

**DIGITAL
INNOVATIONS**
in Education

Brief N°. 8



THE WORLD BANK
IBRD • IDA | WORLD BANK GROUP



**ARTIFICIAL
INTELLIGENCE**

**IN ROMANIA'S
PRE UNIVERSITY
EDUCATION**



© 2026 International Bank for Reconstruction and Development / The World Bank

1818 H Street NW Washington DC 20433

Telephone: 202-473-1000

Internet: www.worldbank.org

This work is a product of the staff of The World Bank with external contributions. The findings, interpretations, and conclusions expressed in this work do not necessarily reflect the views of The World Bank, its Board of Executive Directors, or the governments they represent.

The World Bank does not guarantee the accuracy, completeness, or currency of the data included in this work and does not assume responsibility for any errors, omissions, or discrepancies in the information, or liability with respect to the use of or failure to use the information, methods, processes, or conclusions set forth. The boundaries, colors, denominations, and other information shown on any map in this work do not imply any judgment on the part of The World Bank concerning the legal status of any territory or the endorsement or acceptance of such boundaries.

Nothing herein shall constitute or be construed or considered to be a limitation upon or waiver of the privileges and immunities of The World Bank, all of which are specifically reserved.

Please cite this work as follows: **Chiran, Lorena; Sava, Alina; Cobo, Cristobal; (2026) Artificial Intelligence In Romanian Pre-University Education. In Digital Innovations in Education. World Bank.**

Rights and Permissions

The material in this work is subject to copyright. Because The World Bank encourages dissemination of its knowledge, this work may be reproduced, in whole or in part, for noncommercial purposes as long as full attribution to this work is given. Any queries on rights and licenses, including subsidiary rights, should be addressed to World Bank Publications, The World Bank Group, 1818 H Street NW, Washington, DC 20433, USA; fax: 202-522-2625; e-mail: pubrights@worldbank.org.

Design: Utopix Studio

Acknowledgements

This report is a product of the Education Global Practice at the World Bank. The report was prepared by Lorena Chiran (Consultant), under the guidance of Cristobal Cobo and Alina Sava, Senior Education Specialists.

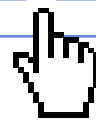
The team gratefully acknowledges the valuable collaboration, insights, and feedback provided by Rita Almeida (Adviser, World Bank), with support from Claudia Teodorescu (Head of Digitalization at the Minister of Education and Research of Romania), Elisabeta Moraru (Country Director, Google Romania), Gabriel Lazar (Project Manager, Ascendia), Catalina Rata (Deputy Director, UiPath Foundation), Sorin Guleac (Coordinator, EduApps), Andreea Nistor (Co-founder, Digital Nation) and Alexandru Holicov (Founder, Adservio).

The team also extends its appreciation to Rita Almeida, Education Practice Manager for Europe and Central Asia, Ciro Avitabile, Senior Economist, Vlad Manoil, Senior Digital Specialist, and Iulia Maries, Education specialist from the World Bank and to national counterparts from the Ministry of Education and Research, and the Ministry of Research, Innovation and Digitization, who contributed their time, knowledge, and experience throughout the preparation of this report. Their thoughtful input and continued engagement were essential to the development of this work.



ARTIFICIAL INTELLIGENCE

IN ROMANIA'S PRE UNIVERSITY EDUCATION



Lorena Chiran, Alina Sava and Cristobal Cobo

TABLE OF CONTENTS

Acronyms	5
Executive Summary.....	7
Introduction	10
Part I: Mapping AI Applications in Romanian Education System.....	12
I.II. Teachers: AI in Daily Life of a Teacher	25
I.III. School Leaders: AI in School Management and Decision-Making	30
I.IV. Examples and Projects for AI Usage and Integration	34
I.V The Ed-Tech Ecosystem in Romania: Current State & Emerging Trends	36
Part II: Needs and challenges assessment	38
II.I. Infrastructure Needs and Challenges	38
II.II. Systemic Challenges	41
II.III. Digital Literacy for Teachers and Students	46
II.IV. Barriers for Vulnerable Groups	48
Part III: Romania's Readiness for AI Integration.....	50
Stages of AI Readiness	51
Part IV: Recommendations	53

ACRONYMS

ADR	Authority for Digitalization of Romania
AI	Artificial Intelligence
AOAR	Association of Business Leaders in Romania (acronym in Romanian)
APED	Association for Promoting Open Education (acronym in Romanian)
ARACIP	Romanian Agency for Quality Assurance in Pre-University Education (acronym in Romanian)
CCD	Teacher Training Center (acronym in Romanian)
COBIS	Council of British International Schools (acronym in Romanian)
CPD	Continuous Professional Development
CPT	Continuous Professional Training
CRED	Relevant Curriculum, Open Education for All (acronym in Romanian)
DigCompEdu	Digital Competence Framework for Teachers (acronym in Romanian)
DigCompRo	Digital Competence Framework for Romanians (acronym in Romanian)
DigCompStud	Digital Competence Framework for Students
ECDL	European Computer Driving License
EDIH	European Digital Innovation Hub
ERDF	European Regional Development Fund
ESL	Early School Leaving
EU	European Union
EWM	Early Warning Mechanism
GDPR	General Data Protection Regulation
GenAI	Generative AI
HRIA	Romanian Artificial Intelligence Hub
ICDL	International Certification of Digital Literacy
ICILS	International Computer and Information Literacy Study
ICT	Informatics Computer Technology
IoT	Internet of Things
IT	Information technology
JA	Junior Achievement (Romania)

MER	Ministry of Education and Research
MIT	Massachusetts Institute of Technology
NGO	Non-Governmental Organization
NRRP	National Recovery and Resilience Plan
OECD	Organization for Economic Co-operation and Development
PEO	Education and Employment Program (acronym in Romanian)
PISA	Programme for International Student Assessment
PNRAS	National Program for Reducing School Dropout (acronym in Romanian)
PoCIDIF	Smart Growth, Digitalization and Financial Instruments Program (acronym in Romanian)
PPP	Public-private partnership
R&D	Research & Development
RDI	Research, Development, and Innovation
ROSE	Romania Secondary Education Project
SASAT	Success at School Assessment Tool
SaaS	Software as a Service
SELFIE	Self-Reflection on Effective Learning by Fostering the use of Innovative Educational Technologies
SIIR	Integrated Education Information System (electronic catalog)
UDL	Universal Design for Learning
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNICEF	United Nations Children's Fund

EXECUTIVE SUMMARY

As an upper-middle-income European Union (EU) member state with strong digital infrastructure and connectivity, Romania is well positioned to become a regional reference for AI integration in education. Romania has established an increasingly solid institutional and legal foundation for adoption of artificial intelligence (AI)¹ in education, but practical readiness remains uneven and slower than policy ambition.

In Romania, AI has entered pre-university education in an organic and largely unplanned manner, driven by students, teachers, non-governmental organizations (NGOs), private EdTech providers, and global technology platforms. While this bottom-up adoption reflects strong innovation capacity and optimism, it also shows structural gaps in governance, equity, sustainability, and pedagogical alignment nationwide. Romania's education system therefore has a clear challenge ahead: AI presents a powerful opportunity to improve and personalize learning, reduce administrative burdens, and drive decision-making, but without clear guidance, it also risks amplifying existing inequalities and operational fragmentation.

This World Bank report provides a comprehensive analysis of how AI is currently used across Romania's pre-university education system and assesses the country's readiness to integrate AI in a coordinated, ethical, and sustainable way. The study maps existing AI applications used by students, teachers, and school leaders; examines infrastructure, systemic, and human-capacity constraints; evaluates Romania's institutional preparedness; and proposes a set of actionable recommendations to guide policymakers toward responsible AI adoption aligned with national education priorities and European frameworks.

The report finds that AI is well-embedded in daily educational practices. Students increasingly rely on AI-powered tools for personalized learning, homework support, language learning, exam preparation, and career guidance, often outside formal school structures. Teachers already use AI mainly to save time, supporting lesson planning, assessment, feedback, and administrative tasks, while school leaders employ AI-enabled platforms, where available, to monitor attendance, identify students at risk of dropout, and streamline reporting. Romania's growing EdTech ecosystem – supported by NGOs, private providers, and international platforms – has played a central role in this adoption, frequently filling gaps left by the absence of national guidance.

How can Romania scale AI use equitably? The report shows that despite major investments in digital infrastructure through the EU's financed National Recovery and Resilience Plan (NRRP), disparities persist in access to devices, connectivity quality, and technical support, particularly in rural and

¹ As per the World Bank definition, AI refers to the cognitive ability of machine agents that mimics human cognition in processing information and executing tasks for which the machine agent is trained.

disadvantaged communities. In addition, there remain system-wide gaps with a lack of a national AI-in-education framework, limited guidance on ethical and responsible use, unclear integration of AI into curricula and assessment systems, insufficient system capacity to support implementation, and a lack of sustainable financing for General Data Protection Regulation (GDPR)-compliant software and AI tool subscriptions. While recently NRRP-funded largescale teacher training has significantly strengthened basic digital skills, many educators still show limited confidence in embedding AI meaningfully into pedagogy, assessment, and classroom decision-making.

The report concludes that Romania has made important progress toward AI readiness but remains in an “emergent” stage of integration. The country benefits from strong policy signals. Examples include the National AI Strategy, digital competence frameworks (applicable for teachers and students), and large-scale infrastructure investments, as well as a vibrant ecosystem of local and international AI solutions. However, AI adoption is advancing faster *de facto* than *de jure*, with widespread classroom and platform use advancing ahead of formal policy guidance, and resulting in fragmented implementation, uneven safeguards, and missed opportunities for system-level impact.

Against this backdrop, the report emphasizes that AI should not be treated as a standalone technological innovation, but as a strategic mechanism which can potentially transform Romania’s educational outcomes: reducing early school leaving, improving learning outcomes, strengthening teacher effectiveness, and promoting inclusion, among others. The recommendations therefore focus on establishing clear national guidance for ethical and responsible AI use, embedding AI and digital competence as transversal skills across curricula and assessments, reorienting teacher professional development towards more sustained classroom practice, ensuring sustainable rural infrastructure and financing, prioritizing equity for vulnerable groups, and creating structured public-private partnerships to scale proven solutions.

In sum, AI is both a challenge and an opportunity for Romania’s education system. With timely, coordinated action, Romania can move from fragmented adoption to a coherent, student-centered, and future-ready approach to AI in education. Yet, policymakers must ensure that all educators, students, and school leaders can benefit from technological innovation, mitigating the risk of a few being left behind.

This report was developed through qualitative research carried out over a four-month period. It draws on semi-structured interviews carried out between January and February 2026 with 21 stakeholders involved in AI and digital education. It focuses only on the *public*² pre-university education system. Stakeholders included (i) Representatives from the Ministry of Education and Research and the Authority for the Digitalization of Romania (5) (ii) Private-sector AI & EdTech providers (7) (iii) Representatives from non-governmental organizations (7) (iv) Representative from the Romanian Artificial Intelligence Hub (1), and (v) School director from a rural public

2 Since the analysis relies primarily on public-sector stakeholders and formal system actors, it reflects institutional perspectives that tend to emphasize more structured adoption processes and financing constraints, which may differ from those observed in the private higher education sector.



school (1). An important limitation is the lack of direct interviews with teachers and students. As a result, classroom practices, user experiences, and perceptions of AI are captured indirectly through stakeholder accounts, platform documentation, and secondary data. Further limitations include the short data-collection period, the qualitative and non-representative nature of the sample, and the fast pace of change in AI technologies. An exhaustive mapping of all AI uses in Romanian schools was not intended. Instead, the report offers a broad system-level picture that can inform policy and further research.

INTRODUCTION

Artificial Intelligence (AI) is increasingly influencing Romania's pre-university education system. AI is already being used in schools, even though there is no single national framework guiding its use yet. Students, teachers, non-governmental organizations (NGOs), private companies, and global technology platforms are experimenting with AI tools in everyday learning and school management. At the same time, Romania faces long-standing challenges such as learning gaps, uneven digital skills, differences between urban and rural schools, and high rates of early school leaving. This report looks at how AI is currently used in Romania's pre-university education system, what obstacles stand in the way of wider adoption, and how prepared the system is overall. Its goal is to guide policymakers and better understand how AI can be introduced in a more coordinated, fair, and responsible way, supporting teachers and improving learning, rather than adding new risks or inequalities.

Part I Summary: Mapping AI Applications in the Romanian Education System

Part I provides an overview of the current landscape of AI adoption in Romanian public pre-university education system. It shows that many students use AI tools to help with homework, exam preparation, language learning, and career guidance, often through both international platforms and locally developed solutions. Teachers mainly use AI to save time, for example by preparing lessons, creating assessments, giving feedback, or handling administrative tasks. School leaders use AI-supported platforms, where available, to track attendance, monitor student performance, and identify students at risk of dropping out. The chapter also highlights Romania's growing EdTech ecosystem, which includes local companies, NGOs, and global technology providers. NGOs and private actors play an important role in training teachers and testing new tools, often filling gaps left by public policy. Overall, Part I shows a system full of innovation and experimentation, but one where AI use depends largely on individual initiative rather than clear national guidance.

Part II Summary: Needs and Challenges Assessment for AI integration

Part II focuses on the main challenges that limit Romania's ability to scale AI use in education. Although major investments have improved access to devices, internet connectivity, and digital platforms, problems remain, especially in rural and disadvantaged areas. Schools often struggle with insufficient connectivity, lack of technical support, and no stable funding for software or AI subscriptions. The chapter also points to systemic issues, such as the absence of clear rules on AI use in schools, limited guidance on ethics and data protection, and weak links between AI tools and the national curriculum and assessment system. Many teachers have received generic digital training but still feel uncertain about how to use AI in meaningful ways in the classroom. Students, meanwhile, often lack strong foundational skills needed to use AI critically and safely. Vulnerable groups³ face additional barriers, raising the

3 As per the World Bank definition, vulnerable groups are groups facing barriers that prevent them from fully participating in economic, social, or political life, often due to identity-

risk that AI could widen existing inequalities if not carefully managed.

Part III Summary: Romania's Readiness for AI Integration

Part III assesses Romania's readiness⁴ to integrate AI into education at a system level. Romania has made important progress to date. It adopted digital competence frameworks, invested heavily in teacher training, and expanded digital infrastructure in schools. There is strong interest among teachers and education actors in using AI. Yet, AI readiness remains uneven nationwide. AI use is growing faster in practice than in policy, and many initiatives remain isolated rather than coordinated. Funding for long-term use of AI tools is limited, and there is still no clear national roadmap for AI in education. Romania has a strong mix of local EdTech solutions, NGOs, and international platforms, but these actors often work in parallel rather than together. Moving forward, there is need for clearer governance, better alignment between AI use and curricula, sustained support for teachers, and a strong focus on equity so that AI benefits all students, not only those in better-resourced schools.

based disadvantages (e.g., gender, location, disability, ethnicity).

4 AI readiness refers to the capacity of an education system –from national ministries and local districts down to individual schools and classrooms– to effectively integrate AI into its practices. It is a holistic concept that goes beyond simply having access to technology and encompasses policy, infrastructure, human capacity, and curriculum. Being “AI-ready” means an educational institution or system is prepared not just to use AI tools, but to leverage them thoughtfully to enhance teaching and learning, while proactively managing the associated risks.

PART I: MAPPING AI APPLICATIONS IN ROMANIAN EDUCATION SYSTEM

A. OVERVIEW OF AI ADOPTION IN ROMANIAN EDUCATION

Artificial intelligence (AI) has entered Romania's pre-university education system⁵, supported by a legal and strategic framework that provides a strong foundation. The **Law on Pre-university Education no. 198/2023**⁶ establishes education as a fundamental human right and promotes innovation and digital competencies as part of the curriculum. In recent years, Romania has advanced policy efforts for digital transformation in education, establishing an enabling environment for the integration of AI in schools.

