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"ARIADNE" CONSERVATION DOCUMENTATION SYSTEM: CONCEPTUAL DESIGN AND PROJECTION ON THE CIDOC CRM. FRAMEWORK AND LIMITS

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INTRODUCTION

Ariadne Conservation Documentation System was developed to fulfil the needs for documentation of the department of Conservation of Antiquities & Works of Art (SAET), Technological Educational Institution (TEI) of Athens.

The department was founded in 1985 and it is the only one of its specialization in Greek tertiary education. It has 12 specialization laboratories, each one for the conservation of objects made of Metals, Ceramics, Stone, Glass, Organic Materials, Mosaics, Textiles, Canvas paintings, Icons, Mural-paintings, Wood and Woodcarvings, Photos and Archival Materials.

The main conservation procedures, as determined by international organizations such as ICOM[1] (1984) and

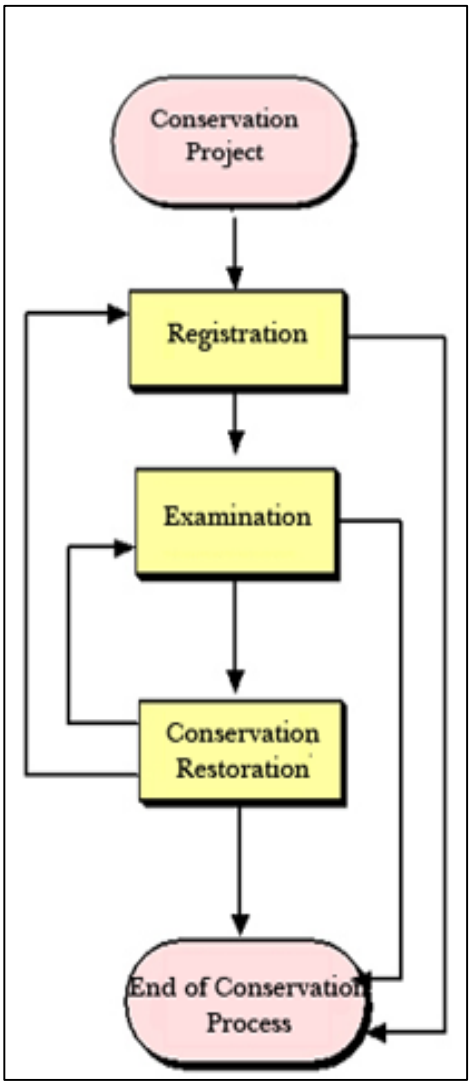

Fig. 1 Flow Diagram of Conservation Procedures (Chatzidakis, 2005)

[1] International Council Of Museums

ECCO[2] (1993), are Diagnostic Examination and Analysis, Preventive Conservation, Remedial Conservation, Restoration and Documentation.

Conservation documentation constitutes also an important part of specialized laboratory courses. Conservation Documentation harvests huge information in traditional paper-based or – more often – digital format.

Every conservation lab has its own written condition and/or conservation report.

CONSERVATION DOCUMENTATION AT THE DEPARTMENT OF CONSERVATION OF ANTIQUITIES & WORKS OF ART

The department of Conservation of Antiquities & Works of Art has temporary collections of objects made of many kinds of different materials, techniques, sizes and states of preservation.

We have tried to ensure that the information field of the database has satisfied the requirements of the laboratories despite the diversity of their objects.

Despite its common corpus, the system, following the structure of the department, operates independently for each lab maintaining its autonomy in the data management.

Additionally, in the years of their operation, the conservation labs have established a different way of documentation by using condition and/or conservation report in a sort or in an extended form with different structure, various information fields and different recording and analysis depth. This practice does not help the organization and standardization of documentation and also it complicates the management and reduce the spread of documentation knowledge.

[2] European Confederation of Conservator-Restorers' Organizations

ARIADNE CONSERVATION DOCUMENTATION SYSTEM

Within the EPEAEK II[3] action programme (2003), the TEI of Athens had decided the design and implementation of a conservation documentation system in order to fulfil the needs of the departments' conservation labs. The system was designed for the management and documentation of the objects of departments' laboratories.

The aim was to support the object's documentation as an educational tool. An exhaustive and well-structured documentation helps conservators to determine the appropriate questions which reveal the object's condition and conservation needs.

