABORATION TO ENSURE THAT SERVICES ARE DESIGNED BASED ON EDUCATIONAL NEEDS.

**MICRO**  
RECOMMENDATIONS FOCUSING ON THE SCHOOL AND INDIVIDUAL LEVELS

- LINK NATIONAL STRATEGIES TO SCHOOL PRACTICES**  
TO REDUCE FRAGMENTATION AND LOW UPTAKE, POLICY MAKERS SHOULD TRANSLATE NATIONAL POLICIES OF DATA USE TO TANGIBLE SCHOOL PRACTICES AND TEST THEM.
- PROMOTE INCLUSIVE AND EVIDENCE-BASED EDUCATION PRACTICES THROUGH DATA USE**  
IDENTIFY INCLUSION AND LEARNING CHALLENGES AND SUPPORT SCHOOLS WITH DATA THAT CAN INFORM SOLUTIONS TO THESE CHALLENGES.
- FOSTER A CULTURE OF DATA USE IN SCHOOLS**  
AN EDUCATIONAL DATA CULTURE, LINKED WITH PEDAGOGICAL PRACTICE, ENCOURAGES THE USE OF DATA TO INFORM TEACHING, IMPROVE STUDENT OUTCOMES AND DRIVE CONTINUOUS IMPROVEMENT.

**PROVIDE PROFESSIONAL DEVELOPMENT FOR DATA LITERACY**  
SCHOOLS NEED TRAINING ON IDENTIFYING PROBLEMS, PLANNING DATA COLLECTION, APPLYING MEASURES TO KEEP DATA SAFE AND USING DATA TO SUPPORT ALL STUDENTS.

**INTEGRATE DATA LITERACY INTO INITIAL TEACHER EDUCATION**  
IF TEACHER EDUCATION ADDRESSES DATA AND AI LITERACY AS A CROSS-SUBJECT TOPIC, TEACHERS CAN COLLECT AND USE DATA RESPONSIBLY FROM THE START OF THEIR CAREER.

**INTEGRATE CRITICAL DATA LITERACY INTO THE CURRICULUM**  
PREPARE STUDENTS AS WELL AS PARENTS FOR THE CHALLENGES OF THE DATA AND AI-DRIVEN AGE WITH THE SKILLS TO EVALUATE HOW THEIR DATA IS USED IN DAILY LIFE HOW THEY CAN ALSO LEARN FROM DATA.

Co-funded by the European Union

Financed by the European Union, Member States and other stakeholders as a means of the implementation and dissemination of the results of the European Union's Horizon 2020 research and innovation programme.

Figure 1. Using data meaningfully and responsibly for professional development

# Introduction

Agile EDU is a 3-year project that started in January 2023. The project is coordinated by European Schoolnet and includes a mix of partners representing national and local authorities, universities, and civil society: University College Copenhagen (Denmark), University of Oslo (Norway), Portuguese Ministry of Education (Portugal), Foundation Empieza por Educar (Spain) and the Swedish Association of Local Authorities and Regions (Sweden). The Swedish National Agency for Education, the Finnish National Agency for Education and the French and Slovenian Ministries of Education are associate partners.

What rules should govern the use of artificial intelligence in schools? What regulations are needed in the exploitation of school data by digital tool providers and third parties? Should parents be able to see everything a student has done online? How can data-collection in schools promote equality? These are the sort of questions the Agile EDU project addressed in order to identify the key success factors for supporting the implementation of inclusive and high-quality digital education as envisioned by the European Commission Digital Education Action Plan 2021-2027.

Agile EDU investigated the questions above in two strands: evidence from digital education, assessment and governance through desk research, case studies and learning stories, and evidence from policy and practice through structured workshops involving the main stakeholders.

Data in education in digital format serves a dual purpose: it can be not only a tool for supporting system-level monitoring and development, but also a means to enhance teaching effectiveness and student outcomes (educational as well as personal and social). On one hand, data can inform policy, resource allocation, and institutional improvement. On the other, it can empower educators to tailor instruction, identify learning needs and foster student growth.

While it is understandable that data strategies in education should be *effective* in the sense of achieving the intended outcomes, a narrow emphasis on *efficiency* can obscure the deeper purposes of education. Efficiency relates to the method of data collection, making it smart, simple, and non-intrusive; not to the goal of teaching itself. Not all aspects of learning and child development could or should be “datafied;” some, such as confidence or motivation, require human interaction and professional judgment. It is important that data serves education, not the opposite, and that its utilisation is driven by pedagogical reflection rather than concern for productivity.

The policy recommendations are based on a thorough analysis of case studies, learning stories, expert validation workshop discussions, literature reviews, comparative overviews and insights from Country and EU ‘Dialogue Labs.’ By integrating evidence from research and incorporating perspectives from all stakeholders through a co-construction and validation process, Recommendations for equitable, meaningful use of data in the education system and policy level support transfer of the innovations in different countries and contexts.

The recommendations are aimed at those involved in policy development and formulation at local, regional, and national level. At school level, guidance based on activities in the project is provided for school leaders, teachers and other educational professionals in a related publication, [Guidelines for effective use of education data in classrooms and schools](#).

# Methodology

The methodology employed in Agile EDU project is centred around an agile transformation approach, which is meticulously designed to enhance the quality, usability, and sustainability of the project outcomes. This approach is characterised by multiple cycles of improvement, ensuring that each iteration refines the project results to a higher level of quality. During the development of the recommendations, co-created by partners, this methodology is evident in the iterations of similar tasks, each refining and improving upon the previous one. The spiral agile transformation process includes two iterations of the literature review, three of surveys for the ministries, four of expert validation workshops, four rounds of Country Dialogue Labs (CDLs) and three rounds of European Dialogue Labs (EU DLs). Each iteration improved, enriched, and validated nine case studies, eighteen learning stories and recommendations, contributing towards ensuring the applicability of the final results across various educational contexts and countries.

By incorporating the agile approach, the project continuously collected information, gathered feedback, and enhanced resources. This cyclical approach ensures that the quality of the resources is consistently raised and that they remain relevant to evolving real-world contexts and concerns, for example, paying particular attention to inclusion and equity. During the project, this iteration allowed for constant adaptation and refinement, keeping it aligned with stakeholders' feedback and changing needs.

The policy recommendations are derived from an analysis of the project's [case studies](#) and [learning stories](#), a [Comparative overview](#) of the data use in some countries, [Literature review](#), and insights from [Dialogue Labs](#) organised at the level of European Union as well as Country Dialogue Labs organised in Denmark, Norway, Portugal, Spain and Sweden.

