

ReInHerit
Redefining the Future
of Cultural Heritage

ReInHerit Toolkit



Horizon 2020
European Union Funding
for Research & Innovation

Digital Tools for Museums and Cultural Heritage

A set of open-source codes, prototypes, instructions, webinars providing resources and guidelines to develop applications for digital interaction in museums and cultural heritage sites.

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The ReInHerit Toolkit

AI and CV tools

Web applications based on Artificial Intelligence (AI) and Computer Vision (CV) designed to increase visitor engagement in a user-centred and Bring-Your-Own-Device (BYOD) approach.

Open-source development

Easy maintenance and reuse of integrated application codes with additional documentation and associated webinars.

Interactive and Gamification

Interactive tools used to motivate learning and create a stronger relationship between artworks and visitors. Gamification and playful experiences to trigger emotions, inspire creativity and digital learning.

User-Centered Approach

According to ReInHerit's analysis and strategy, the Toolkit's innovative and interactive tools are able to increase visitor engagement and are based on a user-centered approach. Web apps have been developed as first-class targets that make it easier to follow the BYOD approach. To adopt a sustainable management perspective, the strategic goal of the toolkit was the development of open-source code, so as to facilitate the reuse of applications by different organizations.



Toolkit Development
ReInHerit Best Practice

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Make It Your Own!

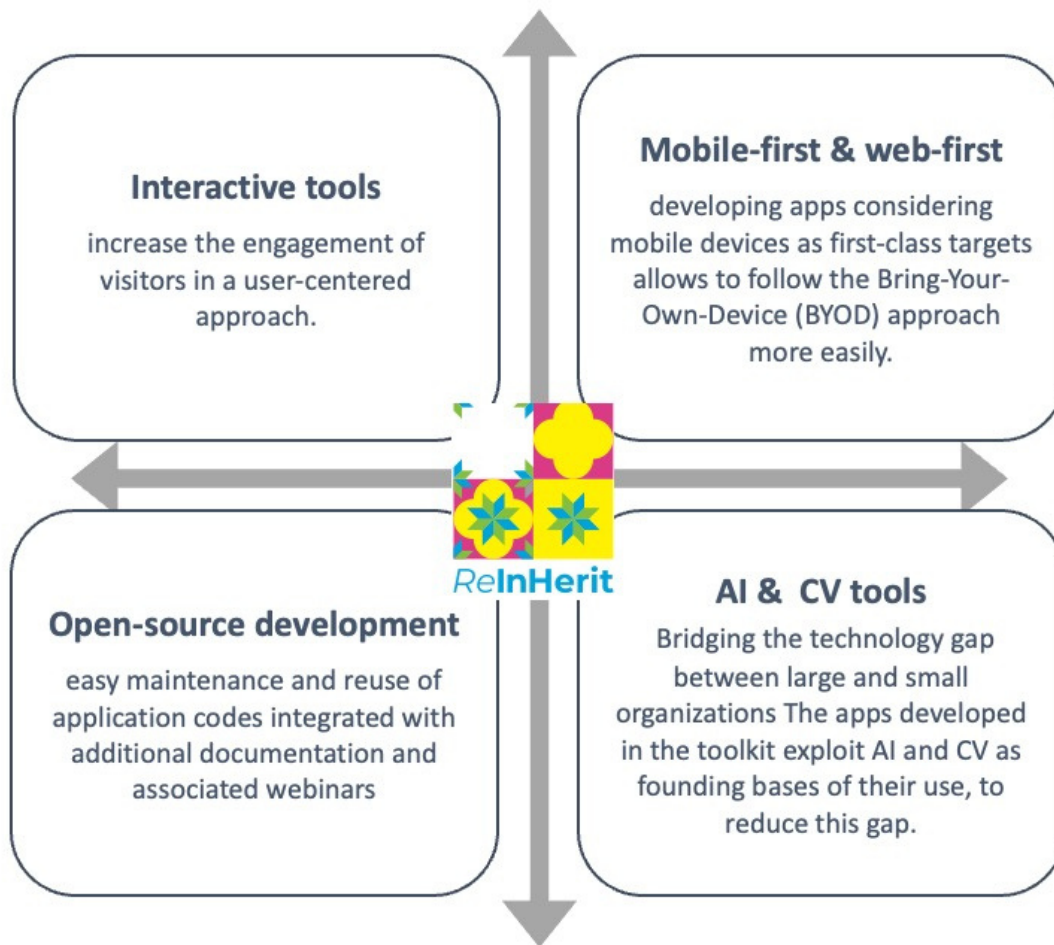


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A Toolkit
Developed by:



ReInHerit Toolkit Strategy



 [Documentations for Professionals](#)

 [Toolkit Components](#)

 [Discover and Test the Apps](#)

Related Factsheets:

 [Digital Transition, Emerging Technologies and the Cultural Heritage Sector](#)

 [Reaching Young People: youth friendly museums](#)

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Face-Fit is an AI-based web-application which provides gamification and personalization of paintings, in particular portraits, adapting their visual content.

