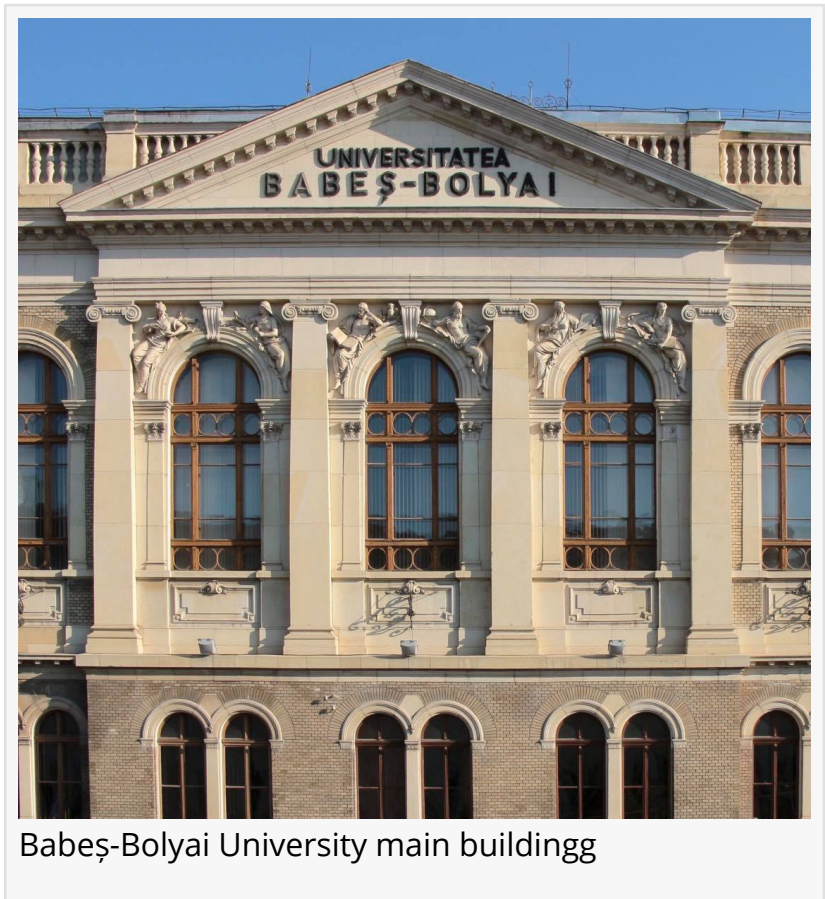


# Babeş-Bolyai University of Cluj-Napoca Has Developed the Romanian National Strategy for Quantum Technologies

CLUJ-NAPOCA, ROMANIA, March 12, 2025 /EINPresswire.com/ -- Based on its expertise in developing strategic plans in various fields, the [Babeş-Bolyai University](#) of Cluj-Napoca (UBB), as coordinator, together with the [National Institute for Research and Development in Materials Physics](#) (INCD-FM), as partner, has developed the national strategy in the field of quantum technologies.

Through this strategy, Romania aims not only to implement the new quantum technologies, but also to transform Romania into an important player in this field at European and international level. It clearly identifies the need for an integrated and coordinated approach, both at national and international level, to support the development of the quantum ecosystem.



This should facilitate the synergistic interaction between research, industry and governments that is essential for the deployment of quantum technologies. There is a need for a national quantum communications infrastructure connected to the European network, the development of R&D resources to support innovation in this field, including platforms for testing and validation, and the creation of specific quantum algorithm-based software resources and applications that address direct societal applications in various domains: banking security, medical intelligence, strategic civil and military intelligence, etc.

In order to achieve these goals, an important support could come through the specialization and/or retraining of the tens of thousands of specialists that Romania currently benefits from in

the IT&C field in the quantum field. In this direction, three Romanian universities have already launched post-graduate and/or master's degree programs to train specialists in quantum technologies. These specializations offer an opportunity for people with pre-existing skills in computer science, mathematics, physics or engineering sciences who want an introduction to the emerging field of quantum computing and quantum communications.

As the vision at international level emphasizes, quantum technologies represent a major challenge impacting on competitiveness and sovereignty, where every country must develop its own capabilities and ecosystems to

adapt to these new realities. Together with Artificial Intelligence, quantum technologies have the potential to radically revolutionize computing power through their ability to simulate and solve complex optimization problems specific to areas of major importance such as health, environment and energy resources, advanced materials and nanotechnologies.