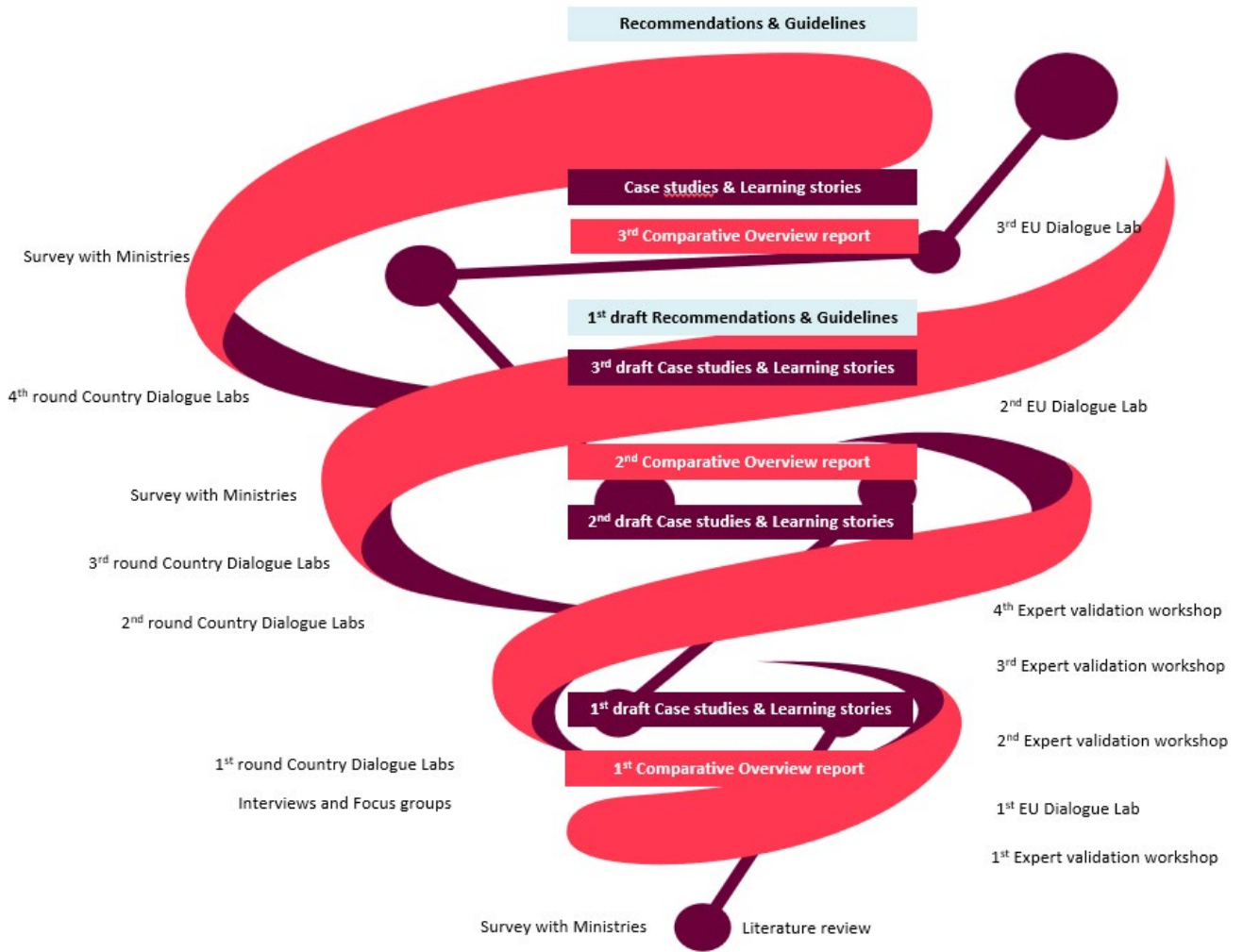


Figure 2. Agile model of the project development

# Themes and levels

During the analysis of the [Literature review](#), expert validation workshops, [European Dialogue Labs](#), [Country Dialogue Labs](#), as well as the [Comparative overview](#) based on information collected from 20 ministries of education, several themes surfaced as key areas for recommendations. Selection of these themes was further refined by the topics covered in the [9 case studies](#) and [18 learning stories](#) from Denmark, Finland, France, Netherlands, Norway, Portugal, Slovenia, Spain, Sweden, and Switzerland.

The recommendations are therefore grounded in the project activities and arise from the resources created in it.

Following that analysis, five themes emerged for the policy recommendations:

- Strategic planning and governance & Digital data ecosystem development
- Collaboration and Data culture
- Ethical considerations and transparency & Leverage technology to support pedagogy
- Infrastructure, standardisation, security, and data quality
- Professional development and Data literacy

For each theme, recommendations are presented at two levels: Macro and Meso. Macro level recommendations focus on the European and national level of regulations, rights and privacy legislation and norms. Meso level recommendations concentrate on the regional and local elements for consideration. A third level – Micro – is presented in the Guidelines which accompany this publication. Micro level guidelines discuss practices at school and classrooms level.

Two types of data are usually collected in education: personal data and process data. Personal data refers to information directly attributable to an individual, while process data refers to any information collected from a user's interaction with digital tools and applications. As mentioned in the literature review, [Datafication in and of Education](#), both types of data are gathered as part of digitally processed data about student learning. In the literature review, three perspectives on data have been identified. The three main topics covered in that literature review are visualized as three circles: 'Regulation, Rights, Privacy,' 'Data in use for Teaching/Learning,' and 'Data Governance' (implement, improve and modify aspects of datafication in and of education. These topics highlight some of the critical issues and themes from the research literature. Presented as Venn diagram of three overlapping fields, which might have an analytical interest for the purpose of understanding the connection between the three fields of research of key importance for the Agile EDU project. In the literature review three perspectives on data are identified and visualized as a Venn diagram of three overlapping circles: 'Regulation, Rights, Privacy', 'Data in use for Teaching/Learning', and 'Data Governance' (has its own dynamics expressed as a constant process of analysis, implementation, improvement and modification of datafication in and of education. These topics highlight some of the critical issues and themes from the research literature. Regulation, Rights, Privacy is an analysis of new technological developments and the implementation of new regulations and rights which need to be constantly renewed.



# Strategic planning and governance & Digital data ecosystem development

## I Recommendations for Macro level

### Develop and implement comprehensive digital strategies for data in education

**Cohesive digital data in the education ecosystem is needed.**

Challenges for data governance include the lack of common standards, interoperability, and the fragmented structure of the education system. Therefore, establish coherent European, national, and regional strategies for data use, ensuring consistency and equitable access across educational contexts, with standardized practices for data collection, management and protection, aligned with GDPR and AI Act compliance.