An additional goal was to try to approach conservation's documentation step by step using the current guidelines and standards in the field.

METHODOLOGICAL APPROACH

Ariadne's design team consisted of Conservators specialized in conservation documentation and Software Engineers. First of all, we had to define system's functional requirements. We collect conservation/condition reports and data which were classified and structured as hierarchical model. We discuss with academic staff and conservators experienced in conservation documentation in order to make the entire rearrangements and reach to an agreement for the data structure. The main philosophy was to make a common information schema for the conservation of all kinds of objects.

A considerable problem was to realize that there is the same need for documentation for all conservation objects. Conservation processes are the same even if the methods

[3] Operational Programme "Education and Primary Vocational Training" (EPEAEK II)

equipment and the materials are different. So, we had to make an agreement that we always need the same core of information.

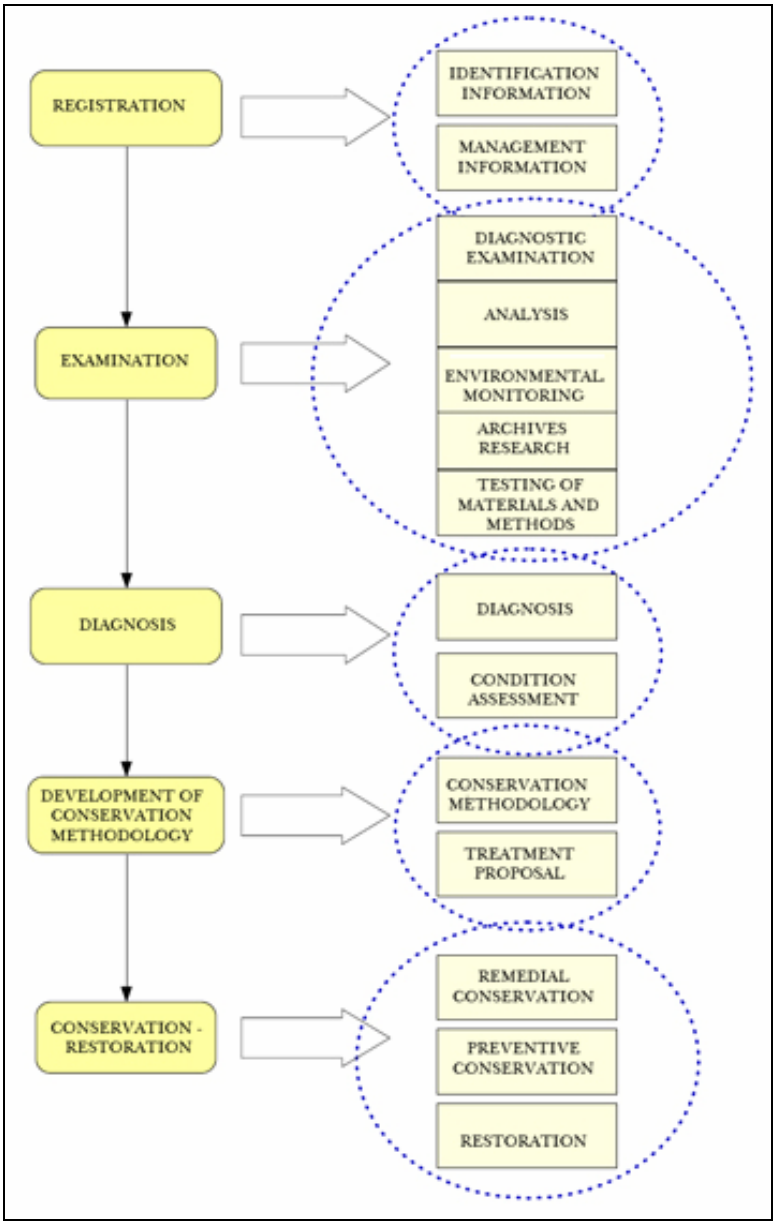

Fig. 2 Conservation Procedures (Chatzidakis, 2005)

ARIADNE'S CONCEPTUAL DESIGN

Ariadne's conceptual design (fig. 3) has tried to take into account documentation standards, especially CIDOC CRM[4] concepts and relationships. CIDOC CRM is flexible and offers an extensible semantic framework in which any cultural information can be represented (Crofts, Doerr, Gill, Stead, Stiff, 2005)

We also took into account the Object ID standard (Thornes, 1999) as the minimum of information mandatory for the object's identification.

