

Achievements and challenges for Italy: Quantum and Cloud Computing

March 4, 2025

Trento based Fondazione Bruno Kessler hosted the second event of the Roadshow organized by the Ministry of Enterprise and Made in Italy (MIMIT) to talk about emerging technologies, research and business involvement.

Held February 25-26, the [Roadshow](#) brought to Trento a unique opportunity to explore the potential of **emerging technologies**, understand how **PNRR** is supporting **digital transition**, and explore how companies can leverage these tools to grow and innovate.

The proceedings opened with a talk by **Andrea Simoni, Secretary General at FBK** (a partner of the National Quantum Science and Technology Institute) who emphasized that the Foundation has always been at the forefront: *“We are in a historical moment in which the convergence between quantum and cloud computing is opening up unprecedented scenarios, redefining the paradigms of technology innovation, and this event represents a further step in the collaboration between industry and research, a unique opportunity to work together and discuss the potential of these technologies and their impact on our economy and production players. At Fondazione Bruno Kessler, we have decades of know-how and experience in the production of custom sensors and computational systems, such as the first Italian qubit made entirely in our laboratories, all combined with our solid expertise in AI. Our research activity contributes also to major projects promoted by the commission such as the IPCEI (Important Project of Common European Interest) on digital and industrial policy, aimed at creating a shared testing environment that fosters interoperability and integration of cloud systems available in Europe.”*



The event, thus, hosted a first session dedicated to **local ecosystems of innovation**, where the [Emerging Technology Houses \(ETCs\) and Ministry-funded Centers of Expertise](#), which promote research, experimentation and technology transfer in the local area, were featured. In a context of change, digital transition is seen as a strategic challenge, with a focus on **technology transfer** to small and medium-sized enterprises (SMEs), the backbone of Europe's economy.

The first day was entirely dedicated to the **field of quantum technologies**, one of the most promising yet challenging areas for the future. It was emphasized that innovation in **quantum computing** requires a structured and replicable approach capable of turning ideas into concrete solutions. The focus was on the collaborative approach between **universities, large companies** and **SMEs**, a model that aims to strengthen the **synergy between different actors** for impactful innovation. It was also discussed how **collaboration between research centers** is providing a virtuous example of technology transfer, with the creation of solutions that will benefit SMEs in particular.

Then the focus turned to the **integration of quantum technologies** into industrial and manufacturing sectors, and how **Emerging Technology Houses** can serve as a link between **academic research** and practical applications in the **business** world. Also discussed was how, although quantum computing seems not to address the immediate needs of SMEs, experience with

artificial intelligence has shown that technologies that initially did not appear to have an impact can later become critical to businesses. **CTEs** are seen as vital tools for the **deployment of emerging technologies**, showing SMEs how they can be adopted in practice, through practical examples and concrete **use cases**.

The second day, as scheduled, was dedicated to **cloud computing** and in particular to the link between **cloud and artificial intelligence (AI)**, as AI, to be effective, requires advanced and scalable cloud infrastructures that can handle huge amounts of data. The discussion also covered the **IPCEI Cloud** projects, in which Europe is investing resources to promote **radical innovations** in cloud computing. In particular, it emerged that these projects can not only push technological growth, but also facilitate **collaboration between countries** in the European Union, creating a European cloud computing ecosystem that can compete on a global scale.

An important topic that emerged was the use of **edge computing** to improve the performance of cloud applications, reduce geopolitical risks and increase **data security**.

Here, FBK brought its own experience with **Silvio Ranise, director of Fondazione Bruno Kessler's Center for [Cybersecurity](#)**, presenting one of their achievements: *"With IPCEI-CIS @FBK – and in particular with the **Cybersecurity & AI at the Edge project** – we are contributing to the construction of a European multiprovider, secure and interoperable cloud space that can facilitate cooperation and optimize the management of computational loads. The Cloud-Edge Continuum concept allows us to develop AI techniques and security services capable of distributing resources in an efficient, dynamic and environmentally friendly way, ensuring security, reliability and respect for privacy."*

The discussion included how **edge node-based** projects can be a **practical solution** for optimizing data management and processing, reducing operational costs and improving the responsiveness of digital infrastructures. The **cloud** was also seen as a **tool for SMEs** to access advanced technologies such as **AI** and **big data**, with specific solutions designed to break down **technology barriers** and **compensate for the skills gap** that many SMEs face.

In particular, the need emerged for targeted projects that can support SMEs in adopting the cloud, ensuring accessible and understandable solutions, and providing the support needed to overcome the **difficulties associated with data migration** and the **management of new infrastructure**.

The event at Fondazione Bruno Kessler thus offered an important opportunity to reflect on how **emerging technologies can become drivers for growth**, not only for individual companies, but for the entire Italian economic and social ecosystem. The discussion highlighted the role of **cross-sector collaborations** and **international synergies** in addressing future challenges and building an increasingly **inclusive and competitive digital ecosystem**.

PERMALINK

<https://magazine.fbk.eu/en/news/achievements-and-challenges-for-italy-quantum-and-cloud-computing/>

TAGS

- #artificialintelligence
- #cis
- #cloud computing
- #digital transition
- #edge computing
- #industry
- #innovation
- #ipcei
- #mimit
- #PMI
- #pnrr
- #quantum
- #quantum computing
- #Quantum Technologies
- #qubit
- #research
- #sensori
- #sensorsdevices
- #technology transfer

RELATED MEDIA

- Videointerviste: Donatella Proto, Direzione generale MIMIT | Angelo Giuliana, Direttore generale Centro di Competenza Meditech 4.0 | Francesco Meoni, Direttore Tecnico BI-REX | Silvio Ranise, Direttore Centro Cybersecurity di FBK | Francesco Cataliotti, CNR-Università di Firenze | Andrea Simoni, Segretario generale FBK:
https://youtu.be/_4RO3Pt2LCU

AUTHORS

- Giovanna Rauzi