Develop clear national and EU-wide digital strategies to promote flexibility and contextualization by tailoring digital data education initiatives to meet local needs and circumstances, ensuring they are adaptable and relevant.

Strengthened coordination between national and regional entities to address challenges in decentralised or centralised systems can ensure a unified approach to digital education. Provide resources and support to foster innovation and growth among small start-ups and EdTech companies, which are key for driving technological advancements in education.

### Develop strategic national and European data use frameworks

**Clear, standardized frameworks are needed to safeguard consistent, legal, and effective use of educational data.**

The challenge of implementing regulations at local level highlights the need for strategic national frameworks and stakeholder input. Establishing and promoting standardized EU and national guidelines for data collection, management and protection can lead to quality and uniformity across educational institutions. Define governance structures that ensure legal and public service responsibilities are met, providing clarity on roles and responsibilities for data management.

Develop a national framework for data in schools. Implement a nationwide framework to guide the collection, analysis, and use of data in schools, ensuring consistency, accountability, and pedagogical relevance. Develop and enforce ethical AI and data governance frameworks. Clearly define the purpose behind data collection, explain its intended outcomes, and demonstrate how

it strengthens the education system, not only at national level but also for individual schools, teachers, students, and parents.

## Recommendations for Meso level

### Link national strategies to school practices

**Systematic evaluation and allocation of resources are necessary.**

Establishing links between national data use concepts and school practices involves developing strategies that ensure national policies are effectively implemented at the local level and reduce fragmentation in education systems. This requires coordinated stakeholder collaboration, where educators, policymakers, and technology providers work together to address challenges and promote best practices.

Conduct systematic evaluation and research to clearly measure the impact of digital data in education and drive continuous improvement. Promote collaborative professional development among educators to discuss how centrally defined strategies or frameworks could be implemented in schools from an operational point of view. This hands-on approach ensures that policies are not only understood but are applied in everyday teaching and learning.

Allocate the necessary resources to support data governance, ensuring that educational institutions have the capacity to manage and utilise data appropriately. Invest in human, organizational, technical, and financial resources. To make equitable access a reality, provide resources and support to foster innovation and growth among schools in vulnerable situations, which are key for ensuring quality education for all.

### Enhance data governance and promote interdisciplinary collaboration

**Robust and ethical data governance is needed.**

Effective data governance is essential for managing educational data and ensuring its ethical use. At the regional governance level, it is important to promote interdisciplinary collaboration among stakeholders and foster a data culture within schools. Strategies should be developed to overcome challenges such as equitable access to data and resources.

Encouraging the creation of unified platforms and standardising supporting infrastructure are essential to managing educational data effectively and avoiding amplifying existing inequalities.

Develop data-informed strategies to plan, monitor, and evaluate interventions aimed at enhancing learning and reducing inequalities between students. Digital tools allow for quicker and more detailed tracking of students' learning, which may enable a better understanding of their academic performance. This also enables better and earlier detection of learning issues like dyscalculia and interventions to be designed to help students. Collect and analyse data on school results from reliable sources such as national education agencies and statistical bodies. This can enhance the accuracy and relevance of the data used for decision-making. Use the insights gained from data and visualizations to provide appropriate and effective support tailored to students' needs.

When processing personal data poses a high risk to individuals' rights or freedoms, conduct Data Protection Impact Assessments (DPIA) and Fundamental Rights Impact Assessment (FRIA)

to evaluate risks and outline measures to protect individuals. This is particularly important in educational systems that use AI systems especially if they include AI made decisions.

### Develop a school-wide data strategy and incorporate inclusion goals in data collection

**Inclusive, cohesive, and purposeful approach to data use is needed.**

A school-wide data strategy is vital for creating a cohesive and appropriate approach to data use. Define clear, actionable guidelines for collecting, storing, accessing, and analysing data to ensure responsible management and meaningful application in teaching and learning. Incorporating inclusion goals in data collection will help address the diverse needs of students and promote equity in schools. By adopting a positive approach to assessment and integrating formative assessment tools, schools can monitor student progress and adjust teaching strategies accordingly. Leaders should be encouraged to share student trends with school boards and parent groups and use comparative and longitudinal features in national student assessment data to shape improvement strategies and acknowledge students' voices and agency.

Ensure that everyone involved in the education system, from schools and teachers to students and parents, understands the rationale behind data collecting, the purpose of data use and the benefits and risks for each of them.

**Contributing factors** for Strategic planning and governance & Digital data ecosystem development include:

- **Partnerships and collaboration with stakeholders at different levels:** Engaging municipalities, technology companies and national authorities can ensure that services are designed to meet real needs and align with educational strategies. Collaboration with local authorities and expert panels facilitates input and coordination. Partnership with technology companies provides a scalable and secure data architecture, balancing local autonomy with central coordination. As education ministries rely on various local levels to implement policies, local authorities play an increasingly significant part in governance, ensuring the day-to-day operation of the system.
- **Comprehensive data collection from reliable sources:** Utilizing official statistics, performance data and student-generated data provides insights into learning environments and informs decisions. This can include data from national statistics offices, education agencies and data tools developed by universities.
- **Use of innovative tools for data collection and analysis:** Implementing visualization tools, teaching, and timetable services, and conducting user evaluations enhance data analysis and resource optimization. Involving teachers, students, and other stakeholders in developing and testing data practices can lead to successful interventions and practical solutions.
- **Piloting use in secure environment and conducting risk analysis:** Creating observatories for data analysis, developing data solutions, and conducting thorough risk analyses enhance the safe and effective use of digital tools in education. Promoting national guidelines for data collection, management and protection, and defining governance structures ensure that legal and public service responsibilities are met.

Supporting information can be found in the following [case studies](#): Small data and playful learning – Playful data as key to computational empowerment and well-being (pg 12); Data to support the provision of education - case DigiOne (pg 17); Education Data Hub in France (pg 4); Adaptive learning technologies in Dutch schools (pg 26); Dealing with the unforeseen – Educational management of chatbots and generative AI in Norwegian municipalities (pg 8); How data obtained through digital textbooks platforms is used to enhance student learning (pg 13); Visualizing Data for Systemic Approach & Governance Decisions (pg 20); Educational Data Pathways in Switzerland (pg 8).

There is additional, country specific information in the [Comparative Overview report](#), which provides information regarding educational data use in twenty countries.

