ARCH D3.4

Report on co-creating the information system
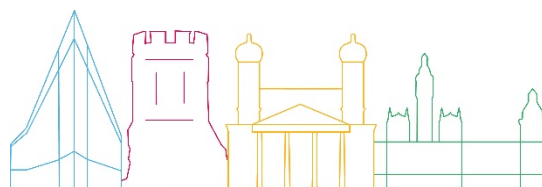
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Executive Summary

This report is related to the task 3.4.2 "Co-create the Hazard and Object Information Management System", as part of the task 3.4 "Co-create methods and tools for making historic areas more resilient" of the project ARCH. In particular, this deliverable describes the process of co-creation specifically related to the development of the information systems, as already reported in previously released deliverables (i.e. the Historic Area information system - HArIS in Deliverable 4.2 and Threats and Hazard information system - THIS in Deliverable 4.3), as well as that for implementing the analysis services and developing instrumentations (which are described in the Deliverable 4.1).

The deliverable reports the specific meetings and local workshops organised to exchange information with the four pilot cities of ARCH (i.e. Bratislava, Camerino, Hamburg and Valencia) about monitoring activities and data analysis, as well as to illustrate the IT services and demonstrate the functionalities of the information system tools. In addition, the deliverable describes how these workshops were conducted, which partners and stakeholders were involved, which results were gathered, how the results were addressed, and which lessons were learned as a result of the process.

Table of contents

List of abbreviations

Abbreviation	Meaning
GA	General Assembly
GIS	Geographical Information System
HArIS	Historic Areas Information System
RUSN	Real-Time Urban Sesimic Network
THIS	Threats and Hazard Information System
WP	Work package

1. Introduction

This deliverable has been prepared for the European Commission-funded research project ARCH "Advancing Resilience of historic areas against climate change-related and other hazards". Tools and methodologies are developed with the pilot cities of Bratislava, Camerino, Hamburg, and Valencia, in a co-creative approach with local policy makers, practitioners, and community members. The results will be available into a collaborative disaster risk management platform (ARCH HUB) that contains links to the tools developed in the ARCH project for local authorities and practitioners, the urban population, and international expert communities. The results of the co-creation processes with the pilot cities have been disseminated to a broader circle of other European municipalities and practitioners (e.g., Task 3.6 "Involve a tier-2 circle of learning") and through European standardisation (Task 2.6 "Standardisation activities").

1.1. Purpose of this report and relation to other deliverables

In this deliverable the co-creation activities conducted for the historic areas and hazard information management systems (HArIS and THIS) are reported. In particular, it reports specific meetings and local workshops organised to share information obtained by survey campaigns and monitoring activities, and to illustrate the functionalities of the information systems. In addition, the deliverable describes how these workshops were conducted, which partners and stakeholders were involved, which results were gathered, how the results were addressed, and which lessons were learned as a result of the process.

Accordingly, the contents of this document and the developments described therein are mainly linked to the developments of technological solutions and data analyses provided by WP4. Therefore, the main related deliverables are:

- **D4.1** Sensing and Repositories
- **D4.2** Historic Area Information Management System (HArIS)
- **D4.3** Threats and Hazard Information System (THIS)
- **D4.4** Knowledge information management system for decision support
- **D7.4** Requirements description
- **D7.5** Interface specification and system architecture
- **D7.6** System design, realisation, and integration

1.2. Gender statement

This document has been developed taking into consideration the guidance on gender in research provided in the Project Handbook (D1.2) as well as State-of-the-Art report number 5 of deliverable D7.1 on "Gender aspects in conservation and regulation of historic areas, disaster risk management, emergency protocols, post-disaster response techniques, and techniques for building back better".

1.3. Structure of this report

The deliverable is structured in three sections:

- Following this introduction, **Section 2** describes the different phases of the co-creation activities with particular reference to those related to WP4;
- **Section 3** reports the main lessons learnt during the phases described in the previous section

Finally, the **Annex A** summarises the answers to the survey performed to gather feedback on the information systems.

