


## Chapter 11

# Digit(al)isation in Museums: Civitas Project – AR, VR, Multisensorial and Multiuser Experiences at the Urbino's Ducal Palace

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DOI: 10.4018/978-1-7998-1796-3.ch011

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## **ABSTRACT**

*Digit(al)isation of Cultural Heritage is a multidimensional process that helps in the rescue of European Cultural Identity, and the paradigm of Digital Cultural Heritage (DCH) is a valid instrument for social and cognitive inclusion of museum visitors. In light of disseminating and validating new paradigms for the enjoyment and exploitation of Cultural Heritage (CH) artifacts, this chapter shows main first results from CIVITAS (ChaIn for excellence of reflectiVe societies to exploit dIgital culTural heritAge and mu-seumS). The project develops virtual/augmented environments, through the multisensorial interaction with virtual artworks, to satisfy needs and overcome limitations in a larger CH scenario, applying a bottom-up approach. The research presented show a robust and interdisciplinary approach applied to Ducal Pace at Urbino: key activities and faced challenges demonstrated to test cross-fertilization strategies, involving multilayered issues.*

## **INTRODUCTION**

Digit(al)isation of Cultural Heritage is here intended as the merging of two terms (Digitalisation and Digitization) with the aim to highlight the complexity of a multidimensional process that helps in the rescue of European Cultural Identity and increases awareness of values and memories. The differences between the two terms are better defined in the key terms section: the coinage in the title stresses the role of digital contents and virtual facsimiles, referring to digitization, as engine of digital innovation in museum life, that is the digitalization. Making sense of Europe's Cultural Heritage (CH) means to shape the new reflective societies starting from Digital Cultural Heritage (DCH) and diffusing adaptive methods for conservation, fruition and social inclusion. The theme of CH fruition is strongly correlated to the way that information is transmitted and to different types of visitors. For these reasons, the paradigm of DCH is a valid instrument for social and cognitive inclusion of the people visiting the museum. In this context, museums should be more than just places where collections of artworks are preserved and exposed: they should witness identities and cultures. They make culture accessible to the mass audience. The CH collection, conservation and access in the original, accessible and attractive ways demand for digitizing museums and archaeological/historical sites, as well as for designing methodologies to represent, manage and exploit CH data at different levels, ranging from 3D/4D models to domain-specific (e.g., architectural, historical, etc.). The use of virtual "facsimile" of artworks, monuments and architectures can unify the scattered elements of them, allow public access to inaccessible places, allow the visitor to interact with perishable objects, promote the preservation of fragile sites and simulate damaged or lost objects. The availability of semantically reach data enables smart applications for fruition, preservation and study of DCH collections.

The development of digital tools and researches for museums has the potential both to collect and disseminate the CH in an effectively and low-cost mode and to implement a key strategy to interact with virtual "facsimile" in order to engage users, to increase capabilities thanks to the application of the "learning by interacting" paradigm, to diversify museum's cultural proposals, etc. In the light of disseminating

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