

heritage

Data Management Plan

D1.2

AUGUST 2023

Deliverable

PROJECT ACRONYM	GRANT AGREEMENT #	PROJECT TITLE
HeritACT	101094998	Heritage Activation Through Engaging Experiences Towards Sustainable Development

DELIVERABLE REFERENCE NUMBER AND TITLE

D1.2 Data Management Plan

Revision: v0.1

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The project has received funding from HORIZON-CL2-2022-HERITAGE-01 under **Grant Agreement Number 101094998**

DISSEMINATION LEVEL

- ✓ **P** **Public**
- C Confidential, only for members of the consortium and the Commission Services

Version History

REVISION	DATE	AUTHOR	ORGANIZATION	DESCRIPTION
v0.1	03.08.2023	Olympia Ageli, Stylios Karatzas	University of Patras	1 st draft
v0.1_rev[UC D]	08.08.2023	Francesco Pilla, Ítalo de Sena	UCD	1 st draft review by UCD, provision of comments / suggestions for changes and document approval
v0.1_rev[AE GEAN]	16.08.2023	Helen Charoupia, Ioannis Xenakis	AEGEAN	1 st draft review by AEGEAN, provision of comments / suggestions for changes and document approval

Statement of Originality

This deliverable contains original unpublished work except where clearly indicated otherwise. Acknowledgement of previously published material and of the work of others has been made through appropriate citation, quotation or both.

Summary

This deliverable contains the first version of the deliverable D1.2 ‘Data Management Plan’ of the HeritACT project, funded by the European Union Horizon Europe Programme, under Grant Agreement No. 101094998. The purpose of this document is to outline how HeritACT data will be handled both during the project lifespan and after it, covering all aspects of data management, in accordance with the applicable FAIR Principles in Horizon Europe. In this context, the HeritACT Data Management Plan follows the structure of the proposed Horizon Europe Data Management Plan Template¹. The DMP is intended to be a living document in which information will be made available on a finer level of granularity through updates, as the project implementation progresses.

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https://ec.europa.eu/info/funding-tenders/opportunities/docs/2021-2027/horizon/temp-form/report/data-management-plan_he_en.docx

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1/ Introduction

1.1 Deliverable scope

In response to the current urban and cultural challenges and needs, HeritACT introduces innovative and inclusive architectural and design solutions as well as cultural-artistic practices to support environmental and cultural sustainability and to strengthen the cultural and creative industries through community awareness and policy making across European urban areas of many different scales and cultural settings. In line with this vision and taking into account the need for data acquirement and analysis towards developing the HeritACT tools and solutions and providing innovative/value-adding services to the users, the project Data Management Plan (DMP) is introduced. Its purpose is to describe data handling within HERITACT, defining the procedures for data collection, storage, protection, retention and destruction and their compliance with national and EU legislation during the project and after its end.

The project DMP is a living document that will be continuously updated and reviewed throughout the project duration - at least once prior to each reporting period. The HeritACT DMP is prepared in the framework of WP1 'Project Management and Quality Assurance', task T1.3 'Data Management' and this first version analyses results regarding the type of data that will be collected in the project.

Privacy of data is managed with due care, as it is essential for safeguarding fundamental rights and freedom of individuals while developing data-driven applications and services. The DMP also guides the publication of Open Data defining the inputs that will allow obtaining baseline datasets for each pilot site. The analysis also covers the ethical aspects of data management and dissemination policies to be followed in the project. The work performed mainly under work packages WP3 'HERITACT digital toolkit design and development', WP4 'Co-recognition and co-envison in pilot cities', WP5 'Co-design and Co-action in pilot cities' along with the work allocated under WP8 'Ethics requirements' will provide a better overview of the types of data that will be produced during the pilot activities along with an overview of the whole procedure regarding data handling and security during the project lifecycle and after it.

At this point, the documentation is constrained in reflecting the intentions of the project partners regarding developing the overall project datasets, since pilot activities have not started yet. Therefore, updated versions will follow providing

more details as the implementation of the project progresses. The schedule of updates is presented in Chapter 1.2, where issues related to the DMP deliverables are discussed.