2. Co-creating the Information systems

2.1. Preparation phase: user needs and functional requirements

In the preliminary phase, the research partners planned to visit the cities of the ARCH project to meet the city staff and potential local stakeholders, in order to familiarise with the study area and highlight any missing issues and questions that could have been addressed through the ARCH project. However, after the first two GA meetings and the visit to Hamburg in October 2019, the situation of the COVID-19 pandemic made it impossible to schedule the remaining field visits in Valencia, Camerino and Bratislava. Therefore, the research partners and the cities decided together to organize specific meetings (see Table 1) in which to match the needs and priorities defined by each city with the ARCH competence pool and potential applications/tools/models offered by the different partners.

The main objectives of this preparatory stage are listed below.

- To unfold the narrative of each city by:
    - o Introducing the main hazards, exposure elements and vulnerabilities concerning both the climate change and\or natural events.
    - o Describing the needs of the city in order to increase the resilience of the historic area.

- To match the needs and priorities defined by the city with ARCH's pool of expertise and potential applications/tools/models offered by the different partners. In particular, by:
    - o Introducing skills and expertise of the research partners, as well as a preliminary research agenda, and discussing these to match needs and potential solutions.
    - o Providing updates concerning the local stakeholders´ group, local work plan and research partners' work.
    - o Defining specific actions to be conducted throughout the remainder of the project

Table 1. Visit and Match-making meetings

Date	Main topic	Where	Reference partner(s) of WP4	City
25-27.11.2021	Match-making meeting Hamburg	On-line	INGV, RFSAT, ENEA	Hamburg
25-28.05.2021	Match-making meeting Bratislava	On-line	INGV, RFSAT, TECNALIA	Bratislava & stakeholders
21.07.2021	Match-making meeting Camerino	On-line	INGV, RFSAT, UNICAM, ENEA	Camerino & stakeholders
31.03 2021 & 01.04.2021	ARCH visit to Valencia (Match-making meeting Valencia)	On-line	INGV, RFSAT, TECNALIA	Valencia
16-17.10.2019	ARCH visit to Hamburg	Hamburg	INGV	Hamburg & stakeholders

This phase takes about 24 months through the revision process of the needs and requirements, although in the meantime the development phase has also started.

To guide the elaboration of data analysis and the development all the ARCH systems, the definition of general requirements and city-specific requirements was carried out and reported in D7.4. It is worth pointing out that these requirements have been reviewed during the project, in this deliverable information are related to the latest version of the requirement table (v1.15) released on March 2021.

The city-specific functional requirements were defined based on (semi) structured interviews and discussions between ARCH research partners and city partners. These interviews and discussion with city teams were conducted by different constellations of project partners (e.g., FRAUNHOFER, INGV, ENEA, TECNALIA and RFSAT) over the course of several months. During these activities, cities were asked to express their needs in terms of data, functionality or general aspects and lack thereof. These activities were launched at the General Assembly meeting in Brussels in November 2019 and were further continued in a series of bilateral and multilateral ARCH partner meetings, in which the needs of the city were expressed while the technical partners offered relevant skills for the creation of system functionalities.

The requirements from the cities directly affecting information systems (HArIS and\or THIS) with the highest priority levels ("Must have" and "Should have")[1] are listed in the following tables (Tables 2-4). The same tables also outline the specific actions to meet these needs in the ongoing development of information systems. Although these requirements have been proposed *ad hoc* for each city, where possible, they are also generalised for the other pilot sites in ARCH (e.g., all city partners can manage and enter information on buildings and objects, or all city partners can query indicators representative of the past climate or extreme weather). Therefore, these tools and analyses could be extended to other historical areas simply by entering the relevant data in ARCH database\repository.

In Tables 2-4, for each requirement the following parameters are reported:

- **Req. ID** is a unique identification number of the requirement;
- **HArIS\THIS** indicates for which system requirement holds;
- **Status** is the approval level: A is fully approved after the review), S is only suggested (details about the review process can be found in D7.4)
- **Priority** represents the importance of the requirement: 1 is "Must have" and 2 is "Should have";
- **Description** provides explanation of the requirement;
- **Source** indicates the origin of the requirement;
- **Action(s)** describes as requirement has been addressed.

