Technologies

The technologies developed in the PROTEAS project are innovative on an international level and their promotion will contribute decisively to their establishment for the study and conservation of large-scale (and normal-sized) paintings, both in Greece and internationally.

The project is expected to be completed in the summer of 2023, when the capabilities of the Open Accsees Laboratory's systems will be demonstrated to the general public.

The PROTEAS research team aspires to make a decisive contribution to the dissemination of the pioneering techniques of studying and analyzing Cultural Heritage objects, and the complex processes and stages required to preserve a work of art, through modern echnologies, and live actions.

Innovations

Innovative low-cost robotic devices and advanced software based on machine vision, which will allow: (a) digital mapping of the painting, and (b) easy and accurate approach to the entire surface of the painting.

Modern analytical devices for the non-invasive and comprehensive analysis of the painting materials: (a) Fluorescence imaging for the study of pigments, (b) Fluorescence spectroscopy for the analysis of varnishes, (c) Ultrastructural Reflectography for the detection of draft drawings/underdrawings, and (d) X-ray fluorescence for the elemental characterization of materials.

A Digital Documentation Platform for recording, managing, comparing - synthesizing and displacing analytical data.

Integrated interface software: (a) to control and synchronize all robotic and spectroscopic devices, (b) to record the data, and (c) to display and manage the data.

PROTEAS - Advanced System for collection and management of analytical data for documentation and conservation of large-scale paintings in an open access laboratory"

The project PROTEAS is implemented in the framework of the action RESEARCH - CREATE - INNOVATE and was co-funded by the European Regional Development Fund (ERDF) of the European Union and national resources through the Competitiveness, Entrepreneurship & Innovation Programme (EPANEK) (project code: T2EDK-02428). The partners of the project are: (i) the National Gallery - Alexandros Soutsos Museum (NG-ASM), (ii) the Institute of Computer Science of the Foundation for Research and Technology - Hellas (FORTH), (iii) the Institute of Electronic Structure and Lasers of FORTH, (iv) the Institute of Nuclear and Particle Physics with the Laboratory of X-ray Spectroscopy from the National Research Centre for Nuclear and Atomic Physics (NCRP) Demokritos, (v) the company Printec SA, and (vi) the company up2metric P.C.

The Scientific Officer of the PROTEAS project is Ms. Efi Agathonikou, Head of the Collections, Museological and Artistic Planning Department of NG-ASM.

Coordinator of the project is the Institute of Computer Science of FORTH.

The basic idea of the PROTEAS project is the creation of an Open Access Laboratory in which the study and conservation of large-scale paintings will be carried out through a specialized robotic system and modern analytical devices.

The robotic displacement system that will be developed will combine high accuracy with low cost, which will be achieved through the use of innovative machine vision techniques.

The system will carry advanced spectroscopic and imaging equipment, which will enable the comprehensive study of the state of preservation of the paintings and their materials. The results of this work will be documented through a specialized digital platform.

For the pilot application of the Open Access Laboratory, the monumental composition of the French painter Charles Louis Lucien Muller "30th March 1814", which is part of the NG-ASM collection and measures 8.45 m in length and 4.45 m in height, will be used.
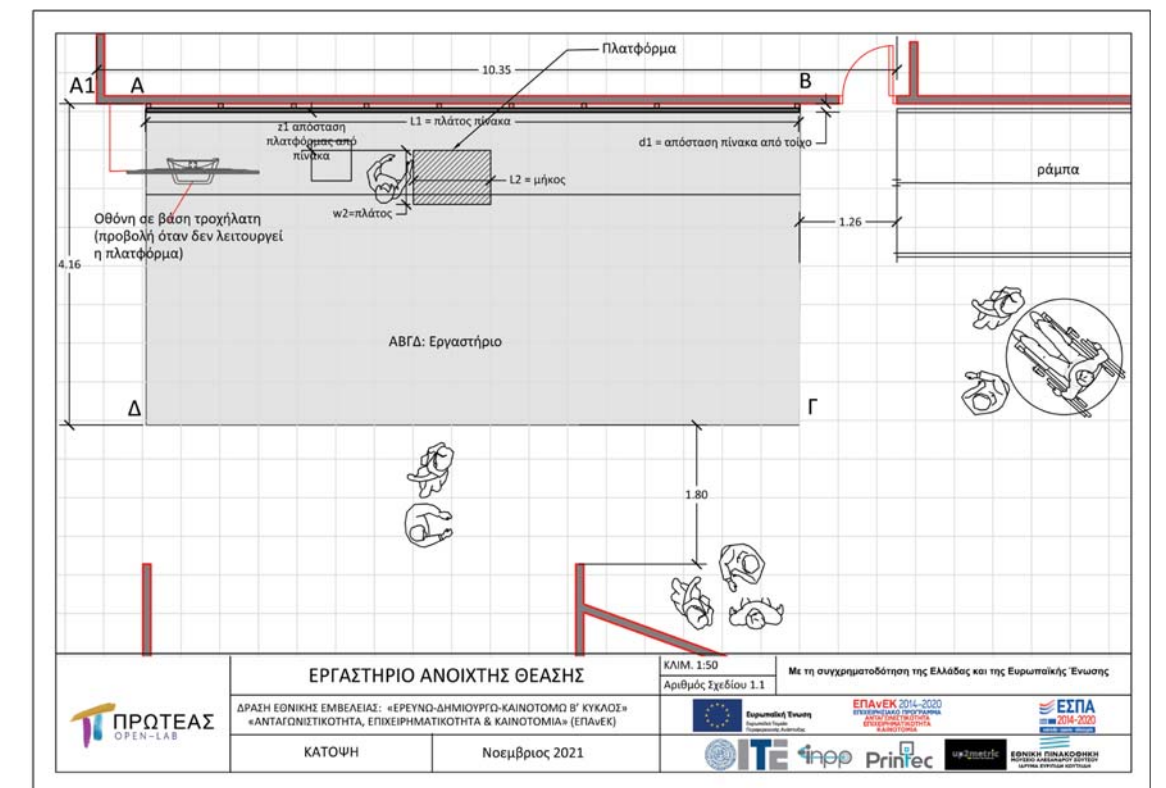
The Open Access Laboratory of the PROTEAS project:

- is intended for the **research** and **conservation** of large paintings, **using innovative technologies**,

- it addresses **professionals** and **scientists** active in the field of **Cultural Heritage**,

- is designed to be **open to all** and to contribute to **public awareness and information**.

http://proteas-project.eu/