1.2 Deliverable structure

The structure of this deliverable consists of the following chapters:

- *Chapter 1* is the introductory section which presents the purpose, structure, reference documents and other HeritACT deliverables related to the Data Management Plan.
- *Chapter 2* is related to the data used during the project and specifies the WPs and related tasks where they will be used.
- *Chapter 3* presents the HeritACT data management framework and explains how the 'FAIR' principles will be implemented and followed during and after the project lifecycle. In addition, the general principal framework is illustrated, based on which the HeritACT partners comply with in regard to subjects such as ethics, personal data protection, and security.
- *Chapter 4* is dedicated to the Open Data catalogues that will be produced during the project lifecycle and updated with every new version release.
- *Chapter 5* presents the brief and initial allocation resources required for making data or other research outputs FAIR² in the HeritACT project.
- *Chapter 6* describes the provisions that will be in place for data security, including data recovery as well as secure storage/archiving and transfer of sensitive data.
- *Chapter 7* is dedicated to ethics or legal issues that have an impact on data sharing.
- *Chapter 8* provides for some concluding remarks and next actions regarding the deliverable.

1.3 DMP update schedule

The HeritACT DMP is considered a living document, which will be updated over the course of the project and each updated version will capture significant changes with respect to the data processing activities in the project. According to the Horizon Europe Programme Guide³, such significant changes might occur after attaining

² FAIR data are data that are curated to satisfy the principles of findability, accessibility, interoperability, and reusability. For further reading: <https://www.go-fair.org/fair-principles/>

³

https://ec.europa.eu/info/funding-tenders/opportunities/docs/2021-2027/horizon/guidance/programme-guide_horizon_en.pdf

milestones related to the generation of new data or to reflect changes related to the original planning, changes in data/output access provisions or curation policies, changes in consortium practices, changes in consortium composition, etc. In this section, a record of the DMP connection with various work packages and deliverables is presented.

Particularly, the DMP provides an overview of the types of data generated during the pilot activities and a description of the whole procedure regarding data handling and security during the project for the work to be produced mainly under work packages WP3 ‘HERITACT digital toolkit design and development’, WP4 ‘Co-recognition and co-envison in pilot cities’, WP5 ‘Co-design and Co-action in pilot cities’ and WP8 ‘Ethics requirements’. There will be two updated versions of the DMP besides the initial one (v1.0 -- Deliverable D1.2 ‘Data Management Plan’), which is due in M06 of the project. The first update of the DMP (v2.0) is scheduled for month 15 of the project, which is the end of the 1st reporting period. The second and last update of the DMP (v3.0) will be developed at the end of the project (month 36), along with the due dates of several deliverables. At that time, the final results will be summarized and presented in a final DMP version. Figure 1 depicts a graphical representation of the DMP update evolvment along the project timeline.

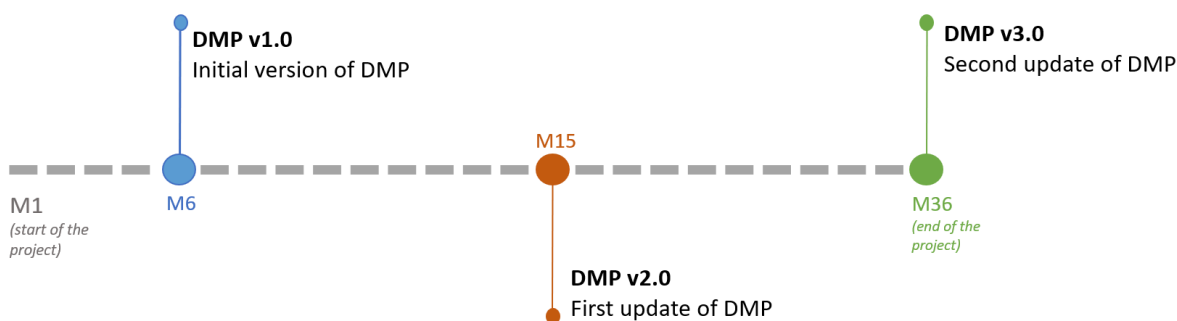


Figure 1. Data Management Plan evolvment.