- The **Law on Pre-university Education no. 198/2023** mandates digital transformation in schools through integrated management systems, minimum information technology (IT) standards, and monitoring of digital literacy and competencies for students and teachers.
- The **National AI Strategy 2024 - 2027 adopted July 2024**⁷ identifies education and skills development as key pillars for AI advancement. It prioritizes supporting education for research, development, and innovation (RDI) while building AI-specific competencies through targeted programs like master's and doctoral initiatives in AI.
- The **Digital Competence Framework for Citizens (DigCompRo) adopted April 2025**⁸ aims to ensure that 4-6 million Romanians achieve basic digital skills by 2030. It supports self-assessment tools, lifelong learning initiatives, and public administration training.
- The **Digital Competence Framework for Students (DigCompStud) adopted 2024**⁹ sets out 21 key digital competencies across 5 different areas: (i) information literacy (ii) communication, (iii) content creation (iv) safety, and (v) problem-solving, with the objective of integrating basic digital skills into the pre-university curriculum, and preparing students for a tech-driven future.
- The **Digital Competence Framework for Teachers (DigCompEdu) adopted September 2022**¹⁰ defines 22 key competencies for educators across 6 areas: (i) professional engagement (ii) digital resources (iii) teaching and learning (iv) assessment (v) empowering learners and (iv) facilitating learners' digital competence.

5 In Romania, the pre-university education system refers to all levels of formal education before higher education, including early childhood education, primary education, lower-secondary education, and upper-secondary education (high school), delivered mainly through public schools under the authority of the Ministry of Education and Research.

6 [Law on Pre-university Education no. 198/2023](#).

7 [National AI Strategy 2024 - 2027](#).

8 [Digital Competence Framework for Romanians](#).

9 [Digital Competence Framework for Students](#).

10 [Digital Competence Framework for Teachers](#).

- **National Recovery and Resilience Plan (NRRP), Component 15.1 (Digitalization of Pre-University Education) for 2021-2026**¹¹ allocated EUR 1 billion for digital transformation, specifically teacher training in digital and AI-related skills, school infrastructure upgrades, and development of national platforms for online assessment and educational content.

Despite these significant steps, Romania lacks binding guidelines or a dedicated roadmap for AI integration in education, with systemic adoption still at an early stage. The Romanian Ministry of Education and Research (MER) is starting to recognize the importance of AI integration and is working toward developing a national-level guidance on “Ethical and Responsible Use of AI in Education”¹², signaling a move toward more systematic and coordinated implementation. The guidance, expected to be released in 2026, will be aligned with European frameworks in this space.

Iulia, Head of Policy Unit for Digitalization, MER, stated:

“AI is already being used in schools; we want it to be used in a useful and safe way, and we want people to understand the risks to which some users may be exposed due to a lack of knowledge, whether these relate to security, ethics, or human rights.”

Ana, General Director, Authority for the Digitalization of Romania (ADR), stated:

“AI education should go hand in hand with cybersecurity. As AI continues to develop, we’ll need to teach students and teachers how to use it safely and responsibly.”

Even in the absence of a national guidance, notable progress has been made in preparing Romania’s teaching workforce and strengthening their capacity on integrating AI and digital learning tools into the classroom. Under the NRRP-funded “Digital Pedagogy” course¹³, 82,796 public school teachers have been trained in digital pedagogy, including AI-related skills¹⁴, representing 85 percent of the ¹⁵ target and covering nearly half of the country’s active teaching workforce. Of these, 59,449 teachers have already been certified, demonstrating teachers’ high participation and completion rates. Alongside basic digital skills, teachers also develop a coherent set of AI competencies through a hybrid structure, specifically: a dedicated strand on “AI in Education” within Module 6 (“Digital Pedagogy and Near-Future Challenges”) and embedded use of AI tools across other modules, notably Module 3 (“Teaching, Learning, and Assessment with Digital Technologies”). As a result, teachers

¹¹ [Romania’s National Recovery and Resilience Plan](#)

¹² An Expert Working Group, consisting of Ministry staff, international partners and civil society, is working on the guidance.

¹³ Through the Digital pedagogy course teachers learned how to create interactive digital lessons, develop multimedia learning objects, classroom management using digital platforms, online collaboration tools, digital assessment and feedback, data-informed teaching, digital safety, ethics and GDPR awareness.

¹⁴ Module 6 of the training program focused on AI, specifically courses on Virtual Reality, Machine Learning etc.

¹⁵ OECD.2025. Education and Skills in Romania, Reviews of National Policies for Education.

acquire essential AI skills: (i) technical skills by operating AI tools to create and adapt content and open educational resources, including multimodal tasks (ii) pedagogical skills by integrating AI into curriculum and lesson design, using AI for differentiation, blended and flipped learning, and formative assessment (iii) cognitive skills by critically evaluating AI outputs, reflecting on AI's role and limitations, and (iv) ethical skills through responsible, safe, and equitable use with students. The program included a comprehensive 84-hour training package, consisting of 36 hours of theoretical content and 48 hours of practical activities, and delivered in a blended format that combined online instruction with in-person, practice-oriented sessions. The training, aligned with DigCompEdu, was delivered through 18 partnerships between universities, Teacher Training Centers (CCDs), and accredited training providers. To sustain the use of newly acquired skills, MER allocated EUR200 per certified teacher to each school for the purchase of educational software. These training efforts were complemented by significant NRRP investments in devices, computer labs, highspeed internet, and intelligent classrooms, particularly in disadvantaged schools, which helped reduce connectivity gaps and supported teachers in the classroom.

New high-school curricula¹⁶ have been released for public consultation by MER, with official adoption expected this year. The new curriculum introduces recommendations for teachers on how to incorporate AI concepts and practical applications across a wide range of subjects.¹⁷ In parallel, Romania has also expanded its offer of optional AI-related courses (e.g. Introduction in Machine Learning as Integral of Artificial Intelligence¹⁸ for Grades 11-12 adopted in 2022), giving schools the flexibility to integrate more advanced AI content where capacity and interest allow. Romania's approach appears to prioritize building these advanced AI skills at a later age, avoiding very early exposure to AI, and signaling intent to ensure students first master foundational competencies before using more complex AI tools.

In 2026, MER is also collaborating with Microsoft Romania on a pilot project to integrate artificial intelligence across selected schools. The objective is to optimize teachers' activities, support the learning process for students, and improve overall educational processes.

While these policy developments show growing government interest in AI-enabled education, most AI adoption in Romania is happening outside national policies and programs. Non-government organizations (NGOs) and private providers play a leading role in adopting AI, building teacher capacity, and shaping early classroom practices. The following section therefore examines how non-governmental and private actors are currently driving AI-in-education adoption on the ground.

16 [New high-school curricula. Published 24-26 November 2025.](#)

17 Exceptions include: Romanian Language and Literature, Mother Tongue Languages, Anatomy, Arithmetic, Biology, Arts, Physical Education, Music, Theatre and Visual Education, Geography, Grammar, Pedagogy, Second Foreign Language, Logic, Emotional Management, Construction Materials / Mechanics, Military Training, Health and Nutrition.

18 [Introduction in Machine Learning as Integral of Artificial Intelligence. Adopted on 14 June 2022.](#)

B. AI-IN-EDUCATION ADOPTIONS BY NGOS AND PRIVATE PROVIDERS

NGOs. The AI landscape in Romania’s pre-university sector is shaped by a diverse range of NGOs, functioning as an informal *capacity-building ecosystem* for schools, and driving AI-in-education innovation in Romania from the bottom up **(Table 1)**. For this report, 7 key NGO-led AI-in-education adoptions by NGOs have been identified¹⁹, each serving different purposes. Some NGOs (e.g. E-Civis/RoboHub) primarily build teacher capacity and classroom ready resources, while NGO alliances (e.g. E-Civis/EduApps/APED) convene stakeholders and set direction for AI adoption in schools. Certification bodies and employer associations e.g the International Certification of Digital Literacy (ICDL) Romania and AOAR complement these efforts and shape competency standards on AI literacy. Most initiatives target teachers first, but several also reach students with hands-on AI and ethical-use activities. Two patterns stand out: (i) scale tends to come from coalitions rather than single actors, and (ii) ethical, safe, and responsible AI use is slowly moving from policy talk to classroom practice through concrete guides, modules, and certification.

TABLE 1²⁰: EXAMPLES OF EDUCATION ADOPTIONS²¹ BY NGOS IN ROMANIA

	Organization	Adoption	Description	Notable Details
1.	Association for Promoting Open Education (APED)	CityInnoEdu: Notebook LM for educators (December 2025)	Webinar on Notebook LM use in teaching (summarization, audio or video overviews, closed corpus workflows) for teachers in higher education and pre-university education.	Hosted by CityInnoHub, part of the seven operational European Digital Innovation Hubs (EDIHs) in 2025.
2.	E-Civis Association	RoboHub teacher & youth AI/robotics program (ongoing)	Online center developing pedagogical guides, didactic materials and student courses (aged 7-16) designed to support educators in teaching Informatics and Computer Technology (ICT) and robotics courses.	Leading robotics hub with humanoid robots and hands-on curricula.

19 Important to note that this report only presents examples of AI adoptions which the authors considered to be most relevant, while acknowledging other examples of adoptions might exist nationwide and have not been discussed here.

20 Source: World Bank team.

21 In this report, “AI Education adoptions” means the programs and practices through which students, teachers, and educational institutions implement and use artificial intelligence tools and systems. The goal is to support more personalized learning, streamline teaching and operational tasks, and improve learning results.

	Organization	Adoption	Description	Notable Details
3.	E-Civis Association	Friendly guide for AI integration for Teachers (May 2025)	Free introductory AI guide for teachers of all subjects (AI concepts, ethics, lesson ideas, classroom examples of AI integration, effective ways for stimulating students' critical thinking and effective learning).	Based on 10 teacher training sessions with tailored classroom content.
4.	Intercultural Institute Timișoara & TechSoup Association & Școala de Valori	Incubatorul Civic Digital (ICD) (2023-2026)	Free online or lended courses for teachers across disciplines on digital citizenship, ethics, misinformation; currently supports 30 schools to run Self-Reflection on Effective Learning by Fostering the use of Innovative Educational Technologies (SELFIE) diagnostics, map competencies with DigCompStud and DigCompEdu, and create or implement whole school digital action plans.	The objective is reaching 4.500 teachers with training by 2026.
5.	E-Civis Association & EduApps & APED	Manifesto for Education in the AI Era (November 2025)	Open policy manifesto calling the whole ecosystem (teachers, NGOs, companies, policymakers) for a national framework for AI integration in schools, teacher upskilling and ethical use	The manifesto welcomed 80+ public signatories, and this figure is growing.
6.	ICDL Romania & the Association of Business Leaders in Romania (AOAR) (with 3DUTECH compaign)	3DUTECH - AI Empowered edition (2025-2026)	AI-focused expansion of the national 3DUTECH program in Romania establishing 20 AI hubs in high schools where teachers and students entered an intensive AI training and international certification (ICDL Insights AI).	The training integrates real AI tools into teaching and digital pedagogy. In 2025, 50 teachers and 400+ students were certified.
7.	RoboHub & ICDL Romania	Introduction to AI pilot course (April 2023)	Course covering foundational AI topics (e.g. what AI is, how it works, its principles, potential applications, and societal challenges) for students through blended learning.	The pilot started with 25 students at National High School "Mihai Viteazul" in Bucharest.

As NGO initiatives build foundational capacity among teachers and create early models of responsible classroom use, private-sector actors are moving to complement these efforts with scalable technologies, platforms, and partnerships. Private-sector initiatives, ranging from AI-enabled learning platforms to training programs, complement and reinforce the NGO-led approaches described above.

Private providers. Private sector providers and corporate-led programs play a complementary role in Romania’s AI-in-education landscape (**Table 2**), offering scalable, classroom-ready AI learning opportunities, from student-facing generative AI workshops to national-level teacher training and platform-based AI literacy. Some use the strengths of global technology companies and educational franchises (e.g. Logischool’s generative-AI modules, Google Romania and Digital Nation’s literacy resources etc.). Together, they anchor AI learning within widely used platforms and professional development pathways, expanding access of teachers, students and leaders to building AI skills, and accelerating whole-school readiness. Notably, private actors tend to scale innovation successfully, with several initiatives reaching far beyond NGO program impact. While NGO-led initiatives tended to focus on teacher capacity-building, a stronger mix of student-facing, hands-on AI experiences and platform-level transformations is noticed in **Table 2**. Finally, private-sector solutions tend to blend AI with other digital domains i.e. Internet of Things (IoT), robotics, accessibility, data literacy, showing a more integrated view of AI as part of a wider technology ecosystem rather than a standalone subject.

TABLE 2²²: EXAMPLES OF AI EDUCATION ADOPTIONS BY PRIVATE PROVIDERS IN ROMANIA

	Private provider	Adoption example	Description	Impact
1.	Logischool Romania	Generative AI workshop and camps in person & online (2024-2026)	Generative AI courses for children ages 9-12 on AI fundamentals, GenAI and prompting, AI limitations and reliability. Students can create AI-generated content and explore ethical, societal implications.	50+ Romanian locations
2.	Cambridge School of Bucharest & Council of British International Schools (COBIS)	AIDUCATION (AI teacher workshops (2024-2026)	Series of workshops, collaborative discussions and case studies on practical, classroom ready AI use including prompting, chatbot building, robotics, and Universal Design for Learning (UDL) + AI strategies. The program also covers ethical use and safeguarding.	Gathered over 100 educators representing more than 30 schools nationwide.

22 This table was developed by the authors of this report.

	Private provider	Adoption example	Description	Impact
3.	Google Romania & Digital Nation	Saro AI + AI literacy programs (2024-2026)	Saro is an AI powered learning assistant that increases student motivation through personalized prompts, reminders, and planning conversations via WhatsApp. Google complements this with extensive free AI literacy resources (e.g., Gemini Academy, prompt guidelines) for teachers and learners.	Saro AI pilot with 1.900 participants; led to +28% assignment completion.
4.	EOS Foundation and Microsoft Romania	Microsoft Showcase School (2021-2026)	National ecosystem program helping schools integrate AI-enabled Microsoft tools (Teams, Office 365) and adopt the Microsoft Education Transformation Framework. Teachers receive training and resources such as Minecraft Education kits to build digital and AI-ready pedagogy.	100 schools-initiated digitalization processes and 500 teachers achieved Microsoft Certified Educator (MCE) status.
5.	Microsoft and EOS Foundation	Microsoft Certified Educator (2020-2026)	Continuous professional training (CPT) program which certifies teachers in digital and AI-relevant competencies, including data-driven instruction, use of AI-augmented Microsoft tools, and computational thinking. The certification is officially recognized by MER with 15 CPT credits.	1,400+ Romanian teachers certified
6.	Vodafone Foundation & Junior Achievement (JA) Romania	School of the Future - AI and (IoT) modules (2023-2024)	Program integrating foundational AI concepts into middle school learning, exposing Grade 6-15 students to AI applications, future jobs, and ethics. Lessons also blend AI with IoT, digital citizenship, and problem-based exploration. The model reaches beneficiaries through JA's national infrastructure and Vodafone's LEARN digital platform.	20,654 students; 841 teachers; 440 schools

Sofia, Country Manager, Google Romania, stated:

"In the education sector, the infrastructure we provide as a platform already exists, but it is being used in a fragmented way. There is a need for a national vision that can bring these providers and all the resources together in coordinated implementation."

Overall, the private-sector initiatives show how companies are beginning to shape AI adoption at scale. However, much of this growth remains

supply-driven, propelled by providers introducing tools and platforms faster than schools articulate clear pedagogical needs or system-level demand. As a result, expansion is often fragmented, with schools experimenting with different tools without a unifying vision or coordinated implementation framework. In this context, international AI-powered ecosystems, adapted for Romanian language and curricula, increasingly complement both NGO-led and private-sector efforts. The following section examines these international tools and how they have been localized to support Romania’s emerging AI-enabled education system.

C. AI-POWERED EDUCATIONAL TOOLS IN ROMANIAN EDUCATION SYSTEM

International tools. Romania’s AI landscape is highly reliant on global tech ecosystems (e.g. Google, Microsoft) to accelerate deployment of AI tools in the education system. Various international AI tools (**Table 3**) have been adapted for Romanian language, metrics and curriculum alignment. These tools offer a wide range of functions, including classroom support for teachers, personalized learning for students, administrative and efficiency solutions, and platforms that foster creativity and innovation. Nearly all localized tools target AI literacy and training of teachers, reflecting a system where teacher empowerment and workload reduction are seen as prerequisites for AI uptake in classrooms. In addition, most international AI tools are not single, purpose-built AI education solutions. Instead, they are broad digital platforms that schools can already use for many everyday tasks, with AI features added on top over time. This suggests that Romanian schools are integrating AI through existing platforms rather than adopting specialized AI products.