The key concepts of Ariadne were represented by the following entities:
Course/lab, Student, Professor, Object, Creator, Object's Part/Layer, Object's Material Inscriptions/ Marks, Place of origin, Collection, Public Authority, License, Measurements, Object's Technique, Use/function, Dating, Investigation Method, Results (Diagram, Photo, Plan), Documentation Method, Alteration/Damage, Conservation Proposal, Conservation Material, Conservation Intervention, Preventive Conservation Action, Restoration, References/Bibliography.

The Ariadne conservation documentation system was designed and implemented as a relational database because of the wide availability of technical expertise and software products.

[4] CIDOC Conceptual Reference Model (CRM)

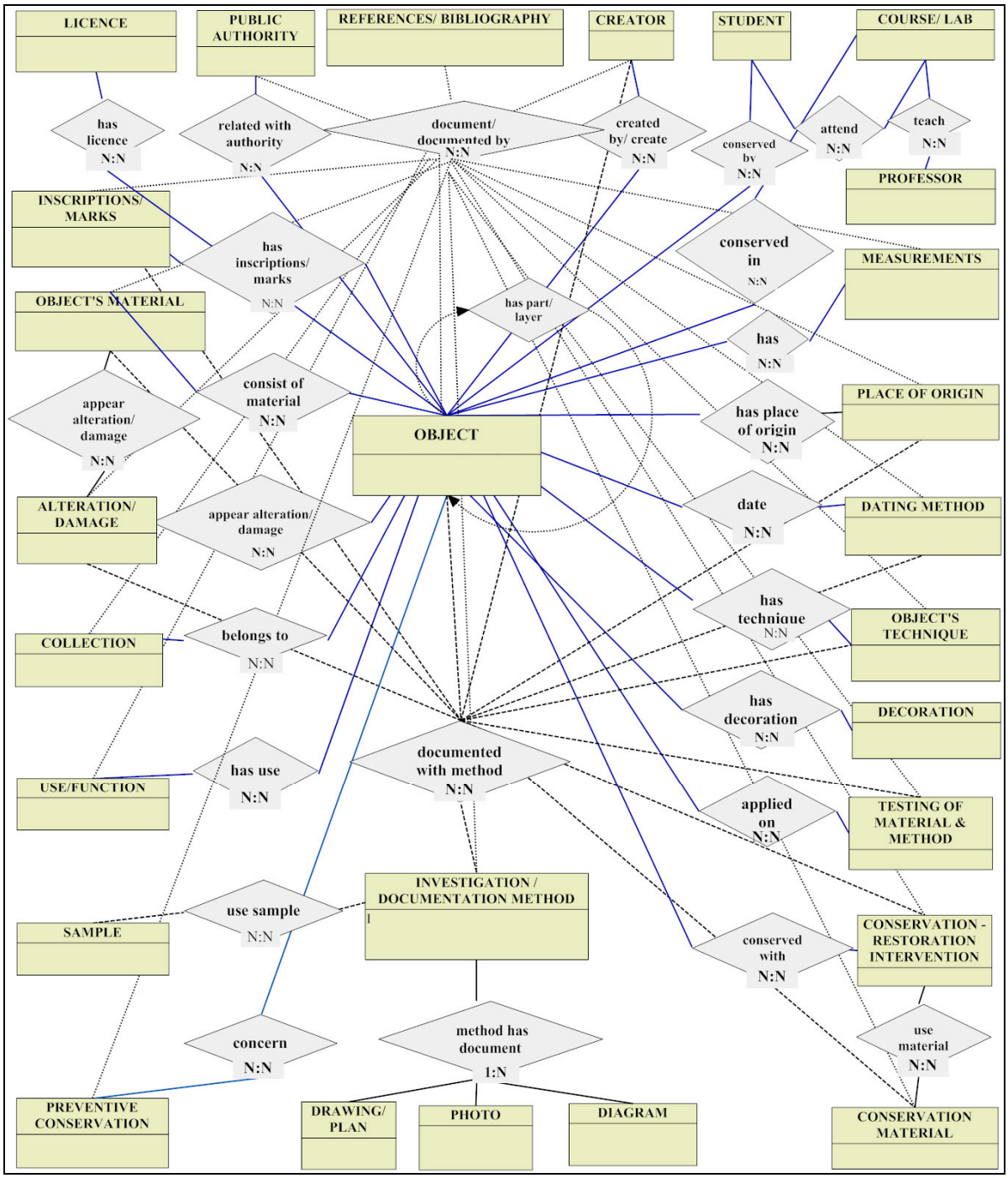

Fig. 3 Ariadne's Entity-Relationship (ER) model

PROJECTION ON CIDOC CRM

A projection of Ariadne's ER model on the CIDOC CRM Model reveals interesting correspondences and limitations. According to the CIDOC philosophy, the model describes activities, actors, physical stuff defined by types, time spans, places, appellations (Doerr, 2002). Here are some examples of Ariadnes entities and data on the CIDOC CRM:

- ☺ *Onufri* (Creator) *creates* the *Panagia Platytera* (Object's Appellation) which is an *icon* (Object's type) at *1530* (Time) at *Berat* (Place of construction).
- ☺ *Ioanna Dimitriou* (Actor) who's Student (Actor's type) *conserves Panagia Platytera* (Object's Appellation) during *Conservation of Icons course (Event)* in *spring semester 2002* (Time);