2/ Data summary

2.1 Introduction

HeritACT aims to introduce innovative and inclusive architectural and design solutions as well as cultural-artistic practices to support environmental and cultural sustainability and to strengthen the cultural and creative industries through community awareness and policy making across European urban areas of different scales and cultural settings. Reactivating local heritage is the core principle of this vision, collectively describing an inclusive environment. HeritACT will engage with public and private stakeholders through different physical and digital places and specific activities planned within these spaces. The proposed activities aim to ideate novel ways of addressing local challenges related to sustainability, wellbeing, and democratic and inclusive participation. roject’s approach will leverage *Placemaking* in order to enable citizens and organisations to imagine, plan and negotiate the form and use of public spaces and to regenerate urban environments.

Through a structured methodology, the project partners will work towards achieving the project objectives, which will be expressed through diverse case studies embedded in different kinds of places and evaluated mainly based on primary data received from the 3 pilot site (Eleusis in Greece, Milan in Italy, Ballina in Ireland). Activities and events will take place in over 15 sites and neighborhoods making use of cutting-edge methods and tools. The purpose of the current DMP deliverable is to provide information concerning the data that will be collected and used by the project partners and, eventually, become openly accessible.

In the present document, the term ‘data’ refers to five categories of information that will be used/produced during the project’s lifespan, such as:

1. Datasets, as a result of data collection through the operation of the HeritACT toolkit.
2. Project deliverables that will be openly accessible to people interested in the project outcomes and results.
3. Dissemination material, such as technical reports, workshops, conferences, online webinars, local stakeholder events, videos, blogs, posters, and flyers.
4. Software artefacts, produced by the HeritACT toolkit.
5. Scientific publications on the results of the research conducted.

2.2 Data related actions in HeritACT

The initial version of the Data Management Plan aims to provide an overview of the general policy and approach to data management in HeritACT outlining from the start of the project the main aspects of the lifecycle of research outputs, notably including data. This includes the source, structure and curation of data, as well as adequate provisions for their access, preservation, sharing, and eventual deletion, both during and after the project. In addition, it provides an introduction to datasets to be used/produced by the project along with a description of the data repository infrastructure, in compliance with the Open Access Infrastructure for Research in Europe provisions⁴.

These are parts of the work associated with WP3 'HERITACT digital toolkit design and development', WP4 'Co-recognition and co-envison in pilot cities', WP5 'Co-design and Co-action in pilot cities' and WP8 'Ethics requirements'. More specifically, WP3 'HERITACT digital toolkit design and development' developed the tools to support co-recognition and co-envison practices with citizens and wider stakeholders and integrates the tools to deliver HeritACT toolkit. WP4 'Co-recognition and co-envison in pilot cities' includes the mapping, engagement and activation of stakeholders, the dynamic socioeconomic complexities modelling for decision making as well as the o-recognition and co-envison practices with community. WP5 'Co-design and Co-action in pilot cities' provides the pilot sites specifications identification, the pilot plan development and the application of HERITACT's solutions at each site according to the plan.

Work package WP7 'Communication, Dissemination and Exploitation' is closely related to the dissemination of results and the communication of the project information to all interested stakeholders. The HeritACT partners recognize and embrace the need for bidirectional communication with other projects, the research community, institutions, authorities, and the general public. As a result, the above dedicated WP aims to boost HeritACT's outreach and visibility through tailored communication and dissemination activities, enable and foster exploitation, upscaling and diffusion of HeritACT's tools, principles, and outcomes as well as explore, establish synergies within and beyond NEB's stakeholders and projects for intersectional collaboration. The development of a communication and dissemination plan, under T7.1 'Development, Management, Delivery, and Monitoring of HERITACT's CDP', will continuously identify further project audiences and venues and appropriate communication channels to reach them that will be periodically compiled and shared with all partners. The consortium will work on a wide range of publications to raise awareness of the project's activities while

⁴ <https://www.openaire.eu/>

multimedia contents and art-based communication will also be produced to make project outcomes more accessible and attractive. Finally, within this task, green and inclusive communication guidelines will be established to ensure that all communication materials / activities are designed to reduce the impact on the environment.

