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EXPERIENCE
THE FUTURE
OF THE PAST

V-MUST.NET

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Virtual **MUS**eum **T**ransnational **NET**work

A network dedicated to Virtual Museums

It is a Network of Excellence financed by the FP7

4 years: February 2011 – February 2015

18 Partners coming from 13 countries

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Partners

CNR - Consiglio Nazionale delle Ricerche (ITABC – ISTI – ITD)		*Italy*
APRE: Agenzia Per La Promozione Della Ricerca Europea		*Italy*
King's College London, Centre for Computing in the Humanities, King's Visualisation Lab		*UK*
University of Sarajevo, Dept. Computer Science		*Bosnia-Herzegovina*
Institut National de Recherche en Informatique et Automatique (INRIA-IPARLA Joint Research Team)		*France*
Lund University, Department of Design Sciences		*Sweden*
STARC, Cyprus Institute		*Cyprus*
CINECA		*Italy*
Greece	Foundation of the Hellenic World	
Netherlands	Allard Pirson Museum, University of Amsterdam	
Egypt	Center for Documentation of Cultural and Natural Heritage	
Italy	Comune di Roma, Sovraintendenza ai Beni Culturali, Museo dei Fori Imperiali	
Germany	Fraunhofer Institute für Graphische Datenverarbeitung	
Spain	Virtualware	
Belgium	Visual Dimension	
Spain	Sociedad Española de Arqueología Virtual	
Ireland	Noho LTD	
UK	University of Brighton, University of Brighton's Business School	

Associate Members

Museums and Visitor Centers

Cyprus Department of Antiquities

Muzej Hercegovine

Muzej Sarajeva

Zemaljski muzej Bosne i Hercegovine

Nubian Museum, Aswan

Waterford Museum of Treasures, Dublinia and the Viking World

Museum Victoria, Melbourne

Historiska Museet Lund

Kulturen (Kulturhistoriska foreningen for sodra Sverige)

Bologna Archaeological Museum

Museo Civico del Risorgimento/Certosa, Bologna

Music Museum, Bologna

Polo Museale Fiorentino, Galleria dell' Accademia

Provincia di Napoli, Direzione Cultura

Roman National Museum,

Terme di Diocleziano museum

Teramo Archaeological Museum

Exposición Galiciadixital

Ayuntamiento de la Rinconada

Museo de Artes Tradiciones Populares, Madrid

Fundación Atapuerca

Fundación Marq-Museo Arqueológico Provincial de Alicante

Museo y Parque Arqueológico Cueva Pintada

Associate Members

Research Institutions

Applied Laboratory of Interactive Visualization and Embodiment, Hong Kong

CNR ISTC, Rome

CNR IBAM, Lecce

TU Delft (Technical University Delft)

University of Padova, Dept. Archaeology

University of California, Merced

Companies

CadLand s.r.l.

MakeBelieve design & consulting

Playable Fiction

Zero Creative

Industry

HP Italy

NVIDIA South Europe

International Institutions

UNESCO

ICOM

Virtual Museums Definitions

Virtual Museum is a "short-cut" commonly used to identify different digital creations (i.e. VR applications, CG animations, multimedia, web-based presentations, etc.)

The virtual museums should not be seen as real museum transposed to the web or any other electronic form.

Virtual museums should be seen as a way of using modern digital technologies to extend the possibilities of conventional museums.

Virtual museums have the potential to completely alter our experience of cultural heritage.

Virtual Museums

Virtual Museums are a **new model of communication** aimed at creating a **personalized, immersive, interactive way to enhance the understanding of our Cultural Heritage**.

Virtual Museum may have the potential to completely alter and extend the way we approach, understand, learn about and preserve CH knowledge.

Virtual Museums should be the application domain of several different researches

Time for a Network of Excellence

Although the idea of VM is not new, its development and implementation has not brought Europe to be the leader in this field.

There are number of reasons for this, the most important one being *the significantly fragmented research.*

Research that is developed is at a very high level and sometimes much beyond the state of the art, but it remains at academic level, very distant from the industry sector and from the users experience.

Weakness of proposed solutions which are focused on experimental pilot cases, rather than on creating effective long lasting digital contents.

