Building comprehensive management systems for handling and disseminating information recorded upon laser analysis, diagnosis and conservation

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Research laboratories involved in Cultural Heritage (CH) scientific analysis and conservation are often engaging in practical activities and applied campaigns in the context of their outreach to user communities. This enables a strong interaction between researchers, conservation scientists and conservators/restorers of highly interdisciplinary character. As a result, a massive amounts of scientific data may be recorded which require archiving, managing and dissemination. The final interpretation and application of analytical data in CH research and conservation often requires evidence from different methods, disciplines and even about different objects. Since this data cannot be understood without knowledge about the meaning of the data and the ways and circumstances of their creation, it raises the need for a new, systematic information flow and a new kind of information systems which manage data together with metadata about its Digital and empirical (i.e., physical-experimental) provenance and allows for systematic information integration and data reuse.

A collaborative effort between the two Institutes of FORTH; the Institute of Electronic Structure and Laser (IESL-FORTH), and the Institute of Computer Science (ICS-FORTH), aimed at implementing these new possibilities. The Photonics for CH group of IESL-FORTH is developing and applying state-of-the-art laser analysis, diagnosis, and conservation methods and tools, while the centre for Cultural Informatics of ICS-FORTH researches on supporting the entire lifecycle of cultural and scientific information and documentation procedures for the benefit of study, preservation and promotion of CH, focusing in particular on metadata, semantic interoperability, information integration and integrated access. This research brought into light that there is a common basic workflow for all analytical methods in all disciplines with few variations and a few core patterns of evaluation, which extends to a certain degree even into conservation methods. Along these lines a comprehensive management system has been developed encompassing a number of procedures, which facilitates the handling, documentation and management of analytical data and certain conservation methods.

This paper introduces to the current IT situation in these application domains and describes the needs and the requirements for supporting this new emerging common workflow for scientific processes in the CH science field and first implementations.