Innovation Centres

A General Overview

1. Introduction

Innovation Centres constitute a new institutional initiative in Greek education, implemented by the **Computer Technology Institute and Press "Diophantus"** (CTI), on behalf of the **Greek Ministry of Education, Religious Affairs and Sports**, within the framework of the **Recovery and Resilience Facility**. This educational effort involves the establishment of Innovation Centres across the 13 Regional Directorates of Education in Greece, supported by a Virtual Innovation Centre, which aids and nourishes the network, as well as a physical Innovation Lab housed at the CTI "Diophantus" premises in Athens (Smyrnaiou & Vaggelatos, 2022; Smyrnaiou et al., 2023). Aligned with the Digital Education Action Plan (ECA, 2023; European Parliament, 2021), this initiative aims to create a knowledge ecosystem that interconnects the school community with local society, research institutions, universities, and local businesses, while also linking to similar European networks in education and innovation. These Centres are state-of-the-art STEM learning environments, with focus on Green growth, sustainable development and innovation promotion.

Innovation Centres (ICs) represent a new dynamic institution in Greek education: a network of learning spaces that enhance creativity and bring cutting-edge technology and innovation closer to students and educators.

2. What Are the Innovation Centres

Their development is based on international practices, both public and private (Hod, 2017; Hughes & Morrison, 2020), with particular emphasis on the Future Classroom Labs (FCL) initiative (Attewell, 2019). The FCLs were launched in 2012 by the European Schoolnet (EUN), supported by 34 Ministries of Education and various industry partners, aiming to showcase how traditional classrooms could be redesigned to support evolving pedagogical approaches.

As institutionalized structures distributed across Greece's 13 Regional Directorates, the ICs serve as hubs of innovation and technology. Each Centre offers modern facilities and technological infrastructure to support educational programs spanning a wide range of applied sciences. Accessibility for individuals with disabilities is ensured at all Centres, with appropriate systems in place to guarantee equal opportunities for all potential beneficiaries.

According to law 5094 that approved by the Hellenic Parliament (Government Gazette 39/13-3-2024), the Innovation Centres are officially established within the Regional Directorates of Primary and Secondary Education (Law 5094, 2024). More specifically, Articles 170 & 171 of the aforementioned law and Ministerial Decision 84081/ΓΔ1 (Government Gazette 3840/18-07-2025) set out the details of the establishment of this new

educational unit: its establishment, its integration into the PDEs, its mode of operation, staffing, support, supervision, and other matters. Each IC is staffed by three seconded educators with advanced qualifications, responsible for planning and hosting up to two large student groups (~50 students per group) daily, within their regular working hours, while carrying out teaching duties.

The role of teachers is multifaceted, since students visiting the Centres can

- Explore modern technologies such as **robotics, artificial intelligence, virtual** and **augmented reality,** and **3D fabrication**
- Participate in **experiential workshops** and conduct experiments.
- Develop **21st-century skills**, including life and career competencies and digital literacy, while enhancing their critical thinking**.**
- Engage in **collaborative innovation activities** alongside other students and teachers.

The ambition is to ensure that Innovation Centres become centres of discovery, experimentation, and innovation for every school in Greece, nurturing active citizens equipped with creativity and readiness to address the future challenges of modern society.

🛠 3. Structure & Infrastructure

Education at the Innovation Centres focuses on shaping specialized learning environments that enhance experiential and participatory learning. These environments integrate formal and informal education, providing a holistic knowledge approach tailored to different student age groups (Smyrnaiou, 2023; Vaggelatos, 2023). In the educational programs, there is a strong focus on fostering STEM (Science, Technology, Engineering, and Mathematics) skills digital and hands-on creation, combining physical and digital tools to enhance deeper understanding through experimental instruction (Olympioy & Zacharia, 2012). At the same time, the visitors interact with advanced technologies in the learning spaces of robotics, AR/VR, AI, and the Internet of Things (IoT). This approach enables the connection between theory and real-world applications in n purpose-built laboratories. Through cyber-physical systems, students engage directly with cutting-edge technologies both in primary and secondary education. (Komninos et al., 2022).

