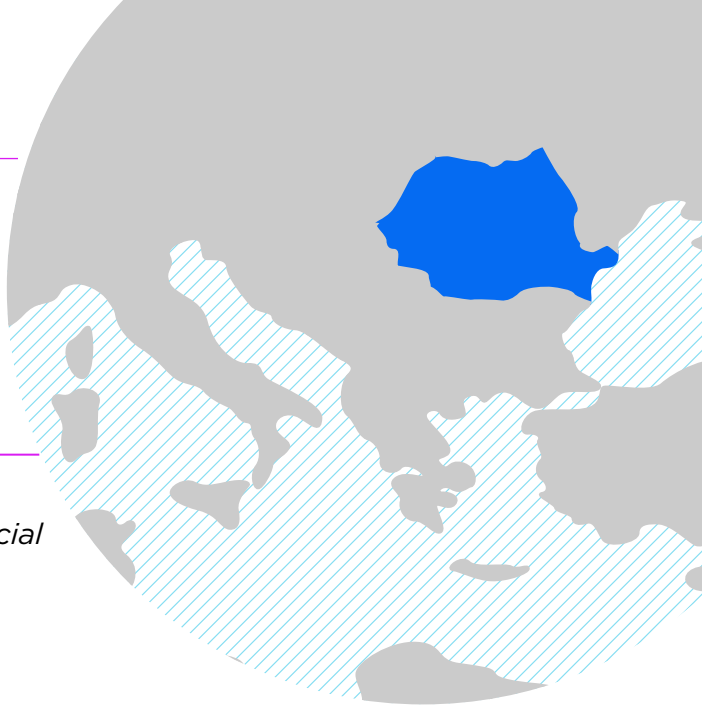
ROMANIA



Developing institutions, software, hardware and teaching for a strong future in artificial intelligence

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Key takeaways

- Romania as part of the European Union (EU) benefits from the EU AI strategy, and also has its own refined AI strategy leveraging its high internet connectivity, and involving key government and research institutions.
- Romania has made several synergistic investments in both hardware and software with both national and EU funds.
- In universities as well as high school curricula there are recent changes to better prepare the next generation of professionals in AI.

Romania as part of the EU has both a national AI strategy (MEDAT, 2024) and an EU AI strategy (European Commission, 2025d), as well as a Council of Research and Ethics in AI. The EU strategy in the area of AI is focusing on several facets such as regulating AI through the EU Artificial Intelligence Act (Future of Life, 2025), promoting development of hardware solutions – AI gigafactories (European Commission, 2025c), AI factories (European Commission, 2025b), the Cloud and AI Development Act (European Commission, 2025a), and the European Chips Act (European Commission, 2025e) – and streamlining data rules through the European Data Union Strategy (European Commission, 2025f). We focus on the national AI response while mentioning comparisons with the fellow EU member states in some important directions.

One of the main features that differentiates Romania from its peers is the fact that for the past 15 years it benefited from one of the fastest internet connections in the world; the latest estimate from July 2025 (Speedtest, 2025) placed it as number 11 out of 153 counties surveyed, with Bucharest placed as the fourth fastest internet-connected city in the world. This basic fact is especially impacting the young population of Romania that is using new technologies such as generative AI at a significant rate. A recent survey (European Union, 2025h) at the EU level for young adults estimates that 66 percent of young adults in Romania

have used AI-based applications for text, images or video in the past 12 months. This is the highest national percentage in the EU.

In this context, it is natural that the Romanian AI response is significant in various directions including teaching. The country's national AI strategy can be seen as a long-term approach with an emphasis on learning and teaching, and development of resources from the ground up; it starts with investments in education, followed by the building of research infrastructure (hardware and software) and finally in funding research projects in AI.

Institutional framework

Romania has recently invested in AI initiatives including the Romanian Hub for Artificial Intelligence, and the Artificial Intelligence Research Institute at the Technical University of Cluj-Napoca. The country has also invested in AI at established institutions; for example, the Romanian Academy Research Institute for Artificial Intelligence 'Mihai Drăgănescu' (ICIA, 2026). At the national level, a key governmental agency is the Authority for the Digitalization of Romania, within which there are working groups for AI and big data.

Software development

Romania is involved in state-of-the-art research in all areas of AI. Romanian researchers are dealing with large language models, chatbots, AI agents, image generation, speech recognition and synthesis, video analysis, biologically inspired neural networks and other advanced AI applications. Wherever possible, Romanian specifics are embedded in the models in order to improve the AI-processing capabilities of applications handling the Romanian language.

Romanian resources are available in major European platforms, such as the European Language Grid (ELG Consortium, 2026b) and others. Nevertheless, the recent European Language Equality project (ELG Consortium, 2026a) has identified key areas where additional language resources (text and multimodal) are needed in order to increase the competitiveness of Romanian AI research.

Partnerships between academia and industry allow Romanian research on AI to be applied in real-life products at national and European levels.

