ReInHerit
Redefining the Future of Cultural Heritage

European Commission

Digital Transition, Emerging Technologies and the Cultural Heritage Sector

Beyond any doubt, the implementation of digital and emerging technologies, which is one of the EU's priorities, presents enormous growth potential for the cultural heritage (CH) sector. The number of museums and heritage sites entering the world of digital technologies is steadily growing due to reducing budgets, emerging multiple crises and raising expectations of visitors. This has altered their structure and has a great impact on the way they engage with their audiences as well as on the way audiences approach their culture and its context. However, may museums and heritage sites, especially the smaller ones with fewer resources, are not able to follow this evolution and still face many adversities in entering the digital world. The ReInHerit project aims to support museums and heritage sites to find digital solutions that place people first and open up new opportunities for engaging various audiences with CH.

What are the main aims of the use of digital and emerging technology by museums and heritage sites?

In the context of the research conducted during the ReInHerit project, the main aims of the use of digital and emerging technologies by museums and heritage sites are to:

- help them to fulfil their mission and meet the needs of their stakeholders and users
- enable them to develop and strengthen the skills, policies, actions and resources they need to survive and adapt to an ever-changing world
- help CH professionals to respond to the challenges of managing CH
- make CH accessible and more relevant to broader audiences (including a variety of audiences)
- create a sense of 'playfulness' and exploration
- inspire creativity
- avoid offering a sterile and rigid didactic experience

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What are the benefits for museums and heritage sites by the use of digital and emerging technologies?

A number of important benefits for museums and heritage sites by the use of digital technologies also emerge. They:

- offer multiple new ways to connect with people and reach out to more diverse audiences by overcoming what used to be considered as barriers of physical, mental or social nature
- enable museums and heritage sites to redesign traditional products and promote new cultural experiences by involving a worldwide network of potential visitors
- support modeling and developing cultural services in the digital era
- increase focus and interest on organizations' collections
- offer the ability to engage audience within the organization's wall or beyond
- provide users with high learning value (participatory learning)
- offer users to add their own social meaning
- limit exclusivity and barriers: provide a truly immersive experience for all, including users with disabilities, minorities, young and old people, people from an immigration background,
  people who are unemployed, people who are economically or geographically disadvantaged, etc.
- promote dialogue between the user and the organization (a new relationship based on collaborative and strong interaction)
- foster promotion and distribution of cultural content, products and activities online
- provide personalized services
- help organizations to deal with the lack of exhibition spaces, considerable exhibition costs, and the fragility of some artifacts

What are the most recent trends identified in the literature?

The most recent trends identified in the literature regarding the use of digital technologies in the CH sector are:

- Personalization/Wearable Devices (create a more powerful connection between the visitor and the story)
- Augmented Reality/Virtual Reality/Mixed reality (bringing exhibits and artifacts to life in new and immersive ways creating multisensory and multimodal experience)
- Gesture Technology/Non-touch Interactives (In the post COVID-19 era touchless technologies and proximity sensors will likely gain popularity)
- Haptic technologies
- Internet of Things (IoT) technology

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- Mobile Technologies (web and hybrid Wi-Fi apps, mobile apps, tour-based apps, that enriche the exhibit content, mobile ticketing technology, etc.)
- Indoor GPS tracking systems (track movement within the facility, which allows them to confirm how well a storyline works)
- Artificial Intelligence
- LED/Laser Projection Technologies (creating powerful, immersive museum environments)
- Virtual Touring
- Holographic representations
- Flexible Technology Exhibit Platforms (developing software and designing exhibits that can not only accommodate content flexibility but also allow exhibits to easily change)
- Augmented Reality Selfie-Moments

Digital and emerging technologies and visitors' experience

In the context of the research conducted during the ReInHerit project, great attention was paid to the importance for museums and heritage sites to interact with their visitors in dynamic and powerful ways, offering transformative learning experiences throughout the entire visitor's journey. According to the "Visitor Journey theory" the experience of the visit begins before visitors cross the museum/heritage site entrance and goes on after they exit. In this respect, the use of digital and emerging technologies can help museums and heritage sites to offer playful and immersive experiences in order to inspire creativity not in a rigid didactic way but based on informal and participatory learning. They can engage new audiences, especially young people and local communities, and motivate them to experience, enjoy and participate in CH. It is important for CH professionals to reflect the diversity of stories within museum collections and to use digital tools, emerging technologies and participatory storytelling to promote social inclusion. Always considering that digital and emerging technology is not a goal in itself, but it is a way to make the visitor understand and learn more.

The Project

This study is part of the research project "Redefining the future of cultural heritage, through a disruptive model of sustainability" (ReInHerit), which has received funding from the European Union's Horizon 2020 research and innovation program (https://www.reinherit.eu/).

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