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[1] Priority:
- **Must have:** requirement is critical for the success of the system and must be delivered in the next delivery time box What is a delivery time box?
- **Should have:** requirement is important or even necessary, but not as time-critical and may be realised in a later delivery time box

Table 2. Requirements for Bratislava and consequent actions

Req. ID	HArIS	THIS	Status	Priority	Description	Source	Action(s)
FB-02	X		A	2	The system should provide data on surface permeability for Bratislava.	Bratislava baseline	Currently, this information is under processing. However, this will be included in the information systems portal as soon as available.
FB-03	X		A	2	The system should retrieve ownership information on buildings from the Bratislava cadastre map (cadastre web portal).	City needs survey GA02	• Information to characterize the property and cadastral references have been included in the HARIS • • The cadastral references provided by Bratislava for specific buildings have been entered in the DB. • • Authorized persons can manage this information directly through the information system portal
FB-08	X		S	1	The system must provide current and historical sensor data (precipitation, humidity, temperature and wind) for the Bratislava city area.	Bratislava match-making	• Sensor data (such as precipitation, humidity, temperature and wind strength) are acquired almost in real time through a specific service developed by RFSAT (see D4.1) • A dashboard has been provided to access the latest available values in the ARCH database and to download them
FB-15	X		S	2	The system should provide information about anomalies (e.g. due to moisture) using terrestrial laser scanning, IR thermography in order to assess the level of degradation for specific heritage assets in the historic town centre (Bratislava) and Devin castle.	Bratislava match-making	Not much data was made available due to the inability to plan specific field surveys. However, a 3D model viewer and tools have been developed to provide this information (see D4.2)
FB-16	X		S	2	The system should provide data regarding age, structure, constructive and material characteristics of prototypical buildings in the historic centre (Bratislava) that might influence their vulnerability to erosion and moisture.	Bratislava match-making	• Information relating to age, structure, construction characteristics and materials already available from the city has been entered in the database • Authorized persons can manage this information directly through the information system portal
FB-18	X		S	2	The system should provide a classification of different surfaces (soils, cliffs, vineyards, etc.) based on spectral analysis from satellite data (hyper-spectral), terrestrial sensor networks or other suitable sources for the historic town centre (Bratislava).	Bratislava match-making	The information system portal contains the information about the classification of the different areas and the different types of vegetation (see D4.2).

Req. ID	HArIS	THIS	Status	Priority	Description	Source	Action(s)
FB-19	X	X	S	2	The system should allow to identify surface deformation due to subsidence for the historic town centre (Bratislava) based on satellite data.	Bratislava match-making	The research partners and the city team decided to analyse thermal maps from satellite data, rather than subsidence phenomena.
FB-20	X		S	2	The system should allow to identify changes in land cover for the Devin district (Bratislava) due to climate change effects, based on current and past satellite data and images.	Bratislava match-making	The information system portal allows querying changes in land cover and land use, in the last 15 years (see D4.2)

Table 3. Requirements for Camerino and consequent actions

Req. ID	HArIS	THIS	Status	Priority	Description	Source	Action(s)
FC-01	X		A	1	The system must allow to manage information about movable heritage objects including storage location, original location and guidelines for the managing and securing of artefacts and artwork after seismic events.	City needs survey GA02, T3.2 work plan	The electronic sheets contain information on cultural heritage assets. The objects of the historical area have been mapped and the information can be managed and updated through the web pages of the information system portal.
FC-02		X	A	1	The system must be able to use the data provided by the Real-time Urban Seismic Network (RUSN) to be deployed in Camerino.	ARCH DoA, T3.2 work plan.	The Real-Time Urban Seismic Network has been implemented in and around the historic center (see D4.1). In addition, a computer system that processes data on the server side (see D4.3) automatically has been developed. Although this is a prototype infrastructure, it appears to show interesting results for better understanding local effects on the ground motion.
FC-03	X	X	A	2	The system should allow to monitor characteristic parameters of building vibrations (using sensor data for modeling the dynamic vibration).	Camerino meeting	Monitoring systems based on different sensor data were installed to better understand the dynamic behaviour of the two selected buildings (see D4.1), namely Palazzo Ducale and Chiesa di S. Maria in Via.