“

Basically, we are now on the threshold of a new wave of innovation in areas such as car battery production, medicines, materials or communication networks.”

*Adrian Petruşel, rector of Babeş-Bolyai University*

Quantum cryptography would fully secure information in the various strategic sectors, but also in the first "Internet of things" concept towards which contemporary society is moving, whose vulnerability is increasing with the exponential growth of computing and processing capacity.

In this complex context, Babeş-Bolyai University identifies several priority directions on which Romania should focus its efforts in developing its national strategy. They

represent in fact the main pivots on which the second quantum revolution is articulated: quantum communications, quantum computations, quantum simulation and algorithms, and quantum metrology.

The development and deployment of quantum technologies is supported at European and national level through dedicated funding projects. Through the Quantum Technologies Flagship project, the European Commission has already allocated in 2018 a total budget of more than €1

billion to provide the necessary tools to fund fundamental and applied research in quantum technologies.

Recently, Babeş-Bolyai University hosted a Workshop that analyzed the progress in quantum communication technologies, an important step for the development of quantum technologies in Romania. On this occasion, several important aspects were highlighted. The Rector of the Technical University of Cluj-Napoca, Vasile Țopa, who participated in the plenary session, mentioned that "the four areas are well defined in the national strategy in the quantum field", and that "in the next ten years, quantum technologies will revolutionize many aspects of everyday life. These technologies will benefit the economy, society and how we can protect the planet". On the other hand, Christian Săcărea, one of the Vice Rectors of the Babeş-Bolyai University, emphasizes that: "Quantum technologies are based on the analysis of phenomena that occur at the quantum level. They offer solutions to complex problems that are currently impossible to solve even with the most powerful high-performance classical computer system", but also the need for these technologies "to be developed as soon as possible".

For his part, the rector of the Babeş-Bolyai University, Mr. Adrian Petruşel, estimates that "new frontiers will be reached in detection, synchronization, imaging and communications. Quantum technologies are based on the ability to generate, detect and control quantum states. Basically, we are now on the threshold of a new wave of innovation in areas such as car battery production, medicines, materials or communication networks". He warns that research into quantum technologies will also bring new challenges. For example, the computing power of quantum systems will also mean the possibility of breaking the encryption technologies used by today's popular applications. But the same technology will mean the development of new encryption technologies that will enhance cyber security.

Beyond the direct impact, the congruence of quantum technologies with Artificial Intelligence will also mean the emergence of disruptive emerging technologies that can change the facts of the present economy. At the moment, the global market for quantum technologies is estimated at 42.4 billion euros. In this general context, researchers from Babeş-Bolyai University explicitly emphasize the strategic importance of investments in the field of quantum technologies, especially on the basis of mechanisms available from European funds.

Romania already benefits from European funding for the development of the national quantum communications network. The National Quantum Communications Network will be the second largest quantum network in Europe after the one in Poland and will connect the main university centers: Bucharest, Iaşi, Cluj-Napoca, Timișoara, Craiova and Constanța, with 36 links to provide quantum encryption key distribution providing quantum secure connection to 10 universities, 5 research institutes, 5 public institutions, 3 data centers and a medical clinic, with future links planned for interconnection with the European network in the field.

The popularization of research results at UBB is part of a project funded by the National Recovery and Resilience Program (PNRR), through [UBB-Core](#). "The UBB CORE Center encourages

young researchers from the North-West Region to get involved in quantum research projects. This field represents a vast area of scientific exploration and can provide important professional rewards", said UBB Core Center Director Leonard Horvath.

CLUJ TODAY

Asociatia Cluj Today

[email us here](#)

---

This press release can be viewed online at: <https://www.einpresswire.com/article/793215872>

EIN Presswire's priority is source transparency. We do not allow opaque clients, and our editors try to be careful about weeding out false and misleading content. As a user, if you see something we have missed, please do bring it to our attention. Your help is welcome. EIN Presswire, Everyone's Internet News Presswire™, tries to define some of the boundaries that are reasonable in today's world. Please see our Editorial Guidelines for more information.

© 1995-2025 Newsmatics Inc. All Right Reserved.