NEW SYSTEMS FOR THE CHARACTERIZATION OF THE STATE OF CONSERVATION OF CONTEMPORARY ART
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Abstract: This short image based paper provides an insight into the importance of 3D survey of contemporary art as part of the conservation and restoration process.

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As part of the five year degree course in the Conservation and Restoration of Cultural Heritage at the University of Urbino, Italy, Carlo Bo has carried out a study on the works of Umberto Mastroianni, (acclaimed Italian abstract sculptor) which are exhibited in the City of Urbino Museum.

The entire collection of sculpture is attributable to the same creative phase of the artist, the so-called “mechanization fantastic”, which covers the period between 1969 and 1988. After August 1980, the year in which the donation came to Urbino, and after being stored for years in various places in the city, the fifteen works have undergone a major restoration since 1998.

In 2002, after the restoration work was complete, the works were displayed in an exhibition entitled 'Fucina Mastroianni', after which the works were again stored in order to find a new permanent location.

Since the reopening of the Urbino City Museum in 2007, nine of the fifteen works have been placed in the Hall of Memory, while the remaining works are held in the municipal store due to a lack of exhibition space.

Research through archive and documentary sources, allow an understanding of the artist's intentions and any restorations made in previous periods. Prior to beginning the restoration a comprehensive study of the works was carried out.

In order to evaluate variations in the spatial placing of various elements of the sculpture, given several past displacements during restoration, comparison with archive photos has proven to be invaluable, even if such comparison is sometimes difficult because of the photos characteristics (not always been taken as frontal view). For this purpose, the documentation of works described here are based on the utilization of 3D systems, which are able to record with great accuracy complex objects, such as the artworks.

The 3D survey with laser scanners is the technique that is most appropriate for this type of work. One important aspect of this work is related to the methodology designed to catalogue the individual components and their location in space, through the definition of guidelines, piece by piece is vital for both conservation purposes and potential changes (Fig.1).
Figure 1 - This is an overview of the 3D scanning work undertaken in the museum for Mastroianni’s work on the theme of mechanization fantastic.

In contemporary art, a myriad of very different materials are used for purposes of artistic expression, and the problems related to these are equally boundless. The issue in the case of Maurizio Savini is that the material he uses is perishable so that it is necessary to document the transformation the work of art undergoes with respect to the intentions of the artist.

Ho stretto troppe mani sudate (by contemporary Italian sculptor Maurizio Savini) dates to 2006 and belongs to his work on managers. It portrays a businessman lying on a bed - an ironical metaphor of the crisis of the modern world. The sculpture, which is supported by a metal base and reinforced internally by iron pins, has a fiberglass structure wholly covered by chewing gum. A key element of Savini’s sculpture is this use of unusual and perishable materials, therefore the accurate documentation and recording of this sculpture offers a unique challenge.

The fundamental problem of this work of art, and its documentation, is the distinction between the relevant and irrelevant aspects. It is important to identify the information that is or may become essential to maintain its peculiarities and choosing the documentation techniques that best fit these needs.

The importance of correct data acquisition is thus a necessary step to understanding and managing the sculpture, as well as a pre-diagnosis of the work of art and outline for successive conservations works. Mapping deterioration on the surfaces in three dimensions, simplifies interpretation and also links all the different parts of the work of art, while showing the connection between all the different conservation problems (Fig. 2).
In more complex cases of restoration, in which it is difficult to operate directly on the work of art, the 3D model can be used for virtual reconstruction, contributing to the understanding of the original aspect and proposing a guideline for a following possible intervention.

Finally work has also been undertaken on the work of Valerio Trubbiani. Trubbiani’s “Tarpare le ali”. The 3D model has been used experimentally to study the re-assembly of the aluminium wing, which at present is in a different position than the original (fig.3).

Every survey can be considered as a “digital map of the work” on which different thematic information can be identified. By linking this “map” with a database, it becomes possible to gain deeper knowledge of every object with various information (texts, alphanumeric, etc.), maintaining either a comprehensive view or getting to a more detailed view, always in a structured form.

It is vital that when planning work of this type that every care is taken to design a comprehensive set of specifications for the model itself and that the methodology of the survey itself is of high quality.

In the field of restoration, through the creation of a “digital map of the work”, different thematic can be easily developed: monitoring of transformations and the simulation of interventions can be based on 3D models or on virtual reconstructions.

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