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Promoting Research and Innovation for Cultural Heritage in Cyprus through the CONNECTING Infrastructure Project

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Introduction

The project for the "Research and Innovation Knowledge Centre for Engineering in Heritage," also known as **CONNECTING**, is a project that focuses on improving the way we preserve heritage sites and monuments and Aims to create a knowledge center for cultural heritage research. This center will be equipped with advanced sensors and platforms, such as vertical takeoff and landing drones (VTOL), RGB, multi- and hyperspectral cameras, LiDAR systems, terrestrial laser scanners, soil moisture sensors, ultrasonic sensors, inclinometers, wireless strain sensors, and multibeam echosounders. These tools will enable researchers to identify, monitor, document, and analyze cultural heritage sites and monuments on land and underwater, promoting research excellence.

The aim

The thematic priority of the **CONNECTING** project is closely connected with the Smart Specialisation Strategy of Cyprus (S3Cy). The S3Cy aims to facilitate the future sustainable development of the country by leveraging its unique characteristics and research ecosystem Figure 1. The final report of S3Cy emphasizes the significance of cultural heritage as a central pillar for the country's future development. It highlights the interaction of cultural heritage with other disciplines, such as tourism - a significant economic revenue stream for Cyprus - and Information and Communications Technology (ICT).

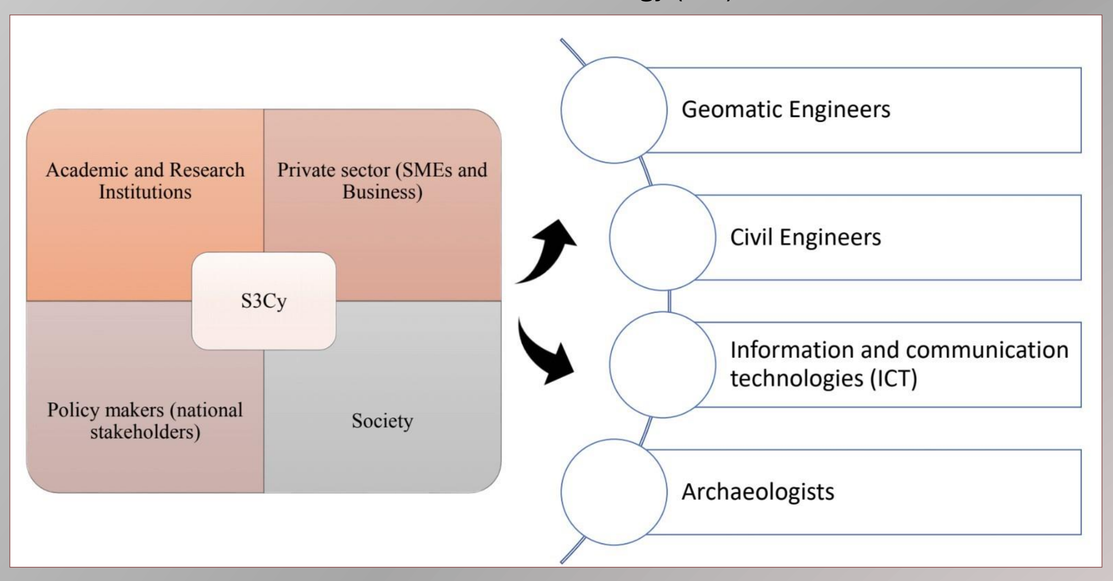


Figure 1. The CONNECTING project linked with the Smart Specialisation Strategy of Cyprus