The analysis also aims to cover the ethics management process and elements about data management and dissemination policies to be followed. The work allocated under WP8 'Ethics requirements' provides a better overview of the types of data that will be produced during the pilot activities. An Independent Ethics Advisor will be appointed to ensure compliance of piloting activities, early in the design phase, as well as during the execution of the pilots involving research participants. The Ethics Advisor's first report should be delivered in M6 (D8.1 'OEI - Requirement No. 1') and subsequently in M15 and M36 (in connection to the Deliverables D.1.4 'Ethical Compliance Report v1.0' and D1.6 'Ethical Compliance Report v2.0').

2.3 Data generation and collection

The data collection process within the HeritACT project is directly related to the work under WP3 'HERITACT digital toolkit design and development', WP4 'Co-recognition and co-envison in pilot cities', WP5 'Co-design and Co-action in pilot cities', where relevant data will be collected. Data generation and collection contributes to the analysis of the current state as well as the assessment of the proposed solutions. The extensive and varied content of the project database is subject to a number of requirements for confidentiality and protection of data.

Data origination

The HeritACT project will produce data of different types (described in subchapter 2.1 of this deliverable) that will be considered for public use. Depending on the data type, different origins and data production methods will be applied. In particular:

Datasets with pilot demonstration results will be originated by:

- interviews with pilot participants in each demonstration site,
- analysis of the collected primary data,
- surveys/questionnaires responses,
- feedback provided during events/workshops/herithubs.

Software artefacts available for open publication will result from:

- internal code generation as part of the project toolkit development,

- open-source code from code hosting platforms.

The **project deliverables and scientific publications** will be the outcome of:

- the scientific and practical work, the software development, and the pilot demonstration documentation,
- the literature review based on open access data,
- all kind of data types and results of the project.

Dissemination materials will be produced as part of:

- the activities for contributing to the visibility of the project,
- the procedures to reach the different target audiences through a multichannel and multi stakeholder strategy,
- the procedures for participant identification and recruitment for the pilot demonstration activities,
- the efforts to appeal for stakeholders' participation in a transparent, direct, objective and collaborative manner,
- the dissemination and adoption actions of the HERITACT Toolkit,
- the joint dissemination actions with the NEB and other relevant EU projects/initiatives.

Data format and size

A dataset may include different types of formats. HeritACT will use widely accepted formats for data collection and generation. Both raw data, and processed data will be made available and can later on be downloaded and used by anyone, through a Citizen API. Based on the information retrieved by partners, the formats available will be as follows:

- standard STIX and ACM format for documents and papers,
- txt, doc/docx, PDF/A for documents/reports,
- .xls/.xlsx for spreadsheets,
- PCAP for network trace,
- .cvs for databases,
- JSON, XML, SQL for database files,
- DDoSDB for database compatibility,
- .mp3, .wav, .wma, .ra for Audio files,
- .jpg, .png for pictures,
- .avi, .flv, .mov, .mp4, .wmv for videos.

The exact data size cannot be pre-determined. The expected size of individual datasets is in the range of a few MBs and several GBs. The raw datasets may include several files and these data will preferentially be processed offline by individual experts, while the aggregated data will be stored in designated project data (cloud) storage.

Data utility outside the project

In order to maximize the impact of HeritACT research data within the wider community, the project team has elected to support EC's Open Data policy by providing a set of tools for research results that will be shared within and beyond the consortium. In light of the applicable Guidelines of the European Commission and taking into account the explicit objective of the overarching the overarching Work Programme regarding access to FAIR data on air pollutants, it is intended that the HeritACT project team handles research data in accordance with FAIR principles aiming to render the research data collected and/or generated by the project Findable, Accessible, Interoperable and Reusable. The overall HeritACT knowledge management and protection strategy aims to be as open as possible, so the default rule is for results to be public. In particular, for what concerns IPR developed within the HeritACT activities, the following pattern will be followed; Delivering public reports (deliverable of type "R, PU") about the requirements, KPIs, principal solutions, as well as lessons learned for participatory actions; Performing confidential "senses and experience" activities (deliverable of type "DEM, CO"), to ensure IPR protection, while offering controlled release of IPR and knowledge as part of the aforementioned public reports.