TABLE 3²³: EXAMPLES OF INTERNATIONAL AI TOOLS ADAPTED TO ROMANIA

Category	Purpose and Functionality	International Examples (Localized ²⁴)
Platforms for Teachers	AI tools for lesson planning, content creation, assessment, and classroom management	Microsoft Education Suite (Immersive Reader ²⁵ , Reading Progress ²⁶); Google Workspace for Education tools (e.g. Notebook LM ²⁷ – available to Romanian schools and managed via admin controls alongside Gemini for Education); Minecraft Education (used in teacher practice or competitions).

23 This table was developed by the authors of this report.

24 In this report the term “localized” refers to the availability of internationally developed tools in the Romanian language, instead of referring to their alignment with the Romanian curriculum. In this table, only Khan Academy is partially aligned with the Romanian curriculum.

25 Available with partial feature support in the Romanian language.

26 Available in Romania via Microsoft Teams for Education. Language-specific capabilities for Romanian are partial.

27 Supports teachers with summarizing curricula, drafting lesson materials, creating study guides, and analyzing documents.

Category	Purpose and Functionality	International Examples (Localized ²⁴)
Platforms for Students	AI tools supporting personalized learning, homework help, and skill development	Khan Academy Romania (localized content and metrics); Gemini for Education (available to Google Workspace for Education tenants in Romania); Minecraft Education.
Administrative and Management Platforms	AI-driven solutions for school management and efficiency	Google Workspace for Education and Microsoft Teams (Romanian language support available; widely used by schools), Minecraft Education (supports school-wide projects and reporting in Romanian contexts).
Platform encouraging Creativity	Tools for creative teaching methods and student innovation	Canva for Education (free for verified teachers or students; adopted in Romania, with access supported via EduApps partnership (broad template library; many resources usable in Romanian)); DALLE 3 (globally available via ChatGPT or API)
Professional Development & AI Literacy	Training programs for teachers to integrate AI effectively	Microsoft Educator and Google for Education Training for Educators (widely used in Romania via MER-recognized initiatives and local partners (EOS Foundation, EduApps/ Clasa Viitorului)
Platform for Students	Language learning tool	Duolingo (provides Romanian language support; multiple language courses for Romanian speakers)
Platform for Teachers Students	Cutting-edge resources on AI and machine learning for teachers and students	Experience AI program (Raspberry Pi Foundation & Google DeepMind) is localized by TechSoup and delivered on Predau Viitor (lesson plans, slides, worksheets, videos; teacher courses).

Overall, Romania's evolving AI-in-education landscape is being developed largely through non-coordinated actions, with NGOs, private providers, and global tech companies introducing resources, training, and classroom-ready tools long before system-wide policies or infrastructure fully catch up. These actors, whether through NGO led teacher capacity building, private-sector platforms or international ecosystems actively shape how AI is understood, discussed, and experimented with in educational settings. Against this backdrop, the next section explores how the three key actors of the education

system (i) students (ii) teachers and (iii) school leaders are using AI in the classroom.

I.I STUDENTS: AI IN LEARNING AND DAILY SCHOOL LIFE

Romanian students have emerged as early and enthusiastic adopters of AI, using both global platforms and locally built tools to personalize learning, organize homework, and prepare for exams. Curriculum-aligned Romanian solutions (e.g. SARO, LearnMate, and BRIO) provide targeted academic support, while initiatives like Digitaliada and Alex AI extend AI's role into wellbeing, motivation, and digital citizenship. The result is a generation of learners who encounter AI daily in their learning, adopting tools faster than schools can formally integrate them. The next sub-section illustrates the purposes for which Romanian students use AI, together with examples of locally developed tools.

A. ²⁸

Students in Romania use AI tools to enhance their learning, from personalized tutoring to career planning. While public-sector AI integration remains limited, they actively utilize local tools (**Table 4**) to address diverse academic needs. This section explores key AI applications in four areas: personalized learning, homework support, language practice, and career guidance.

- **Personalized Learning and Tutoring:** Personalized learning solutions and AI-powered tutoring systems allow students to engage with curricular content at their own pace, request simplified explanations of complex concepts, receive step-by-step guidance, and practice skills repeatedly. In an education system marked by large performance gaps, limited access to individualized instruction (particularly for vulnerable students), and strong exam pressure, there is a growing trend among students to utilize AI-based tools for customized explanations and targeted practice, complementing traditional classroom teaching. For many Romanian learners, AI functions as an on-demand learning companion that complements, rather than replaces, teacher-led instruction. In Romania, students use a mix of general-purpose generative AI tools (e.g. ChatGPT, Google Gemini, Perplexity) as well as local solutions (e.g. Digitaliada) which provide academic support across a range of subjects, adapting explanations to accommodate each learner's unique pace, learning style, and specific needs.
- **Homework and Study Support:** AI-powered tools are significant resources for homework assistance and exam preparation, supporting Romanian students to navigate assignments, study materials more effectively and generate practice questions aligned with textbook content and difficulty levels. They deliver immediate feedback that assists students in identifying the areas where they require further practice. Romanian students use platforms like BRIO and

²⁸ Due to methodological limitations, specifically, the absence of student interviews, the statements attributed to students in this study have not been directly verified or approved by them.

ChatGPT for tailored testing and exam practice. In parallel, locally developed solutions such as SARO and LearnMate support students in consolidating subject-specific knowledge, structuring personalized study plans, and organizing assignments more systematically. SARO, specifically, has been shown to increase homework completion rates by 28 percent compared to those who have not used the tool.²⁹ A primary advantage of these tools is their continuous availability, reducing the necessity to await the following school day for academic support.

- **Language Learning and Skills Practice:** Language acquisition and communicative competency development are increasingly used in supporting language acquisition and communicative skills development among Romanian students as they help address linguistic barriers and enabling practice of skills. These tools allow learners to interact with AI systems in Romanian or in target foreign languages, receiving immediate corrective feedback on vocabulary or grammar. Such systems offer unlimited practice opportunities and systematic error correction, serving as valuable learning opportunities outside traditional foreign language instruction. Students use international platforms (e.g. Duolingo) to advance their language proficiency, grammatical accuracy, and conversational fluency across multiple languages. In addition, curriculum-aligned platforms (e.g. Digitaliada) support Romanian-language comprehension and literacy development by providing accessible explanations and exercises adapted to grade-level content. AI-enabled translation and language support tools can enable students from diverse linguistic backgrounds, including Ukrainian refugees and international learners, to meaningfully participate in Romanian classroom instruction, improving access to content across subjects.
- **Career Guidance & Counseling:** Romanian students, particularly at upper-secondary level (Grades 10-12)³⁰, are utilizing AI-enhanced career counseling systems to navigate future pathways. Platforms such as Youni, use AI-driven personality tests to guide career planning by outlining educational requirements (e.g., bachelor's degrees in specific fields), identifying necessary competencies (programming languages, foreign languages), mapping relevant industry sectors, and presenting progressive career trajectories. This integrated system simplifies university applications while providing structured pathways connecting academic preparation with professional advancement. By integrating career exploration with guidance on academic preparation and admissions processes, AI-enabled platforms help students make more informed decisions and reduce uncertainty around transition points between upper-secondary, tertiary education, and the labor market. In this way, AI-supported counseling functions

29 Business Review Romania. 2025. Results from the Generatia Tech pilot involving 1.900 participants.

30 In Romania, Grades 10-12 represent the last 3 years of high school. This is when students start preparing for university admissions in Romania or abroad. Statement according to Business Review Romania publication (2025).

as a complementary guidance mechanism within a system where dedicated, school-based career counseling capacity remains limited, particularly outside large urban centers.

Rather than engaging with AI through a single platform, Romanian students navigate a rapidly expanding ecosystem of global and locally developed tools, selecting solutions based on immediate academic needs, language support, curriculum alignment, and exam preparation requirements. The following section presents concrete examples of AI-powered tools currently used by Romanian students, in the context of significant system-level challenges.

B. AI TOOLS FOR ROMANIA STUDENTS

Romania is building a diverse ecosystem of context-adapted AI tools. Selected AI tools (**Table 4**) are developed and available in the Romanian language, and they are strongly aligned with the national curriculum, the Bacalaureate exam³¹, and local challenges i.e. high dropout risk, learning gaps, decreasing emotional wellbeing, limited and unequal access to tutoring. Several tools (Saro, LearnMate, BRIO) use education-focused AI models to ensure accuracy, safety, and curriculum alignment. Others (Alex AI and Buletin Digital) address socio-emotional and equity gaps, showing that local developers are creating solutions tailored to Romanian realities, including bullying, rural digital disadvantage, and post-COVID learning loss. These tools offer the country a strong foundation for growing AI capacity in education at local level.

A more detailed description of each of the below-presented AI tools can be found in **Annex 1**.

TABLE 4³²: EXAMPLES OF AI TOOLS³³ FOR STUDENTS IN ROMANIA

	Tool	Innovation / Key Feature	Goal
1.	Saro (Digital Nation)	AI personalized learning assistant supporting students in deepening knowledge in Bacalaureate subjects (Romanian Language, Mathematics, History, Geography) via WhatsApp.	Boosts homework completion, engagement and academic achievement
2.	Alex AI (Save the Children)	Interactive AI avatar designed to stimulate 9-10-year-old children who gradually experience the emotional effects of bullying.	Simulates the emotional impact of bullying on children and raises awareness about the emotional devastation caused by bullying on children.

31 The Bacalaureate exam in Romania is a national high-school leaving examination that students typically take at the end of Grade 12, which certifies completion of upper-secondary education and is required for access to most university programs.

32 This table was developed by the authors of this report.

33 In this report, "tools" means any artificial intelligence powered software, app, or platform that automates or enhances educational tasks by analyzing information, creating content, or delivering personalized assistance, such as adaptive learning platforms and intelligent tutoring systems.

	Tool	Innovation / Key Feature	Goal
3.	LearnMate (Adservio)	AI Assistant offering personalized learning plans, concept explanations, and quizzes. Suggests 7-day improvement individual plans.	Support students in tracking their progress and boost academic achievement.
4.	Youni	AI-driven counseling platform offering career guidance and university admissions for high-school students planning their academic future.	Facilitating career decision-making and simplifying higher education institution selection and enrollment procedures.
5.	Brio.ro	Adaptive testing platform using AI algorithms to personalize assessments for students grades 1-12 for Math, Romanian, History, Geography, Physics, Chemistry and Biology subjects.	Improve learning outcomes through testing and tailored feedback
6.	Digitaliada (Orange Foundation)	Digital platform providing interactive digital lessons and resources aligned with the Romanian curriculum	Enhancing accessibility to interactive coursework and educational resources.
7.	AI Generation (UiPath Foundation)	Curriculum for high school students based on The United Nations Educational, Scientific and Cultural Organization (UNESCO) AI competency framework designed to build students' basic AI knowledge and skills and encourage critical thinking and teamwork through project-based activities.	Provides exposure to real-world applications of AI
8.	Eduboom.ro	Educational platform delivering video-based instruction and engaging interactive assessments that enhance learning effectiveness, accelerate academic preparation, and promote balanced time allocation between scholastic and personal activities.	Render learning interesting and comprehensible for all learners.
9.	Buletin Digital (EduAct)	Digital literacy and academic motivation program targeting middle school students in institutions identified as high-risk for educational dropout.	Reduce dropout and labor market integration

Maria, Deputy Director, UiPath Foundation, stated:

"Digital skills have been part of our program from the very beginning. Before moving on to much more complex skills in using artificial intelligence, our students need to have a basic level of literacy—for both students and teachers. This is why we started the AI Generation."

Alexandra, Research and Development (R&D) Manager, Ascendia, stated:

"AI is a working tool, and if used incorrectly, it generates negative results. That is why it must be used effectively, and for that, teachers must learn to use it and to teach their students to use it too."

Romanian students are already engaging with AI across multiple dimensions

of learning, largely through self-selected tools and informal practices rather than through coordinated school-level implementation.

However, this also creates challenges³⁴. Students often use AI for quick answers, homework help, or exam preparation, but they do not always know how to check if the information is correct or complete³⁵. This is harder for students who already struggle with reading, critical thinking, or digital skills. Some students may copy AI-generated answers without fully understanding the subject or rely too much on AI instead of building basic skills³⁶. Students in rural or disadvantaged areas often have weaker internet, fewer devices, and less guidance from adults, which means they use AI more informally and with fewer safeguards. At the same time, limited guidance on safe and responsible use can expose students to privacy risks, misinformation, and online harms, including cyberbullying³⁷. These issues show that student use of AI needs clear rules, guidance, and support from schools and teachers.

The following section therefore moves from student use to the role of teachers, examining how AI is entering the daily work of educators and influencing instructional, organizational, and pedagogical processes.

I.II. TEACHERS: AI IN DAILY LIFE OF A TEACHER

As students increasingly incorporate AI into their learning routines, the role of teachers becomes even more important in shaping how these technologies are understood and used in classrooms. Teachers serve not only as facilitators of learning but also as critical mediators who guide responsible use, contextualize AI-generated outputs, and ensure alignment with curricular goals and assessment standards. With AI emerging, expectations around teachers' roles, skills, and workloads have shifted, bringing not only opportunities for more effective instruction but also new pedagogical and ethical challenges. By placing educators at the center of this transformation, new teacher competencies, ethical judgment, and confidence will be needed for navigating this environment. This section examines how teachers in Romania can engage with AI in their daily professional activities and how these tools are starting to influence lesson planning, assessment, and administrative tasks.

A. KEY AI USES FOR TEACHERS³⁸

While students increasingly adopt AI for personalized learning and homework support, teachers can turn to AI to streamline lesson preparation, differentiate

34 Given that no interviews were conducted with teachers, the following does not represent teachers' opinions but rather reflects the latest evidence and literature in this space.

35 Klingbeil et al. 2024. Trust and reliance on AI – An experimental study on the extent and costs of overreliance on AI. Published in Science Direct.

36 Gerlich. 2025. AI Tools in Society: Impacts on Cognitive Offloading and the Future of Critical Thinking. Published in Societies.

37 Kundu, A., & Bej, T. 2024. Psychological impacts of AI use on school students: a systematic scoping review of the empirical literature. Published in Research and Practice in Technology Enhanced Learning.

38 Due to methodological limitations, specifically, the absence of teacher interviews, the statements attributed to teachers in this study have not been directly verified or approved by them.

instruction, assess student work more efficiently, and access timely data for classroom decisions. AI is also starting to automate administrative tasks that traditionally consume a large share of teachers' time, enabling them to refocus on pedagogy, student engagement, and individualized support. This section explores some of the most significant ways AI can reshape teachers' daily practice.

- **Lesson Planning & Content Creation:** AI-powered tools can support Romanian teachers in lesson planning and instructional material development as they enable faster development of lesson content, personalized learning activities, and engaging digital resources. In a context where teachers face high administrative workloads and limited preparation time, these tools make lesson preparation more efficient while keeping the role of the teacher and pedagogical goals at the center. Romanian platforms such as LIVRESQ allow educators to design interactive, curriculum-aligned lessons and adapt instructional texts, dialogues, and activities to specific age groups, learning objectives, and lesson durations. AI-enabled tools can also suggest alternative pedagogical approaches, generate simplified or extended explanations for more complex concepts, propose real-world application examples, and create presentations or infographics to support learning. By reducing time spent on repetitive content creation tasks, these systems can enable teachers to focus more on instructional strategy, classroom interaction, and student support, positioning AI as an assistant supporting lesson planning rather than a replacement for professional judgment.
- **Assessment & Grading Support:** AI tools can support Romanian teachers across the assessment cycle, from design and administration to grading and feedback, by helping check student understanding more often without further increasing teachers' workload. BRIO, Romania's standardized digital testing platform, can generate curriculum-aligned items at calibrated difficulty levels for diagnostics, practice, and summative checks, and it auto-scores questions to provide instant, student-level feedback that teachers can act on quickly. In parallel, Adservio helps teachers assemble tests and quizzes based on class performance data and simplifies reporting to students and parents, reducing time spent on routine marking. In addition, EDUS.ro integrates EDUS Intelligence, an AI assistant that analyzes catalog data (e.g. absences, marks, performance trends) and provides the teacher with practical insights to inform instruction decisions, particularly for students at risk of falling behind. Platforms such as Digitaliada and Eduboom complement these functions by offering ready-to-use quizzes and curriculum-aligned practice that support continuous formative assessment. Together, these tools can facilitate teacher feedback, shift teacher time from manual grading to evidence-based instructional decisions, and help ensure students receive timely, relevant guidance to improve learning (cfr. Section II.II).
- **Evidence based and AI driven intervention:** Romanian teachers can increasingly rely on integrated school platforms to identify students at risk early on and make decisions accordingly. EDUS and Adservio analyze catalog data (marks, absences, trends) and provide teachers with practical insights they can act on, helping them to better sup-

port students whose performance or attendance patterns are worsening. The platforms connect^{39 40} and Success at School Assessment Tool (SASAT) , so that identification of at-risk students draws on multiple sources (academic results, attendance, behavior and socio-emotional indicators) rather than isolated observations. Together, they enable evidence-based identification of at-risk students and support quick, targeted responses (e.g. remedial activities, mentoring, counseling, family outreach), shifting time from manual gathering of this data to increasing time spent on follow-up with students for better learning outcomes.