CONNECTING brings together entities from the **quadruple helix** of the S3Cy

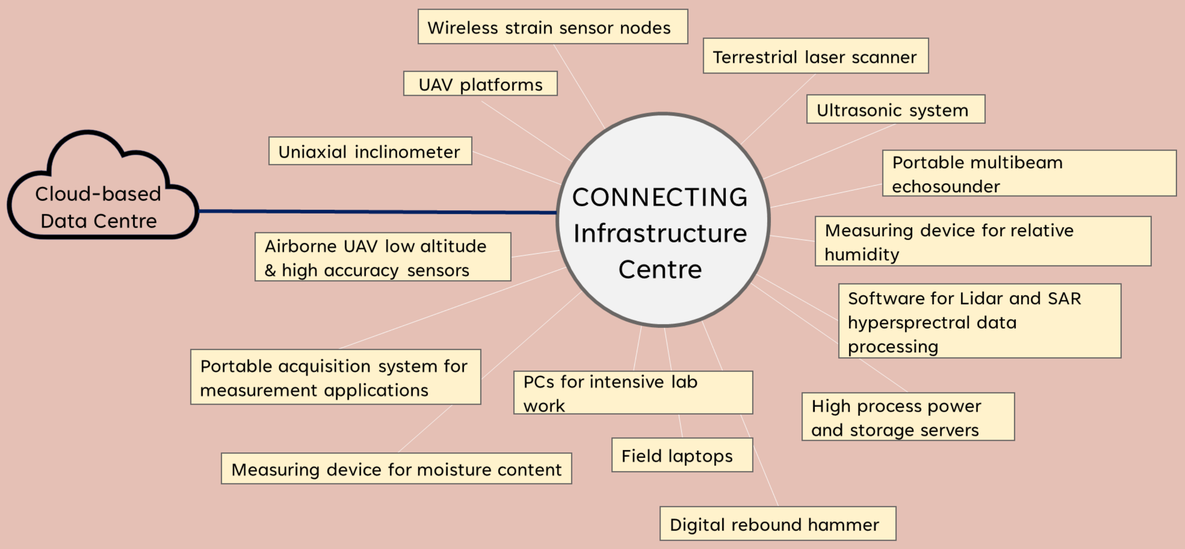
- Cyprus University of Technology (CUT, HO)
- University of Cyprus (UCY, PA2)
- Department of Antiquities of Cyprus (DoA, PA3)
- Department of Land and Surveys (DLS, LoS-1)
- Infralabs Ltd, (PA1)
- Geofem Ltd (LoS-3)
- UNESCO Chair of Digital Heritage (LoS-2)

The centre aims to boost research excellence and support future R&I synergies via creating strong links with relevant European advance institutions such as the **University College of London (UCL, LoS-4),** the **Politecnico di Milano (POLIMI, LoS-5**) and the **University of Aveiro (UAVEIRO, LoS-6)**

- The CONNECTING knowledge centre will serve as a research hub for the consortium partners and supporters. Actions include best practices for detecting, monitoring, documenting, and analyzing heritage sites on land and underwater.
- A secure and privacy-preserving cloud data center will host, process, and share project information with specific restrictions for sensitive data.
- Enhance research excellence and innovation capacity in geomatics, ICT, archaeology, and civil engineering in heritage. The equipment claimed by CONNECTING will be demonstrated and disseminated through targeted actions.
- Create a critical mass of researchers in cutting-edge sectors to generate job opportunities for young scientists.
- Attract highly skilled researchers to Cyprus by announcing new job openings in geomatics, archaeology, ICT, and civil engineering for heritage-related projects.
- Promote effective national research collaboration supported by the partners of the project.

Proposed Infrastructure

The **CONNECTING** project aligns with the European Commission's vision to establish a collaborative European cloud for cultural heritage by 2025.



Benefits

Impact on Multidisciplinary Needs:

- Support monitoring, documentation, analysis, and preservation of cultural heritage sites on land and underwater.
- Implement security measures, establishes standards, and provides training for researchers.

Communication, Dissemination, and Outreach:

- Promote innovative technologies and research for cultural heritage.
- Open infrastructure to external users and collaborators

Technological Advancements and Applications:

- Enhance computer vision, machine learning, robotics, and other technology fields.
- Support new applications in urban planning, architecture, and geospatial analysis.
- Develop tools, software, and services like virtual tours and online education.

Economic Impact:

- Innovation and economic growth in tourism, conservation, and cultural heritage management.
- Attract more visitors and stimulates investments in restoration and conservation.

Public Awareness and Cultural Exchange:

- Increase public appreciation of cultural heritage.
- Facilitates knowledge sharing and cultural exchange

Environmental Benefits:

- Reduce on-site visits and traditional surveying, cutting carbon emissions.
- Promote remote data collection and minimize travel through innovative technologies.
- Support sustainable conservation and research efforts.

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Disclosure of Interests. [1]The authors have no competing interests to declare that are relevant to the content of this article.

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