

## Task 4.4 – App for tourists and visitors

### Deliverable 4.4.1 Herit-Data App for visitors

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Deliverable 4.4.1

Access level: public

Partner in charge of the report: REGIONE TOSCANA - Department of  
Infrastructure & Technology

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## Table of contents

<b>1 - Introduction .....</b>	<b>3</b>
<b>2 – Dubrovnik, Croatia .....</b>	<b>4</b>
<b>3 – Florence, Italy .....</b>	<b>6</b>
<b>4 - Mostar .....</b>	<b>10</b>
<b>5 – Olympia, Greece .....</b>	<b>12</b>
<b>6 - Pont du Gard, France .....</b>	<b>13</b>
<b>7 – Valencia, Spain .....</b>	<b>18</b>

## 1 - Introduction

The present deliverable (4.4.1 Herit-Data App for visitors) aims to highlight the different solutions put in place in the 6 project pilots, in order to facilitate the interaction and decisions of tourists/visitors to improve and help them to enjoy their stays, while reducing the impact on the visited sites. It will protect heritage sites, when possible and implemented, thanks to an on-the-fly visitors' flow reorganization.

The 6 solutions are presented by alphabetical order of the pilot site name. A common template is used, which is filled with specific information and, if possible, also by images.

## 2 – Dubrovnik, Croatia

<b>Partner</b>	Dubrovnik development agency DURA
<b>Pilot site</b>	Dubrovnik historical core / Rectors apalace
<b>Kind of solution selected</b>	External development and specific to the project
<b>Main objectives for the App</b>	<p>What benefits will users obtain?  App for mobile devices will be developed for Dubrovnik Rectors palace. App will detect number of people in Rectors palace in real time and start two different narratives according to that. In off-peak hours longer version of the story with elements of augmented reality will be presented to visitors.</p> <p>In what way will the app benefit the destination/pilot site?  The idea of the app is to attract people to visit Rectors palace during off-peak hours.</p> <p>Will it include alternatives in case of high affluence?  Application is focused on Dubrovnik Rectors Palace visitors so during the high affluence it offers visitors short version of multimedia guide without AR elements. The assumption is that will help Dubrovnik museums to redistribute crowds during the day.</p>
<b>Actions carried out so far</b>	<p>Completed public procurement and signed contract with external partner.</p> <p>Collaboration of DURA, Dubrovnik museums and external partners in development of the app.</p> <p>Application is in the finishing phase.</p>
<b>Results obtained so far</b>	App will be published and available for public in November 2021
<b>Sustainability actions envisaged</b>	Application will be available in Google play and App store 5 years after the end of the Herit Data project. After that period long term plan is that Dubrovnik museums take over its maintenance.

Complementary  
information (links,  
images, etc.)

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DUBROVNIK MUSEUMS



# KNEŽEV DVOR U DUBROVNIKU

**MULTIMEDIA GUIDE**

**HRVATSKI**

**ENGLISH**

### 3 – Florence, Italy

<b>Partner</b>	Foundation for Research and Innovation and Tuscany Region
<b>Pilot site</b>	Florence Unesco area
<b>Kind of solution selected</b>	External development and integration in an already-existing solution
<b>Main objectives for the App</b>	<p>What benefits will users obtain?</p> <p>Users, meaning citizens, tourists stakeholders and anyone else interested in visiting, will have the chance to check in a single application all the information related to the Metropolitan area of Florence, from art to culture, from green areas, to walks and bikes, to sustainability and much more. Having a space within existing App dedicated to Herit-Data project means a higher visibility than starting from scratch and a longer brighter future for the App itself, going far beyond the project lifespan.</p> <p>In what way will the app benefit the destination/pilot site?</p> <p>The use of a single app approved by the same Municipality of Florence will convey official information in just one place, simplifying the research process for those looking for a specific event/information/tip and avoiding the confusion deriving from the download of multiple apps, each one with a specific type of information/scope.</p> <p>Will it include alternatives in case of high affluence?</p> <p>The App has an innovative function called “skip the line”, a map that shows the crowding level of touristic spots, estimated by the same Municipality and available from the present day for the next 7 days divided by morning, afternoon and evening. The map highlights with a pin some of the main touristic places in the Unesco area, and by clicking on the single spot it signals the crowding rate and suggests alternative nearby places to be visited. Such function is completely fitting with the project purpose to develop tourist management tools. Overall, tourists will be better</p>