Req. ID	HArIS	THIS	Status	Priority	Description	Source	Action(s)
FC-04	X	X	A	2	The system should allow to monitor material degradation using sensor data.	Match-making meeting	A field survey was performed to characterize the building materials. In addition, automatic systems for crack detection are being developed.
FC-05	X		A	2	The system should incorporate data from cadastral maps of Camerino.	Camerino meeting	The data from the Camerino cadastral maps have been entered into the database.
FC-06	X		A	2	The system should retrieve LIDAR data and interferometric data for Camerino (3D shape files and surface characteristics)	List of data services as provided by INGV	Digital elevation models have been developed for both the terrain and the surface.
FC-07	X		A	2	The system should contain building footprints of the historic areas in Camerino from the town management plan.	List of data services as provided by INGV	The information system contains a building footprint consistent with the information provided by the municipality.
FC-08	X		A	2	The system should provide data from MEMS installed at the Palazzo Ducale and Santa Maria in Via Church.	Camerino meeting, T3.2 work plan	A permanent monitoring-alert system was installed on the two demonstrating buildings: Church of Santa Maria in Via and Ducal Palace.
FC-09		X	A	2	The system should retrieve information on environmental risks and hazards (incl. Hydrogeological risks, extreme precipitation, mass movement, tectonic activity) for Camerino.	List of data services as provided by INGV	Official information on hydrogeological risks and seismic hazard are included in the portal of the information system.
FC-10		X	A	2	The system should retrieve earthquake and seismic data from external sources.	List of data services as provided by INGV	Information on seismogenic sources and historical earthquakes for Italy and the Mediterranean region, therefore for the European region, was included. In addition, the list of recent earthquakes is available in the seismic service. This list is automatically updated as soon as the information is available through the national monitoring services.

Req. ID	HArIS	THIS	Status	Priority	Description	Source	Action(s)
FC-15	X	X	S	2	The system should be coupled to the GIS platform of the Municipality of Camerino.	Camerino match-making	Standard web services have been published to include a specific dataset \ information in an external GIS platform. In addition, a web catalog has been implemented to easily retrieve metadata and links for these services (see D4.4).
FC-16	X		S	2	The system should provide data on historical buildings in Camerino, including building material, reconnaissance of damage, based on surveys and tests.	Camerino match-making	Specific sections of the construction electronic sheets provide information on structural typology, building material, reconnaissance of damage. In addition, the data can be changed by authorised users.

Table 4. Requirements for Hamburg and consequent actions

Req. ID	HArIS	THIS	Status	Priority	Description	Source	Actions
FH-01	X	X	A	1	The system must be able to retrieve data from the Hamburg Urban Data Hub.	City needs survey GA02	Several datasets about building and infrastructure are retrieved from the Hamburg Urban Data Hub, as is the 3D digital model of the city (see D4.2).
FH-03	X		A	1	The system must include 3D models of selected buildings within the Speicherstadt.	Hamburg city visit w. stakeholders	Although a 3D model is currently being developed, the portal of the information system has a 3D model viewer, which allows you to view and query the 3D model of the buildings (see D4.2).
FH-04	X		A	1	The system must be able to exchange building information (including 3D models) compatible with Hamburg's BIM (building information model).	Hamburg city visit with	3Dmodels can be queried and downloaded through the catalog.

Table 5. Requirements for Valencia and consequent actions

Req. ID	HArIS	THIS	Status	Priority	Description	Source	Actions
FV-02	X		A	2	The system should interface with the Valencia Geoportal.	List of data services as provided by INGV	The information system portal integrates some services and datasets provided by official geoportals (e.g. agricultural areas, population data). In addition, information can be retrieved from HArIS and THIS via standard GIS services, with metadata and links available on the ARCH catalog.
FV-03	X		A	2	The system should include elevation model-based products (e.g. slope, morphology) for La Huerta and Albufera.	Technical session	Digital elevation models have been developed for both the terrain and the surface.
FV-04	X		A	2	The system should include sensor data (climate, weather and air quality) from open-access platforms and newly deployed platforms for La Huerta and Albufera.	Technical session	Services have been developed to obtain data relating to climate change, weather and air quality and the data is updated in the database. Furthermore, the dashboards available in the information system portal allow querying historical and recent one information.
FV-05		X	A	2	The system should provide temperature maps from satellite sensors for La Huerta and Albufera.	Technical session	The thermal maps elaborated from the satellite data in the last years are available through the dashboard of the satellite product. The processed data can be retrieved from the catalog.
FV-07		X	A	2	The system should provide climate projections (agro-climatic indices) for Valencia from Copernicus.	Local stakeholder consultation Sep-	Climate projections from the near to far future were available through the climate service dashboard. Datasets can be retrieved from the catalog.
FV-08		X	A	2	The system should retrieve geographic data for Valencia (e.g. digital models from pilot area) from external sources (e.g. the national cartographic service).	List of data services as provided by INGV	The information system portal integrates services provided by official geo-portals (e.g. natural areas, hydrographic network)

The preparation phase takes about 24 months through the revision process of needs and requirements, however in the meantime the development phase has been started.