# Collaboration and Data culture

## Recommendations for Macro level

### Foster multi-level collaboration

**Integration of digital data tools and services in education need to be aligned with educational goals**

Foster multi-level collaboration to successfully integrate digital data tools and services in education. Engage national authorities, municipalities, local schools, communities and social agents, including associations and public services, to align efforts and co-create innovative solutions. By working together, these entities can ensure that data initiatives are aligned with educational goals and standards, facilitating a cohesive and comprehensive approach to the use of data in education.

Regional, cross-district and cross-country collaboration among education stakeholders may add new insights and enable the spread of good practices from one context to another one. Strengthen cooperation and maintain open dialogue with national services to ensure the successful rollout of data initiatives. While large-scale structural reforms may take time, consistent communication keeps educational goals on track and preserves the integrity of public services. By actively engaging with regional and national stakeholders, the education system can adapt more purposefully and implement data strategies that truly serve students and educators.

### Promote unified platforms and data sharing

**Data sharing and simplification of data use is needed.**

Promoting collaboration and meaningful data sharing among educational institutions and service providers is essential for creating a robust digital ecosystem. This involves establishing protocols and agreements that facilitate the secure and efficient exchange of data. By sharing data, educational institutions can gain insights into student performance and learning outcomes, enabling them to tailor their teaching strategies to better meet the needs of their students.

Develop and build unified and integrated digital platforms to streamline educational processes and strengthen knowledge management. Design these platforms for full interoperability, enabling seamless data exchange across systems and services. By creating a cohesive digital environment, educational institutions can reduce administrative burdens and improve the overall learning experience for students and teachers.

In a digital ecosystem, data must be able to move between different systems, including data from private sector service providers. This does not mean disclosing trade secrets to competitors; rather, it involves sharing results and outcomes of learning. Collaboration with service providers allows educational institutions to guarantee that their digital tools and services are aligned with regulations and best practices, enhancing the overall cybersecurity and quality of education.

Use of public data models and standardized interfaces makes it easier to build new services and provides a significant advantage for companies, reducing their product development risk. By collaborating on ecosystem development, educational institutions and service providers can create a more cohesive and efficient digital environment, benefiting all stakeholders.

## Recommendations for Meso level

### Foster a data culture in schools

**Common approach for data use is needed.**

Cultivating an environment within schools that supports data-informed decision-making involves engaging all stakeholders and facilitating knowledge sharing and collaboration between teachers. An educational data culture, linked with pedagogical practice, encourages the use of data to inform teaching, improve student outcomes and drive continuous improvement.

Developing collaborative data practices, such as organizing teachers' data teams or action research groups, can enhance the use of data in schools. These practices should align data collection with the school's pedagogical priorities, such as equity, wellbeing, formative assessment, and personalised learning. Regular collaboration with teachers to collect feedback and share best practices, embedding data discussions into staff meetings and planning sessions, can contribute to effective use of data to support student learning. School leaders should encourage and support work with data by developing the structures needed to ensure that teachers have the time and support to integrate data use into learning and teaching.

Bring together teachers, school leaders, policymakers, researchers, and industry experts to co-create shared strategies for data use in education. Encourage interdisciplinary collaboration to tackle challenges like interoperability and data integration, ensuring digital tools are meaningfully and effectively implemented in schools. Expand cooperation between schools, teachers, and students at regional, national, and international level to exchange fresh perspectives and transfer successful practices between educational environments, enriching learning experiences for students and educators alike.

Involve students in data collection to enhance their understanding of data and its importance in education and to them. By actively participating in data collection, and understanding the context of data collection, students can develop critical thinking skills and a sense of ownership over their data and their learning. Involving parents can also be helpful: data summaries can be shared at parents' meetings, which will also keep families informed about the progress of the school and community. Encouraging teacher-student collaboration in data production and analysis transforms the learning environment into a collective responsibility. Exploratory and experimental tasks allow students to engage creatively and collaboratively, making learning more meaningful and enjoyable.

### Define clear roles and responsibilities

**Efficient and secure data practices are needed.**

Defining and communicating the roles, responsibilities, and accountability of stakeholders in data management, data access, sharing, and use is critical for appropriate and secure data practices. Clear roles help ensure accountability and streamline processes, making it easier to manage and use data. This approach also fosters a culture of transparency and trust, which is essential for

successful data-informed decision-making.

Specialised working groups focused on data management and digital tools can drive innovation and address specific challenges in education. These groups should include representatives from various stakeholders, such as teachers, school leaders, policymakers, and industry experts from different backgrounds (economic levels, rural/urban, secular/religious, etc.) including student representatives. By working together, these groups can develop strategies for data use, interoperability, and integration, ensuring that digital data initiatives are aligned with schools' aspirations and that access is equitable for all schools and all students.

At education system level, knowledge-based decision-making involves using data to allocate resources effectively and make informed decisions. This includes reviewing school profiles, assessing the impact of changes in construction and admission areas and making decisions based on insights from data. Data-informed decision-making helps promote the efficient allocation of resources to enhance student learning and improve educational outcomes.

### Provide ongoing professional development and collaborative training initiatives

**Appropriate use of data in education is needed.**

To enable the appropriate use of data in education, it is essential to provide ongoing professional development for educators. This includes training on data literacy, data management, and the use of digital tools as well as training in inclusion in order to ensure that no student is left behind.

Collaborative training initiatives bring together educators, school leaders, and other stakeholders to share knowledge and best practices. These initiatives foster a culture of collaboration and continuous improvement, ensuring that all participants are equipped with the skills and knowledge needed for meaningful use data in education.

**Contributing factors** for Collaboration and Data culture include:

- **Collaborative development of digital solutions:** Working together to develop and implement digital solutions creates a culture of trust, transparency, and empowerment around data use and datafication.
- **Stakeholder collaboration and partnerships:** Engaging stakeholders at various levels, including national authorities, municipalities and local schools, ensures that data initiatives align with educational goals and standards. Cooperation and dialogue with national services are essential for successful implementation.
- **Teacher-student collaboration:** Collaboration in the generation and analysis of data develops the learning environment into a collective responsibility, which increases cooperation and decreases potential conflict. Platforms collect data on student performance, engagement, and task completion rates, enabling informed instructional decisions that respect the wellbeing of the student.
- **Integrated digital platforms and single-sign-on services:** Establishing protocols and agreements for secure and efficient data exchange helps protect the privacy and integrity of information shared between educational institutions and service providers. Developing unified and integrated digital platforms streamlines processes, enhances knowledge management, and improves the experience of both educators and students by centralizing and facilitating access to relevant resources and data.

