



# HeritageMaps and Digital Storytelling for Cultural Heritage

Experiencing 3D contents from digital collections to exhibit design communication

Elisabetta Caterina Giovannini

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## 1. Introduction

In recent years, the digitisation of cultural heritage has progressed significantly, redefining how the public, scholars, and institutions interact with historical memory and cultural assets. One of the critical tools available is interactive maps and HeritageMap: digital solutions that combine storytelling, geolocation, and 3D visualisation to create accessible, inclusive, and immersive experiences.

Integrating interactive maps, HeritageMap, and immersive digital technologies signifies a revolution in enhancing cultural heritage. These tools not only render content more accessible and inclusive but also foster a new form of territorial narration, wherein the user is no longer a passive consumer but an active explorer.

HeritageMap differs from tools such as H-GIS (Historical Geographic Information Systems) or StoryMap ArcGIS by combining metadata from institutional inventories with customised narrative paths. As a result, the map becomes an active tool for managing, conserving, and communicating heritage.

The research presents a series of case studies developed over recent years that encompass research and didactic activities aimed at enhancing the cultural heritage sector: from the digital acquisition of the Priene artefacts to the creation of urban cultural maps in Faenza, to educational experiences in the field, a vision of heritage as a living network of places, stories, and people emerges. HeritageMaps, in particular, offers a promising model for the future: sustainable, participatory, and human.



## 2. Material Data

HeritageMaps represent a natural evolution of interactive maps. They are web-based platforms that blend spatial data with narrative elements, integrating georeferenced multimedia content. The aim is not only exploratory but also inclusive: to enable various categories of users, including those with disabilities, to independently and thoroughly enjoy the rich heritage.

### 2.1 From artefacts to ancient archaeological sites

The project “Back to the Future” aimed at valorising a hidden museum collection of the Museo Egizio in Turin. The collection comprises 15 wooden maquettes representing temples of Egypt and Nubia. The developed map serves storytelling purposes, aiming to create an approach to interpret and map the travel diaries of J.J. Rifaud; the proposed content includes texts from his travel diary, the maquettes probably made by local craftsmen, original sketches, survey drawings, and the published planches.

The project “From Priene to Berlin and from Berlin to Digital” is a prime example. This study focuses on the digital recovery of some statues from the ancient Greek city of Priene, now housed in the Altes Museum in Berlin. The marble objects, including the statuettes of Dionysus and Aphrodite and the fragment of Alexander the Great, have been digitised using photogrammetry and integrated into a virtual tour with spherical panoramas. The archaeological heritage has been digitally “relocated” to its original context through this process. The work has made it possible to give the artefacts a “digital biography”, tracing their historical and museum journey. Combining 3D models and georeferenced maps facilitates reconstructing the relationships between objects and places, offering visitors a more complete and coherent view. Integrating metric data, historical documentation, and digital storytelling allows non-specialist users access, making the cultural experience more engaging and educational.

### 2.2 HeritageMaps for a diffuse museum

Another ongoing activity is about the Open-air Museum of Contemporary Art Works – MAP in Faenza, for creating a HeritageMap designed for an open-air museum. This digital map does not simply place points of interest on a map. Still, it constructs a spatial narrative, accessible via smartphone, which guides the user through the contemporary artworks distributed throughout the urban area of Faenza.

### 2.3 Georeferenced maps in Exhibit Design Education

A further development of HeritageMaps took place in the educational context of the “Inside the Museum” seminar at the Polytechnic University of Turin. Since 2021, this course has involved over 260 students in the design of augmented museum exhibits, developing applications in augmented reality (AR), virtual reality (VR), video storytelling and HeritageMap.

In the case of the Libarna archaeological site, students used HeritageMap to



create interactive georeferenced itineraries. These maps allow users to view points of interest with associated multimedia content (video, audio, text, 3D models) and construct a narrative consistent with the history of the place.

The educational experiences also included experimentation with AR.js and Vuforia Engine to create AR applications linked to physical models of exhibition projects, enhancing the quality of interaction with the public. Students also used the Heritagemap to provide insightful information about their exhibit design proposals, connecting spaces and digital content.

#### 2.4 Map for Utopian Urban Landscape's analysis

HeritageMap was finally used as an access point to information about non-existent heritage. In fact, in virtual reconstructions of buildings that were never built or no longer exist, it is impossible to georeference the buildings' positions precisely or define an overall metric accuracy. In this case, a map is aimed at a typological study on an architectural scale about the city of Utopic city of Cesena, designed by Mauro Guidi. Still, this research cannot ignore the urban scale, as the entire layout of the new town refers, in fact, to a context that existed and corresponded to a historical configuration of Cesena.

## 4. Conclusions

The theme of HeritageMap revolves around the development of digital assets designed for access through geo-referenced points on a map. HeritageMap functions as a digital ecosystem where diverse media coexist to craft storytelling and describe collections interactively. Images, videos, textual descriptions, and 3D models enhance the understanding of objects and artworks by making them accessible via a web-based solution: Umap.

The inclusive nature of web-based tools is one of their most significant aspects. They feature options such as text-to-speech, visual accessibility (high contrast, alternative images), and accessible itineraries for individuals with reduced mobility. In a post-pandemic context where remote access to heritage has become central, HeritageMap presents itself as a resilient and scalable tool.

Accessing content through QR codes or mobile devices further broadens the audience, facilitating the involvement of local communities in rediscovering and enhancing their heritage. In this sense, HeritageMap serves as a resource for visitors and institutions to plan conservation and promotion strategies grounded in continuous interaction with the public.

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