informed about crowding and alternatives, the Unesco sites will hopefully avoid a further “overcrowding” and most of all a communication channel will be open with visitors, aimed at orienting behaviors in the best possible way.

Further developments related to use of Wi-Fi data in the Unesco are foreseen in the upcoming weeks/months, through/thanks the constant collaboration between FRI, RT, Disit Lab as project partners and the Municipality of Florence. Among the many, the creation of dynamic heat maps, provided with trends and integration within the heat maps of further date are underway.

#### **Actions carried out so far**

The general idea of the App related to Florence Herit Data pilot refers to a fundamental sustainability principle, i.e., instead of duplicating exiting tools, exploiting and implementing the existing ones. Starting from such assumption, an already existing App sponsored by the Municipality of Florence was chosen as the most “visible” within Florence. The use of something already existing and strongly wanted and promoted by the Municipality itself, it will assure a long lasting life to such tool and as a consequence to Herit-Data outcomes and legacy, far beyond the project conclusion. Moreover action related to data, acquisition/elaboration, and their use in function to public decision have been carried out.

#### **Results obtained so far**

The FeelFlorence App has a dedicated space/page to the Herit Data Florence pilot since 2020 and the same information can be also found within the Web App. Many project achievements can be considered milestones, but the main one has been indeed the creation of a true effective working group comprising the project partners (FRI, RT, Disit Lab) and a set of local stakeholders among which several departments within the Municipality of Florence, the Metropolitan City of Florence et al. The process to align the working group with different visions, needs, restraints and ideas took some time, but the results are now tangible, first and foremost into the FeelFlorence App, with a dedicated space to the Florence pilot, where a link to the Herit-Data platform dashboards are showed as an example.

Thanks to the Herit-Data platform, a common platform for the entire partnership, it's been possible to exploit open/big/smart data in full synergy with a specific local App, i.e., FeelFlorence and the twin Web App. The set of tools aim at supporting the management of tourist flows by orienting them in a new way, both logistically and behaviourally, in order to benefit both the tourists experience and the cultural heritage environment. It is also quite interesting to highlight how the tools and the overall process have resorted to new methodological approaches to enhance their effectiveness such as twitter vigilance, Nudging and others.

**Sustainability actions envisaged**

Please check the section "actions carried out so far" for such information, and in addition, another sustainable action not just envisaged, but also put in place, was the creation of an Herit-data platform, to be linked with the pilot App, that is based on an already existing ICT solution (Snap4City), allowing availability of data transfer beyond the end of the project and its purposes. Sustainability was also a leading driver when nudging and similar strategies/methodologies were exploited, with the precise aim of orienting behaviours toward a more responsible and green touristic experience.

**Complementary information (links, images, etc.)**

App: downloadable both in Apple and Google Play Store  
 Web App (picture below):  
<https://www.feelflorence.it/en/node/38596>





Tourism is a major engine of economic growth but at the same time it has a great impact on the conservation of cultural and natural heritage, hence it requires a more careful and advanced management, especially in terms of flows, and is unavoidably linked to the big and open data available. **HERIT-DATA** project, following these needs, aims to a better analysis and management of anthropic activities and impacts on cultural heritages, by means of ICT technologies and data exploitation, in order to mitigate the anthropogenic impact on cultural heritages and touristic attractors, thanks to a more efficient management of flows, allowing at the same time the discovery of less known cultural treasures on the territories.