2.2. Development phase: tools and analyses

The analysis of data and the development of services and tools within WP4 was conducted with a continuous exchange between research partners, cities and local stakeholders. In fact, specific meetings and workshops have been scheduled (Table 6) involving the interested partners from time to time. Furthermore, other fruitful discussions were held during many other meetings organised within other WPs and specific session in the GA meetings (these did not report in the table), especially when the activities were strongly connected and the partners themselves could benefit from joining these sessions. WP4 and WP5, in particular, held periodic joint meetings together with the Hamburg team from April 2021 to this day not only to discuss the most up-to-date progress of the planned work, but also to strengthen the involvement of local stakeholders by the team of Hamburg.

Furthermore, the partners involved in the activities of WP4 and WP5 participated in monthly meetings, from April 2021 to November 2021, with the coordination of ICLEI, as leader of WP3, to foster synergistic activities in the development of the tools.

Table 6. Meetings on-line mainly involving WP4

Date	Main topic	Reference partner(s) for WP4	City
21.03.2022	Hamburg WP4/5 meeting	RFSAT, ENEA, UNICAM	Hamburg
11.01.2022	Hamburg WP4/5 meeting	INGV, RFSAT, ENEA, UNICAM	Hamburg
24.11.2021	Hamburg WP4/5 meeting	INGV, RFSAT, ENEA, UNICAM	Hamburg
13.10.2021	Hamburg WP4/5 meeting	INGV, RFSAT, ENEA, UNICAM	Hamburg
09.09.2021	Hamburg WP4/5 meeting	INGV, RFSAT, ENEA, UNICAM	Hamburg
08.06.2021	Bratislava Impact Chain Cause-Effect Discussion	ENEA	Bratislava
21.05.2021	Camerino WP4 meeting	INGV	Camerino
07.05.2021	Bratislava Impact Chain Follow Up	ENEA	Bratislava
28.04.2021	Hamburg WP4/5 meeting	INGV, RFSAT, ENEA, UNICAM	Hamburg
24.04.2021	Database and web-interface for managing information (review)	INGV	Camerino
13.04.2021	Database and web-interface for managing information (presentation)	INGV	Camerino
18.03.2021	Hamburg Climate Services Meeting	Tecnalia	Hamburg
11.03.2020	Web, GIS and data structure for database	INGV	Camerino
19.02.2021	Bratislava Climate Services	Tecnalia	Bratislava
18.02.2021	Valencia Climate Services	Tecnalia	Valencia
15.02.2021	Valencia Climate Services	Tecnalia	Valelncia
08.02.2021	Design of the database	INGV	Camerino
27.01.2021	Valencia Climate Services	Tecnalia	Valencia
27.01.2021	Hamburg Climate Services	Tecnalia	Hamburg
18.01.2021	Bratislava Climate Services	Tecnalia	Bratislava

2.3. Demonstration phase: information systems and operative use

The demonstration activities were scheduled from April 2021 to July 2021 (see Table 7). The participation in two cities calls[2], the 2nd Mutual Learning Workshop[3] and the individual meetings with each of the four partner cities had two main objectives: (1) to show the functionalities of the information system portal and the available datasets; (2) to collect feedback and suggestions in order to improve tools and integrate data sources.[4]