- **Professional Development:** AI tools can help Romanian teachers develop professionally. Platforms such as Predau Viitor and RoboHub give teachers access to training materials on digital pedagogy and AI use, along with clear classroom examples and guidance tailored to different subjects. These platforms allow educators to explore new instructional approaches and reflect on practice through ready-to-use resources rather than standalone courses. In this way, AI supports teachers in their continuous skill development.

Romanian teachers can engage with AI mainly through tools that address immediate classroom needs and administrative pressures. It can also be used for lesson planning, assessment, communication, and monitoring of student progress. The next section gives clear examples of AI-based tools that teachers in Romania can use. It shows how these tools are used in practice and how they are designed to fit the national curriculum, reporting rules, and the everyday realities of teaching in Romanian schools.

B. AI TOOLS FOR ROMANIAN TEACHERS

In Romania, most AI tools for teachers are designed to save time and support better day-to-day teaching decisions (**Table 5**). Platforms such as Adservio, BRIO, EDUS.ro, and Digitaliada help automate routine tasks like creating tests, grading student work, preparing reports, and communicating with parents. This reduces the heavy administrative workload teachers face. Some providers, including RoboHub, EduApps, and Predau Viitor, also focus on teacher training and guidance on how to use AI safely and responsibly in the classroom. These initiatives recognize that teachers need confidence and clear ethical guidance to use AI effectively. However, these tools and programs operate separately, with limited data sharing or common standards. As a result, their impact remains fragmented at the level of individual schools or providers, and lessons learned are not yet brought together into a single, coordinated system.

A more detailed description of each of the below-presented AI tools can be found in **Annex 1**.

39 EWM uses real-time data from the Integrated Education Information System (SIIR) to detect early signs of student risk, such as low academic performance, grade repetition, absences, or inappropriate behavior.

40 SASAT collects direct input from students aged over 11 to assess risks like family background, school engagement, and social factors contributing to potential early school leaving.

TABLE 5⁴¹: EXAMPLES OF AI TOOLS FOR TEACHERS IN ROMANIA

	Platform/ Tool	Innovation / Key Feature	Goal
1.	Adservio	Full K-12 ⁴² education management platform (grades, attendance, homework, messaging). Helps generate tests and quizzes based on student level and performance. Used in 1,200+ schools with 1M+ users.	Reduce administrative workload for teachers, support data-driven decisions, and strengthen communication between teachers, students, and parents.
2.	EduApps	Provides training courses for teachers on digital platforms, e.g. Google for Education or Google Classroom.	Equips teachers with digital competencies to navigate evolving educational landscapes.
3.	Clasa Viitorului (Google Education, EduApps & Canva)	Platform providing access to digital tools, learning platforms (Google Education), and training that help teachers design more interactive, student-centered lessons and experiment with new pedagogical approaches.	Facilitates access to digital tools through a centralized platform, providing educators with an integrated working system.
4.	RoboHub (E-Civis Association)	Robotics and digital literacy center offering online/ in-person training, classroom guides, and ICDL Insights AI certification through its official status as a Center of Excellence in AI; provides hands-on AI or robotics workshops for teachers.	Equip teachers with foundational AI and robotics competencies and support integration of emerging technologies into instruction.
5.	LIVRESQ (Ascendia)	Authoring platform enabling teachers to create interactive, curriculum-aligned digital lessons; includes AI Enhancer (Azure OpenAI / GPT4) which generates, rewrites, or adapts lesson texts, dialogues, and content based on age, tone, lesson duration, or keywords. Used by 130,000+ teachers in 7,100 institutions.	Accelerate lesson planning, support creation of high-quality digital teaching materials, and personalize instructional content.

41 This table was developed by the authors of this report.

42 Refers to the entire range of pre-university schooling, from kindergarten (K) through Grade 12, covering early childhood, primary, lower-secondary, and upper-secondary education.

	Platform/ Tool	Innovation / Key Feature	Goal
6.	Brio.ro	Standardized digital testing platform (Grades 1-12) using AI-driven item generation for training modules across all subjects. Provides instant scoring and detailed diagnostic reports for teachers. Fully aligned with the national curriculum.	Improve assessment quality, help teachers identify learning gaps, and support targeted intervention and exam preparation.
7.	Digitaliada (Orange Foundation)	National digital learning platform with 700+ lessons, 2,000+ tests and a free AI chatbot offering lesson explanations, homework guidance, quiz suggestions, and resource recommendations aligned with Grades 1-8 curriculum. Serves 70,000+ active accounts in 2,600 schools.	Provide teachers with ready-to-use digital resources and AI-supported tools to enhance classroom instruction and student support.
8.	Predau Viitor (TechSoup)	Teacher professional development ecosystem (asynchronous courses, live community sessions, ready-to-use lesson plans) offering courses and resources on digital pedagogy, computational thinking, AI literacy, and localized Experience AI modules (Raspberry Pi & DeepMind) including AI safety, ethics, and critical use. Over 700 teachers trained.	Strengthen teachers' AI competencies, ethical judgement, and confidence in integrating AI and digital skills into classroom practice.
9.	EDUS.ro	Digital catalog and school management system integrating EDUS Intelligence, an AI assistant that instantly analyzes catalog data (absences, marks, trends, dropout-risk indicators) and generates actionable insights for school leadership and teachers. It provides centralized resource libraries, assignment management tools, and Romanian Agency for Quality Assurance in Pre-University Education (ARACIP)-aligned quality assurance support.	Enable quick, evidence-based instructional decisions, streamline reporting, and identify at-risk students earlier.
10.	Eduboom	Platform offering 9,300+ curriculum-aligned video lessons and tests teachers can use in class or for blended learning; supports multiple subjects and provides student-friendly, concise visual explanations.	Help teachers deliver concepts more clearly, support differentiated instruction, and enhance lesson engagement and comprehension.

Andrei, Director, EduApps, stated:

"We believe that artificial intelligence should not be an end to itself, but a useful tool alongside other tools that help teachers create educational content more easily and transmit it more effectively to students. What matters most is supporting teachers so they can discover for themselves how AI can be applied in the classroom, how to adapt AI to their own discipline and local needs."

As teachers use AI in their daily work, their impact is moving beyond individual classrooms to influence processes and decision-making at the school level. Platforms used by teachers generate data and insights that are also relevant at the institutional level, creating new opportunities for coordination, early intervention, and more informed management of resources and student support at school level.

While benefits are clear, the use of AI tools also brings challenges, as reflected through the interviews with system-level stakeholders, platform developers, and NGOs. Teachers often find that AI-generated content can be unclear, incomplete, or incorrect, especially when tools are not well aligned with the curriculum. This means that teachers still need to carefully review, adjust, and validate AI outputs before using them with students, which can reduce the expected time savings. Many teachers also feel uncertain about data privacy and child protection, as it is not always clear how student information is handled by AI tools or what is allowed under existing regulations. At the same time, growing student use of AI creates difficulties around assessment and academic integrity, leaving teachers to decide on their own what counts as acceptable support and what does not. These challenges are more difficult to manage in schools with fewer resources, limited training opportunities, or weaker technical support. Using AI in teaching is not just a technical issue, but also a pedagogical and ethical one, and teachers would significantly benefit from more clear guidance, training, practical support, and realistic expectations about what AI can and cannot do in everyday classroom practice.

The focus of the next section therefore shifts from classroom-level use to the role of school leaders, examining how principals and management teams in Romania are beginning to use AI-enabled systems to monitor performance, identify risks, and support strategic decision-making across schools.

I.III. SCHOOL LEADERS⁴³: AI IN SCHOOL MANAGEMENT AND DECISION-MAKING

Compared with students and teachers, AI use among Romanian school leaders is still emerging, with adoption concentrated in a few platforms that turn routine data (attendance, grades, wellbeing indicators) into actionable, school-level insights. Where these tools are present, directors can improve earlier identification of students at high risk of dropout and reduce paperwork. In cases where these tools are not present, leaders often continue to depend on manual collation, WhatsApp updates, and disparate reports.

⁴³ For this section, insights from the interview with a school director in a rural school in Romania have been used.

Romanian school leaders operate with limited institutional autonomy, influencing significantly how AI adoption happens at school level. Even when aware of AI's potential, principals report limited decision-making power due to regulatory constraints, reliance on local authority funding, and the absence of national guidance on AI use in schools. As a result, while AI-enabled school management platforms are available in Romania (**Table 6**), their uptake remains uneven due to structural rather than infrastructure barriers. While directors recognize the value of AI-supported dashboards for attendance monitoring, dropout risk identification, and administrative efficiency, most public schools, particularly in rural areas, lack the financial and procedural capacity to adopt these solutions in a sustainable way. School budgets⁴⁴ are largely absorbed by operational costs (teacher salaries, school maintenance, among others)⁴⁵ and do not include recurring allocations for digital or AI-tool subscriptions, making even modest licensing fees difficult to sustain over time. At the same time, procurement decisions are constrained by governance requirements, as investments in new platforms must pass through Boards of Administration⁴⁶ and, in some cases, local authorities, with schools not being legally allowed to transfer costs to parents. As a result, AI adoption for school leadership tends to depend on short-term projects, limited pilot access, or the free tiers of platforms, leading many schools to continue relying on manual data aggregation and informal coordination tools (e.g. spreadsheets and messaging applications).

Bianca, School Director, Rural public school, stated:

"If we had a platform where, with one click, we could see which students are at risk or how absences are accumulating, it would make our work much easier. Right now, we rely on WhatsApp groups and manual checks to see if everything matches the electronic catalog. If such tools were free, everyone would use them but with our budgets, we simply don't have the recurring funds for this."

A. KEY AI USES FOR SCHOOL LEADERS

In cases where principals have access to these technologies, they can be supported with monitoring dropout risks, strengthening communication with parents, and making faster, evidence-based decisions, leading to positive school climate, more effective resource allocation, and better student outcomes. The following section outlines the keyways in which AI can support principals in Romania's preuniversity education system.

- **Data-driven decision-making:** AI can enable data-driven decision-making that enhances institutional effectiveness and educational outcomes. By aggregating and analyzing data from multiple sources,

44 In Romania, 95 percent of all education spending comes from the government, mainly the Ministry of Education (the highest share in the EU). The Ministry of Finance allocates some budget to municipalities and school inspectorates. From that budget local governments (e.g. city halls) can generally provide schools with financing for utilities (heating, electricity), minor repairs etc. However, this budget is very limited, particularly in rural or under-resourced areas.

45 OECD. 2025. Education and Skills in Romania.

46 Boards of Administration (Consilii de Administratie) are the formal governing bodies at school level that approve key financial, administrative and strategic decisions.

AI systems like Adservio's AI assistant for school managers, can provide timely insights and predictive analyses. Leaders report that having a single view of risk would improve planning and forecasting (e.g. bursary eligibility, absenteeism projections), moving schools from reactive to preventive practice. Similarly, EDUS Intelligence allows leaders to make correlations between absences, grades, and other administrative indicators, helping them save time.

- **Strengthened safety and compliance:** AI-powered systems can analyze attendance data, behavioral reports, and incident records to identify patterns that may indicate safety concerns (e.g. bullying, absenteeism, or potential threats) allowing school managers to intervene early. In addition, AI can support compliance by automating documentation processes, tracking policy implementation, and ensuring alignment with legal and institutional requirements related to student welfare. Tools already available in Romania illustrate this potential. Adservio's AI Assistant integrates attendance, performance, and behavioral data and includes dedicated violence-reporting modules aligned with national safety protocols, enabling principals to identify emerging risks without relying on parallel paper files or informal cross-checks. EDUS Intelligence further supports ARACIP compliance by linking catalog data with institutional procedures and allowing school leaders to query correlations between absences, performance trends, and reported incidents in real time. Kinderpedia provides centralized documentation and secure communication channels that allow for follow-up actions with families.
- **Improved operational efficiency:** AI can help school managers simplify administrative processes and optimize the use of time and resources. AI tools can be used to automate routine tasks such as scheduling, enrollment management, attendance tracking, and reporting, thereby reducing administrative workload and minimizing human error. By analyzing operational data, AI can also support more effective allocation of staff, classrooms, and budgets, as well as forecast future needs, enabling school managers to focus more on strategic planning and educational leadership, while ensuring that daily operations run smoothly, cost-effectively, and in alignment with institutional goals.
- **Engaging parents and the community:** School managers can also use AI to enhance parent and community engagement by facilitating timely, personalized, and transparent communication between schools and stakeholders. AI-powered platforms can provide parents with real-time updates on student progress, attendance, and school activities, while offering multilingual support to ensure accessibility for diverse communities. By supporting feedback collection, AI can help foster stronger collaboration, trust, and shared responsibility between schools, parents, and the wider community.

B. AI TOOLS FOR ROMANIAN SCHOOL LEADERS

While only three dedicated AI-enabled solutions in the Romanian language have been identified to support school leaders (**Table 6**), these tools, when adopted by schools, can represent a significant shift toward data-driven

school management. All three platforms integrate AI primarily to analyze real-time operational and student data. This can be done through (i) daily natural-language reports summarizing attendance, performance, and wellbeing trends (Adservio's AI assistant) (ii) answering directors' questions about dropout risks or grade-attendance correlations within seconds (EDUS Intelligence) or (iii) centralized reporting and communication suite (Kinderpedia).

For a more detailed description for each of the below-presented AI tools see **Annex 1**.

TABLE 6⁴⁷: EXAMPLES OF AI TOOLS FOR SCHOOL LEADERS IN ROMANIA

	Tool	Innovation / Key Feature	Goal
1.	Kinderpedia	School management suite with centralized reporting, class and attendance management, secure communication, and manager-level visibility across activities; reduces admin load by 6-9 hours per week.	Operational efficiency: streamline processes, unify data and communication, and provide leaders with real-time overviews of school operations.
2.	Asistentul Personal pentru Directori (Adservio)	AI-integrated leadership dashboard that generates daily, natural-language summaries of school status (attendance, performance, wellbeing) and reports or analytics for decision-making; platform widely deployed (1,200+ schools, 1M+ users). It also supports a violence reporting module integrated with national safety protocols.	Data-driven leadership: speed up strategic and operational decisions; monitor risks (absences, declining performance); improve communication and governance.
3.	EDUS Intelligence (EDUS.ro)	AI assistant for principals integrated into EDUS.ro that answers questions over catalog data (dropout risk, absence/performance correlations) in seconds.	Supports school directors in processing data from the electronic gradebook to deliver instant answers on student performance, absenteeism trends, dropout risks, and correlations like attendance impacting grades, saving directors hours of manual analysis.

Interviews suggest that school leaders need different AI skills than teachers or students. For principals, AI is mainly used to support administration and decision-making, rather than teaching. This means their main skills involve understanding and interpreting data, and judging whether AI-generated insights can be trusted. Principals report that they do not fully rely on automated results and usually feel the need to double-check them against the original data and their own professional judgment. They are also aware that tools claiming to detect AI-generated student work are not reliable enough to be used for final decisions. In addition, school leaders have specific responsibilities related to data privacy and child protection, as AI systems often process sensitive student information. Making these leadership-specific needs clear helps avoid the assumption that all education actors only need the same basic AI literacy, which does not reflect the different roles and risks faced by school leaders.