In terms of the policy, if open source is used, Apache 2.0 license or a similar license will be the minimum. All the project datasets are intended to be described with metadata, in order to provide other researchers with the ability to find data in an online repository which increases the reusability of the dataset. Any needed restriction in access to the data will be evaluated before final publication, in accordance with ethical aspects and with protection of personal data. All the consent forms related to the Working Age activities will explicitly indicate that the pseudonymized dataset will be published on a public repository. Zenodo, a well-known data repository, will be used to provide open access to the HeritACT datasets, as it follows the minimum DataCite metadata standards that the project plans to follow. The datasets will be documented and uploaded with their related metadata. Similar naming characteristics will be defined for metadata standards. Collected data is pushed to an open data platform and processed periodically with an automated open data processing framework, calculating specific KPIs, and extracting performance metrics.

2.4 Roles and responsibilities

Data management organizational structure

Data management refers to the collection, storage, and use of data in a secure, efficient, and cost-effective manner. Although from the standpoint of the general project management, HeritACT organization follows a hierarchical structure with the Project Coordinator at the hierarchy top, from the data management/monitoring perspective, it has been deemed appropriate to adopt a network organization structure.

In the endeavor to manage the numerous data kinds created by the project smoothly, partner specialization and experience are seen to be crucial. Therefore, a **Data Monitoring Committee (DMC)** is established for the management of the various data types produced in the project. DMC is comprised by members of all affiliated bodies in an organizational structure as shown in Figure 2. Data management responsibilities are distributed among several partners with the roles of **Data Protection Officers (DPO)**, while members of the project management team are included for facilitation of administrative issues related to DMC work. HeritACT structure provides for a Data Protection Officer (DPO) per pilot, who will be in close collaboration with other beneficiaries DPOs, as needed. This collaboration is of significance, also, from the point of view of potential coordination between the DPOs for the pilots for the performance of the respective Data Protection Impact Assessments (DPIAs) before the launch of the piloting activities. Also, because HeritACT partners leading pilot activities remain responsible for the processing of personal data as **Data Controllers** in the respective pilot activities, research participants will be clearly informed on the assigned Data Protection Officer (DPO) per pilot and will be provided with their contact details.

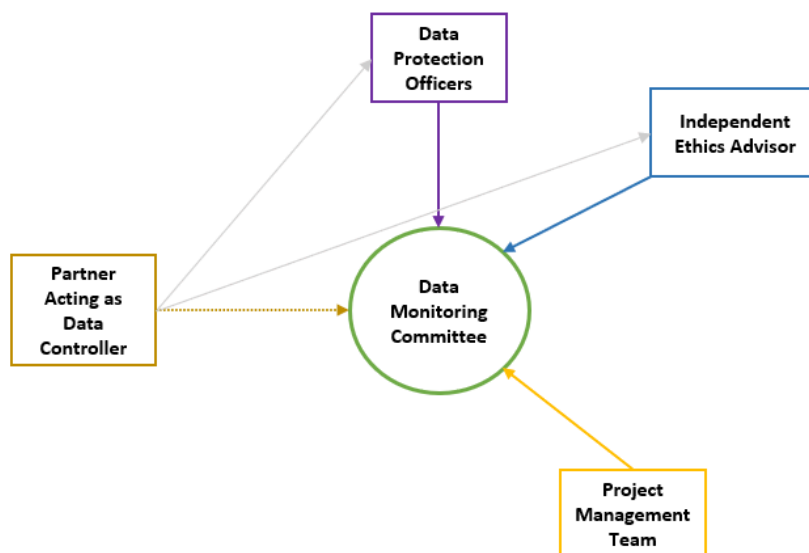


Figure 2. Data Management organizational structure.

All partners acting in the role of the data controller have to comply both with General Data Protection Regulation (GDPR)⁵ and all the principles set out in the projects concerning the management of data. In this context it is encouraged that they contact the relevant project managers for any issues that might arise in the area of or related to the protection of personal data (Data Protection Officer). The responsibilities of the DMC are presented in the following section. Partners belonging to this group come from the ones that are connected with a solid line arrow with the DMC, as shown in Figure 2.