Table 7. Demonstration activities for foundation and tier-2 cities

Date	Main topic	Event	Reference partner of the WP4	City
21.07.2021	Updates on the information systems	21st Cities call	INGV	Bratislava, Camerino, Hamburg and Valencia
11.06.2021	Review of the tools in HArIS and THIS	On-line workshop	INGV	Valencia
04.06.2021	Review of the tools in HArIS and THIS	On-line workshop	INGV	Camerino
12.05.2021	Introducing the ARCH Historic Area Information System (HArIS) How can the HArIS be applied? Discussion with foundation and tier-2 cities	2nd Mutual Learning Workshop	INGV	Bratislava, Camerino, Hamburg, Valencia and keystone cities
14.04.2021	Showcase the functionalities and datasets in HArIS and THIS	18th Cities call	INGV	Bratislava, Camerino, Hamburg and Valencia

After the first demonstration event on January 2021, where the preliminary version of the tools is showed, a survey to obtain feedbacks about usefulness and ease of use was launched. The results of this survey helped drive updates of the information systems interfaces, as well as review some datasets and data sources. The graphical representation of the answers to the general questions proposed in the survey is reported in Annex A.

Finally, a series of workshops was scheduled to showcase the latest version of the information system platform which involved both the partner cities and the local stakeholders (Table 8).

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[2] The cities calls are recurring meeting involving directly cities for inform each other and discussing about updates

[3] The Mutual Learning Workshops are to transfer the achievement in ARCH to tier-2 cities

[4] Annex A reports a summarise of the survey performed to acquire feedback on the developed tools

Table 8. Demonstration activities for foundation cities and their stakeholders

Date	Main Topic	Where	Reference partner of the WP4	City
17.02.2022	To showcase the functionalities of the information system portal and the dataset available	workshop	INGV	Valencia & stakeholders
14.02.2022	To showcase the functionalities of the information system portal and the dataset available	2nd Mutual Learning Workshop	INGV	Bratislava & stakeholders
02.02.2022	To showcase the functionalities of the information system portal and the dataset available	On-line workshops	INGV	Camerino & stakeholders
05.10.2021	To showcase the functionalities of the information system portal and the dataset available	On-line workshops	INGV	Hamburg

3. Lessons learnt

It is worth underlining that the coincidence of the temporal overlap between development activities with the COVID-19 pandemic represented at the same time a barrier, due to the impossibility of holding face-to-face meetings to deal with all the stakeholders, and an advantage, in fact, it pushed to organise recurring meetings between the cities and research partners, giving more time to mutual listening to needs.

Net of the pandemic situation, the involvement of four specific case studies has led to a lot of time being spent in understanding how to generalise some services and tools, with a view to making them potentially usable for other historic areas. In this context, defining functional requirements, as well as the system ones, and the continuous support of the city teams and, where possible, of the competent stakeholders, were of significant help in the creative process. In fact, all these contributions have allowed the developers to move in the great "jungle" of data and in defining how to respond to the needs in order to increase the resilience of HA.

The co-creation methods adopted in ARCH have proved to be very useful for tackling the research projects, in which territorial administrative partners and research partners are so closely involved, however they needed to be guided correctly in order to avoid becoming counterproductive to the development of complex IT systems.

The Table 9 reports the main observations following the experience acquired during the project for the development of the information systems.

Table 9. Lessons learnt

Phase	Lesson learnt
Preparation	The versatility and scalability of the tools related to information systems proved to be necessary aspects to be able to be recalibrated in different realities. However, the generalization of tools can also have negative aspects that lead to not using them fully in all contexts.
Preparation	A detailed characterisation of the needs and requirements to which the information systems must meet allows to considerably reduce the times in the intermediate development phases
Preparation Development	The continuous exchange between scientific partners and cities with updates on the work done and between the same technical-scientific partners who have different research fields is essential to find a common language. However, it is also necessary to define precise requirements that guide development to avoid doing non-essential work.
Development	Four case studies with different local situations and specific needs can represent an obstacle to the correct development process of services, software and information tools in the project time. However, the different needs make it possible to carry out stress tests of the developments and to evaluate how adaptable they are to different situations.
Development	The involvement of local stakeholders right from the design of the information systems was a strength for the development. Indeed, where this has been easier, the products have managed to better services and tools already in use. Nevertheless, the pandemic situation has played a significant role in the involvement of "active" stakeholders of the partner cities.
Demonstration	In the verification phase of the results, the involvement of interested stakeholders becomes essential in order to obtain useful feedback to significantly improve interfaces, services and recover the correct data sources.