.....

47 This table was developed by the authors of this report.

Overall, a wide range of AI-supported tools are available in Romania for students, teachers and school leaders to use. While students can rely on them for personalized learning and study support, teachers can utilize it for lesson planning, assessment, and feedback, whereas school leaders can use AI-enabled systems to improve decision-making, safety, and operational efficiency. However, in many cases, adoption remains fragmented, shaped by structural constraints related to funding, governance, and access rather than by a lack of interest or technical capacity. The following chapter brings concrete examples and projects funded by the European Union (EU) that illustrate how AI is being implemented, tested, and scaled through targeted initiatives, pilot programs, and partnerships.

I.IV. EXAMPLES AND PROJECTS FOR AI USAGE AND INTEGRATION

A. EU-FUNDED INITIATIVES

Romania's approach to integrating AI and digital technologies in education is strongly supported by European Union programs, which provide financial resources, policy alignment, and opportunities for cross-border collaboration. These initiatives aim to accelerate Romania's digital transformation in schools and ensure equitable access to advanced technologies.

At the core sits the **National Recovery and Resilience Plan**, which enables school digitalization and establishes the infrastructure required for AI integration. Key initiatives include:

- **NRRP – Component 15 (Education) for 2021-2026**, allocating €1 billion for digital transformation, specifically funding digital equipment, training on the Mandatory Electronic Catalog (SIIR) and the national assessment and content platform "Școala ONLINE".
- **Mandatory Electronic Catalog (SIIR)** from the 2025-2026 school year for all schools, enabling unified, lawful datasets for AI dashboards and monitoring.

Alongside NRRP, **the Education and Employment Program (PEO)^{48,2} 2021-2027** provides complementary support by financing digital competences, teacher upskilling, and measures for equity and inclusion. Through its dedicated priorities for education and lifelong learning, PEO strengthens human capital and provides a vehicle for embedding AI literacy into mainstream professional development. The adoption of DigCompRo in April 2025, Romania's national digital-competence framework aligned with EU DigComp, has also been funded through PEO.

The **Digital Europe Program (DIGITAL)** further accelerates deployment-ready AI and cybersecurity capacity through Romania's network of European Digital Innovation Hubs. These hubs are directly relevant to education authorities, inspectorates, and school clusters seeking test-before-invest opportunities for AI tools, cybersecurity readiness, and advanced digital-skills training. Through

48 [Education and Employment Program 2021-2027](#)

this network, DIH4Society (Cluj-Napoca), Transilvania DIH (North-West), FIT EDIH (Braşov), Wallachia eHub (South-Muntenia), CiTyInnoHub (South-East), eDIH-DIZ (Iaşi), and DIGIVEST (Timişoara) collectively support SMEs, educational institutions, researchers, teachers, and public institutions, enabling the development of digital skills, adoption of innovative technologies, and experimentation with AI applications.

Finally, Romania benefits from the **European Regional Development Fund (ERDF)** and **Smart Growth, Digitalization and Financial Instruments Program (PoCIDIF) 2021-2027** strategic investments and **Erasmus+ cooperation instruments**, which reinforce national R&D capacity and cross-border pedagogical innovation. These initiatives connect Romanian teachers, universities, and EdTech actors to European research and practice communities that model ethical, inclusive, and responsible AI use. The most relevant EU actions include:

- **Romanian Artificial Intelligence Hub (HRIA)** established under *PoCIDIF*, co-financed by the European Regional Development Fund and coordinated by the National University of Science and Technology Politehnica Bucharest in partnership with six leading Romanian universities and eight innovative small-medium enterprises (SMEs), aims to create and operationalize an ecosystem of excellence in AI that consolidates academic research, industry innovation, and technology transfer both nationally and within the EU.
- **Inclusive Digital Education and Teacher Empowerment Academy (IDE-ATE)** is an Erasmus+ initiative involving education partners (Suceava County School Inspectorate, George Tofan Teachers' Training Center) and international universities, focused on training educators to deliver more inclusive, digital, and future-ready education.
- **Engagement with AI** is an active eTwinning project⁴⁹ designed as a short-term collaborative learning initiative for secondary school students aged 14-18 and their teachers across partner schools in Romania, Azerbaijan, and Türkiye.

Overall, these EU-funded initiatives are building the foundational blocks for AI integration in pre-university education. However, several AI alliances and partnerships do not include pre-university education actors. While initiatives such as HRIA and the European Digital Innovation Hubs bring together universities, research institutes, public administrations, and private companies, schools and pre-university authorities are often absent as core partners rather than active co-designers or test sites. As a result, these alliances build valuable national AI and research capacity but only indirectly benefit schools. Pre-university AI adoption therefore continues to rely largely on NGO- and privately developed platforms and on individual teacher initiatives, limiting opportunities to systematically test, validate, and scale AI solutions within the formal school system.

⁴⁹ Hosted by the European School Education Platform, an eTwinning project is a collaborative, technology-enhanced educational partnership between schools from different European countries (or within the same country), focusing on a specific subject, theme, or topic.

I.V THE ED-TECH ECOSYSTEM IN ROMANIA: CURRENT STATE & EMERGING TRENDS

Romania's digital transformation in education is driven less by central policies and more by a diverse range of actors, each advancing pieces of an emerging system. While national policies increasingly recognize the importance of digital transformation and AI, experimentation at the grassroots experimentation and private-sector innovation advance faster system-wide coordination.

International platforms. The global EdTech ecosystems such as Microsoft Education, Google for Education, Khan Academy, and Canva for Education are increasingly being used in Romanian schools. With Romanian-language support, these platforms provide lesson planning, assessment automation, accessibility features, and generative content assistance. Teachers can integrate these tools into their teaching practice, gaining access to ready-to-use mechanisms for personalization, differentiation, and classroom management. Rather than being adopted as standalone AI products, these platforms function as multipurpose digital environments through which AI capabilities enter schools gradually.

The local EdTech market. Alongside global solutions, Romania's homegrown EdTech sector has evolved into a sophisticated and increasingly scalable market. Platforms such as Adservio, EDUS.ro, BRIO, Digitaliada, LIVRESQ, Clasa Viitorului, and the emerging AI-based LearnMate demonstrate strong curriculum alignment, integration with national quality-assurance frameworks (e.g., ARACIP), and a deep understanding of Romanian school realities. Adservio, now serving more than 1 million users across over 1,200 schools, provides AI-enabled analytics for principals and teachers. EDUS.ro delivers AI-driven early-warning indicators on attendance, performance, and wellbeing. BRIO remains the only standardized, AI-enhanced testing platform fully mapped to the national curriculum, while Digitaliada reaches over 70,000 active accounts through interactive lessons and an AI chatbot trained directly on Romanian curricular content. Together, these solutions illustrate Romania's capacity to locally adapt AI to national exams, Romanian-language accuracy, and context-specific pedagogical constraints. Their emphasis on localization is an important prerequisite for future scaling.

Research and innovation enablers. One strength of Romania's EdTech ecosystem is the growing set of structures that support research, testing, and long-term use of AI tools. The Romanian Artificial Intelligence Hub brings together universities and small and medium-sized companies to develop AI models, datasets, and tools adapted to the Romanian language and context. While HRIA mainly focuses on research rather than schools, HRIA will be highly valuable for schools only if the country creates clear pathways from AI research to classroom testing and wider adoption across the education system.

In parallel, the network of European Digital Innovation Hubs, present in six regions across Romania, helps spread these capabilities more widely. The hubs offer places where organizations can test and pilot digital tools, receive training, and access technical support in areas such as AI, cybersecurity, and advanced digital technologies. By sharing expertise across regions, this

network helps move away from reliance on major cities and makes advanced digital research accessible nationwide.

Professional learning networks. Professional learning networks such as the eLiT Education Network, together with EU-funded initiatives like IDEATE, embed Romanian teachers and institutions into European communities of practice focused on inclusive and digital pedagogy. By taking part in the European EdTech Alliance, Romanian EdTech companies can compare their solutions with others, learn common technical standards, and use shared evidence frameworks. This helps them move beyond small pilots and develop solutions that work across Europe, increasing their visibility in the region.

NGOs as an informal capacity infrastructure. Romania's EdTech ecosystem is strengthened by strong collaboration between different types of actors. The EDU Networks Programme, coordinated by AVE, brings together NGOs, foundations, EdTech providers, and networks of schools to support leadership development, digital skills, and organizational change in hundreds of schools. At the same time, NGOs and EdTech labs (RoboHub, ECivis, APED, EduApps, TechSoup/Predau Viitor, and Save the Children) support early adoption by training teachers, developing open resources, and testing ethical and responsible uses of AI, often before national guidance is available. These NGO-led initiatives play an important role in helping teachers build confidence and willingness to use AI in education.

Emerging student-driven EdTech adoption. Beyond tools formally adopted by schools, several Romanian AI-based platforms are increasingly used directly by students. Solutions such as SARO, Youni, and Eduboom are gaining popularity among learners, especially at upper-secondary level, without going through school procurement processes. Students use these tools mainly for exam preparation (including the Baccalaureate exam), career and university guidance, and personalized study support that is available at any time, often through familiar channels such as WhatsApp. This growing use points to a growing consumer EdTech market, where students actively choose AI tools to fill gaps in tutoring, guidance, and feedback. As a result, expectations around instant feedback, personalized explanations, and constant access to learning support are changing. In many cases, student-driven adoption is moving faster than institutional integration at school level, shaping how AI is used in practice even where schools have not yet adopted or regulated these tools.

These developments show that Romania has an active and innovative EdTech ecosystem, but one that is still fragmented. Many good solutions exist, yet they are not always connected or scaled in a coordinated way. With emerging system-level supports such as HRIA and the network of European Digital Innovation Hubs, Romania has a strong opportunity to move beyond small, isolated initiatives. The main challenge ahead is not creating new tools, but making existing ones work together, supporting them over time, and expanding what works through shared standards, public-private cooperation, and sustained investment.

PART II: NEEDS AND CHALLENGES ASSESSMENT

II.I. INFRASTRUCTURE NEEDS AND CHALLENGES

Romania's education system is undergoing a gradual digital transformation, shaped by post-pandemic investments, EU funding instruments (notably NRRP, and recent policy attention to digitalization and emerging technologies. During the COVID-19 pandemic, the government launched the *"Școala de Acasă"* interventions, mobilizing national and EU resources to distribute over 250,000 laptops and tablets to disadvantaged students. Through the **NRRP (Component 15)**, Romania has allocated over €1 billion for digital infrastructure in schools, including high-speed connectivity, smart classrooms, learning management systems, and the development of a national digital education ecosystem. The NRRP-funded program *"Equipping pre-university educational units with furniture, teaching materials, and digital equipment"* equipped schools with furniture, teaching materials, and digital tools e.g. interactive boards, laptops, informatics labs, and printers, with plans to equip more than 5,800 schools nationwide with digital equipment by 2026. Complementing this, through the **National Program for Reducing School Dropout (PNRAS)**, part of NRRP, over 2,253 schools benefited from funding of up to 300,000 euros per school for laptops, interactive tables, tablets, and software, enhancing digital learning particularly in vulnerable areas. In 2025, the **Euro 200 program**, ongoing since 2004, offered EUR200-vouchers to 1,869 beneficiaries to disadvantaged students for personal computers. Finally, programs such as **România Eficientă** renovated schools with energy-efficient digital setups. NGOs and private campaigns, such as ECOTIC's IT equipment drives, targeted underserved rural and urban schools with donated laptops and hardware annually. The World Bank-funded **Romania Secondary Education Project (ROSE)** closed in 2025, invested in 55,000 laptops in 900 high schools, complemented by training to help school principals and teachers use digital technologies for personalized learning.⁵⁰ Nonetheless, infrastructure challenges, particularly in disadvantaged communities, continue to hinder an equal and inclusive AI adoption.

A. DEVICE ACCESS

The Organization for Economic Cooperation and Development (OECD) Program for International Student Assessment (PISA) 2022⁵¹ show that 26 percent of Romanian students (vs. the 24-percent OECD average) attend schools where principals report a lack of digital resources, suggesting that a significant number of schools nationwide cannot reliably access basic ICT tools available for learning. While national and EU-funded programs have improved device accessibility, this was often emphasized to be partial and

50 Ministry of Education of Romania, 2023; Government of Romania, 2022.

51 OECD PISA 2022. Data from Principal Questionnaire for Romania.

inconsistent.⁵² In many schools, devices are shared across classes, confined to computer labs, or limited to specific projects, rather than being available for routine, whole-class instruction. These constraints are particularly acute in rural and small-town schools, where equipment is more likely to be outdated or low-spec⁵³, capable of supporting basic digital activities but insufficient for AI-enabled platforms or multimedia-rich applications.

Substantial disparities in digital access also exist between Roma and non-Roma students. At the household level, more than a third of Roma families lack regular access to a computer, laptop or tablet⁵⁴, with smartphones often being the only accessible device. Roma children are therefore far less likely to have access to a dedicated learning device, often relying on shared smartphones or intermittent mobile data. Evidence from the European Union Agency for Human Rights (FRA)⁵⁵, the United Nations Children's Fund (UNICEF)⁵⁶ and World Bank diagnostics⁵⁷ shows that schools serving Roma communities face compounded disadvantages, including older, shared, or low-spec equipment.

B. CONNECTIVITY

Romania ranks among the EU leaders in fixed broadband (fiber) coverage, providing a strong physical backbone for digital learning tools, even as 5G mobile coverage remains relatively low.⁵⁸ However, coverage does not equate to functional connectivity in schools. Connectivity quality, i.e. stability, bandwidth, and internal network capacity, has emerged as a more binding constraint than device availability, particularly for cloud-based and real-time digital tools. School-level connectivity is reported by stakeholders to be highly uneven, with a persistent urban-rural divide.

This evidence is complemented by national statistics⁵⁹ which show internet access remains lower in rural areas (95 percent urban coverage vs 83 percent rural coverage), and PISA⁶⁰ recent data indicating that rural schools are significantly more likely to report inadequate internet speed, instability, and insufficient network capacity. World Bank diagnostics⁶¹ further show that

52 PISA 2022. ICILS 2023.

53 European School Education Platform. 2023. Rural schools need more than just connectivity.

54 FRA. Roma in 10 European Countries. Main results (2022), Romania data.

55 FRA. Roma Survey 2024. Perspectives from Romania. 2025.

56 UNICEF. 2024. Europe's Forgotten Children: The Rights of Roma Children.

57 World Bank (2018). Romania Systematic Country Diagnostic - Education Background Note.

58 European Commission (DESI Connectivity indicators); ANCOM (2024). DESI data shows Romania among the top EU performers in FTTP/B coverage, while 5G household coverage remains below the EU average.

59 Business Review Romania. December 2024 (based on Romania's National Institute of Statistics ICT Household Survey).

60 PISA 2022. Data from Principals' Questionnaire for Romania.

61 World Bank (2023). Romania Systematic Country Diagnostic Update.

rural schools frequently rely on temporary connectivity (e.g. mobile hotspots) solutions and struggle to support simultaneous classroom use. In contrast, only 15 percent of students in urban schools⁶² attend schools where internet connectivity or digital infrastructure hinders instruction. As a result, whole-class, AI-supported or real-time digital instruction remains far less feasible in rural schools than in urban ones, even with existing basic broadband coverage.

At the household level, while internet prices in Romania are relatively low (6.3 percent of average national income for a basic internet package)⁶³, affordability remains a significant barrier for rural families (also more likely to experience lower incomes and higher poverty risks).⁶⁴ EU⁶⁵ and national data⁶⁶ show that cost-related reasons for non-internet use are more prevalent in rural areas, making it disproportionately difficult for low-income households to afford, even where coverage exists.

C. SUSTAINABILITY AND TECHNICAL CAPACITY

A recurring concern also remains sustainability and system integration. Infrastructure investments are perceived as project-based, with limited provision for maintenance, renewal, software updates or technical support once initial funding ends. Schools often lack dedicated ICT staff or recurrent budgets for repairs and replacements⁶⁷, leading to a gradual erosion of digital capacity over time. These constraints are particularly pronounced in rural and disadvantaged schools, which face weaker access to technical services and rely more heavily on time-bound projects or external support. As a result, teachers and school leaders frequently resort to informal workarounds, including the use of personal devices, mobile data, or ad-hoc scheduling of shared equipment, to compensate for infrastructure gaps. These constraints are particularly pronounced in rural and disadvantaged schools, where access to qualified technical services is weaker and where schools are more dependent on short-term projects, NGO support, or external donors.