The project focuses especially on old towns and sites of particular archaeological and cultural interest, including UNESCO World Heritage Sites. HERIT-DATA will develop, test and transfer a series of tools to collect, generate, integrate, analyze information and transform them into behavioral changes suggestions. The results will contribute among the many to improve and ease the decision-making processes run by public administration & tourism or heritage managing bodies.

A project short video shows all the above main goals, please click on the following link to watch it: ["Herit-Data in a nutshell"](#)

Among the 13 project partners, 3 of them are based in Florence, which put the city in a spotlight and being the city center included in the UNESCO world heritages, it has been selected as one of the 6 Herit-Data pilot projects. For Florence this means deepening the use of open, smart and integrated data through an ICT platform (Snap4City) common to the whole partnership and a specific App (FeelFlorence). These tools aim at supporting the tourism streams management by redirecting them in a new holistic and smart way, so to benefit both tourist experience and the cultural heritage environment.

In the following image, an example of dashboard from Snap4City Platform is taken. It represents some of the monitoring activities on traffic flows in Florence: entering and exiting vehicle streams, % of occupied slots in the main covered parkings, % of PM10 in the monitored areas. Data are freely accessible with real-time update through <https://www.snap4city.org/dashboardSmartCity/view/index.php?idashboard=M2-1a-V1>

CONTACT CENTER TURISTICO

055000

Contacts

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EMAIL:  
[touristinfo@comune.fi.it](mailto:touristinfo@comune.fi.it)

PHONE:  
+39\_055\_000

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## 4 - Mostar

<b>Partner</b>	Center for Spatial Research
<b>Pilot site</b>	Mostar
<b>Kind of solution selected</b>	External development and integration in a already-existing solution
<b>Main objectives for the App</b>	<p>What benefits will users obtain?</p> <p>Users (tourist) could check the crowds in The Old Bridge area through heatmaps that will be added to the existing application. Heatmaps will be generated from the real-time data measured with 2 counting cameras (1 installed at the entrance in the Old Town and 1 installed at The Old Bridge)</p> <p>In what way will the app benefit the destination/pilot site?</p> <p>The heatmaps added to the existing app should contribute to crowds decreasing in The Old Bridge area during the peak season, and consequently, to better experience of this unique place.</p> <p>Will it include alternatives in case of high affluence?</p> <p>The app already offers a list of different places of tourist interest, but presented in a traditional and static way. Creation of nudging strategy was mentioned as a future option.</p>
<b>Actions carried out so far</b>	<p>The local stakeholders were introduced with the benefits that use of counting cameras and better use of the existing app could bring to the tourist flows management.</p> <p>Legal procedure of the counting cameras installation has initiated in compliance with local authorities and stakeholders' requirements.</p>
<b>Results obtained so far</b>	<p>Presentation to the local stakeholders with Herit-Data partners participation.</p> <p>Agreement with the Tourist Board of Hercegovacko-Nervatanski Canton about overtaking the counting</p>

cameras and using the heatmaps after the Herit-Data project lifetime.

Project of counting cameras installation was done and was sent for the authorization to the relevant institution on local, regional and national level.

Call for nudging maps development was prepared.

**Sustainability actions envisaged**

Employees in the Tourist Board of Hercegovacko-Nervatanski Canton should be trained how to use the Snap4City platform.

The data from counting cameras and app should be accompanied with quality nudging strategy.

The existing app should be better promoted so the more tourists use it.