ANNEX A

The annex summarises the surveys performed after the demonstration phase through the following charts (Figures 1-7). Indeed, this survey allows collecting feedback about usability of the interfaces, change in the data-sources and organisation of the information from the users.
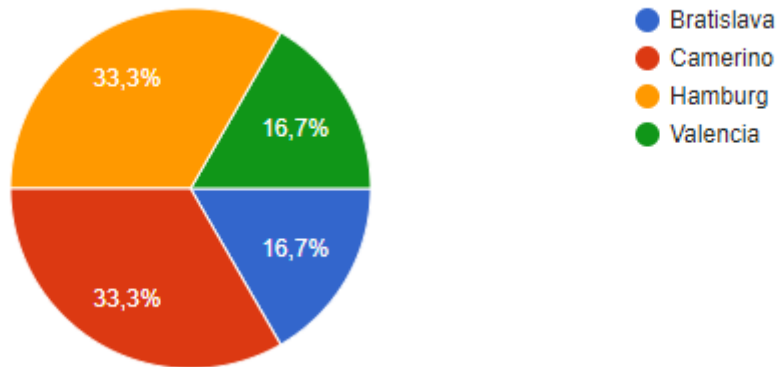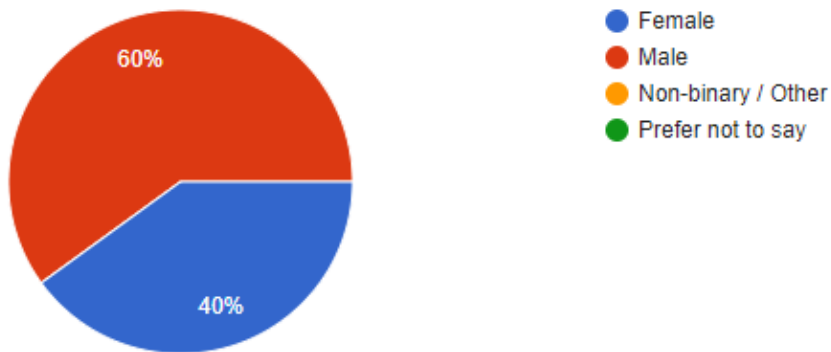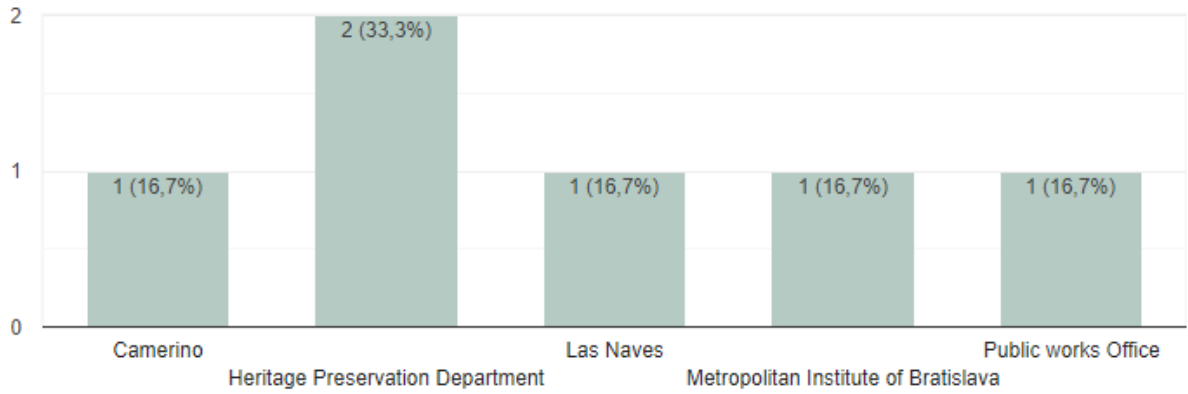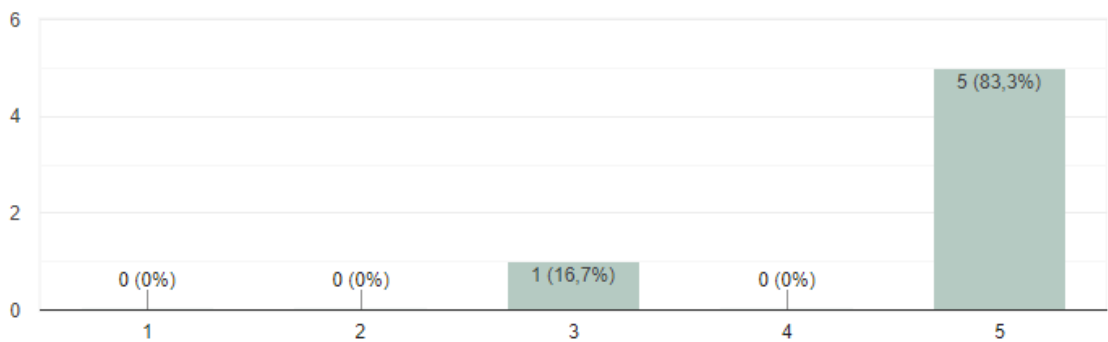

