Evaluating 3D digital models of historical silver coins: a methodological approach

REFERENCE: Short Term Scientific Mission, COST TD1201
Beneficiary: Vera Moitinho de Almeida. LAQU-UAB, Spain.
veramoitinho@gmail.com
Host: Dirk Riekke-Zapp. AICON 3D Systems GmbH, Scanner Innovation Center, Meersburg, Germany. dirk.rieke-zapp@aicon.de
Period: from 28/06/2016 to 05/07/2016.
Place: AICON 3D Systems GmbH, Scanner Innovation Center, Meersburg, Germany.
Reference code: COST-STSM-TD1201-34091.

1. Abstract

This STSM report should be considered as the second part of my previous one, titled "Geometrical comparison of 3D data of silver coins" (COST-STSM-TD1201-32445).

The silver Roman denarii used in the case study raise interesting questions concerning their provenance, authenticity, design and iconography, purpose of issue and historic usage. They also pose a considerable recording challenge due to their small size, particular material and surface properties (i.e. high specular reflectance and very fine spatial details), some of which may not be original, but a result of extensive cleaning.

In the scope of COSCH and the many objectives of this specific multidisciplinary case study, a number of methods and 3D systems, among others, to record a set of silver coins have been applied. The coins have been specifically chosen in order to establish whether the selected methods and systems can support the comparison of features and properties. Moreover, it takes into account that applications of specialist 3D recording techniques to documentation and study of numismatic objects are not as widely adopted as in other areas of cultural heritage. Results and explanation of 3D techniques that may be adopted as standard in museum documentation of numismatic objects are expected to be offered.

Previously, I have started to characterize and analyse a few important geometrical and topological features, among others, by using distinct metrological software, techniques and procedures. During which I have identified some critical issues as well as raised methodological concerns, from 3D data capture to data processing. In this vein, the aims of this STSM were manifold: To proceed with (a) further geometrical and topological characterization of a new set of 3D digital models which has been meanwhile made available, and (b) comparative analysis of 3D data, by including both old and new sets of 3D digital models; To contribute to the development of an efficient and comprehensive methodological framework for the 3D data capture/processing, documentation, study and dissemination of large groups of historical silver coins; To contribute to the publication of a guide to good documentation practice, including relevant digital preservation guidelines.

This research addresses the aims of: Case study "Study of Roman silver coins using spectroscopic and 3D imaging approaches"; WG2: Spatial object documentation, specifically "Comparative analysis of measurements realized for one single object" (topic 6); WG3: Algorithms and procedures, specifically "Registration processes" and "Data access and formats" (topics 1, 3); Think tank on vocabularies: by making use of metrology standards, terms, methods and techniques; COSCH Knowledge Representation (KR) App.

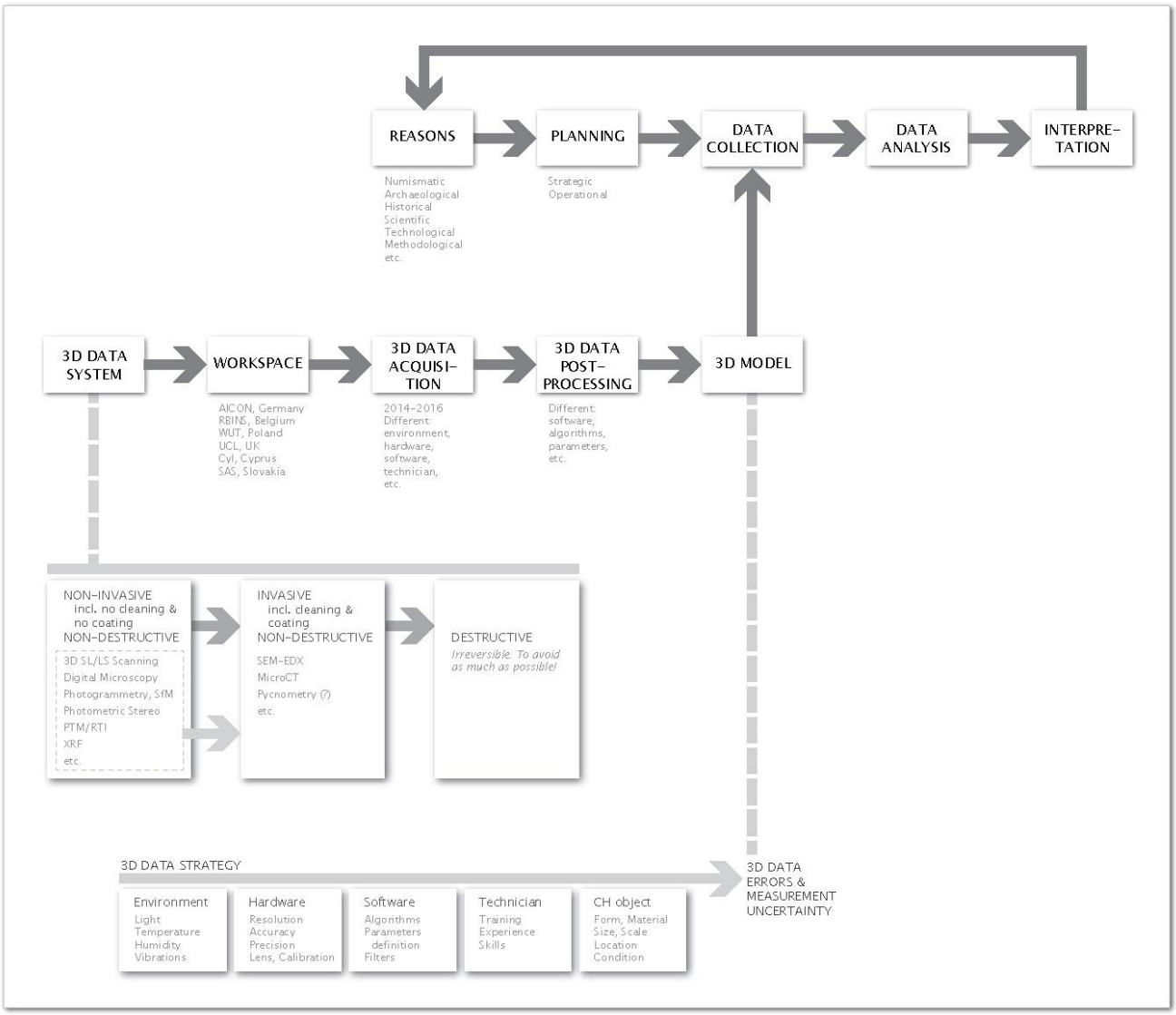

Fig. 1. Graphical abstract.