D. SUBSCRIPTIONS FOR AI TOOLS AND PLATFORMS

Despite a substantial infrastructure push under the NRRP, there is no financing line for school-level AI Software as a Service (SaaS) subscription⁶⁸. As a result, many teachers default to free tiers or intermittent access. NRRP funded devices, labs, national platforms and training but it has not allocated any resources for commercial AI licenses (e.g. ChatGPT Plus) or their renewal. As mentioned previously, schools face structural gaps in recurrent funding after

62 PISA 2022. Data from School Questionnaire for Romania.

63 ITU. 2024. Measuring Digital Development: The Affordability of ICT Services.

64 World Bank. 2022. Poverty in Romania: A Look Into the Past, an Assessment of the Present, and a Hope for the Future.

65 Eurostat, ICT Households Database For Romania. 2024

66 Epure et al. 2024. Rural Development and Digitalization in Romania.

67 OECD. 2025. Education and Skills in Romania.

68 Software as a Service (SaaS) is a model where software is hosted by a provider and accessed over the internet for a recurring fee, rather than being bought once and installed locally.

projects end, making it difficult to assume new, ongoing digital costs. Basic per-pupil funding (approx. EUR2.050⁶⁹) covers operations, not specialized SaaS, and schools show recurrent challenges in “staying within the budget”, further constraining operating space. The lack of central financing for optional software subscriptions is confirmed by recent Ministry decision on the electronic gradebook. Specifically, in 2025, the Ministry allowed all schools to use the electronic gradebook but required mandatory reporting in the state SIIR module. Schools may keep private catalog apps only if paid from their own revenues, not through parent contributions.

II.II. SYSTEMIC CHALLENGES

A. GOVERNANCE

Romania’s education sector grapples with the absence of a dedicated national AI-in-education strategy. While the National AI Strategy 2024-2027 outlines broad goals like AI skills development and ethical adoption, naming Education and Skills as key pillars, it lacks specific education-focused roadmaps, dedicated funding streams or guidance for classroom-level use, curriculum integration, procurement of AI tools, teacher responsibilities, or evaluation of impact.

While the country receives significant EU funding and takes part in many European and international initiatives on AI and digital transformation⁷⁰, there is little evidence that these efforts are sufficiently connected to national education policy.⁷¹ European partnerships and multistakeholder platforms are not always used consistently to turn shared discussions, standards, and lessons into clear guidance for schools. As a result, work on AI in education remains fragmented, and alignment with EU-level initiatives exists mainly on paper, rather than in day-to-day education governance and practice.

The absence of an education-specific framework is particularly visible in the area of ethics and data governance. In the EU regulatory context, the AI Act⁷² places education-relevant systems (e.g., automated assessment) under a high-risk regime that requires risk management, bias testing, human oversight and incident reporting. Romania has not yet embedded these obligations into pre-university guidance, creating uncertainty for schools. While GDPR-compliant AI guidelines exist broadly, education-specific rules on bias mitigation or the handling of sensitive learning and behavioral data for students is absent, raising risks in using AI tools. This governance gap can particularly impact minors, as well as vulnerable students, with evidence showing Roma communities being more exposed to online harms.⁷³ In education systems lacking sector-specific safeguards, these gaps can undermine trust and exacerbate inequities even further.

69 Government Decision no. 282 / 20 March 2025.

70 OECD. 2025. Education and Training Monitor.

71 Dragomir. 2025. The role of the European Union in shaping an ethical and legal framework for artificial intelligence (AI) in education.

72 EU AI Act.

73 European Commission. 2024. Digital Inclusion of Roma: Current Patterns, Trends, and Barriers

Without sector-specific rules for data protection, ethics, procurement, quality assurance or evaluation, AI adoption depends heavily on individual teachers' choices, producing fragmented practice and variable safeguards across schools, a risk flagged by various OECD and EU reports.⁷⁴ Cases of "premature pilots," especially with generative AI, reflect this challenge, as educators test tools before safeguards or competencies are fully in place. In addition, frequent changes in ministry leadership have interrupted adoption efforts, discouraged the development of binding national guidance, and facilitated the emergence of decentralized, school or NGO-led action.

As a result, Romania's current trajectory in AI adoption has become predominantly through unscalable interventions conducted in a disjointed, uncoordinated manner. NGOs and private actors have played a central role in translating AI into practice through teacher training, pilot tools, and classroom-ready resources, while international tools serve as the de facto infrastructure through which AI reaches schools. However, without common data standards or evaluation frameworks, their impact remains localized rather than systemic.

Although new high school curricula and MER's planned 2026 guidance on responsible AI use signal progress, practical implementation remains slow, leaving schools to navigate ambiguity rather than follow a shared national model.

B. CURRICULUM INTEGRATION

Discussions about how to introduce AI in primary and secondary education usually focus on two main approaches. One is to teach AI as a separate subject, often within ICT classes. The other is to integrate AI across different subjects, using it both as a topic to study and as a tool for learning. Many education systems are now moving toward a blended model that combines both. This involves all students learning basic AI skills across different subjects, while being offered optional courses to study AI and computing in more depth (for those especially interested in specializing in AI).

Teaching AI as a separate subject allows for clear structure, defined learning goals, and easier assessment and teacher preparation. In Romania, this can be seen in optional courses such as *Introduction to Machine Learning* in Grades 11-12 and in the strong role of Informatics in upper-secondary education. However, on its own, this approach can reach only a small group of students and make AI seem relevant mainly to those interested in STEM.

A cross-cutting approach integrates AI into many subjects and grade levels. Students may explore data and bias in social studies, discuss ethics and media credibility in language classes, or use AI-supported feedback in science and writing. This makes AI more relevant to everyday learning and helps students who are not drawn to technical subjects. It also fits well with DigCompStud, defining digital competencies and descriptors that schools can use to plan progression by cycle, including strands on safety, problem-solving and

74 OECD / DG REFORM Policy Perspective. 2024-2025. Reforming school education in Romania; European Commission. 2025. Education and Training Monitor: Romania.

foundational AI-related topics.

In practice, Romania currently sits between these two models, without fully benefiting from either. While policy documents and the under-consultation high-school curricula encourage transversal AI integration⁷⁵, there is little clarity on what students should learn, at what depth, and how this should be assessed. As a result, AI use depends largely on teacher initiative and on platforms such as Digitaliada, LIVRESQ, SARO, BRIO, and LearnMate, rather than on clear curriculum standards. This leads to uneven exposure to AI across schools, subjects, and regions.

At the same time, the use of advanced AI tools in classrooms shows that the curriculum, teaching methods, and assessment are no longer well aligned. AI tools are present in classrooms but not anchored in assessment frameworks or pedagogical guidelines. For example, BRIO provides standardized, AI-supported item generation and adaptive practice aligned to the national curriculum, Digitaliada offers a free AI chatbot for lesson explanations and homework help, and Adservio/EDUS integrate AI assistants for insight-at-a-glance reporting. However, none of these are formally included in national assessment frameworks or grading standards, so teachers tend to use them as add-ons rather than designed components of instruction.

While the Romanian curriculum still prioritizes traditional disciplinary knowledge, in practice, students and teachers already use these rapidly evolving tools their daily study routines (e.g. SARO) that require competencies in prompting, critical interrogation of AI outputs, data literacy, and ethical reasoning, yet these are also absent from formal assessment criteria and rarely linked to teaching standards.

Additionally, assessment methods have not caught up. Assessment practices in the Romanian Kindergarten through Grade 12 (K12) system remain heavily focused on rote memorization and factual recall, with high-stakes exams (Grade 8 National Evaluation and Baccalaureate) leaving little formal space for project-based, digital, or AI-mediated learning to influence learning outcomes.⁷⁶ As a result, schools have little curricular or systemic incentive to prioritize digital competence development, even in subjects where it would be highly relevant (e.g., science, geography, and social studies). While teachers report⁷⁷ frequent use of digital tools and, increasingly, AI-supported activities for learning and feedback, these practices are often perceived as supplementary rather than essential, since they have limited influence on student performance in high-stakes national evaluations. Innovative teaching approaches tend therefore to be treated as enrichment or extracurricular activities, particularly in examination years, reinforcing a misalignment between classroom practice and assessment incentives. Nonetheless, international evidence underscores the urgency of assessing digital competencies, not only subject content. Romania's average PISA 2022 scores lagged behind the OECD average by 50 points, and ICILS 2023 shows a large share of Grade-8 students at or below the baseline in computer and information literacy.

75 DigCompStud, DigCompEdu, the AI National Strategy.

76 OECD. Review of Evaluation and Assessment in Education: Romania.

77 OECD. 2024. Teaching and Learning International Survey (TALIS)

This policy-practice gap leaves teachers without a clear sense of how AI should shape lesson planning or how students' AI mediated learning should be measured, prompting reliance on informal, bottom-up small-scale experimentation rather than coherent, curriculum aligned practice.

C. SMALL SCALE INNOVATIONS

As mentioned above, small-scale, bottom-up initiatives bring energy and innovation but rarely achieve lasting, system-wide impact. NGOs remain the main engines of AI literacy and teacher capacity, especially in underserved communities, but their work is often short-term, grant-dependent, and vulnerable to fading once funding ends. Even when these initiatives succeed in raising awareness or shifting mindsets, their influence tends to stay localized, as schools lack mechanisms to absorb and sustain them. Those that offer longer-term mentoring and communities of practice (e.g. EduAct) show stronger results but are difficult to finance and replicate at scale. Private providers have introduced powerful tools e.g. Adservio, LIVRESQ, but the scaling of successful pilots is often constrained by the absence of national standards, procurement pathways, or evaluation frameworks. The result is a supply-demand mismatch, with supply-side innovation (NGOs and private providers) moving faster than public-sector coordination (national guidance, funding lines). This leaves many promising initiatives without a pathway into national policy, even as use is growing among education actors.

D. PUBLIC-PRIVATE PARTNERSHIPS (PPPS)

Romania has a mature private AI/EdTech sector, with some solutions already deployed at scale. However, when it comes to public-private partnerships, common challenges reported by private providers include: (i) procurement and contracting constraints (ii) data privacy, compliance and AI-specific compliance (iii) fragmented decision-making and (iv) uneven capacity in schools and authorities.

Private companies report difficulties when trying to sell or scale their solutions in public schools because procurement and contracting processes are complex and slow. Schools usually do not have dedicated or predictable budgets for digital or AI software subscriptions, especially when these involve recurring costs. As a result, many schools rely on short-term pilots, project funding, or free versions of tools, even when these tools show promising results. Moving from a pilot to a long-term contract is often unclear and administratively heavy. In addition, decisions must pass through school Boards of Administration or local authorities, which may lack experience in assessing digital solutions.

Strict rules on data protection and child safety are essential, but they also create challenges for public-private collaboration when guidance is unclear. Private providers working with schools must comply with GDPR and ensure the safe handling of students' data, including data related to learning progress, attendance, or wellbeing. New EU rules on artificial intelligence introduce further responsibilities, such as ensuring human oversight and managing risks in certain AI systems used in education. However, Romania currently lacks education-specific guidance, templates, or standard procedures explaining how schools and providers should meet these requirements in practice. As a result, schools often take a very cautious approach, while providers are asked to prepare separate documents and agreements for each school or locality. This slows down adoption and increases costs, particularly for smaller providers.



Decision-making around digital and AI tools in education is spread across many actors, including schools, Boards of Administration, county inspectorates, and, in some cases, local authorities. Each level may apply different criteria and approval processes, leading to delays and inconsistent decisions. The same digital solution can be accepted in one school or county and rejected or postponed in another, even when the needs are similar. There is no national mechanism to pre-assess or recommend AI-enabled educational tools, which means each school must start the process from scratch. For private providers, this fragmentation creates uncertainty and long timelines and makes it difficult to plan or scale their work. For the public system, it limits the ability to learn from successful examples and expand them more widely.

Finally, differences in capacity across schools and education authorities strongly affect how partnerships work in practice. Many schools, particularly in rural or disadvantaged areas, lack ICT support staff, legal expertise for contracts and data protection, or the technical capacity needed to use more advanced digital tools. School leaders and teachers may also have limited time, training, or ongoing support to integrate new tools into daily teaching and school management. As a result, private-sector solutions are more likely to be adopted by larger, better-resourced schools, while schools that could benefit the most face the greatest obstacles. Without targeted support to build capacity, public-private partnerships risk widening existing gaps instead of helping reduce them. Romania has therefore a variety of capable private partners, but it lacks PPP instruments that translate private innovation into public value, leading to even the most mature and effective private solutions to remain peripheral to national reform efforts.

II.III. DIGITAL LITERACY FOR TEACHERS AND STUDENTS

A. TEACHERS

Romania has built a solid foundation of teacher digital competence through the adoption of DigCompEdu and DigCompStud, aligning classroom practice with EU competence descriptors and performance levels. On the capacity side, Romania is leading one of the region's largest teacher-training pushes under the NRRP. Government and university consortia launched "Digital Pedagogy" projects to train pre-university staff across the country, with over 80.000 teachers already trained on digital skills, including AI-related skills.

These efforts have supported significant development of basic digital skills of teachers. In 2023, 91 percent of Romanian teachers reported⁷⁸ that they had the ability to integrate ICT in lessons, with the majority showing satisfaction with equipment availability (74 percent), functionality (76 percent), and internet speed (80 percent). Yet only 28 percent reported strong video editing skills, 12 percent used online exercise or test apps consistently in lessons, and 25 percent used digital textbooks in every lesson. This shows a gap between basic digital literacy and deeper pedagogical use, reinforced by a 2025 DigCompEdu flash analysis⁷⁹ placing Romanian educators, on average, at intermediate proficiency (53.6 percent), with notable gaps in evidence-based digital assessment and collaborative learning facilitation.

Recent OECD reviews⁸⁰ illustrate this disparity between technical capability and pedagogical confidence. While 97.9 percent of school principals⁸¹ stated that teachers possessed the skills to use digital devices, 65 percent of teachers⁸² themselves reported low confidence in embedding digital skills meaningfully into instruction, beyond exploratory use. This suggests that approximately 1 in 3 teachers in Romania might still feel they lack relevant skills in this area, even as the system appears digitally equipped.

Although the NRRP's *Digital Pedagogy* program upskilled a significant number of teachers and created substantial potential for AI uptake into the day-to-day instruction, schools have few structures to sustain it in schools. Fragmented training, more technical than pedagogical support⁸³, absence of school-embedded mentoring and assessment alignment, along with the lack of system-wide guidance on the integration of AI use in the curriculum, mean that the upskilling gains do not consistently translate into day-to-day AI practice, leaving teachers to integrate AI at their choice. Finally, because recurring funds for AI subscriptions are not standard budget lines, many teachers default to free tiers or intermittent access, limiting depth of practice and lesson continuity.

In this context, adoption efforts continue to be driven through stand-alone, not

78 International Computer and Information Literacy Study (ICILS) data from 2023 for Romania.

79 Educatia-Digitala. 2025. Flash report on the digital competences of Romanian teachers.

80 OECD. 2025. Education and Skills in Romania.

81 Results from the Teaching and Learning International Survey 2024 Results for Romania.

82 See 76.

83 OECD. 2025. Education and Skills Romania.

scalable initiatives, unplanned, not monitored, and insufficiently supported. To exemplify, LIVRESQ supports AI-assisted lesson authoring and is used by over 130,000 teachers across 7,100 institutions. Yet this ecosystem remains fragmented across providers, loosely connected to curriculum, and lacking shared evidence standards, resulting in uneven adoption across schools.

B. STUDENTS

Romanian lower-secondary students enter the AI era with sizeable foundational skill gaps in digital and information literacy. In 2023, Romanian eighth-grade students demonstrated only basic competence in using digital tools⁸⁴, with nearly half of Grade-8 students not reaching the baseline proficiency. Romanian students also demonstrated basic capacity to search, evaluate bias or relevance, and create digital content, showing they require step-by-step guidance. They also showed struggles with computational thinking and complex problem-solving, scoring significantly below the international average (with a mean score of 418 versus 476) on measures of effective and critical digital use⁸⁵. To complement, PISA 2022 underscores Romania's literacy challenge, with 15-year-olds scoring on average 428 in reading, mathematics, and science (about 50-57 points below OECD average) and just 51 percent of students reaching at least the baseline proficiency (Level 2) in mathematics (vs. 69 percent OECD). For students, this indicates weaknesses in the reasoning and problem-solving that undergird critical digital and AI use.