Figure 1. City of the users

Figure 2. Gender of the users

Ph.D., Structural Engineer

Staff member

R&D Officer

EU-project coordinator

project manager

environmental specialist

Figure 3. Institution and position of the users

How useful do you find the HArIS tools to enhance the knowledge on the historic areas?

6 risposte

Figure 4. Question 1. Values from 1- useless to 5- very useful

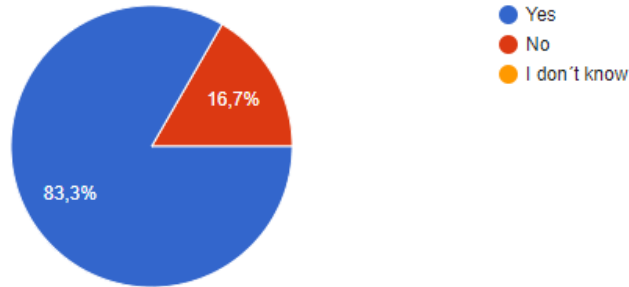Do you think that the contents are organised in a logic and complete manner?

6 risposte

Figure 5. Question 2

Do you find the data included in the HArIS useful to feed other tools of the ARCH project?
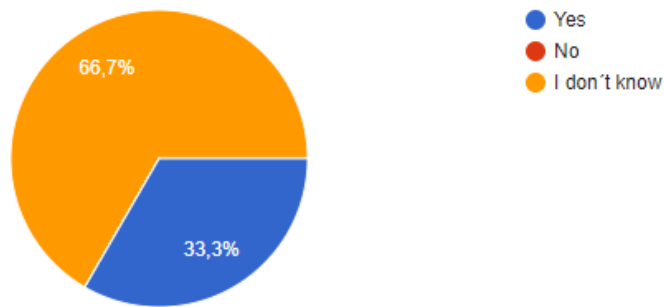
6 risposte

Figure 6. Question 3

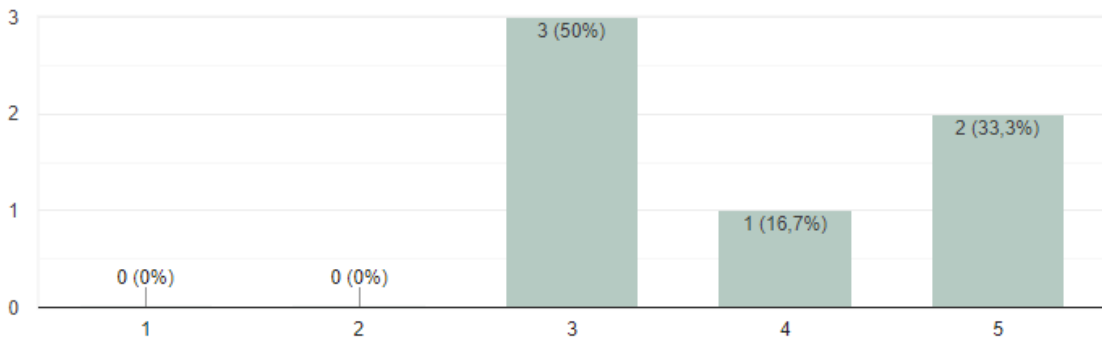How would you rate the presentation of the tool during the cities´ call?

6 risposte

Figure 7. Question 4. Values from 1 easy to 5 hard