

CHT²

Cultural Heritage Through Time

Partnership

- **Politecnico di Milano (Project Leader) – ITALY**
- Newcastle University - Schools of Civil Engineering and Geosciences - UK
- Salamanca University - Higher Polytechnic School of Avila - SPAIN
- Stanislaw Staszic Scientific Association - POLAND

Project Summary

Temporal studies are central to Cultural Heritage research for the investigation of change, from landscape to architectural scales. Temporal analyses and multi-temporal 3D reconstruction are fundamental for safeguarding and maintaining all forms of Cultural Heritage. Such studies form the basis for any kind of decision regarding intervention on Cultural Heritage, helping assess the risks and issues involved.

The aim of the CHT2 project is to fully integrate the fourth dimension (4D) into Cultural Heritage studies for analysing structures and landscapes through time. CHT2 will collect heterogeneous material (multi-temporal aerial and terrestrial photographs, maps, drawings, etc.) and combine it with contemporary 3D models. These geo-referenced and metric products will be the basis for quantitative analyses about territory transformations or architectural changes, visualization purposes, preservation policies, future planning or possible business applications.

Therefore CHT2 will produce time varying 3D products, from landscape to architectural scale, to envisage and analyze lost scenarios or visualize changes due to anthropic activities or intervention, pollution, wars, earthquakes or other natural hazards. For landscapes it will be possible to chronologically highlight transformations and investigate how urbanization influenced change. For cities, time-varying 3D models will allow the rediscovery of lost areas or buildings. Finally, for architecture or buildings, starting from a 3D model of the actual situation, changes will be highlighted and missing parts will be reconstructed based on historic information. The heterogeneous information necessary for the project's accomplishment will be sought from national museums and archives with the support of the associate partners. A final project exhibition is planned to show the time-varying 3D products generated for the different case studies.

The CHT2 project will rely on an interdisciplinary and international consortium in order to exploit leading expertise in the fields of 3D modelling, data integration, landscape archaeology, GIS, heritage conservation and preservation.