Further information can be found in the following [case studies](#): Small data and playful learning – Playful data as key to computational empowerment and well-being (pg 23); Data to support the provision of education - case DigiOne (pg 10); Education Data Hub in France (pg 5); Adaptive learning technologies in Dutch schools (pg 21); Unlocking seamless access: the case of Feide single sign-on in Norway (pg 13); How data obtained through digital textbooks platforms is used to enhance student learning (pg 12); Visualizing Data for Systemic Approach & Governance Decisions (pg 29); Educational Data Pathways in Switzerland (pg 27 ).

Additional country specific information is to be found in the [Comparative Overview report](#), which provides information regarding educational data use in twenty countries.

# Ethical considerations and transparency & Leverage technology to support pedagogy

## Recommendations for Macro level

### Enhance transparency and prioritise ethical considerations

**Transparency and ethical use of data in education is needed.**

Developing and enforcing ethical guidelines related to data privacy, security and management is necessary for protecting individuals' rights and ensuring responsible data use. Establishing codes of conduct and accountability frameworks for all stakeholders involved in education will promote ethical practices and transparency. Conducting Data Protection Impact Assessments (DPIA) and Fundamental Rights Impact Assessment (FRIA) will help identify and mitigate risks associated with data processing, ensuring compliance with regulations such as the GDPR and AI Act.

Transparency regarding why data is collected and how it is used is necessary, as well as balance between data collection and its use for achieving pedagogical and personal development benefits. Monitoring for data misuse should be constant, as it could appear as a result of data aggregation and interpretation, e.g., creating a big data set from data collected in local contexts for a specific need and subsequently using it for a different purpose.

On a broader scale, aligning national and European policy frameworks with ethical considerations is imperative. This involves establishing clear roles and responsibilities for all stakeholders and ensuring that ethical guidelines are enforced. Continuous evaluation and stakeholder input are essential for adapting policies to meet local needs while maintaining data security and privacy.

A new model for informed consent needs to be developed to ensure that stakeholders know exactly what their data are being used for and make educated choices about whether or not to agree to provide data.

### Manage commercial interests and investigate technology's impact

**Monitoring technology impact is necessary.**

Managing commercial interests in education is vital to guarantee that the focus remains on pedagogical, learning, and ethical practices. Investigating the impact and implications of AI in education helps understand the potential benefits and risks associated with these technologies. Evaluating the impact of digitalisation on education provides insights into how digital tools are transforming learning and identify areas for improvement.

Actively involve stakeholders and embed continuous evaluation to adapt policies and practices to local needs. Regularly gather feedback from educators, students of all backgrounds and other key voices to ensure the digital data ecosystem in education remains responsive, inclusive, and meaningful. This ongoing dialogue ensures that strategies evolve in line with real-world classroom experiences and community expectations. The EdTech design issue extends beyond data protection and privacy; it encompasses an ethical viewpoint on human rights, information systems ethics, and national education policy. EdTech developers need to comprehend these ethical principles and follow the rules. Choosing and using technology should be driven by an analysis of its pedagogical benefits and impact on the learner.

Implementing certification standards for EdTech products and data platforms and enhancing regulation can lead towards high-quality standards and responsible use of those products.

### Support open data initiatives and research

#### **Systematic approach is needed.**

Supporting open data initiatives and encouraging research efforts are key to better understanding learning mechanisms and developing effective educational tools. Facilitating access to data for researchers will enable them to develop and evaluate new educational methods, contributing to the advancement of data use in education. Implementing standardized procedures through the creation and use of a local framework will support this goal, ensuring that data is managed consistently and reliably.

Build a systematic process supported by a skilled, multidisciplinary team to ensure the purposeful use of educational data. Recruit experts in educational data, analysis, statistics, and system development to manage each stage of the process, from data collection to implementation. This coordinated approach enables schools to harness data meaningfully and strategically, leading to better decision making and improved learning outcomes.

## Recommendations for Meso level

### Shift the mindset and enhance transparency

#### **Digital data education ecosystem needs to be trustworthy.**

To foster a more effective and trustworthy digital data education ecosystem, it is important to shift the mindset from “trust” to “reliance” on EdTech tools. This involves addressing GDPR, the AI Act and ethical concerns to be certain that data privacy and security are respected. Increasing awareness and transparency about how data are used and managed helps build confidence among all stakeholders. The focus needs to be kept on empowering learning and the learner, not on control and surveillance. It is essential to clearly communicate responsibilities according to the chain of responsibility, ensuring that everyone involved understands their roles in data protection and security.

Encourage educators to conduct practitioner research to gain firsthand insights into the effectiveness of digital tools and identify areas for improvement. Combine digital tools with firsthand activities to create a balanced learning environment that supports diverse learning strategies and needs. Promote inclusive teaching by urging teachers to recognize and challenge biases that may lead to low expectations for certain students.

Ensure that all students consistently benefit from engaging activities, fostering equity and inclusion in learning.

### **Foster collaboration and collective negotiation**

**High quality digital tools tailored to the needs of the classroom are necessary.**

Promoting collective negotiation and auditing is essential for ensuring that EdTech products meet high standards of quality and security. Involving teachers in the design and procurement of adaptive learning technologies helps tailor them to the needs of the classroom and meaningful use.

Fostering dialogue between EdTech companies and civil society will help align commercial interests with educational goals, ensuring that the focus remains on benefits for students.

Run iterative application validations and prioritize data protection and security throughout implementation and use. Deploy targeted expertise in educational data, analytics, statistics, and system development to guide the process. Standardize the handling of all teaching materials and learning applications to ensure consistency, quality, and reliability across the educational environment.

### **Monitor cognitive impact and promote ethical practices**

**Assessment of the effects of digital tools on students and learning is important.**

Actively monitor and minimise the cognitive impact of digital tools ensuring that they support, rather than disrupt, student learning. This means regularly evaluating how these tools affect cognition and swiftly adapting them as needed. Establishing clear ethical guidelines for data use in education promotes responsible data management and protects student privacy. Introducing certification standards with minimum privacy and ethics requirements for digital tools and services reinforces accountability and safeguards trust in educational technology.

Urging EdTech companies to share data with the education system and collaborate with education stakeholders drives innovation and delivers meaningful benefits to the broader educational community. Ensuring that data collected by EdTech companies is used ethically and responsibly builds trust and promotes transparency. Making data accessible and implementing robust transparency controls in EdTech companies ensures accountability and promotes the ethical handling of educational data.

### **Support continuous evaluation**

**Keeping high standards of data use in education is necessary.**

Maintaining high expectations in data use requires consistent structures, accountability mechanisms, and responsiveness to evolving needs. Promoting the development of unified platforms and interoperable systems, underpinned by national or regional guidelines, guarantees consistency and dependability. Establishing a certification framework for data platforms helps ensure compliance with optimal standards for data management and security. Users need to critically evaluate the value of a digital technology, asking about its additional value and the evidence supporting the need to collect data, and also realise that data is only a partial representation of the real world.