Partnerships between academia and industry allow research to be applied in real-life products at national and European level. In particular, the project Large Language Models for the EU (alt-edic, 2024) brings together researchers and industry participants from across Europe, including Romania, to develop the next-generation AI large language models, and demonstrate their application in specific industry-led uses. In addition, initiatives such as the European Language Data Space (European Commission, 2025g) aim to foster the transfer of ideas between research institutes and industry.

Romania, being part of the European Union, must adhere to the European strategy regarding AI and European regulations. This includes the General Data Protection Regulation – an EU law focused on data privacy and protection. This law establishes a framework for how

organizations handle personal data within the EU, granting individuals greater control over their data and enabling them to hold businesses accountable for data security. This, together with national legislation regarding intellectual property rights, plays a key role in how data can be used for training AI systems.

The Romanian Academy's strategy for the development of Romania in the next 20 years (Academia Română, 2006) acknowledges the importance of AI and related challenges. It further warns against potential risks due to malicious use of AI algorithms. For example, deepfakes (content generated by means of advanced AI algorithms) have the potential to cause intended or unintended harm.

Disinformation campaigns involving AI have been detected in Romania and the larger Black Sea region. In this context, the EU AI Act requires content that is either generated or modified with the help of AI – images, audio or video files (e.g. deepfakes) – to be clearly labelled as AI generated so that users are aware when they come across such content.

Hardware ecosystem

Prior to 1989, Romania had a significant microelectronics sector, including several research centres and two fabrication plants in Bucharest; microelectronics was taught in two universities (Bucharest and Iasi) (Wild and Dascălu, 2022). After 1990, the internal microelectronics industry gradually faded out, the fabrication plants were closed, and several skilled specialists left the country for jobs in the EU and USA.

To reinvigorate its microelectronics sector, Romania signed on 7 December 2020 the EU *Joint declaration on processors and semiconductor technologies* with other 16 EU countries. Since then, a working group under the aegis of Romanian Academy (Academia Română, 2022) has coordinated efforts towards implementing the Important Projects of Common European Interest (IPCEI) on Microelectronics and Communications Technologies (Department of Enterprise, Tourism and Employment, 2021) via Romania's Recovery and Resilience Plan (European Commission, no date). EUR 375 million has been decided as the amount to be spent in this domain; for Romanian universities, the projected financing is EUR 224 million which will be dedicated to specialized equipment (including four clean rooms), data centres and AI-specific tools.

The EU *Joint declaration on processors and semiconductor technologies* states that:
'The signatory Member States agree to work together in order to bolster Europe's electronics and embedded systems value chain… The signatories to this declaration agree to work together to strengthen Europe's capabilities to design and eventually fabricate the next generation of trusted, low-power processors, for applications in high-speed connectivity, automated vehicles, aerospace and defence, health and agri-food, ***artificial intelligence****, data-centres, integrated photonics, supercomputing and quantum computing, amongst other initiatives to bolster the whole electronics and embedded systems value chain'.*

The IPCEI project introduces innovative products in three major companies, Bosch, Continental Automotive and NXP, and cooperation from 11 universities and several small and medium-sized enterprises. The products ranged from developing application-specific integrated circuits, and deploying technology and software focusing on AI, to improving photonics and RISC-V computer architecture. A national ecosystem is currently being built around large companies, small and medium-sized enterprises and major universities.

Teaching initiatives

The four biggest universities involved in the IPCEI project – Bucharest, Cluj-Napoca, Iasi and Timișoara – have adopted a common strategy in their automation and computer science faculties to revive and develop competencies in hardware-related technologies, boosting their already existing AI programmes. As part of the IPCEI project, dedicated courses with extensive curricula were recently adopted in technical universities Cluj-Napoca and Timișoara, enhancing the already well-established courses in Bucharest and Iasi.

With respect to software-related degrees, over the past two years new bachelors' programmes in computer science and AI have been accredited by the Romanian Agency for Quality Assurance in Higher Education. These programmes have started admitting bachelor students at Babeș-Bolyai University, Cluj (Faculty of Mathematics and Computer Science, 2026) West University of Timișoara (Faculty of Informatics, no date) and University of Craiova. At the same time, the Romanian Ministry of Education started a process in August 2025 to bring up to date the discipline of Information Technology and Communications, which is taught from the first year of high school. Under this new framework, pupils in Romania will learn basic concepts of AI as well as those related to AI ethics, responsibility and reliability.

Looking forward

Romania has developed a solid foundation for advancing AI, combining strong digital infrastructure, active research institutions and a growing emphasis on education. With some of the fastest internet speeds in the world and high AI adoption rates among young people, the country is well-positioned to test and integrate AI solutions rapidly. Research centres, universities and new national initiatives are contributing to both theoretical progress and applied projects, while EU-backed programmes such as the IPCEI and the European Chips Act provide opportunities to rebuild lost hardware capabilities and rejoin the European semiconductor value chain. Together, these efforts create an emerging ecosystem that balances tradition, innovation and international collaboration.

One of the major investments related to AI in Romania is the integration of AI into high school curricula, ensuring that students gain early exposure to both technical and ethical aspects. At the university level of education, new AI programmes and expanded engineering courses are preparing a new generation of specialists. This focus on talent development ensures a steady supply of skilled professionals who can drive AI research and business adoption in the coming years.

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