- ☺ *Gas Chromatography* (Measurement) has *applied* on *Panagia Platytera* (Object's Appellation) dated at *1530* (Measurement) *at "17/3/2001* (Time) *took place at Physicochemical Methods and Techniques Lab (Place)* by *Helen Ioakimoglou* (Actor) in order to define *overpaintings* (Modifications);
- ☺ *Distaff* (Man Made Object) identified by *wd235* (Object Identifier) was consolidated (Modification) with Paraloid B-72 (Material).

Conservation as a concept is very wide and it may include processes as examination, conservation intervention, preventive conservation actions and conservation proposals. The classification of conservation procedures helps building step by step Ariadne's model.

According to the contemporary definitions and ethics in conservation science (ICOM, 1984, ECCO, 1993, Viñas & Viñas, 1988, Munoz-Vinas, 2004, Caple, 2000) the conservation and the restoration procedures fall within E11 Modification class of CIDOC CRM (Crofts, Dionissiadou, Doerr, Siff, 2001, Crofts N., 1999a).

The main aim of conservation is to maintain the physical and cultural characteristics of the object so as to ensure that its value is not diminished and that it will outlive our limited time span (Viñas & Viñas, 1988).

The means for the achievement of this scope are remedial conservation, restoration or preventive conservation. These procedures in a way modify objects.

Sometimes, via conservation procedures, new evidences, objects, layers, etc. come to light. For example, a burned piece of wood which is part of an ethnographic collection, after cleaning is transformed into a Byzantine icon. In this case Conservation falls into E81 Transformation rather than E11 Modification.