An **Independent Ethics Advisor** has been appointed to ensure ethical compliance of piloting activities, early in the design phase, as well as during the execution of the pilots involving research participants. The Independent Ethics Advisor will help the project coordinator to properly handle all ethics issues that the research may raise. Her/his input started at the beginning of the project. The role of the Independent Ethics Advisor in the linked WPs and deliverables is described below.

WP1 – Project Management and Quality Assurance

T1.4 Ethical Compliance (M1-M36) Leader: UoP, Support: UCD, IAAC, AEGEAN This task will produce legal and ethical assessment based on the applicable regulations at EU level. Emphasis will be put on the involvement of individuals by looking into issues such as the appropriate handling of personal data and the respect of the

⁵ Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC (General Data Protection Regulation) OJ L 119

rights of vulnerable groups. An interim assessment will be carried out by M24, and the follow-up assessment will be carried out by M36. Overall, it is aimed that the work to be performed under this task facilitates compliance with the applicable rules, while anticipating any future implications possibly entailing a broader societal level.

Linked Deliverables:

1. D1.3 - Ethics Advisor Report (R, SEN, M15)

Description: This deliverable will provide an assessment of the ethical issues that the research may raise by an independent ethics advisor.

2. D1.5 - Final Ethics Advisor Report (R, SEN, M36)

Description: This deliverable will provide the final assessment of the ethical issues that the research may raise by an independent ethics advisor.

WP8 – Ethics requirements

The objective of this WP is to ensure compliance with the 'ethics requirements' set out in this work package. This work package sets out the 'ethics requirements' that the project must comply with.

Linked Deliverables:

D8.1 - OEI - Requirement No. 1 (R, SEN, M6)

Description: In Task 3.2.7 the Usersense tool envisions the introduction of biosensors for collecting information from participants. The Participant Information Sheets and the Informed Consent Forms should contain relevant information covering both the use of AI technology and the sensitive data to be collected. Volunteers will be monitored and observed in order to track important aspects of the affective and aesthetic state of the user during the experience, including uncertainty, boredom, being in a state of flow, valence and arousal, and intense stress. The research will use dedicated sensors for psycho-physiological signals (e.g. respiration, galvanic skin response, blood volume pulse) to measure the users' experience during their interaction within their living environment. Minors may be involved. It is recommended that the Independent Ethics Advisor provide feedback to the consortium to properly handle all ethics issues that the research may raise. The Ethics Advisor's first report should be delivered at Month 6 and subsequently in

M15 and M36 (in connection to the Deliverable D.1.3, D.1.4 'Legal and Ethical Compliance Report').

The role of the Independent Ethics Advisor and Data Protection Officers (responsible partners: the Pilot leading Partners) will be described in detail under these deliverables.

Data Monitoring Committee

The HeritACT Data Monitoring Committee is an informal subgroup consisting of partners working in parallel as an advisor to the project Executive Board regarding Data Management. Its introduction and main purpose are to monitor the data management and handling procedures in all components and processes of the project. As shown in Figure 2, this committee consists of the Data Protection Officer, Data Controllers and Project Management Team (to support the DMC activities and the communication with the Executive Board), while an Independent Ethics Advisor will be appointed to ensure ethical compliance of piloting activities during project lifespan. Regarding data management, the Data Monitoring Committee is responsible for the following actions:

- developing the data management plan and policy in cooperation with the project management team and technical partners,
- monitoring and supervising the data management process,
- inquiring partners for missing information or clarifications related to data produced in the project,
- resolving data management issues,
- functioning as the central hub for data management issues,
- providing data management related information to the Executive Board for decision validation,
- coordinating the development of the DMP deliverable documents (D1.2 - vX.0)

As for data dissemination matters, the Data Monitoring Committee is responsible for the following actions:

- providing assistance in assorting the data for public dissemination,
- providing guidance for developing scientific publications,
- monitoring the dissemination of the project (public) deliverables,

- observing that green access (self-archiving) publications are provided as scheduled via the appropriate publication channels,
- ensuring that publications available in OpenAIRE are properly linked with HeritACT project,
- reviewing data agreements by applying a specific methodology for assessing the Open Accessibility of the data and examining the possibility for establishing additional data agreements with stakeholders requesting access to their data.