Each Innovation Centre includes state-of-the-art equipment and is structured into five learning spaces:

- **Extended Reality (XR) Learning Space:** Featuring VR/AR to provide immersive learning experiences for students
- **Robotics Learning Space:** Emphasis on cultivating science, technology, engineering, and math skills
- **Internet of Things (IoT) Learning Space**, allowing students to experiment with AI application and automation systems based on IoT technologies.
- **Fabrication Learning Space**, allowing students to experiment with designing digital models using 3D printers and laser cutting/engraving equipment.
- **Interaction Learning Space**. An interactive zone for presentation and collaboration with schools and other Innovation Centres using advanced media.

Laboratory equipment is gradually updated to reflect technological advances. Selection criteria of equipment include technological superiority, functionality, usability, system compatibility, and alignment with the Innovation Centres' educational goals.

4. The Project

The development framework encompasses the following distinct phases. The initial phase includes all preparatory activities: the establishment of the institutional framework, identification of suitable facilities, formation of management and project teams, definition of operational regulations, as well as the execution of the procurement tender for equipment and the formation of teams responsible for developing educational material, training, and support. The following phase is the pilot operation of the Centres his phase involves the delivery of infrastructures by the contractors of the Open International Electronic Tender, the training of the Pedagogical Team of the Innovation Centres, and the development of the educational material.

In detail, the scope of the project encompasses five (5) core pillars:

1. Educational Programs: he development of specialized educational programs tailored to different age groups, supporting and deepening engagement with cutting-edge topics aligned with national curricula. Each program is accompanied by detailed teaching scenarios and educational materials, covering the full instructional process of each subject. Additionally, student handbooks and teacher guides have been developed.
   Indicative thematic areas include: Metaverse, AR/VR, Robotics, Digital Literacy, Artificial Intelligence, Digital Educational Games, Big Data, and Machine Learning.
2. Material and Technological Infrastructure: Procurement and installation of the necessary technological and networking equipment to enable the implementation of the aforementioned specialized educational programs within the Innovation Centres.
3. Design and Configuration of Innovation Centre Spaces: This includes the full spatial design of the Innovation Centres, procurement and installation of office furniture and equipment, as well as other maintenance and room adaptation works to ensure full functionality.
4. Training of Innovation Centre Staff: Capacity-building for the personnel of the Innovation Centres to equip them with the necessary knowledge and skills to fulfill their role in disseminating knowledge—both to visiting educators and to students.
5. Services: Development of educational content, services for pilot operation, technical support, and overall project coordination and management.

5. Location & Mapping

The initial phase of the project aims at the development of **13 Innovation Centres**—one in each Regional Directorate of Education across the country as shown on the map:

At the same time, a central infrastructure has been established to support the Innovation Centres, as well as individuals located in remote areas with limited access to the physical Centres. In addition to the physical Innovation Centres, a Virtual Innovation Centre has been developed, providing access to digital resources and educational scenarios, while also enabling remote control of certain equipment!

Moreover, the Innovation Laboratory at the CTI premises, based in Athens, offers pedagogical support and guidance for the educational activities implemented across the 13 Innovation Centres.

6. How Do They Operate?

Each Innovation Centre hosts daily visits by student groups, who participate in the implementation of innovative educational scenarios. These activities are supported by specialized teaching staff and enable the execution of cutting-edge educational activities, closely linked to emerging technologies! Simultaneously, each Centre has the capacity to establish collaborations with universities, research institutes, businesses, and the local community.

In cooperation with the teachers of the visiting schools, the staff of the Innovation Centres implements pre-selected educational programs, part of which is designed to take place on-site

during the school visit. The educational scenarios may span one or more learning zones depending on the students' age, interests, and the curriculum objectives defined by the lead educator. Elements of the program may also be carried out in the classroom prior to the visit. Furthermore, activities for reflection, evaluation, and documentation of the visit experience are foreseen following the conclusion of the visit.

Additionally, the Innovation Centres are designed to be interconnected with corresponding networks across Europe and internationally, with the aim of **enhancing research and educational activity, promoting environmental awareness**, and fostering students' **digital readiness** through collaborative, experiential, and creative learning. At the same time, they provide support to schools and educators at both local and national levels. They constitute a hybrid infrastructure—a combination of physical and digital environments—offering students hands-on, interactive, and creative learning experiences.

Innovation Centres are not just new spaces — they represent a new educational experience. A space where students are inspired, experiment, and become creators. We invite you to explore, visit, and become part of this educational transformation!

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