The missing standard for the 3D documentation

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The different versions of 3D Document records

(a) 3D
(b) 2D layers
(c) 3D

The original Antikythera Mechanism

The same object in different levels of 3D representation
What about Monuments and Sites?
Temple / Monument

A **monument** is a type of structure that was explicitly created to commemorate a person or important event, or which has become important to a social group as a part of their *memory of historic times or cultural heritage*, or as an *example of historic architecture*. The term 'monument' is often applied to buildings or structures that are considered examples of important architectural and/or cultural heritage!

(Source Wikipedia)
Temple / Monument

Another definition:

Building (3D Structure) + Memory

Tangible and Intangible

Temple/Monument: A Part of the Story
Temple / Monument

They talk and ...

We can not listen

We document them (3D Reconstruction) and we forget to record the story and the knowledge
Holistic Approach

Linked Data for Libraries, Archives and Museums

Libraries
- provide finding aids
- contain narratives made from
- publish

Museums
- exhibit
- document features & context
- using

Books
- illustrate, exemplify
- are about refer to

Archives
- provide finding aids

primary Documents

SMRs
- document manage
- refer to

cc by FORTH
Who needs the story and the data of 3D digital records?

<table>
<thead>
<tr>
<th>Historian</th>
<th>Structural Engineer</th>
<th>Anthropologist</th>
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<tbody>
<tr>
<td>Archeologist</td>
<td>UX Designer</td>
<td>Archivist/ Librarian</td>
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<tr>
<td>Architect</td>
<td>Culturalist</td>
<td>Restorarors/ Conservator</td>
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<tr>
<td>Civil Engineer</td>
<td>Exhibition Designer</td>
<td>Artist</td>
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<td>Survey Engineer</td>
<td>Chemist</td>
<td>Curator</td>
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<tr>
<td>Mechanical Engineer</td>
<td>Physicist</td>
<td>Tourist Guide</td>
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<td>Electrical Engineer</td>
<td>Mathematician</td>
<td>Teacher</td>
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<tr>
<td>ICT Specialist</td>
<td>Theologista</td>
<td>Scholar / Student</td>
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<tr>
<td>Computer Scientist</td>
<td>Geographer</td>
<td>Craftsman</td>
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<tr>
<td>Conservationist</td>
<td>Urban Designer</td>
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<tr>
<td>Chemical Engineer</td>
<td>Environmental Engineer/Scientist</td>
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</tbody>
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If the 3D record and the STORY are all about Data and their Management...
Main categories of data are further analyzed into subcategories which are further elaborated and enriched, to serve the needs of integrated documentation protocols.
And continuous with Data Management

Non Destructive Techniques (NDT)

Mechanical Properties

Structural Characteristics

Energy and Mass Transfer Phenomena

Heritage Building Information Management

Integrated Database System

Environmental Data

Architectural Data

Materials Data

Civil Engineering

Historian, Archaeologist

Surveyor

Chemical Engineer

Historian, Archaeologist

Chemical Engineer

Surveyor

Architect

Materials Data

Structural Data

Architectural Data

Environmental Data

STORY ?

Environmental Data

Materials Data

Structural Data

Architectural Data

Environmental Data

STORY ?

Environmental Data

Materials Data

Structural Data

Architectural Data

Environmental Data

STORY ?
Holistic Approach

A new sustainable Cultural Heritage e-documentation

Towards this direction, we are recently working in order to develop Holistic Protocols for Cultural Heritage objects incorporating and supplying with information during its entire life-time in order to provide:

1. with new documentation procedures, advancing the data level in comparison to the current documentation methodologies,
2. with criteria and indicators for risk assessment responding to advanced diagnostics and data management,
3. standard documentation procedures applying same methods and tools, standardized outputs and clearly defined digital libraries entry without any further need for definition and application of a unified documentation terminology.
4. efficient use and re-use of the digital archived content in different areas (especially for the protection/preservation, education, creative industry tourism and the police).
Holistic Approach

✓ ANALYZE AND SPECIFY THE NEEDS,
✓ DEFINE CATEGORIES, SUBCATEGORIES AND PARAMETERS FOR THE DOCUMENTATION, RECORDING & STORAGE/ARCHIVAL OF DATA,
✓ DETERMINE THE DATA TYPE (TEXT INFORMATION, PHOTOGRAPHS, DRAWS & MAPS, MATERIALS, MEASUREMENTS, GIS, GPS, etc),
✓ DEFINE THE METADATA, SEMANTICS, ONTOLOGIES,
✓ SPECIFIC TECHNIQUES & METHODS WHICH SHOULD BE USED FOR THE e-DOCUMENTATION (for example: Books, Images, Sound, Video, Monuments),
✓ ARE STRUCTURED BY GUIDELINES, RESULTED FROM THE BENCHMARKING OF EXISTING METHODOLOGIES.
✓ VISUALISE and PRESENT THE ARCHIVED RECORDS in ALL POSSIBLE DEVICES and PLATFORMS (TV, Smart Devices, PCs, Any kind of Mobile Device, etc)
Holistic Approach

The proposed protocols must be based on existing experiences and knowledge, have a dynamic open structure, incorporating and supplying with information on the 3D asset during its entire life-time, directly relating to the preservation and sustainability of Cultural Heritage.
Challenges of 3D CH documentation

- Preservation
- Rehabilitation
- Integration in urban and natural environment
- Increase of life quality
- Economic promotion
- Multicultural tolerance
- Spreading of awareness
- Knowledge transfer
- Management, Integrated Documentation
Challenges of 3D CH documentation

Data Quality Assessment
Metadata Quality Assessment

Who is doing it?
Thank you!

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29th October – 3rd of November 2018
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