

Fondazione Bruno Kessler (FBK) is a multidisciplinary research institution specializing in technology, innovation, the humanities and social sciences, based in Trento.

Established by law by the Autonomous Province of Trento, Fondazione Bruno Kessler is a private entity whose mission is to promote and contribute to the advancement of knowledge with a focus on the fields of science and technology that will allow for greater and more tangible economic and social impacts.

Active since 2007, Fondazione Bruno Kessler takes up the legacy of the Istituto Trentino di Cultura, founded in 1962 by Bruno Kessler. It is a research institution that from the year of its founding to the present has grown to a staff of more than **620 researchers, developers and support staff, 150 doctoral students, 200 visiting professors and doctoral candidates, and 700 affiliates and accredited students.**

FBK hosts more than 70 foreign researchers who come not only from major European countries but also from non-European countries such as the United States, China and India, Brazil and Argentina, Algeria, Iran, Pakistan, Australia and Russia.

Since the 1980s, FBK has directed its research toward experimentation with **integrative, widespread and reliable artificial intelligence**. FBK can, in fact, boast a strong background in the field of AI, which goes all the way back to the days of the ITC - Istituto Trentino di Cultura and owes its origin to the collaboration with the greatest and first artificial intelligence experts of the time, including Luigi Stringa, Tomaso Poggio, John McCarthy, Renato De Mori and Oliviero Stock.

The campus now occupies a total area of more than **40,000 square meters**, of which 5,000 are dedicated to laboratories. It consists of two hubs, one dedicated to technology and innovation located at Povo, on the hills of Trento, and the other dedicated to the humanities and social sciences in the heart of the city. The two hubs host an ecosystem consisting of 12 research centers, 7 laboratories and 2 libraries, around which companies, joint laboratories and spin-offs revolve.

Research centers

Research at Fondazione Bruno Kessler takes a global and interdisciplinary approach, with a focus on the application dimension and on innovation: from laboratory research to the implementation of large-scale systems and solutions in different sectors.

With more than 600 publications and patents per year, 80 researchers with national certification, the 12 research centers focus on the following research areas:

- Augmented Intelligence
- Cybersecurity
- Digital Industry
- Digital Society
- Digital Health & Wellbeing
- Health Emergencies

- Sustainable Energy
- Sensors & Devices
- Theoretical studies in nuclear physics and related areas
- Research Institute for Evaluation of Public Policies
- Religious studies
- Italian-German historical studies

At the forefront for more than 35 years and as a **research center of excellence**, FBK intends **to lead the new frontier of AI**, creating innovative, reliable solutions that support - not replace - people, and is replicable and adaptable to multiple sectors. To do this, the Foundation has given itself an AI-founded organization: from 2024, its research centers will be divided into **AI for Health, AI for Industry, AI for Society, and Sensors for AI**.

Since its establishment, FBK has been conducting research on cutting-edge **sensors, photonic, optical, micromechanical, and electronic devices** in the fields of biomedical research, space exploration, digital industry, and the environment, pushing into quantum applications with the Center for Sensors & Devices.

FBK's challenge for the next decade is to bring these **quantum technologies** - with immediate and far-reaching effects on all fields of science - into the **Italian manufacturing network** as well.

Fondazione Bruno Kessler also has a **Clean Room**, a laboratory more sterile than an operating room, where silicon wafers are processed, from which radiation detectors used in fundamental physics experiments are obtained.

The Clean Room occupies an area of nearly 1,500 square meters and is equipped for the production of radiation detectors, MEMS (Micro-Electro-Mechanical Systems), materials characterization and micro-nano-fabrication.

Through the creation of new scientific connections with international partners and networks and through the possibility of producing sensors for AI in house, FBK will push Italian and European artificial intelligence research further.

FBK's Centers are heavily involved in numerous projects funded by the European Commission. Fondazione Bruno Kessler also leads some important IPCEI platforms (Important Projects of Common European Interest) on hydrogen and microelectronics, projects such as AI4EU, AI@EDGE, AgrifoodTEF, collaborates with CERN and the ESA space agency.

FBK is active on 14 programs under PNRR Mission 4.2 on topics in line with the institutional mission, such as artificial intelligence, Quantum Science & Technology, and emerging infectious diseases.

SCIENTIFIC COLLABORATIONS AND PARTNERSHIPS

Since its early days, Fondazione Bruno Kessler has sought connections with universities, research centers, scientific organizations and industries to explore synergies and promote joint collaboration initiatives. In the academic landscape in particular, FBK is currently a partner in a series of joint projects and laboratories with the **University of Trento**.

It has also contributed since its inception in 2018 to **AIIS - National Laboratory of Artificial Intelligence and Intelligent Systems**.

FBK contributes to the development of initiatives of national and European significance, also thanks to the strategic roles played by its researchers in some organizations such as **Hydrogen Europe Research** and **H2IT - Italian Hydrogen Association, Expert Group eIDAS** and the working group on the **Italian Wallet**, to build a new **digital identity**.

FBK, thanks to the activity carried out by the Health Emergencies center, is among the main collaborators of the **Ministry of Health on the update of the pandemic plan** and has been collaborating with **ISS - Istituto Superiore di Sanità, the Italian National Institute of Health**, since 2006.

The Center for Sensors & Devices cooperates with **CERN**, as the only producer of silicon- 3D detectors, with **INFN - National Institute of Nuclear Physics** and **INAF - National Institute of Astrophysics**.

The Cybersecurity center cooperates with **Istituto Poligrafico e Zecca dello Stato**, the Italian State Printing Works and Mint, specifically on the design of the electronic identity document.

FBK has signed more than a hundred contracts with private companies and has had numerous commercial orders placed by some of the most relevant entities in the national and international context, such as Sony Corporation and Stellantis.

GOVERNANCE

President: Ferruccio Resta

Secretary General: Andrea Simoni