Continuous evaluation and stakeholder input are essential for adapting policies to meet local needs while guarding data security and privacy. Regularly seeking feedback from educators, students and other stakeholders helps ensure that the digital education ecosystem remains responsive and meaningful.

Shift the focus from static statistical categories to growth-oriented insights by using data to support learning and personal development rather than to label students. Establish mechanisms for ongoing evaluation to track the impact of initiatives and guide timely adjustments. Actively collect continuous feedback to keep systems relevant, enabling dynamic adaptation and continuous improvement across the educational landscape.

**Contributing factors** for Ethical considerations and transparency & Leveraging technology to support pedagogy include:

- **Risk analyses and security measures:** Conducting thorough risk analyses and documenting security measures enables the safe use of digital tools. Implementing standardized procedures provides consistent and reliable data management. Using data and visualization tools carefully avoids reinforcing stereotypes and stigmatization. For example, when presenting data on student performance without its context, there is a risk of biased interpretations, especially concerning students from vulnerable backgrounds. Data should be contextualized and communicated in ways that promote equity and do not contribute to labelling students in ways that lower expectations or limit their opportunities.
- **Develop and implement ethical guidelines:** Using a model for informed consent helps ensure that individuals are fully aware of how their data are used so they can make informed decisions. Shifting from “trust” to “reliance” on EdTech tools can address legal and ethical concerns, as can increasing awareness and transparency about data use and management.
- **Collaboration in pilot programs:** Conducting user evaluations develops the effectiveness and usability of data tools. Establishing a working group or steering committee with educational providers helps monitor and support implementation. Facilitating access to data enables researchers to develop and evaluate new educational methods.
- **Student autonomy and engagement:** Creating opportunities for students to monitor their progress and set educational goals fosters autonomy, while adaptable learning environments and teacher-student collaboration enhance the development of critical competencies for the digital age, including information research, digital literacy, and effective use of online learning environments.

The following [case studies](#) provide further information: Small data and playful learning – Playful data as key to computational empowerment and well-being (pg 30); Data to support the provision of education - case DigiOne (pg 7); Education Data Hub in France (pg 16); Adaptive learning technologies in Dutch schools (pg 26); Unlocking seamless access: the case of Feide single sign-on in Norway (pg 19); How data obtained through digital textbooks platforms is used to enhance student learning (pg 6); Visualizing Data for Systemic Approach & Governance Decisions (pg 29); Educational Data Pathways in Switzerland (pg 21, 28).

Additional, country specific information is available in the [Comparative Overview report](#), which provides information regarding educational data use in twenty countries.

# Infrastructure, standardisation, security, and data quality

## Recommendations for Macro level

### Standardise data practices and strengthen cybersecurity

**Cohesive and secure data ecosystems are needed.**

Standardisation of data practices within the country and at European level is essential for cohesive and secure data ecosystems. This involves establishing clear and consistent procedures for data collection, storage, and analysis, resulting in data being more reliable and usable. Clarifying data-related terms is also necessary to avoid misunderstandings and be certain that all stakeholders are on the same page.

Strengthening cybersecurity measures is equally important to protect sensitive data from breaches and to safeguard the integrity of the digital education system. Identifying key data types and indicators helps in monitoring and evaluating the effectiveness of digital education initiatives, ensuring that they meet the desired outcomes.

### Enhance data quality and interoperability

**Useful data for well-informed decision-making is needed.**

Design national strategies to secure and harness actionable data, ensuring it meets ethical, legal, high-quality, granular, and long-term standards. These strategies should empower informed decision-making across all levels of government. Establish robust frameworks for data access, permissions, and responsibilities to strengthen governance and protect data integrity.

Ensure seamless communication between digital systems by setting clear interoperability standards. This enables smooth integration of data from various registers and sources. Standardize procedures for data collection, storage, and analysis to guarantee consistent and reliable data management across all educational contexts.

## Recommendations for Meso level

### Improve data entry accuracy and enhance participation

**Reliable educational data is needed.**

Enhancing data entry accuracy is essential for maintaining the reliability of educational data.

Providing feedback to educational institutions on the data they enter can help enhance accuracy and comprehensiveness. Additionally, minimizing the burden on data entry personnel by streamlining data collection tools and processes makes data entry easier and less prone to errors.

By involving educators, students and other stakeholders in the research process, valuable insights may be gained while keeping data collected relevant and useful. This participatory approach fosters a sense of ownership and collaboration, leading to more impactful data use.

Adopt a structured approach to data use to strengthen planning, implementation, and evaluation of educational initiatives. Ground every stage in thorough analysis to drive informed, purposeful decisions. Promote nuanced, context-aware interpretations of data to prevent oversimplification and discrimination, ensuring ethical and responsible use that truly supports diverse learners.

### **Support infrastructure and standardisation**

**Effective management of data in education is needed.**

Encouraging the creation of unified platforms accessible for all and interoperable systems is essential for managing educational data effectively. National or regional guidelines should support these efforts to provide consistency and reliability. Establishing technical guidelines to facilitate data circulation between public and private actors will further enhance data sharing and collaboration.

Create a dedicated data exchange platform for local authorities to streamline data sharing and strengthen collaboration. Enable seamless access and exchange of data to support more integrated and efficient data management across regions. Ensure suppliers follow established standards during procurement and specification processes to promote infrastructure standardization and long-term system compatibility.

Implementing standardized procedures through the creation and use of a local framework will support this structured approach. Building a systematic process that includes staffing with various skills critical for different parts of the process, such as expertise in educational data, analysis and statistics, system development (e.g., GIS), in GDPR, the AI Act and procurement can enable comprehensive and effective use of data.

### **Strengthen data protection and security measures**

**Data in education need to be protected and secured.**

Data protection and security are paramount for educational applications. Coordinating efforts between specialists in data protection and IT security is essential for data protection-compliant use of teaching and learning applications. Implementing stringent security measures to protect data from unauthorized access and breaches is crucial. Providing training on ethical data practices for all personnel involved in data management can lead towards everyone understanding the importance of data security and how to maintain.

Formulating and implementing comprehensive guidelines for the ethical collection, analysis and application of data is necessary to establish compliance with regulations such as GDPR and the AI Act. Remaining vigilant about potential risks, such as the merging of datasets containing sensitive information, helps mitigate privacy concerns and protect individuals' rights.

