

## Digitizing Masterpieces in Italian Museums: Techniques, Challenges and Consequences from Giotto to Caravaggio

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**Abstract :** The possibility of reproducing physical artifacts in a digital format is one of the opportunities offered by the technological advancements in information and communication most frequently promoted by museums. Indeed, the study and conservation of our cultural heritage have seen significant advancement due to the three-dimensional acquisition and modeling technology. A variety of laser scanning systems has been developed, based either on optical triangulation or on time-of-flight measurement, capable of producing digital 3D images of complex structures with high resolution and accuracy. It is necessary, however, to explore the challenges and opportunities that this practice brings within museums. The purpose of this paper is to understand what change is introduced by digital techniques in those museums that are hosting digital masterpieces. The methodology used will investigate three distinguished Italian exhibitions, related to the territory of Milan, trying to analyze the following issues about museum practices: 1) how digitizing art masterpieces increases the number of visitors; 2) what the need that calls for the digitization of artworks; 3) which techniques are most used; 4) what the setting is; 5) the consequences of a non-publication of hard copies of catalogues; 6) envision of these practices in the future. Findings will show how interconnection plays an important role in rebuilding a collection spread all over the world. Secondly how digital artwork duplication and extension of reality entail new forms of accessibility. Thirdly, that collection and preservation through digitization of images have both a social and educational mission. Fourthly, that convergence of the properties of different media (such as web, radio) is key to encourage people to get actively involved in digital exhibitions. The present analysis will suggest further research that should create museum models and interaction spaces that act as catalysts for innovation.

**Keywords :** digital masterpieces, education, interconnection, Italian museums, preservation

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