



## STSM Report

### Creating and Maintaining Controlled Vocabularies for Use in Cultural Heritage Visualisation

REFERENCE: Short Term Scientific Mission, COST TD1201

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#### Abstract

The purpose of this STSM was to establish a system for controlling vocabulary that would facilitate effective communication between technological and non-technological users and creators of 3D visualisation in Cultural Heritage. The objective of this STSM was to formulate a set of definitions towards a formal controlled vocabulary for specific terms and values surrounding the concepts of recording, documentation, and dissemination of 3D visualisation in COSCH. This STSM established a formal, agreed-upon set of terms by implementing a user-focused and crowd-sourced data collection methodology. Responses from the COSCH community were achieved by using a user-input feedback system. Examining the literature of the field identified 3D visualisation term usage. Research for this STSM was informed from field research carried out in University College London labs and the Petrie Museum.

As can be seen from Figure 1, various different terms are used to define 3D visualisation, but each term requires defining because their meanings overlap. Although "digital restoration" and "digital reconstruction" appear to be similar, they are differentiated by the degrees of information available. Digital restoration involves building on pre-existing knowledge, while digital reconstruction involves the filling in of knowledge lacunae by making hypothetical assumptions regarding the artifact being reconstructed. This is one example of the importance of term usage. Both terms have similar meanings and are used interchangeably but both terms occupy different positions on the accuracy spectrum.



Figure 1: Graphical representation of some of the various different terms used to define 3D visualisation.

To graphically represent the interplay of language in the terminology of 3D visualisation, a “GlossMap” was created for this STSM. As demonstrated by Figure 2, a “GlossMap” is based on the visual concept of a mind-map and employs an anti-hierarchical structure.

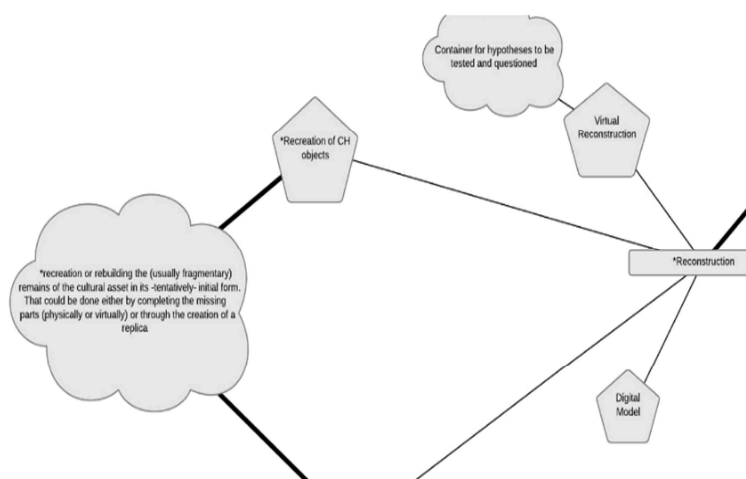


Figure 2: Screenshot of the 'GlossMap'. Terms with an asterisk are crowd-sourced, while non-asterisked words are creator-sourced. Access to the "GlossMap" is available here: <https://www.lucidchart.com/documents/edit/7c4b8841-d05c-4da0-942c-b48d9f1b700c/0>

A common vocabulary is necessary for COSCH researchers to share information from their knowledge domain(s). This STSM highlights the need for the explicit specification of domain knowledge. The controlled vocabulary commenced in this STSM will act as a declarative specification of terms that COSCH members can refer to in order to make domain assumptions explicit thus enabling effective reuse and analysis of domain knowledge. The results achieved through this STSM reveal that a controlled vocabulary is achievable provided there is consensual agreement between disciplines about terminology and its usage.

In summary, Ashish Karmacharya’s COSCH KR (knowledge representation) model attempts to formulate a concrete conceptualisation of the COSCH community’s knowledge of 3D visualisation. This STSM is a contribution towards the development of Karmacharya’s KR model. The outputs of this STSM act as a context or basis for COSCH vocabulary creation and aggregation in the future. As can be seen from the graphical abstract for this STSM, there are additional steps involved in the construction of a controlled vocabulary or ontology. Further work and increased participation from the COSCH community is required in order to further develop the long-term goals set by this STSM.