As this is an informal committee, acting as an advisor to the Executive Board, DMC decisions are communicated in the form of recommendations to the Board, which either accepts and validates them as decisions of the project team or reject them accordingly. All DMC actions related to administrative issues will be supported by members of the Project Management Team.

2.5 HeritACT Publication Infrastructure

The HeritACT publication infrastructure is comprised of a project database and several web-based publication platforms that have been selected in order to ensure open access to all publishable and collected project results. The database will mainly be used to link all publishable material with the project website, with the domain [heritact.eu](https://www.heritact.eu)⁶, and is designed to promote project achievements and results.

HeritACT website

As part of the D7.1 ‘Communication and Dissemination Plan’, the website represents the backbone of HeritACT activities and informations. It collects details on the project goals, actions, milestones, tools and citizen participation and results related to the pilots. The HeritACT landing website has already been published and is hosted on the following link: <https://www.heritact.eu/>. The website will be instrumental in disseminating the project’s activities, facilitating information and publishing news and updates, as well as to reach the project dissemination KPIs.

Social Media

The D7.1 ‘Communication and Dissemination Plan’ also highlights the importance of social media networks to establish a strong community that supports and disseminates HeritACT’s actions. In order to achieve this, three accounts have already been created in three different media platforms: Twitter, LinkedIn, Instagram. The network utilization is considered of high importance to attract

⁶ Horizon Europe HeritACT Project website: <https://www.heritact.eu/>

diverse audiences probably interested in the project achievements, but not previously aware of the project.

OpenAIRE

OpenAIRE⁷ is a European infrastructure for ensuring a permanent open scholarly communication infrastructure to support European research. OpenAIRE supports the European Commission Open Access policy by providing an infrastructure for researchers to comply with the European Union Open Access mandate. OpenAIRE allows European funded projects to be documented in order to link their outputs. The web-based platform is compatible with free repositories that enable researchers to upload their research outputs and directly link them to their funding information. The repository that is mainly suggested by OpenAIRE for linking research outputs is Zenodo, a catch-all repository hosted by CERN.

Zenodo

Zenodo⁸ is an all-purpose open research repository. It was created by the European Commission funded OpenAIRE + project and is now hosted at CERN using advanced tools for big data management and extended digital library capabilities for open data. It provides a digital space for researchers to deposit publications, datasets, and other research artifacts such as code, posters, presentations, etc. Zenodo does not impose any requirements on format, size, access restrictions or licence and is not restricted to one funder, or one nation. Therefore, it helps researchers to share the data in a wide variety of formats for all fields of science. It is free to use for all research outputs from across all fields. Zenodo has integration with GitHub to make code hosted in GitHub citable. Zenodo is a place where all public results generated or collected during the project lifetime can be uploaded for long-term storage and open access. Zenodo also allows for uploaded results to be linked to a project via OpenAIRE, thus, the results uploaded are easily searchable and structured in a fine-grained way in the dedicated OpenAIRE project webpage. Furthermore, it should be noted the property rights or ownership of a result does not change by uploading it to Zenodo. The partners entitled to ownership prior to submission remains the owner of the uploaded content.

A Zenodo account has already been created to provide open access to the HERITACT datasets, as it follows the minimum DataCite metadata standards that the project plans to follow. The datasets will be documented and uploaded with their related metadata. Similar naming characteristics will be defined for metadata standards. Collected data is pushed to an open data platform and processed periodically with an automated open data processing framework, calculating specific KPIs, and

⁷ <https://www.openaire.eu>

⁸ <https://zenodo.org>

extracting performance metrics. Both raw data, and processed data will be made available and can later on be downloaded and used by anyone.

GitHub

GitHub⁹ is a source code hosting platform providing services in which developers and programmers can upload the code they have created and work collaboratively on its improvement. GitHub enables world-wide collaboration between developers and provides facilities to work on documentation and track issues. Many open-source projects use GitHub to share their results free of charge. The platform uses Metadata, such as contributor nicknames, keywords, time, and data file types to structure the projects and their results. The terms of service state that no intellectual property rights are claimed by the GitHub Inc. over provided material. HeritACT will use GitHub for making publicly available the source code components that will be implemented during the project provided that all the relevant partners have agreed on such publication in accordance with the GA and the CA.

