

## COSMOS. Cultural Osmosis - Mythology & Art.

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The abundance of Greek mythology, combined with the need to preserve and spread both tangible and intangible forms of cultural heritage, constitute the incentive towards the exploration of new ways to depict and narrate these fascinating "stories". The **COSMOS** project aims at the wide diffusion and the better understanding of this complex and monumental work, by means of an interactive, user-friendly and easily accessible tool, available both for desktop and mobile devices.

COSMOS application is developed in two interrelated levels: "Myths" and "Art". The first focuses on myths as narratives, while the latter includes artworks that depict these stories. Each level is organized in three parallel windows, that visualize the correlations among their basic elements through a node-based design, and that change dynamically offering a complete picture to the user.

More explicitly, "Myths" include: a) the myths as stories, organized by means of a character-based approach, b) the characters participating in them, tagged as: Olympian gods, gods, minor gods, heroes and mythical creatures, and c) the places these stories are set in. Accordingly, "Art" includes: a) the representations of these myths in artworks, b) the depicted characters and c) the location where they were originally created or found, as well as their present location. "Art" will primarily include visual material from archaeological findings (e.g. sculptures, vases, mosaics), with the intention of further enriching the COSMOS database with more recent artworks, of various formats, that draw inspiration from the specific theme (e.g. paintings from contemporary artists, video recordings from theatrical plays, musical compositions).

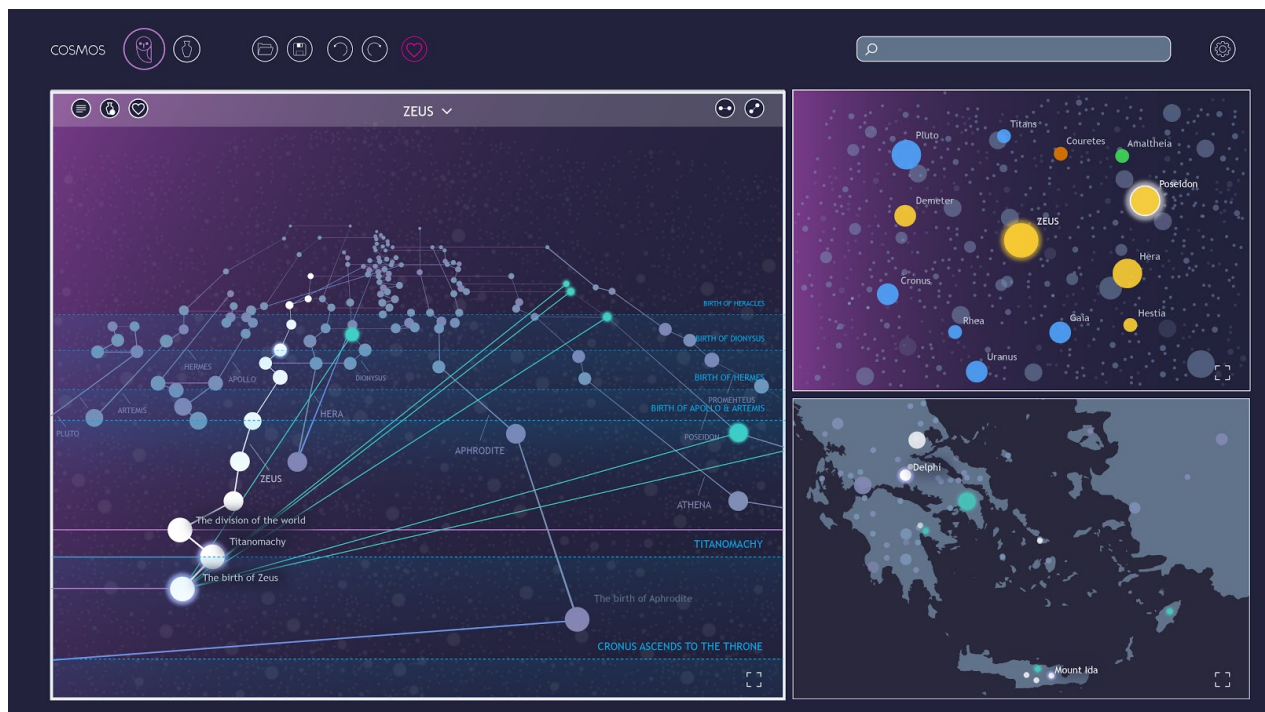
COSMOS will therefore achieve to overcome the usual practice of a linear narration, while at the same time, it will connect these myths to their depictions in works of Art that originate from different places and eras, and are now physically located across the world. The project offers the opportunity to record and present Greek mythology to a wide audience, both in its written and visual forms. Furthermore, it constitutes a trigger for expanding this work internationally, with the inclusion of mythologies and artworks of other cultures, which will allow the comparative study of mythologies from geographically and chronologically remote civilizations.

From a technical aspect, the two main functions of the COSMOS system are (a) the organization of the knowledge that derives from mythology texts; and (b) the presentation of this information to the user through a dynamic environment. The implementation of the project is realized by two respective systems: the Knowledge Management System (KMS) and the Knowledge Presentation System (KPS). Leveraging Machine Learning algorithms for Natural Language Processing, the KMS extracts knowledge (character names, locations, events) from Greek Mythology texts and organizes it in a knowledge graph. This data is stored in a Relational Database Management System (RDMS), that allows easy and fast retrieval. The aforementioned knowledge is visualized in a dynamic, queryable 3D environment, providing

the connected information in an appealing, innovative and interactive way, that facilitates understanding and incites the users' engagement.

The final product is intended to address to a vast audience and it can be used: a) as a study aid for anyone interested, b) for educational purposes, by teachers and students, c) as a reference tool in the field of the Social Sciences and the Humanities, for the production of research projects (a tool produced by Research, to be offered to Research anew), and d) as a scientific documentation tool, for exhibition curating purposes.

The partners of this project are the Ekdotike Athenon publishing house, as the project coordinator, and the Integrated Systems Laboratory of the Institute of Informatics and Telecommunications on behalf of the National Centre for Scientific Research "Demokritos", as the scientific coordinator. COSMOS is a 30-month duration project, co-financed by the European Union and Greek national funds through the Operational Program Competitiveness, Entrepreneurship and Innovation, under the call RESEARCH – CREATE – INNOVATE, and it is expected to be completed in January 2021.



img 01. The COSMOS app - Level "Myths". Left window: The Stories window, where each character-based theme is depicted as a sequence of stories-nodes, aligned on a timeline of mythical events. The nodes are connected with each other, based on a set of tags, such as common places where the stories are set in, or common characters that are participating in the stories. Upper Right window: The Characters window, where the characters participating in each story are depicted as nodes, the size of which is relevant to the frequency they appear in Greek Mythology texts. Lower Right window: The Places window, where the places each story is taking place in, are depicted as nodes, the size of which is relevant to the frequency they appear in Greek Mythology texts.