Troja example

"Troia VR", a project carried out by Tübingen university (associate partner of V-MusT.net) and ART+COM AG produced, out of the ten years of excavation at Troy an astonishing VR installation for lectures, exhibitions, and museums dedicated to the exploration of the different layers of Troy.

Project Goals

V-MusT.net will take into consideration and integrate results achieved by previous and on-going networks and IP projects related to the domain (EPOCH, STELLAR, EUROPEANA LOCAL, 3D-COFORM, V-City, Athena, Carare, GaLa, STACHEM, 3DTV, 3D4YOU, F-MUSEUM, INTUITION).

It will bring together scientist from various domains and will utilize their experience and knowledge for creating virtual museum research network.

The network will lay down the theoretical foundations of virtual museums, will identify research areas for further development and define ideal scenarios for the Virtual Museum of the Future.

Terminology and terms used in virtual museum network

In the context of a network of excellence, a variety of organizations possessing expertise are brought together in order to discuss the state of the art in their field, exchange know-how, identify areas where further research is needed, coordinate standardization actions etc.

There is one fundamental requirement: that a common language is agreed upon, on which all consequent exchanges are based.

Data acquisition

- Non-expensive technology for laser scanning

- Multiple-software solutions for handling the acquisition pipeline

- Digital cameras with very high resolution at a very low cost

The production of guidelines presenting in a clear and unambiguous way to the practitioners how to deploy and use the methodologies for digital acquisition of cultural heritage artifacts is therefore an open issue.

The definition of a wide accepted methodology for the different types of acquisition techniques and media can increase considerably the quality of the final digital product obtained and allow easy re-usability of the data for further studies.

Data visualization and interaction

Research on a data visualization and interaction techniques that are being being designed for:

- enhancing the users level of experience

- new forms of interaction with virtual objects

- reflecting cognitive and perceptive capabilities of the users and enhancing the level of experience of the VH

- an integration of new mixed reality interfaces

- a wider dissemination of VH objects,

- introducing pro-active user interfaces and its methodologies instead of symbolic/iconic systems

Nowadays, Web browsers gained advanced multimedia capability, for example to display efficiently high resolution images, and to support 3D content without require to install a plug-in, thanks to the native support of **WebGL.**

Despite this, some problems remain when 3D content is accessed remotely through the Web, in particular due to the high time required for the *transmission* of the geometry and texture data.

Several software technologies exists for the visualization of *high-resolution images* through the Web. In the CH context, we think that the current multi-resolution viewers for high-resolution images should integrate more advanced functionalities, going beyond pure image inspection

Digital Rights Management

Digital Rights Management (DRM) and security of the digital content provided through the Web, or installed somewhere, or given to someone for study or any other purposes, is one of the most important needs of the Cultural Heritage community.

The first approach consists in integrating in the data, a particular type of information called *watermarking.*

The second approach is to give to the user a content that is not the real content that we want to protect but a derivation of reduced value.

Portability issues

Many Virtual Museum installations inside museums, visitor centers or other places exist. Such installations are different in terms of digital content handled, communicative purposes, user interfaces, interactive devices employed, display used, and so on.

In this context, one of the main open issues is the porting of these VM installations.

Additional project activities

Archeovirtual (11-18 November, Paestum Italy), biggest European exhibition of virtual archeology projects and virtual museums. This exhibition present a unique opportunity to travel around the world, explore ancient sites and monuments, listen to the stories coming from the past and the future..

Ancient Cyprus: Cultures in Dialogue, virtual museum exhibited at Musées Royaux d'Art et d'Histoire, Brussels 30/10/2012-17/02/2013.

Aquae Patavinae VR

Aquae Patavinae VR is a project aimed at enabling on line users to interactively explore the archaeological landscape of Montegrotto (near Padova, Italy) and to discover its archaeological sites.

http://www.aquaepatavinae.lettere.unipd.it/portale

ETRUSCANNING 3D

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The virtual reality installation Etruscanning has been realized to be a part of the double exhibition dedicated to Etruscan civilisation "Richness and Religion at the Etruscans" held in Amsterdam and Leiden. The application is dedicated to the digital reconstruction of the famous Regolini Galassi Etruscan tomb in Cerveteri, discovered intact in 1836.

THANK YOU