**Contributing factors** for successful infrastructure, standardization, security, and data quality include:

- **Utilizing official statistics:** Using data from national statistics offices, agencies for education and data tools developed by universities
- **Ensuring data quality and security:** Adhering to legal and ethical regulations ensures the secure handling of personal and sensitive data. Agreements with tech companies help ensure data remain within Europe and are compliant with privacy regulations.
- **Data exchange and collaboration:** Effective data exchange between stakeholders, including partnerships with universities and dynamic data exchange facilitated by dedicated platforms can enhance decision-making and resource allocation. This can be especially useful in improving resource allocation in schools attended by disadvantaged students.
- **Standardization and public data models:** Using standard data models and APIs provides interoperability and compliance with national and international standards, reducing development risks and facilitating the integration of new services.
- **Leadership and partnerships:** Strong leadership by educational authorities and partnerships with data solution providers ensure that services designed are based on real needs and in a user-oriented manner.

Supporting information is in the following [case studies](#): Small data and playful learning – Playful data as key to computational empowerment and well-being (pg 27); Data to support the provision of education - case DigiOne (pg 10); Education Data Hub in France (pg 10); Adaptive learning technologies in Dutch schools (pg 25); Unlocking seamless access: the case of Feide single sign-on in Norway (pg 4); Visualizing Data for Systemic Approach & Governance Decisions (pg 33); Educational Data Pathways in Switzerland (pg 11, 14, 17).

Additional country specific information is in the [Comparative Overview report](#), which provides information regarding educational data use in twenty countries.

# Professional development and Data literacy

Note: Professional development and data literacy are covered at length in the [Comparative Overview report](#) and in the [Guidelines for effective use of education data in classrooms and schools](#).

## Recommendations for Macro level

### Support capacity building for appropriate data management

**Appropriate and purposeful data management in education is needed.**

Promotion of appropriate data management practices involves managing expectations when working with data, ensuring that all stakeholders understand the capabilities and limitations of data-informed insights. Fostering a data culture helps educators and administrators use data collaboratively, sharing insights and best practices to improve educational outcomes. A school-level strategy should be established to ensure that teachers can choose their training paths while also guaranteeing data literacy across the entire educational community.

Appropriate data management also requires the development of clear guidelines and standards for data usage. This includes creating a standard for the certification of teacher educators that encompasses knowledge of data usage and analysis. Teacher educators as well as universities may lead this process, including training on how to use technology for learning in their curricula. They may be responsible for providing mandatory courses that include systematic quality work, ensuring that educators are well-equipped to handle data purposefully. Integrating data literacy into the Initial Teacher Education (ITE) curriculum is essential for preparing future educators to interpret, evaluate and apply educational data, fostering a culture of data use from the start of their careers.

### Facilitate holistic professional development and encourage evidence-based practices

**Educators need to be equipped with the pedagogical, technical, and ethical skills needed for the use of digital data in education.**

Provide holistic professional development to equip educators with the technical, pedagogical, and ethical skills to use digital data meaningfully. Design Continuous Professional Development (CPD) programs that empower teachers to confidently navigate digital tools and manage data responsibly. Such structured support helps educators adapt to evolving technologies while maintaining high standards of teaching and learning.

Often, there is a widespread lack of literacy in inclusion, along with a limited application of evidence-based practices and a tendency to make educational decisions guided by personal

or ideological beliefs. These preconceptions can limit both the expectations teachers place on their students and their commitment to ensuring that all students learn. Therefore, training in inclusion, professional accountability and data use should be approached holistically, as an integrated process that enables teachers and future teachers to recognise their central role in promoting equitable educational opportunities, addressing potential biases and ensuring fair and responsive treatment of all students, including those with specific needs such as autism or ADHD.

Encouraging the use of data analytics and evidence-based practices involves providing educators with the tools and training needed to analyse and interpret data effectively, ensuring that they use data-informed insights to address educational inequalities.

### Prioritise ethical data practices and strengthen data literacy

#### **Ethical use of data in education is a necessity.**

Prioritising ethical data practices is essential for protecting students' privacy and ensuring responsible data management. This includes developing and enforcing ethical guidelines related to data privacy, security, and management. Establishing codes of conduct and accountability frameworks for all stakeholders involved in education promotes ethical practices and transparency. Teachers should understand how to use data for pedagogical purposes while safeguarding students' rights.

Integrating data literacy into the ITE curriculum empowers future educators to use data both ethically and effectively. They can then confidently interpret and respond to the rich data streams generated by digital platforms and learning management systems. Proactively addressing issues such as student data ownership, ethical usage, and compliance with legal frameworks such as the GDPR and AI Act is essential to ensuring trust and integrity in educational data practices.

## Recommendations for Meso level

### Develop and provide comprehensive and ongoing long-term professional development programmes

#### **Continuous support for education stakeholders is needed.**

To ensure educators are equipped to handle the evolving demands of education, it is essential to develop and provide comprehensive and ongoing long-term professional development. Training should focus on enhancing data literacy, integrating digital competence into the curriculum, and promoting peer learning communities. By providing educators with continuous training and support, they can stay up to date with the latest pedagogical practices, ethical data usage, and digital literacy skills.

Professional development should occur on a just-in-time, as-needed basis, integrated inside the workplace where possible rather than in a decontextualised manner. It should respond to actual needs identified by teachers and schools with variation according to teaching level, subject area, and school context, avoiding "one-size fits all" approaches. Professional growth should encompass three dimensions: the acquisition of information and skills for using tools, the application of such tools to improve educational outcomes, and the ethical, transparent, and responsible use of these tools.

## Enhance data literacy education and improve data literacy among education stakeholders

### Development of culture of informed decision-making within schools is needed.

Enhancing data literacy education is high priority for fostering a culture of informed decision-making in schools. This involves improving data literacy among stakeholders, including teachers, school principals, non-teaching staff, and parents. Training on ethical data practices should include a reflective component on how access to sensitive data can inadvertently impact educational equity, especially when personal biases influence the analysis and use of such information.

Develop comprehensive frameworks that clarify the meaning of data literacy and equip teachers and school leaders with skills to transform data into actionable insights for the classroom, including critical data and AI literacy. This includes training educators to interpret trends and make pedagogical decisions based on data analytics and also to recognise the value of data. These frameworks should be integrated into initial teacher education and professional development programs to enable consistent application and understanding.

## Promote peer learning communities and implement multi-stakeholder professional development

### Peer learning communities are enabling factor.

Promote peer learning communities to spark collaborative learning and professional growth among educators. Create spaces where teachers can exchange experiences, insights, and best practices, building a supportive and innovative learning culture. Strengthen this collaboration through multi-stakeholder professional development programs that bring together educators, education leaders and technology providers to co-design and deliver impactful training.