**Complementary information (links, images, etc.)**



Presentation to the local stakeholders

[counting cameras project](#)

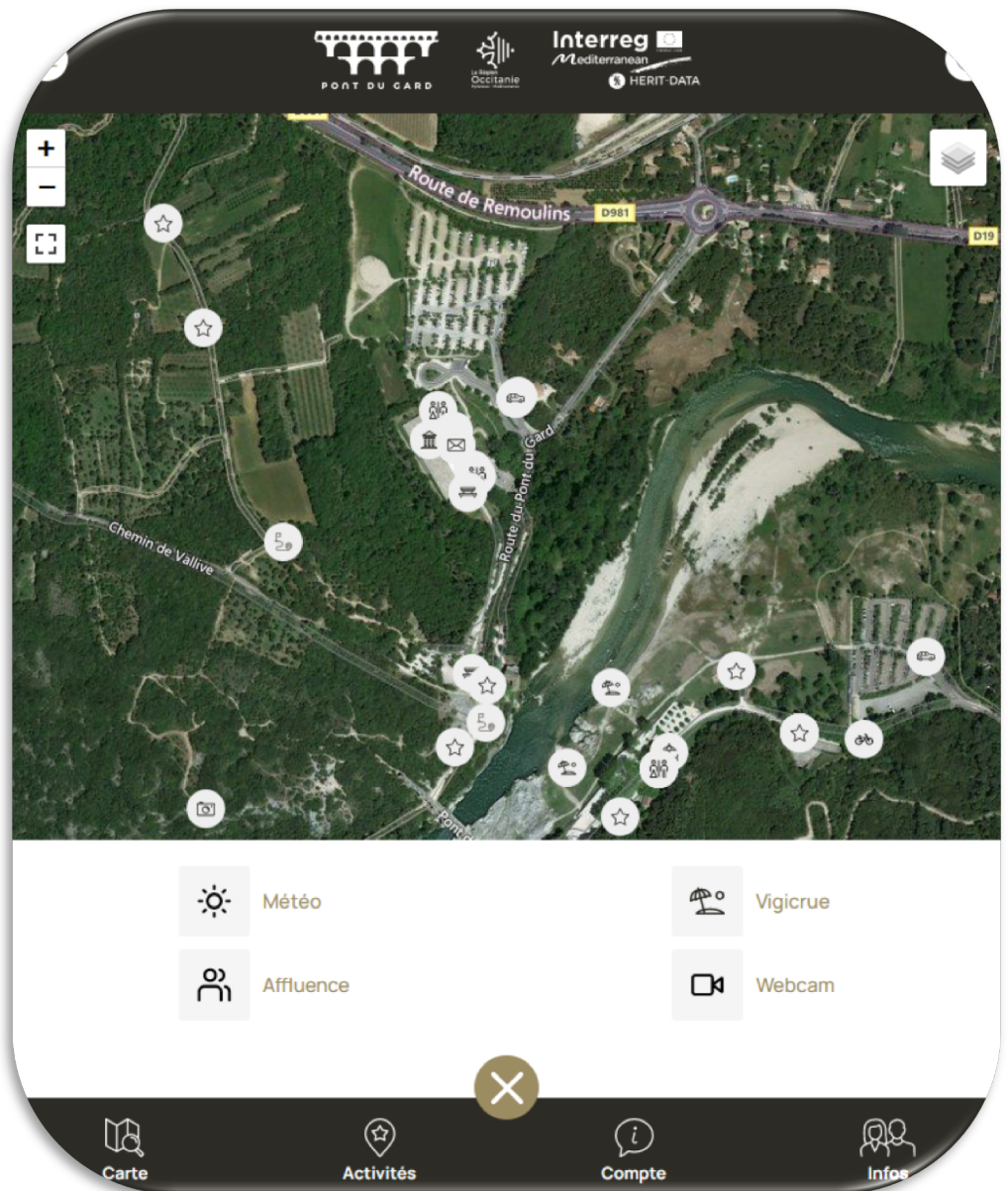
## 5 – Olympia, Greece

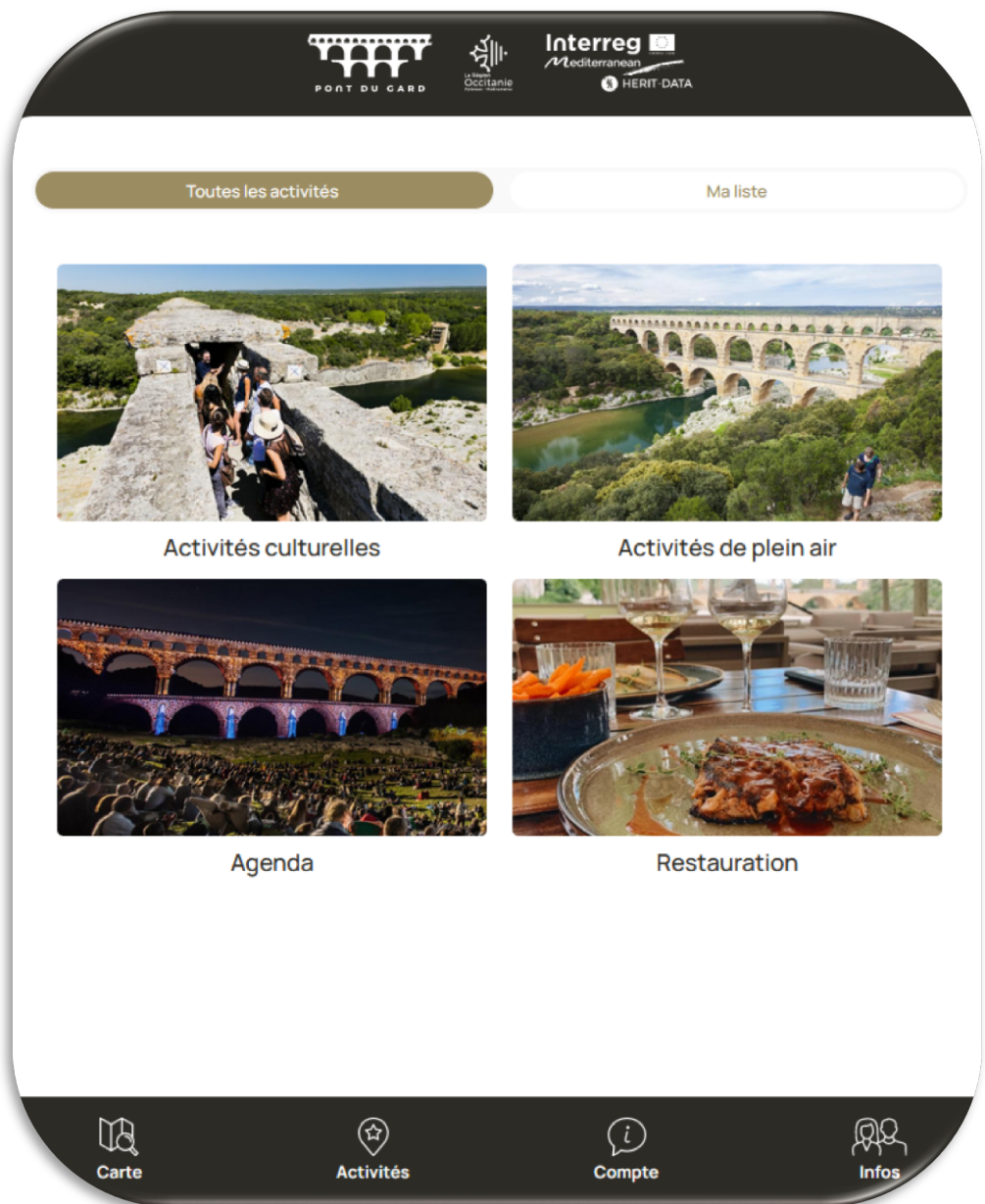
<b>Partner</b>	Region of Western Greece
<b>Pilot site</b>	Ancient Olympia, Port of Katakolo, Patra
<b>Kind of solution selected</b>	External development and integration in a already-existing solution
<b>Main objectives for the App</b>	<p>What benefits will users obtain?</p> <p>Inform about the pilot sites and all the indicator is available in every site</p> <p>In what way will the app benefit the destination/pilot site?</p> <p>Real Time inform about many indicator, availability, traffic, statistics,</p> <p>Will it include alternatives in case of high affluence?</p> <p>No</p>
<b>Actions carried out so far</b>	There is a contractor for the installation of sensors. The sensors have not yet been installed in the pilot areas due to pending licensing
<b>Results obtained so far</b>	None that the sensors have not been installed and the platform for mobile phones for the Region of Western Greece has not been implemented yet. The resources from which the data will be imported have been finalized and the remains the creation of the final application and the import.
<b>Sustainability actions envisaged</b>	Not yet
<b>Complementary information (links, images, etc.)</b>	Not yet

