

Allegato 1: Project Abstract

The proposed initiative aims to create an advanced innovation infrastructure to support the development of interdisciplinary tools and methods of innovation to face challenges posed by climate change and the energy transition, based on the use of digital technologies and a multidisciplinary approach.

The project will create a multidisciplinary innovation infrastructure for: (i) providing solutions and tools for optimized use of water; (ii) contributing to the energy transition; (iii) enhancing flexibility of energy production from renewable energies, primarily hydroelectric and fostering synergy with other systems; (iv) supporting sustainable production of goods and services thanks to heavy use of digital technologies; (v) increase territories' resilience to climate emergencies. All of the above will be achieved thanks to the use of advanced technologies and concepts of artificial intelligence, IOT, big data.

The proposed project aims at being, for the territory of South Tyrol, and mountain areas in general, a reference **multidisciplinary and multiplatform innovation infrastructure centred on the trinomial "WATER - ENERGY - ENVIRONMENT" linked together through ARTIFICIAL INTELLIGENCE techniques to support innovation.**

The innovation infrastructure should be built within or close to the NOI Technology Park in Bolzano. The infrastructure will extend over an area of more than 1500 sqm, with the possibility of developing both indoor and outdoor facilities. In particular, **the thematic sectors relevant to the initiative are the energy transition, life sciences and artificial intelligence.**

The infrastructure will act at the border between open science and competitive industrial development, providing access to innovation infrastructure for the implementation of industrialized and mass-scaled solutions to complex technical problems.

The infrastructure aims at providing companies in the local, national and European areas advanced technical solution sets to solve complex issues, with a focus on topics that are central to the geographic area where it will be located: renewable energy, water, land, environmental monitoring technologies and digital/Artificial Intelligence technologies. The infrastructure will establish a solid common ground and link for fertile cooperation between the academic world and the industry.

The ambition of the infrastructure is to transfer solutions ranging between TRL 6 and 7 to the market, thanks to specialized technical laboratories (open air physical laboratories) and the application of a digital technology layer to all solutions to be tested and developed (digital and foresight unit). Successful market transfer of solutions from TRL 6-7 will be ensured by close relationships among SMEs, corporates and start-ups and the so-called Innovation Garage.

The infrastructure will be organized in units as follows:

- large scale physical systems unit,
- sensors and robotics unit, and
- energy conversion and storage unit, with an additional
- field monitoring mobile unit
- and a cross-sectoral digital, computation and foresight unit
- complemented by an Innovation Garage facilitating technology transfer



The multidisciplinary approach provides an opportunity for companies to develop innovative ideas through fast real scale prototyping. The units will be complementary and synergic to research activities and laboratories of the Free University of Bozen-Bolzano, and represent the necessary completion to transform the technological innovations resulting from university research into a "final product". Therefore, the reference activities of the infrastructure unit will be testing and monitoring, aimed at the characterization/certification of products and tools, engineering and qualification, up to industrialization, of products, processes, methods. The ultimate goal will be to design and implement innovative high-performance technological solutions.

Units are strictly interconnected, not only for the topics dealt with, but also for the activities that will be carried out in them. The Digital, Computation and foresight Unit will be the fundamental and gluing unit that will provide AI-based support and solutions for the activities developed by the other units.

The infrastructure will be directed by the so-called infrastructure manager, employed through a fixed-term employment contract for the whole infrastructure set-up time. After that time, and based on target achievement of the infrastructure the infrastructure manager can be confirmed for a longer time-frame or, alternative, the position can be opened to recruit another highly qualified individual for the function.

Reliable and flawless operations of the infrastructure will be guaranteed by accountable subjects for each of the laboratories (unit managers), in charge for (i) ensuring full technical functionalities of each lab at all times, (ii) risk management, (iii) dissemination, communication and knowledge transfer of results for innovation activities, (iv) support to Intellectual Property management and (v) support to the management Board in defining the commercial plan to ensure infrastructure sustainability and prioritizing investments that are coherent with the infrastructure strategy. On demand, the unit managers can be called to action as an advisory board to the management board, typically during the evaluation of investment decisions.

The private parties will promote a Public Private Partnership (PPP) with the Free University of Bozen-Bolzano (UNIBZ). They will make available (for an expected duration of not less than 15 years) to the Innovation Infrastructure - which can also leverage on extensive know-how and equipment of the university of Bolzano for the creation of specific laboratories - premises and areas of their property where also to develop new building(s), through the drafting of a PPP-proposal which will include all the requirements of Art. 193(1), Legislative Decree 36/2023.