The application asks the users to replicate the pose of the head and the expression of some portraits and transfer the face of the user on the artworks, generating a new image.

Once the pose is created, the user receives information about the artwork via email and can download the generated images to share on social networks.

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Strike-a-pose is a web application that, using AI techniques, performs analysis and evaluation of human poses compared to poses present in famous paintings or statues.

The user is challenged to reproduce in sequence the poses of some artworks from the museum's collections. Once all the poses have been matched, the application allows the user to generate a video that can be saved for any social sharing and provide info on the artworks.



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VIOLA Multimedia Chatbot is a server-based system that can be used to implement the functionality in web interfaces.

The idea is to get descriptions and information on artworks using natural language and interacting in a chat, as it has become common in other domains than Cultural Heritage using modern chatbots for web/mobile interfaces.

The chatbot can distinguish different types of questions: those related to the content of the image and those on the context.

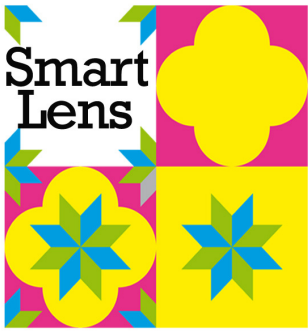
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Smart Lens - the idea is to have an app that can be used as a magnifying lens to observe the details of an artwork, getting the related information.

CV is used to automatically recognize by camera which “hotspots” of the artwork are associated with some specific information. The user is invited to explore the artwork, looking at the details, without using QR-Codes or other types of codes.

This kind of interaction differentiates the application from other guides that typically provide information regarding the whole artwork, observing it from a distance.

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Smart Tourism App lets tourism organizations to create localized apps and types of visits, adapting them to the preferences of the visitors.

This application is designed for cultural smart tourism and provides functionalities for landmark recognition using CV and personalized tour recommendations based on user preferences in terms of types of tours and properties of the locations.

Users interact with the app getting info from the lists of suggested tours, the suggestion adapts based on the clicks of the user and the description of the landmark. Visitors are directed to the landmarks of interest and get suggestions on other relevant destinations. They can take a photo of something that attracts their interest and get automatically related info.

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Documentation



Discover and Test



Smart Retrieval is a web application that can be used to provide advanced search functions for multimedia archives. The app provides services for different types of Content-Based Image Retrieval (CBIR) from text-to-image to image-to-image and text+image-to-image.

The novelty is in the computer vision part, i.e. the neural network used to associate text describing the desired content of the image and the pixels of the image.

This allows users to search for an image using an image example and an additional textual description describing a change from the content of the referenced image.

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Smart Video Restoration is a web-based application that allows to restore analog archive videos and images that have been degraded.

A novel Neural Network AI technology that uses a multi-frame approach is able to deal with severe tape degradations that result in completely scrambled frames and images.

Web app lets users upload videos and images with similar system-intrinsic and aging-related types of degradations and download the restored versions.

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[Documentation](#)

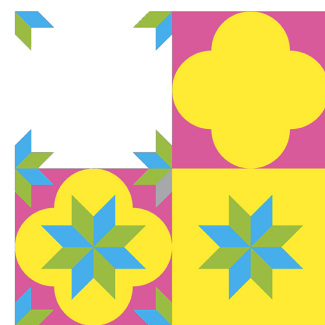


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Co-creative Approach

The innovative goal of the Toolkit is to provide not just a set of tools as a final product, but a collaborative development process, creating a mediation between different disciplinary sectors.


Tools are designed and tested with a bottom-up approach, inviting communities to participate in the creation process through workshops and hackathons.




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 **ReInHerit Hackathon**
(Matera, IT - July 2023)

 **ReInHerit Smart Tourism Hackathon**
(Nicosia, CY - January 2024)

 Co-creative design of Digital Tools for Museums
using Smart Interaction and Playful Approach
ReInHerit Best Practice

 Ethical Aspects and Scientific Accuracy
of AI/CV-based tools
ReInHerit Best Practice

 ReInHerit Training Webinars
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