## 6 - Pont du Gard, France

<b>Partner</b>	REGION OCCITANIE
<b>Pilot site</b>	PONT DU GARD
<b>Kind of solution selected</b>	External development and adaptation to an already-existing solution : WebApp
<b>Main objectives for the App</b>	<p>What benefits will users obtain?</p> <ul style="list-style-type: none"> <li>- Be able to plan and decide when visit the site regarding different elements (visitors/capacity, weather, webcam, etc)</li> <li>- Get useful information for his visit (map, guided tours/available timeslots, alternative itineraries and activities, gaming/visit differently the Pont du Gard)</li> <li>- Get regularly updated with news for a future visit</li> </ul> <p>In what way will the app benefit the destination/pilot site?</p> <ul style="list-style-type: none"> <li>- Get a performant visitors tool that participates in regulating the visitor flows on site</li> <li>- Develop and push useful information before and during the visit in order to regulate or increase visitors in certain areas or on certain offers (ie Guided tours)</li> <li>- Link the app furthermore to the visitor management tools in development (CRM and the website)</li> <li>- Get information on the type of clients visiting the site (ie. Profiling of visitors)</li> </ul> <p>Will it include alternatives in case of high affluence?</p> <ul style="list-style-type: none"> <li>- In case of high affluence, the visitor can choose if he comes or delays his visit (ie; webcam, affluence check)</li> <li>- The App will propose a heat-map in near real time as well as a variety of activities and itineraries less crowded</li> </ul>

<b>Actions carried out so far</b>	<p>The French version of the WebApp in its first version is online. Adjustments are in progress. The English version is still in development, as well as alternative contents and the connection with the webcam.</p>
<b>Results obtained so far</b>	<ul style="list-style-type: none"> <li>- Development of the webapp is being carried out in short time</li> <li>- French version of the webapp is online since beginning of October</li> </ul>
<b>Sustainability actions envisaged</b>	<ul style="list-style-type: none"> <li>- Link all the tools together (app + CRM + ticketing + website)</li> <li>- Integrated in the communication plan</li> <li>- Herit Data project has been inscribed in the Unesco Management Plan for 6 years. State Heritage Circulation Authorities approved the overall project and installations.</li> </ul>
<b>Complementary information (links, images, etc.)</b>	<p><a href="https://www.pontdugardtour.fr">https://www.pontdugardtour.fr</a></p>









Solutions innovantes pour mieux gérer l'impact des flux touristiques sur les sites du patrimoine culturel et naturel, grâce aux technologies et au big data.