Romania's basic digital skills also remain the lowest in the EU, with 27.7 percent of individuals having at least basic skills in 2024 (compared to the EU average of 55.6 percent)⁸⁶. This signals that many students' families and communities lack the required skills to support effective, safe technology use. This matters for equity as AI tools diffuse informally outside school. The Government has begun to respond with the adoption of a national DigCompRo framework in 2025 aiming to bring 4.3-6 million citizens to basic digital proficiency by 2030. However, the level of basic digital skills among citizens is still low and uneven by geography and socioeconomic status. In parallel, Romania continues to face the highest rates of early school leaving (ESL)⁸⁷ in the EU (16.8 percent of 18-24-year-olds in 2024), with large regional disparities, which can compound digital-skills gaps due to limited exposure to structured learning where AI literacy could be taught.

AI literacy for students' emotional wellbeing is another urgent challenge. Bullying, including cyberbullying, remains a major challenge. Save the Children⁸⁸ showed that in 2023 82 percent of Romanian pupils witnessed bullying at school, 49 percent reported having been victims, and 27 percent admitted to having perpetrated acts. Separate nationwide polling points to

84 ICILS 2023.

85 ICILS 2023 for Romania.

86 European Commission. 2024. Digital Decade Report 2024 – Romania

87 Early school leaving refers to young people aged 18-24 who have completed lower secondary education and are no longer participating in any further education or training during the four weeks preceding the survey.

88 Save the Children Romania (Salvați Copiii România). National survey on bullying.

2 in 5 children⁸⁹ experiencing online bullying. These conditions heighten the need for digital safety, privacy, and empathy to be taught alongside AI tools, so that students can interrogate AI outputs critically while navigating online harms, misinformation, and algorithmic amplification.

Romanian students demonstrate growing interest and curiosity in AI but limited competencies, especially in generative AI, with risks of misuse without guidance. Organizations like Digital Citizens Romania and UiPath Foundation advocate introductory courses, personalized AI assistants for guidance, and equity focus for vulnerable students to reduce digital divides. However, this landscape remains fragmented.

II.IV. BARRIERS FOR VULNERABLE GROUPS

Most AI use in Romanian schools is currently happening from the bottom up, in an informal and uncoordinated way, without a clear, system-wide plan focused on inclusion. While this has allowed fast experimentation, it also raises the risk of widening existing inequalities.

Despite substantial investments, Romania's learners across rural areas, low-income households, Roma communities, and those with disabilities continue to benefit disproportionately less from AI-enabled learning. At system level, Romania records the highest ESL rate in the EU, with sharp regional disparities (e.g., 26 percent ESL rate in South-East) that mirror poverty and labor-market exclusion patterns. Early leavers, mostly prominent in disadvantaged areas, are less likely to acquire basic foundational skills⁹⁰, including literacy, numeracy and socio-emotional skills. In PISA 2022, students from advantaged (mostly urban) schools performed around 80-100 points higher in reading than students from disadvantaged (often rural) schools, equivalent to more than two years of schooling. These foundational skills are needed to use AI tools safely and effectively.

A second binding constraint is the household and community digital-skills and literacy gaps surrounding vulnerable students. As Romania holds the lowest share in the EU⁹¹ for citizens with at least basic digital skills, in families with low digital skills, learners are more likely to rely on unguided, informal AI use.⁹² Disparities in literacy at household and community level also shape children's opportunities for digital and AI-enabled learning. Romanian adults in rural and poor households are significantly more likely to have only basic or below-basic literacy skills⁹³, limiting their ability to support children's learning, engaging with schools, or use digital services. The challenge worsens in Roma communities where 30 percent of adults are functionally illiterate⁹⁴, compared to 1-3 percent among the non-Roma population. In rural Roma

89 Romania Insider. 8 Feb 2023.

90 UNESCO. 2024. Global Education Monitoring Report.

91 See 84.

92 ECD, Digital Education Outlook 2026: Exploring Effective Uses of Generative AI in Education.

93 Sciendo. 2023. Differences in literacy, education level, and healthcare attendance in two different Roma subgroups from Transylvania, Romania.

94 Statista. Education in Romania - statistics & facts. 2025.

communities, many adults have not completed primary education⁹⁵, sharply limiting reading comprehension, written communication, and digital use. Both digital and literacy divides intersect with wellbeing and safety barriers. Where adult digital literacy remains weak, marginalized students are exposed to significantly higher online harms, misinformation, and risky AI use.

Infrastructure is necessary but not sufficient, and geographic inequities persist. Romania has among the highest fiber coverage in the EU, with 5G uptake or coverage relatively low and school networks often unable to support simultaneous use of devices, particularly AI tools. These challenges are most present in rural areas where disadvantaged learners are concentrated. As a result, even when devices exist, connectivity bottlenecks limit whole-class use of AI tools and reduce continuity between home and school. Similarly, compared to urban schools, schools based in rural areas are less likely to be able to cover recurring software or AI subscriptions.

Alongside the unequal access to devices, internet, or AI tools, the challenge lies in unequal skills and foundational literacy among students, teachers and households. Those with stronger digital skills, higher literacy levels, and more support at home are more likely to use AI effectively. In schools and communities where teachers lack confidence in using AI, students have weak basic skills, or families cannot support safe and meaningful AI use, AI may reinforce learning gaps instead of reducing them.

95 See 83.

PART III: ROMANIA'S READINESS FOR AI INTEGRATION

Romania has established an increasingly solid foundation for AI adoption in education, but practical readiness remains uneven and slower than policy ambition. Recent policy developments, specifically the National AI Strategy 2024–2027, the introduction of DigCompEdu (2022) for teachers, DigCompStud (2024) for students, and the adoption of DigCompRo (2025) for citizens, signal strong institutional commitment to digital transformation and alignment with European standards. Nevertheless, Romania's dedicated, binding AI-in-education framework is still being developed, with guidance on "Ethical and Responsible Use of AI in Education" expected in 2026. As a result, system-level direction remains fragmented, with progress driven largely through disjointed actions by NGOs, private providers, and international platforms rather than by a unified national roadmap.

In terms of ICT infrastructure, Romania has made significant strides through over €1 billion in NRRP investments for devices, digital labs, intelligent classrooms, teacher training, and national platforms. The country has very high fiber coverage, building a strong foundation for future AI services. However, school-level network quality, 5G uptake, and ongoing technical support remain uneven, especially in rural and disadvantaged areas. A critical constraint is the lack of recurrent funding for school-level software or AI subscriptions. While devices and national systems were financed, recurring licenses were not, and the Mandatory Electronic Catalog (SIIR), rolled out as the reporting baseline in 2025–2026, does not by itself fund third-party platforms. As a result, schools often rely on free tiers or short-term pilots, and adoption is sensitive to local budgets rather than educational need. In practice, this means that while infrastructure quantity has improved, infrastructure quality and sustainability still constrain Romania's ability to deploy AI at scale.

Human capacity in Romania provides a mixed picture. Romania trained 82,796 teachers in digital pedagogy from 2024 until today, including AI-related elements, under the NRRP, reflecting strong willingness to upskill and creating one of the largest teacher-training efforts in Europe. On the other hand, foundational student competencies (reading, information evaluation, computational thinking) are below OECD averages, and many teachers report limited pedagogical confidence to embed AI meaningfully in planning, assessment, and data-informed instruction. The average DigCompEdu proficiency also sits at intermediate, with identified gaps in digital assessment and collaborative learning.

Ecosystem readiness is strong but fragmented. Romania has a vibrant mix of locally developed platforms (Adservio, EDUS.ro, BRIO, Digitaliada, LIVRESQ, LearnMate) and international ones (Microsoft, Google, Khan Academy), alongside an expanding NGO-led capacity-building ecosystem (APED, E-Civis/RoboHub, TechSoup/Predau Viitor, Save the Children). These assets already support planning, assessment automation, analytics, and personalized student support. However, interoperability (minimal data standards, APIs) and public-private procurement pathways are not yet standardized, so impact remains localized rather than systemic. At the same time, Romania has

emerging research and innovation assets, most notably the Romanian Artificial Intelligence Hub and the national network of European Digital Innovation Hubs, that could support the development of further Romanian-language AI models, and local evaluation capacity, laying the foundation for AI tools that are adapted to the Romanian context.

Finally, Romania's readiness is shaped by deep equity and wellbeing vulnerabilities that carry direct implications for AI integration. The country continues to have the highest early school leaving rate in the EU (16.8 percent in 2024), significant rural-urban digital divides, and the lowest basic digital skills rate in the EU (27.7 percent), alongside bullying and cyberbullying deeply affecting students. These conditions heighten risks associated with misinformation, unsafe AI use, and online harms. These structural gaps mean that AI adoption, if unregulated, could amplify existing inequalities rather than reduce them. Therefore, readiness therefore depends not only on infrastructure and policy, but on embedding digital safety, inclusion, and child protection into every layer of AI integration.

STAGES OF AI READINESS

To contextualize Romania's progress towards AI integration in education, this report utilizes a four-step AI readiness ladder that start from initial exploration to systemic integration.

- (i) **The Preliminary stage** is marked by ad-hoc awareness and scattered AI pilots implemented in education. At this stage, the country's engagement with AI in education is fragmented and there is no formal national strategy or dedicated funding for integrating AI in education. Infrastructure is a barrier, with poor connectivity and lack of suitable devices. Any use of AI is typically ad-hoc, with no data governance or ethical guidelines in place.
- (ii) **The Nascent stage** when the government recognizes AI's potential, and the first top-down actions are taken. This phase is characterized by the drafting of initial policies. Instead of having a comprehensive AI strategy for education, there are partial guidelines. Connectivity and infrastructure are improving but remain uneven, creating a digital divide. The government may fund small-scale pilot programs to test AI tools for education. Teacher training is typically focused on basic awareness rather than providing deep pedagogical instruction.
- (iii) **The Emergent stage** marks a significant leap into strategic, systemic action. A coherent national strategy for AI in education is in place, with goals and dedicated funding for flagship programs. This stage includes investments in scalable, national-level infrastructure, such as centralized digital platforms, data standards, and monitoring. Professional development is a priority through practical teacher training and the integration of AI literacy into the curriculum. The ecosystem is vibrant, with collaboration between government, education institutions, and the private EdTech sector.
- (iv) **The Advanced stage** represents full maturity and integration of AI in education. In this phase, AI is no longer an initiative but a fully integrated component of the education system. There are robust

frameworks for ethical AI use and data security, which are audited and updated. Connectivity and devices are reliable and accessible, and AI-powered insights are used by educators and administrators to improve learning and efficiency. Professional development for teachers is continuous. At this stage, there is clear, longitudinal evidence of AI's impact on educational outcomes, and the system is focused on regular monitoring and continuous improvement.

Based on this framework, Romania is positioned on the Emergent stage.

Romania is not starting from scratch. Over recent years, the country has put in place important preliminary work and enabling conditions for AI adoption in education (i) national digital competence frameworks for teachers, students, and citizens (ii) a National AI Strategy that explicitly includes education (iii) and large-scale investments in infrastructure and teacher training through the NRRP.

These elements provide a shared direction and minimum common vision, ensuring that schools, teachers, and system actors are not acting entirely on their own, even in the absence of a dedicated AI-in-education strategy. As a result, AI use is already visible across classrooms, platforms, and school management, reflecting a system that has moved beyond isolated pilots and basic awareness.

At the same time, Romania's AI-in-education landscape is characterized by a booming but uneven market. Innovation is advancing rapidly through NGOs, local EdTech providers, and international platforms, yet adoption remains uncoordinated, fragmented, and highly unequal, concentrated mainly in schools and regions where infrastructure, connectivity, and human capacity are already in place.

Remote and disadvantaged areas benefit far less, as sustainability, technical support, and recurrent funding remain binding constraints. This combination, strong momentum and experimentation alongside weak coordination and uneven access, is precisely what defines an **Emergent** system. While foundational conditions exist and use is expanding, without a clear, education-specific framework and stable system-level support, AI adoption risks becoming increasingly uneven and may amplify existing inequalities rather than reduce them.

PART IV: RECOMMENDATIONS

RECOMMENDATION 1: ADOPT A NATIONAL-LEVEL GUIDANCE FOR AI INTEGRATION IN EDUCATION TOGETHER WITH A ROADMAP FOR ACTION



Immediate priority (2026 - 2027): Adopt and operationalize the Ethical & Responsible Use of AI in Education Guidance with a clear Roadmap for Action.

- Align the Guidance with the National AI Strategy, the EU AI Act, and integrate existing digital competence standards (DigCompEdu, DigCompStud and DigCompRo), drawing on EU initiatives, peer-country experiences, and EU-level guidance on AI in education.
- Ensure the Roadmap translates the Guidance into concrete steps for schools: defining goals, budget lines, accountability, capacity-building efforts, and equity targeting.
- Ensure both documents are student-centered and align with education practice with EU AI Act safeguards for minors and with UNICEF child-rights principles.



Medium to long-term priority (2027 - 2030): Establish a permanent AI-in-Education Taskforce.

- Involve ADR, ARACIP, the Data Protection Authority, county inspectorates, teacher bodies, HRIA universities, EDIHs, NGOs, and Romanian EdTech providers (Adservio, EDUS, BRIO, etc.) which approves guidance, selects a vetted tools list, issues annual State of Play.
- Name an Executive Secretariat within MER's digitalization unit to draft artifacts (policies, templates), run consultations, and coordinate with counties or inspectorates.

RECOMMENDATION 2: REORIENT PROFESSIONAL DEVELOPMENT OF BOTH TEACHERS AND SCHOOL LEADERS TOWARD PRACTICE AND FOLLOW UP



Immediate priority (2026 - 2027): Shift from training delivery to classroom application and follow-up, reinforcing a culture of learning rather than compliance.

- Reach the NRRP 100,000-teacher target, with a focus on recognizing and incentivizing classroom use of digital and AI tools for teaching and learning. Award CPD credits, career recognition, or micro-credentials for demonstrated classroom application.
- Embed follow-up support through coaching and peer learning. The Ministry can integrate a World Bank-developed classroom-observation tool⁹⁶ into school- and county-level coaching models, using it as a formative, low-stakes method to observe how teachers use digital and AI tools, guide feedback, and strengthen instructional interactions.
- Establish school- or county-level digital and AI mentors and peer learning networks to provide ongoing guidance, classroom support, and problem-solving after initial training.

96 The World Bank is developing a TEACH tool for observing how teachers use digital and AI tools in the classroom. The tool is expected to be released in the coming months.

Medium to long-term priority (2027 - 2030): Provide training support to school leaders on decision-making, governance, and instructional stewardship, rather than on tool use.

- Design a national-level training for school leaders focusing on (i) interpreting AI-generated insights (attendance, dropout risk, learning trends) (ii) judging data quality, bias, and limitations of algorithms (iii) using AI outputs as decision support, not automated decisions and (iv) understanding legal and ethical responsibilities related to students' data.

RECOMMENDATION 3: EMBED AI & DIGITAL COMPETENCES IN CURRICULUM AND ASSESSMENTS THROUGH A BLENDED APPROACH



Immediate priority (2026 - 2027): Anchor the blended model in the high-school curriculum guidance currently under consultation.

- Define a guaranteed, cross-curricular foundation for all students, specifying where and how AI-related skills (i.e. critical use of generative tools, data literacy, ethical awareness) should be developed across disciplines, aligned with DigCompStud. Clear curricular guidance for effective AI use should also be issued to help schools anchor their practice in the curriculum.
- Clearly distinguish this foundation from specialized AI pathways, confirming that deeper technical AI learning (e.g. machine learning, programming, data science) is addressed through optional or specialized courses, mainly in upper-secondary education.



Medium to long-term priority (2027 - 2030): Align assessment systems and high-stakes exams with the blended approach.