## Integrate digital and data competences into the curriculum and enhance digital and data competences for parents

### Prepare students and parents for the demands of the digital data age.

Integrating digital competence and data literacy into the curriculum is essential for preparing students for the demands of the digital age. This involves teaching students the value of data, information analysis, the ability to interact with machines (computational thinking), programming, safe use of these tools, digital responsibility and citizenship, and critical thinking. By developing these skills, students will be able to navigate digital environments responsibly and meaningfully, applying their knowledge to real-world situations.

Additionally, integrating critical data literacy into the curriculum and linking it to curriculum content will create opportunities for students to develop skills needed to analyse and interpret data. Students are the data subjects therefore they should be given opportunities to be heard and listened to.

Enhancing digital data competence for parents is equally important, as it enables them to support their children's learning and understand the data generated by digital platforms. By offering workshops focused on digital competences and data literacy, schools can guide both students and parents towards better navigation in the digital landscape.

**Contributing factors** for successful professional development and data literacy include:

- **Comprehensive training and guidance:** Organising workshops, training and guidance developing analytical skills, critical thinking, and reflexivity; creating opportunities for educational stakeholders to understand, interpret and critically engage with data, fostering a deeper comprehension of digital technologies and their impact. Offering incentives such as official accreditation for teachers who participate in training can further motivate professional growth.
- **Culture of trust and empowerment:** Establishing trust, transparency, and empowerment around data use and datafication is essential. Teacher-student collaboration in data production and analysis, and dynamic roles of teachers as catalysts, consultants and collaborators are transforming the learning environment into a collective responsibility, enhancing reflections on data, enabling students' understanding and participation.
- **Professional community collaboration:** Emphasizing collaboration within professional communities enables effective competence development and integration of data use into educational practices. Professional development initiatives focusing on active learning methodologies and leveraging digital technologies.
- **Collaboration and leadership:** Collaboration with publishers, EdTech companies, and educational authorities is vital for meaningful implementation. Strong leadership and partnerships can create services based on real needs, with pilot programs testing and refining data services in schools. Projects initiated and led by educational authorities can lead towards services based on real needs and in a user-oriented manner considering student diversity and providing appropriate adaptations. Collaboration between educational authorities and school teams in pilot programs helps test and refine use of data services in schools.

There is supporting information in the following [case studies](#): Small data and playful learning – Playful data as key to computational empowerment and well-being (pg 27); Data to support the provision of education - case DigiOne (pg 13); Education Data Hub in France (pg 24); Adaptive learning technologies in Dutch schools (pg 20, 21); Dealing with the unforeseen – Educational management of chatbots and generative AI in Norwegian municipalities (pg 22); How data obtained through digital textbooks platforms is used to enhance student learning (pg 10); Visualizing Data for Systemic Approach & Governance Decisions (pg 26, 28, 34); Educational Data Pathways in Switzerland (pg 28).

# Conclusion

The Agile EDU project has demonstrated that meaningful and equitable use of data in education requires a multi-layered, collaborative approach. By integrating evidence from research and practice, and engaging stakeholders across all levels, the policy recommendations offer actionable guidance for transforming digital education systems.

In particular, the recommendations highlight the importance of aligning national and European strategies with local practices to ensure coherence and adaptability. This alignment fosters a more resilient and responsive education system, capable of addressing the diverse needs of learners and educators across different contexts.

Moreover, the emphasis on ethical considerations and transparency underscores the need for responsible data governance. By promoting informed consent, safeguarding privacy, and managing commercial interests, education systems can build trust and ensure that digital tools serve pedagogical goals rather than surveillance or profit motives.

Finally, a focus on professional development and data literacy ensures that educators are empowered to use data meaningfully and ethically. Long-term investment in training, peer learning and inclusive practices will support a culture of continuous improvement and innovation, enabling schools to harness the full potential of data to enhance learning and equity.

To further support the implementation of these recommendations, readers are encouraged to consult the accompanying [Guidelines for effective use of education data in classrooms and schools](#), which provide practical insights for teachers and school leaders.

The deliverables of the Agile EDU project, including literature reviews, comparative analyses, case studies and learning stories, are valuable resources for policymakers, educators, and technology providers. Together, they contribute to building a trustworthy, inclusive, and data-informed educational ecosystem that prioritises student wellbeing, pedagogical excellence, and ethical responsibility.

## List of project deliverables

- Literature review [Datafication in and of Education](#)
- [Comparative Overview report](#)
- Teacher professional development resource pack
- Teacher inquiry and data use for professional development – [results of the Agile Edu MOOC](#)

### Case studies

- [Small data and playful learning – Playful data as key to computational empowerment and well-being](#)
- [Data to support the provision of education - case DigiOne](#)
- [Education Data Hub in France](#)
- [Adaptive learning technologies in Dutch schools](#)
- [Dealing with the unforeseen – Educational management of chatbots and generative AI in Norwegian municipalities](#)
- [Unlocking seamless access: the case of Feide single sign-on in Norway](#)
- [How data obtained through digital textbooks platforms is used to enhance student learning](#)
- [Visualizing Data for Systemic Approach & Governance Decisions](#)
- [Educational Data Pathways in Switzerland](#)
- You may find [translated executive summaries](#) of the case studies on the project website.

### Learning stories

- [What is a joyful school day-experiment](#)
- [Engaging students through small data and playful learning](#)
- [Learning Analytics to Support Self-regulated Learning in Primary School](#)
- [Can wearable technology be used to increase learning and wellbeing?](#)
- [How ViLLE – learning platform can be used to learn mathematic with Finnish 4th graders](#)
- [Education data analytics for personalised learning and wellbeing](#)
- [Supporting special education needs at school level](#)
- [Supporting special education needs in the classroom using AI tools](#)
- [How does a data-driven tool influence the classroom?](#)
- [Diving deep into cybersecurity: supporting schools' data privacy and ownership](#)
- [Supporting self-regulated learning in education technologies](#)
- [Working with Chatbots in English as second language](#)
- [The use of data and Digital Textbooks](#)
- [Teacher Training and Data Literacy](#)
- [Navigating educational excellence](#)
- [How can a video-based learning tool contribute to meaningful and inclusive student learning?](#)
- [Data-Informed Decisions to Promote Equity and Inclusion in Education](#)
- [Data Visualisation – Balancing Potential and Risk](#)
- There are [translated executive summaries](#) of the learning stories on the project website.
- [Summaries from Dialogue Labs](#)

All other information about the Agile EDU project is available on the [project website](#).



**Co-funded by  
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