CULTURAL HERITAGE
A CHALLENGE FOR EUROPE

HERITAGE PLUS CALL 2014-2015

ChT2

Cultural Heritage Through Time

CHT2

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 analyse 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.

Application and impact

Aims of the call and CHT2 compliance:

- to support well-defined, interdisciplinary and collaborative R&D projects - CHT2 consists of a collaborative consortium targeting an inter-disciplinary goal: introduce the temporal dimension (4D) for studying, analysing, preserving and communicating Cultural Heritage structures and landscapes through time.
- to maximise the value of research outcomes by

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promoting their transfer to individuals and organisations - the

- CHT2 consortium will produce a replicable methodology and technology useful to researchers and nonacademic stakeholders.
- to support a range of interactions and partnerships between Cultural Heritage researchers and a variety of user communities - CHT2 will deliver interdisciplinary outcomes able to connect various communities and help in the valorization, conservation and communication of Cultural Heritage.
- to generate new and exciting knowledge exchange opportunities - CHT2 outcomes will deliver new ideas and possibilities for safeguarding and communicating heritage sites. The project will also make 4D heritage sites easily accessible online and usable by a large community, generating new possibilities for study and analysis.

- Topics of the call and CHT2 compliance:
- Safeguarding tangible Cultural Heritage and its associated intangible expressions - time-variant reconstructions of lost or hidden heritage sites will allow digital preservation and maintenance of our culture. The Romans used to state: "Grecia capta ferum victorem cepit" which means that once they conquered Greece its uses and culture influenced the architectural, artistic and lifestyle choices of the Romans. Therefore, the production of a time-varying 3D reconstruction will allow, also, a better understanding of intangible expressions of our Cultural Heritage, as for example: i) the construction and architectural techniques and skills; ii) the occupation and the use of a landscape according to the habit of living; iii) the strategies beyond the way a building or an architecture was erected, related for example to defense and security strategies; iv) the style and trend of a specific period and the traditions that have always been strictly correlated to the way of living, especially in ancient periods. The online visualization of the project results will also help to reach and connect different communities, decision makers and potential investors.
- Sustainable strategies for protecting and managing Cultural Heritage - the CHT2 methodology will be robust, adaptable and replicable. The outcomes could be used to plan interventions, maintenance or virtual exhibition.

Coordinator

Politecnico di Milano (ITALY).

Participants

- Newcastle University - Schools of Civil Engineering and Geosciences (UK)
- Salamanca University- Higher Polytechnic School of Avila (SPAIN)
- Stanislaw Staszic Scientific Association (POLAND)

Dates

01/09/2015 - 28/02/2018

Budget

Total project funding: € 740.377,00
Funding awarded: € 589.601,00

Subject area(s)

Cultural Heritage, Safeguarding, time-varying 3D models, 4D, web visualization

Project website

http://cht2-project.eu/