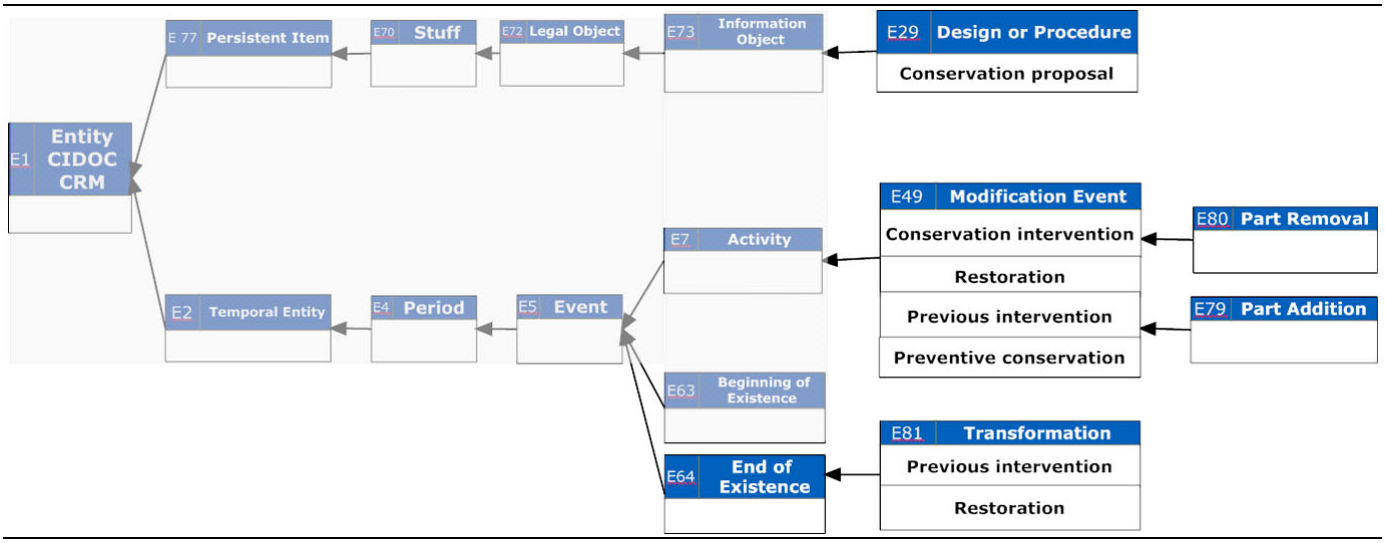

Fig. 4 Ariadne's entities as instances of the CIDOC CRM.

Conservation Intervention, Restoration, Preventive Conservation and Previous Intervention as instances of E11 Modification and E81 Transformation

Nowadays in conservation ethics predominate the principle of minimum intervention (Munoz-Vinas, 2004, Rogers, 2004). As Munoz-Vinas said the 'minimum' conservation intervention that the principle calls for, would consist of leaving the

object as it is, renouncing to modify its evolution in any way (2004). This means that conservation procedures may stop on a higher level like Examination (Fig. 1) without any specification into Conservation intervention or Restoration.

Examination procedures fall into E16 Measurements, E11 Modification or E12 Production.

"Ariadne" keeps the Object and the Course/Lab as main entities. Every conservation activity takes place into a specific semester. Course/Lab keeps the time span information and conservation intervention takes time information indirectly via course.

Object's alteration and damages are documented via examination procedures.

Alteration and damage may be the result of mechanical, physicochemical or biochemical procedures due to environmental factors, man-made activity, biological activity, materials aging can produce changes in objects. The damage of objects of cultural property can be defined as a change of state that results in a loss in value or something that decreases the benefit that society can derive (Ashley-Smith 1995).

Black crusts, cracks, overpaintings, dirt deposits, broken parts, losses, detachments, burns, salt efflorescence, stains etc. are recorded by conservators and consist the object's pathology and phenomenology of damage.

It is almost impossible to fit the phenomenology of damage into one class of CIDOC CRM. The main problem is that we need to know the alteration and damage mechanism in order to classify its evidences. An intentionally damage can be classified as an Activity but a not intentionally damage is classified as an Event. Physical Features is useful for the documentation of damage evidences like cracks and holes, which forms parts of an object but not for a dust deposit, which is more a

Physical Staff. A loss is a Part removal but in many cases it might be not intentionally.