- Update assessment guidelines to (i) allow AI-supported formative tasks (drafting, feedback, data analysis) with rubrics that assess reasoning, verification, and reflection, (ii) define permitted and forbidden AI uses for high-stakes exams, and (iii) encourage schools to use BRIO and platform analytics for continuous assessment evidence.
- Progressively align national examinations so that transversal AI-era competencies are assessed indirectly (through reasoning, interpretation, and problem-solving), while advanced technical AI knowledge remains assessed only within relevant specialized tracks.

RECOMMENDATION 4: ENSURE SUSTAINABLE INFRASTRUCTURE AND FINANCING



Immediate priority (2026 - 2027): Address sustainability gaps left by NRRP.

- Plan for the full life of digital equipment, not only initial purchases. Complement NRRP-funded device and smart-classroom investments with multi-year lifecycle plans that cover maintenance, replacement, software updates, and in-school technical support.
- Focus on reliable school-level connectivity, not just internet coverage. Build on Romania's high national fiber coverage and ensure schools have stable internal networks (Wi-Fi, bandwidth, classroom connectivity).
- Prioritize upgrades in schools where connectivity is technically available but not strong enough for daily classroom use.



Medium to long-term priority (2027 - 2030): Provide predictable funding for stable, system-level digital financing

- Reduce dependence on pilots, freemium tools, and NGO goodwill by creating predictable funding for digital and AI software used by schools. Address the structural gaps left by NRRP by establishing clear budget lines for educational software and AI-based tools, so schools do not have to rely on free versions, short-term pilots, or ad-hoc funding.
- Integrate AI and digital costs into per-student or per-school funding formulas.



RECOMMENDATION 5: PRIORITIZE EQUITY AND INCLUSION IN AI ADOPTION

Immediate priority (2026 - 2027): Target AI support first to disadvantaged and high-risk schools⁹⁷.

- Use existing national data sources (PNRAS eligibility, SIIR, Early Warning Mechanism, SASAT) to prioritize rural schools, schools serving Roma communities, and high-dropout-risk institutions for AI-enabled learning support, teacher tools, and infrastructure upgrades.

⁹⁷ In Romania high-risk schools are defined as schools at high risk of student dropout. This is measured using the World-Bank developed Early Warning Mechanism.

- Prioritize coaching, mentoring, and communities of practice for teachers in rural and low-capacity schools.
- Complement in-school AI use with targeted after-school, remedial, or tutoring applications so that AI does not advantage only students with strong home connectivity, devices and access to private tutoring.



Medium to long-term priority (2027 - 2030): Make equity a default AI adoption criterion by monitoring equity in all AI governance mechanisms.

- Require that all AI-related initiatives track impacts by region, socioeconomic background, disability, and minority status.
- Integrate these indicators into MER's forthcoming guidance on ethical and responsible AI use in education, ensuring transparency and corrective action where gaps widen.

RECOMMENDATION 6: BUILD PUBLIC-PRIVATE RESEARCH & INNOVATION PIPELINES



Immediate priority (2026 - 2027): Establish structured, regular channels for government-private sector coordination on AI in education.

- Establish regular dialogue forums, convened by the Ministry (e.g. through bi-monthly meetings), bringing together relevant directorates within MER, ADR, ARACIP, inspectorates, and representatives of private providers, NGOs, and research institutions.
- Ensure that ongoing and emerging regulatory issues (data protection, compliance with the EU AI Act, procurement constraints, interoperability standards, and classroom realities) can be discussed in a non-procurement, non-commercial setting.



Medium to long-term priority (2027 - 2030): Incentivize formal public-private partnerships and "test-before-scale" mechanisms

- Allow schools or school clusters to participate in structured pilots with private and NGO partners under clear rules on data protection, ethics, and child safeguarding, using HRIA and the European Digital Innovation Hubs as publicly governed "test-before-scale" intermediaries that support technical validation, adaptation to the Romanian language and curriculum, and documentation of results before any scaling or procurement decisions.

ANNEX 1

DETAILED DESCRIPTIONS OF AI TOOLS FOR STUDENTS, TEACHERS AND SCHOOL LEADERS

1.1. DESCRIPTION OF AI TOOLS FOR STUDENTS IN ROMANIA

- **SARO:** AI-powered educational assistant designed to support student learning, engagement, and motivation through personalized, conversational interactions delivered via WhatsApp. SARO is aligned with the Romanian national curriculum and Baccalaureate requirements and is primarily used by upper secondary students, particularly those preparing for the Baccalaureate Exam, with strong uptake in mathematics and Romanian language. Unlike general-purpose AI tools, SARO is intentionally designed as a learning coach, it guides students step by step, asks probing questions, and uses relatable analogies rather than providing direct answers, thereby supporting critical thinking and deeper understanding. The tool has been piloted with over 700 students across more than 70 counties in Romania, including rural areas. Backed by a partnership with Google, SARO demonstrates strong potential for scalable, personalized AI-assisted learning in Romania's pre-university education system.
- **Alex AI:** AI avatar developed by Save the Children Romania in partnership with Heist Industries and Invergent, launched in June 2025 as part of the "Talk to Alex" campaign to raise awareness about bullying's emotional toll on children. Modeled after a cheerful 9- or 10-year-old boy passionate about football and video games, Alex starts as a curious and joyful character but transforms into an anxious, withdrawn, and silent figure after being exposed to over 5,000 real bullying phrases collected from Romanian children by Save the Children. The initiative highlights Romania's high bullying rates (nearly half of schoolchildren affected in 2022⁹⁸) and has sparked public interaction, fostering adult empathy and conversations about support mechanisms, as noted by parents and program coordinators.
- **LearnMate:** AI-powered learning assistant developed by Adservio. It is integrated within a national digital education management platform currently used by approximately 2,000 schools in Romania. LearnMate is designed as a personalized learning companion for students in grades 5-12, supporting subject-specific learning aligned with the national curriculum across approximately 10 core subjects. Drawing on real-time educational data already available in the platform, including grades, lesson content, curriculum progress, and assessment history, LearnMate provides students with concise lesson summaries, personalized explanations, adaptive quizzes, and short-term (e.g. 7-day) learning plans tailored to their individual performance and learning pace. The tool is intentionally constrained to educational

98 Save the Children. 2025. "A painful but necessary experiment". Blog. Accessed at <https://www.savethechildren.net/news/painful-necessary-experiment-meet-alex-ai-ava-tar-shows-how-bullying-hurts-children>

use and does not allow non-academic queries. LearnMate is currently being piloted in 12 schools (serving roughly 10.000 students) through a beta deployment developed in partnership with MER and Microsoft. While still under refinement, early use indicates strong potential to support individualized learning, improve student self-awareness and study habits, and extend learning support beyond classroom time. Embedded within a broader, secure ecosystem that also serves teachers, parents, school leaders, and inspectorates, LearnMate demonstrates high scalability potential and illustrates how AI-driven learning support can be effectively integrated into existing national education infrastructure.

- **Youni:** AI-enabled educational technology platform by Youni Choice, designed to support students in navigating higher education pathways and personal development. At its core, the platform combines personalized guidance and data-driven tools to help students identify suitable universities and academic programs that align with their interests, goals, and profiles, including AI-based assessments linked to career interests and university options. Youni's services encompass research on universities, tailored consulting, exam preparation, and support for internships and practical career experiences, all of which aim to build a comprehensive roadmap from secondary to tertiary education.
- **BRIO:** Romanian digital educational platform centered on standardized testing and personalized learning support for students in pre-university education. It enables learners from all grade levels to take curriculum-aligned digital tests in subjects such as mathematics and Romanian language, with instant, automated scoring and detailed reports showing both strengths and areas for improvement. Through these tailored evaluation reports, students can understand their performance relative to national benchmarks and receive insights into specific competencies that need reinforcement, helping to guide their study focus and monitor progress over time. BRIO's tools are accessible via individual accounts, with parents or students able to register and complete assessments online, making it a widely usable resource for self-paced academic practice, preparation for national exams and ongoing skill development.
- **Digitaliada:** A free national digital education platform, developed by the Orange Foundation, that provides students in Romania with accessible curriculum-aligned learning resources, interactive lessons, tests, exercises, and educational materials across multiple subjects to support study and evaluation. The platform acts as an open educational hub where students can engage with over 4.000 digital resources, including lessons, tests, problems, and video tutorials, designed to improve understanding and performance in key subjects such as mathematics and Romanian language, available without charge and usable on any device. In addition to static educational content, the Digitaliada platform has integrated an AI chatbot (built on ChatGPT and trained on the platform ecosystem, the national curriculum, the Ministry of Education site, and Eduped.ro) that identifies the user type (student, teacher, or parent) and adapts its language accordingly. This chatbot provides students with explanations of lessons, help with

homework, and answers to general questions about learning materials, complementing the traditional resources and offering interactive support aligned with classroom learning.

- **AI Generation:** A free, publicly available curriculum developed by EduAct in partnership with international organizations including Massachusetts Institute of Technology (MIT) App Inventor Foundation, designed to build fundamental AI literacy among high school students based on the UNESCO competency framework. The curriculum follows a three-stage pedagogical approach; understand, apply, create; enabling students to progress from basic AI comprehension to applying learned concepts and ultimately creating meaningful new solutions using AI technologies. Structured as a full academic year optional course with 50-minute lesson plans, the program provides comprehensive teaching materials that any educator can utilize and adapt. AI Generation emphasizes human-centered pedagogy, team collaboration, and project-based learning rather than self-paced individual study, requiring facilitation by teachers or educational trainers working with student groups.
- **Eduboom:** A Romanian digital learning platform offering comprehensive video-based lessons and interactive practice tests aligned with the national curriculum for students from first through twelfth grade. The platform provides accessible instructional content across all core subjects in Romanian language, featuring interactive video explanations that facilitate understanding at each educational level. Students can engage with both instructional videos and complementary practice assessments designed to reinforce learning and support academic preparation.
- **Buletin Digital:** A targeted digital literacy and academic motivation program implemented by EduAct in partnership with Orange Foundation, designed specifically for middle school students in educational institutions identified as high-risk for dropout, particularly in underserved and rural communities. The program addresses the critical gap between internet access and functional digital competencies through structured interactive workshops that teach essential skills beyond social media usage, including email communication, document creation, online safety protocols, data protection, and purposeful technology utilization for personal and academic development. Beyond technical skills training, the program incorporates motivational components designed to reduce dropout rates by demonstrating practical applications of digital competencies in academic contexts and future career pathways.

1.2 DESCRIPTION OF AI TOOLS FOR TEACHERS IN ROMANIA

- **Adservio:** a comprehensive educational management platform widely used in Romanian schools that enables teachers to record grades, track attendance, assign and evaluate homework, manage the electronic classbook, and communicate directly with students and parents in real time, streamlining administrative tasks and instructional coordination. Adservio also provides teachers with analytics and reporting tools to monitor class trends, generate insights, and organize lessons effectively, while its messaging and group features facilitate

collaboration with the school community. These capabilities help teachers manage classroom processes efficiently, support student monitoring and communication, and integrate digital workflows into daily instructional practice.

- **EduApps:** a Romanian company with 14 years of experience in promoting the digitization of education with a strong pedagogical focus, ensuring that students, teachers, and parents benefit from technology responsibly and effectively. While the organization does not develop proprietary AI solutions, it implements and distributes AI tools from global leaders such as Microsoft and Google, integrating them into projects like *Class of the Future*, alongside platforms like Canva Education. EduApps emphasizes practical, discipline-specific training for teachers, encouraging them to adapt AI tools to their local context, curriculum, and student needs, including rural and underserved communities, where AI helps bridge resource gaps by enabling rapid creation of lesson plans, exercises, and interactive materials. Sustainability and scalability are supported through ongoing mentoring, access to free digital platforms, and communities of practice that allow teachers to share successful strategies, experiment with AI in real classroom scenarios, and integrate it as a flexible, everyday educational tool.
- **EDUS.ro:** a comprehensive educational management platform supporting Romanian schools in quality assurance and institutional effectiveness aligned with the Romanian Agency for Quality Assurance in Pre-University Education (ARACIP) evaluation standards. The system integrates data analytics that generate performance trends and connect with national reporting frameworks (the Mate, SASAT questionnaires) to identify at-risk students and facilitate evidence-based dropout prevention interventions. EDUS provides centralized access to educational resource libraries, curriculum-aligned materials, and unified assignment management tools, enabling teachers to create, distribute, and evaluate homework through a single interface.
- **RoboHub:** The center developed pedagogical guides and didactic materials specifically designed to support educators in teaching ICT and robotics courses, providing ready-made exercise cards, lesson plans, and comprehensive resources accessible to any teacher regardless of prior technical expertise. As an officially recognized European Computer Driving License (ECDL) Center of Excellence in Artificial Intelligence, RoboHub offers ECDL Insights AI certification—the only European-recognized AI certification, preparing educators with fundamental AI competencies essential for future-oriented teaching.
- **Clasa Viitorului:** A digital educational platform developed by EduApps that provides access to the complete Microsoft and Google for Education suites through institutional email accounts issued by schools.
- **LIVRESQ:** Romanian interactive educational content authoring platform that enables teachers and trainers to create multimedia digital lessons without programming knowledge. The platform features an intuitive editor allowing integration of diverse content types. With

over 120,000 registered educational content creators and more than 89,000 publications in its virtual library (including 20,596+ free public lessons), LIVRESQ hosts the largest online collection of Romanian educational materials. The platform is officially recommended by the Romanian Ministry of Education and serves as the primary tool for the national EduLib project and Relevant Curriculum, Open Education for All (CRED) initiative. Teachers can publish lessons to the public LIVRESQ Library, enable source reusability for collaborative content development, and export materials for offline use or integration with Learning Management Systems.

- **Brio.ro:** Romania's first standardized digital testing platform designed to objectively evaluate and improve student performance in grades I-XII, based on Item Response Theory - the same framework used in international assessments such as the Program for International Student Assessment (PISA). After students complete curriculum-aligned tests in mathematics, Romanian language, history, literacy, and digital literacy, teachers receive detailed BRIO Evaluation Reports that break down performance, clearly identifying which concepts students have mastered and which require additional instruction. BRIO has been adopted by over 100,000 users and provides teachers with the evidence-based data necessary to improve educational outcomes across diverse student populations.
- **Eduboom:** A platform that provides educational content aligned with the official national curriculum, complemented by individualized support and supplementary instructional materials developed by the EduBoom team. The platform contributes to significant time efficiency for teachers before, during, and after classroom instruction, enabling every teacher to enhance classroom teaching through the use of video-based lessons and assessment tools designed in an engaging, accessible, and pedagogically effective language.
- **Cursuri Predau Viitor:** A digital platform that centralizes free professional development courses for teachers, offering curriculum models focused on digital education and the fundamentals of artificial intelligence. These resources have been developed by TechSoup in collaboration with various partner organizations. The courses place particular emphasis on AI ethics, responsible and safe use of digital technologies by children, and appropriate pedagogical approaches to addressing these topics in educational settings. The platform's resources may be used by teachers both for their own professional advancement and as instructional materials for classroom teaching.

1.3 DESCRIPTION OF AI TOOLS FOR SCHOOL LEADERS IN ROMANIA

- **Kinderpedia:** All-in-one school management and communications platform that enables educational institutions to centralize administrative, academic, and operational processes in a single digital environment. It provides tools for scheduling classes, tracking attendance and grades, managing timetables, delivering remote lessons, and generating reports. The platform includes modules for financial administration, billing and payments, staff and family management, document sharing, events, and messaging, helping schools streamline routine tasks, reduce paperwork, and improve

transparency and collaboration across the school community. Administrators can efficiently plan, monitor, and report on institutional activities, customize access rights and roles, and access comprehensive data for decision-making and operational oversight.

- **Adservio:** Romanian educational management platform that supports the daily operation and digital administration of schools by integrating tools for attendance, communication, scheduling, messaging and document management. It connects all school stakeholders in a single secure environment and provides real-time access to academic data and insights. Recent enhancements include an AI Personal Assistant for school directors that generates natural-language reports and tailored recommendations to support decision-making, as well as modules that track student wellbeing and academic progress with personalised analysis, streamlining administrative tasks and improving institutional efficiency.
- **EDUS:** A comprehensive digital solution for educational institutions, designed to support organizational management, administrative compliance, and quality assurance. It integrates modules for institutional governance, standardized procedures and document templates, public procurement management, and digital workflows, enabling schools to streamline administrative processes, ensure regulatory compliance, and enhance overall institutional efficiency in accordance with national education standards.