### Nos labels



Organisation des Nations Unies pour l'éducation, la science et la culture



Pont du Gard inscrit sur la Liste du patrimoine mondial en 1985



## 7 – Valencia, Spain

<b>Partner</b>	FUNDACIÓN VALENCIAPORT
<b>Pilot site</b>	VALENCIA
<b>Kind of solution selected</b>	In-house development and integration in an already-existing solution: Web App
<b>Main objectives for the App</b>	<p>What benefits will users obtain?</p> <ul style="list-style-type: none"> <li>- Be aware of the current level of congestion in the main Valencia’s old town tourist sites.</li> <li>- Receive, in real-time, useful information about the current temperature and humidity levels in the indoor monitored sites.</li> <li>- With the aim of improving the experience of tourists, the users/visitors will be able to modify the order in their itinerary of visits on-the-fly, based on the current saturation in each site.</li> </ul> <p>In what way will the app benefit the destination/pilot site?</p> <ul style="list-style-type: none"> <li>- Measuring and providing valuable data in real-time related to occupancy share in the main sites of the City of Valencia so as to identify congestion issues.</li> <li>- Avoid the dissatisfaction of tourists and residents in the measurement areas caused by peaks of affluence.</li> <li>- Occupancy data will be used by the sites’ administration and decision-makers to take actions for protecting them against over tourism or to attract visitors in case of off-peak affluence levels</li> </ul> <p>Will it include alternatives in case of high affluence?</p> <ul style="list-style-type: none"> <li>- At the current stage, the pilot will lonely rely on the self-regulation of tourists flows by letting them to decide the next site to visit in Valencia based on the information provided by the app. In this regard, it is worth highlighting that tourists will generally prefer to go to the sites with less affluence</li> </ul>

	<ul style="list-style-type: none"> <li>- In future work, artificial intelligence will be used to predict cruisers' flows in a near future based on future cruise port calls, weather forecast, nationality of cruisers, etc. This information will be shown in intuitive line charts or bar charts.</li> </ul>
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<b>Actions carried out so far</b>	<p>The first version of the Valencia pilot app is in progress and under adjustments. The web application is developed using the dashboard creation tool available in the Snap4City platform. The steps followed to develop the app has been the following:</p> <ol style="list-style-type: none"> <li>1. Identify the main data to be visualized in the Web app</li> <li>2. Create a dashboard with the data similar to what it is intended to have on mobile</li> <li>3. Cloning the previous dashboard to a new dashboard with the required fine tuning for the best rendering on mobile</li> <li>4. Use the link of the new dashboard to embed it with the current mobile view of the cruise management platform running already in production.</li> </ol> <p>The new dashboard created in Snap4City for the mobile view includes 6 gauge graphs that show the occupancy level in 6 monitored sites of Valencia: <i>Mercado Central, La Lonja facade, Plaza de la Virgen, Cripta de San Vicente outbound and inbound</i>, and the port of Valencia Cruise Terminal. Additionally, the dashboard will include 2 charts with the relative humidity and temperature inside the building of the <i>Cripta de San Vicente</i>.</p> <p>The web app will be accessible via a QR code that will be shown to arriving tourists through a roll-up at the cruise terminal in the port of Valencia.</p>
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<b>Results obtained so far</b>	<p>The development of the app is ongoing. The web app will be accessible for the tourists from the cruises scheduled in the second half of November and December.</p>
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<b>Sustainability actions envisaged</b>	<p>Use of artificial intelligence will be explored to predict possible overcrowding in tourist spots, as a support for</p>
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decision-making aimed at mitigating the impact generated.

Complementary information (links, images, etc.)



Figure 1. Valencia pilot Web App view

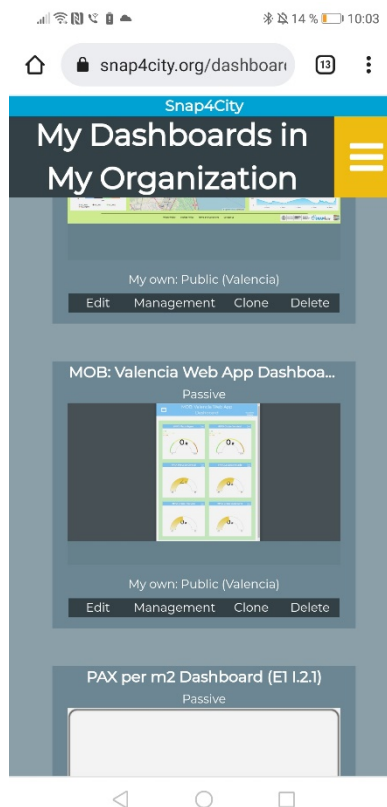


Figure 2. Valencia Pilot Web App - Snap4City dashboard management