The private partners need to meet all the required characteristics, in particular: (i) average turnover related to the activities carried out in the last 5 years prior to the publication of the notice not less than 10% of the value of the planned investment; (ii) share capital not less than one twentieth of the envisaged investment; (iii) performance in the last five years of services similar to those provided by the intervention for an average amount not less than 5% of the value of the investment; (iv) performance in the last five years of at least one service similar to that envisaged by the intervention for an average amount equal to at least 2% of the value of the investment.

The PPP operation will be developed according to the Italian regulation on public contracts or publicly participated societies. A public request for demonstrating interest in the PPP operation will be published by the promoter subject, namely the Free University of Bolzano, with the aim of providing public evidence of the private party selection process regarding the construction of a PPP.

The infrastructure has to be developed by 31.12.2025. Within this deadline must be completed the following activities:

- detailed infrastructure planning, including planning of construction works necessary to kick-off innovation activities;
- hiring of the infrastructure manager and involving in defining the planning and all procurement procedures needed to initiate the infrastructure work;

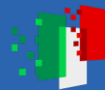


- infrastructure development, including the design up until the construction layout and the construction works.

This tight time schedule will be guaranteed thanks to precise planning during the initial planning of project, and the adoption of an integrated design approach (design assist practice) involving all actors having a role in the realization of the infrastructure from the earliest stage, so to avoid any technical issue arising unexpectedly during the construction phase of the infrastructure. This activity will be supervised by the infrastructure manager at all stages, with the aim of ensuring a test-run of the infrastructure as soon as possible from start, in order to verify correct operation of such a complex system.

The project supports the creation of a new innovation infrastructure with a focus on the three connected topics: Water – Energy – Environment. The aim is to create an innovation hub of excellence at the national and international level, which will enable technology transfer of products and services to companies, operators and territorial actors so to foster energy transition. The project will be developed in the timeframe 2024 to 2025 and will benefit from an initial investment equal to approx. 21MM € (VAT excluded), needed to initiate the infrastructure. Those costs can be ascribed to budget plan positions, as included in section B.3. Most of incurred costs belong to the CAPEX category, besides from costs for infrastructure operation linked to Managerial structure, equal to approx. 1 MM € for three years.

In addition to the management structure, whose costs will be also carried forward to the subsequent financial period (after 2025), the project foresees the onboarding of a full team of resources to ensure full operability of the infrastructure beyond the period supported by the PNRR, guaranteeing the level of services targeted from the beginning of the projects. Those costs are foreseen starting from the beginning of 2026 and will be rising in the following years, based on the increased volume of activities. In addition, more operation cost and fixed costs will be added to support increased operation of the infrastructure. The profitability of the initiative is evaluated on the basis of a 15-year time span from project start. This expected duration is considered as coherent and meaningful with the respect to the infrastructure nature and the type of activities foreseen. Those activities are aligned to the ambitious targets set out by the challenges of energy transition and climate change.



Budget plan

Eligible cost (Art. 7 of the call for proposal)	Costs (€)		
	Not to be located in Mezzogiorno Regions	VAT	Total
a. Expenses, even if not accounted for as tangible and intangible investments, related to one highly qualified infrastructure manager and other executive personnel (managers) in charge of the services offered by the Infrastructure	1.000.000 €	n.a.	1.000.000 €
b. Scientific instrumentation, research equipment and machinery and relative accessories, turnkey	7.800.000 €	1.716.000 €	9.516.000 €
c. Technical installations strictly connected to the functionality of equipment and machinery	3.875.000 €	852.500 €	4.727.500 €
d. Software licences and patents	760.000 €	167.200 €	927.200 €
e. Buildings and land (including built land) not exceeding 10% of the total cost of the project. For sites in a state of decay and for those previously used for industrial purposes that include buildings, this limit is increased to 15%	1.850.000 €	407.000 €	2.257.000 €
f. Rehabilitation, renovation, redevelopment and expansion of buildings if strictly necessary as to the functionality of the Infrastructure	2.290.000 €	503.800 €	2.793.800 €
g. Design cost and other related technical expenses	1.950.000 €	429.000 €	2.379.000 €
h. Indirect costs, forfeit (up to a maximum of 7% of the other project costs)	1.652.000 €	n.a.	1.652.000 €
Total			25.252.500 €

51% of the total amount (12.878.775 €) must be financed by the private partner. 49% of the total amount (12.373.725 €) is financed by unibz with PNRR-funds.