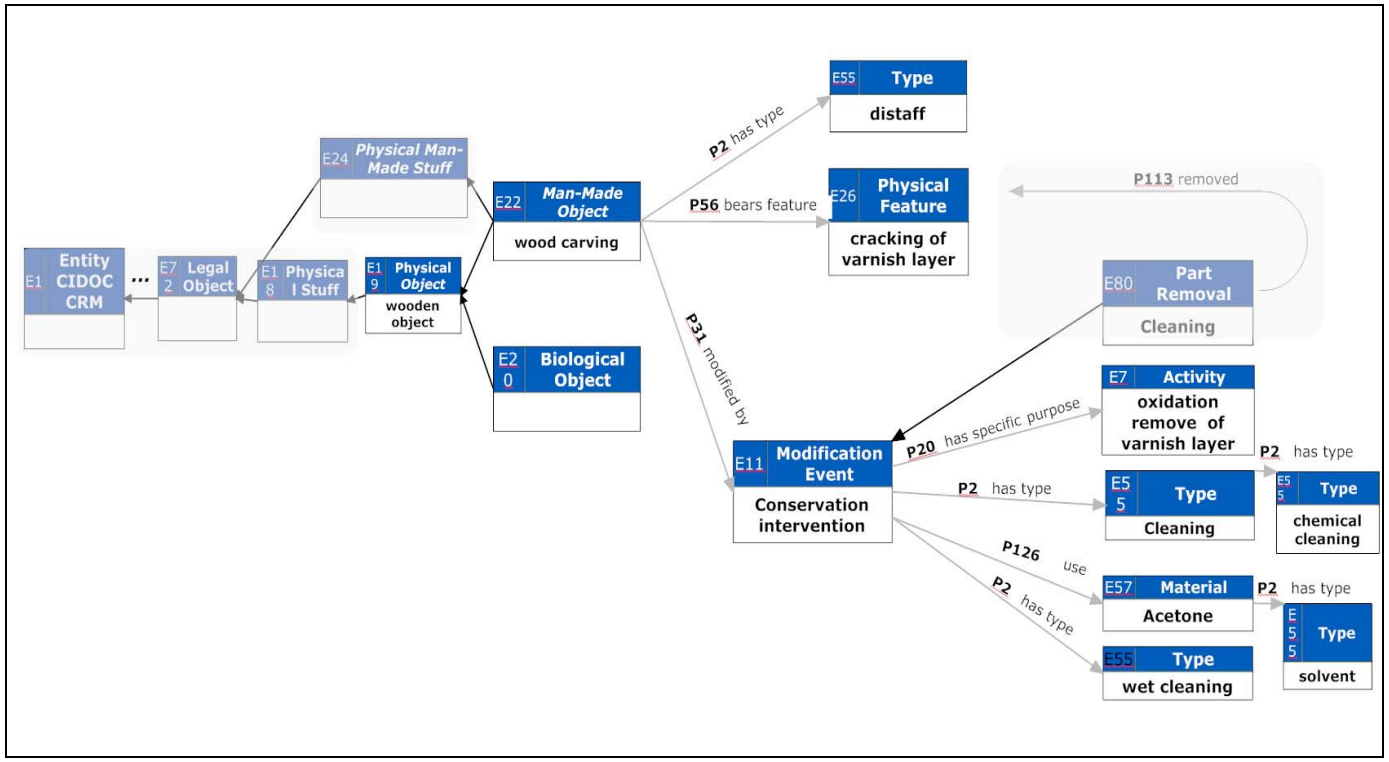

Fig. 5 Example of Ariadne's entities as instances of the CIDOC CRM.

DISCUSSION

Most conservators know very well the rules of the objects documentation and their specialization but there is a little difficulty in understanding of the whole picture. At this point CIDOC CRM facilitates the comprehension of integral structure of conservation knowledge in its context. CIDOC CRM entities and concepts do not sound familiar to conservators because of its high level abstraction.

While Ariadne has proved efficient in creating extensive documentation, its large number of entities has led to a certain level of confusion among its users.

Another Ariadne's disadvantage concerns the lack of a clear and consistent, to a standardized conceptual model as CIDOC CRM, structure.

This moment the conservation labs of TEI are testing "Ariadne" and soon there will be the first results. Ariadne's design and implementation may help, as an educational tool, because it set the principles for information documentation. It clarifies the goals of treatment and the sequence of steps necessary to reach them (AIC, 1994).

Its efficient documentation requires the input of conservators specialized in documentation.

Terminology is an important tool even for structuring a data model. There is not a standardized conservation terminology even if there are many efforts in national[5] and international[6][7][8] level. There is a great need for the construction of a conservation thesaurus, which could also help the organization and classification of conservation concepts in an acceptable conceptual schema.

However, there is also a need for further discussion on the conceptual content of conservation, the specifications of an accepted conservation terminology and for a better understanding on the part of conservators of the CIDOC CRM.

[5] Archimedes II, Program O.P. "Education", Action line 2.2 "Research on the development of Acceptable Standards on the filed of Conservation / Restoration of Cultural Heritage"

[6] CRISATEL (Conservation Restoration Innovation Systems for image capture and digital Archiving to enhance Training, Education and life-long Learning) 01.09.2001 - 31.08.2004

[7] CRISTAL - Conservation & Restoration Institutions for Scientific Terminology dedicated to Art Learning Network

[8] CEN/TC 346, European Standardization in the field of Cultural Heritage: Conservation of Cultural Property

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