3/HeritACT Data

Management Framework

3.1 FAIR principles in HeritACT

Data collection and generation in HeritACT will be governed by the FAIR principles, as described in the Horizon Europe programme guide¹⁰. The project partners' joint pursuit is to maximize access to research data and enhance the wide re-use of the generated research data and the project results. Considering the applicable guidelines of the European Commission and the explicit objective of the overarching Work Programme¹¹ regarding access to FAIR data on air pollutants, it is intended that the HeritACT project team handles research data in accordance with the FAIR principles aiming to render the research data collected and/or generated by the project Findable, Accessible, Interoperable and Reusable. Regarding data handling and management in general, the following general principles will be in effect, as described in the GO FAIR initiative.

⁹ <https://github.com/>

¹⁰

https://ec.europa.eu/info/funding-tenders/opportunities/docs/2021-2027/horizon/guidance/programme-guide_horizon_en.pdf

¹¹

<https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/horizon-hlth-2021-envhlth-02-02>

3.2 Data Findability

For data to be findable there must be sufficient metadata; there must be a unique and persistent identifier; and the data must be registered or indexed in a searchable resource. In HeritACT, standardized naming and identification mechanisms are used to allow effective differentiation of the produced datasets. Regarding the data naming, the title of each data packet should provide information about:

- a unique chronological number of the project datasets (dataset unique ID number),
- the project acronym,
- the dataset title,
- the data type (e.g., deliverable, scientific article),
- a version number that will be updated following new dataset versions or revisions.

Naming conventions and keywords

In order for the datasets to be easily identifiable, they should be appropriately named. As such, a naming scheme will be utilized based on a simple hierarchical structure consisting of:

- the pilot site where the dataset was collected followed by the city name, the district and the building block, as required,
- the acronym of the partner responsible for creating/collecting and managing the dataset,
- a title,
- a numerical dataset sub-index (starting from 1) to identify datasets created /collected at different times with individual Metadata.

The proposed format to be followed for naming the datasets is shown below:

HeritACT_[Pilot_Country]_[Responsible_Partner]_[Title]_[Data_set_Index.Data_set_sub_Index]

Standard identification mechanism and Metadata (Digital Object Identifier, Metadata)

In HeritACT, a globally unique and persistent identifier will be assigned to the datasets uploaded to an online repository. Identifiers are essential to the human-machine interoperation that is key to the vision of Open Science and help to cite a work when reusing data. **Digital Object Identifier (DOI)** will be assigned to

HeritACT data/metadata for the purpose of effective and persistent citation. A DOI is a persistent identifier or handle used to uniquely identify various objects, standardized by the International Organization for Standardization (ISO). DOIs are an implementation of the Handle System; they also fit within the URI system (Uniform Resource Identifier) and they are widely used to identify academic, professional, and government information, such as journal articles, research reports, data sets, and official publications.

In order to make stored data FAIR, it is not enough to store raw data; they need to be properly documented and described using informative metadata. Therefore, all HeritACT datasets are intended to be described with **Metadata**. Metadata is defined as the data providing information about one or more aspects of the data and it is used to summarize basic information about data that can make tracking and working with specific data easier. All the project datasets are intended to be described with metadata, in order to provide other researchers with the ability to find data in an online repository which increases the reusability of the dataset.

As specified within the project's Grant Agreement Article 17¹², regarding the open access to scientific publications, the bibliographic metadata of deposited publications must be open under a Creative Common Public Domain Dedication (CC 0) or equivalent, in line with the FAIR principles and provide information at least about the following:

- publication (author(s), title, date of publication, publication venue);
- Horizon Europe funding;
- grant project name, acronym and number;
- licensing terms;
- persistent identifiers for the publication;
- the authors involved in the action and, if possible, for their organizations and the grant.

Where applicable, the metadata must include persistent identifiers for any research output, or any other tools and instruments needed to validate the conclusions of the publication.

¹² HORIZON EUROPE HeritACT Project Grant Agreement No. 101094998

Data versioning

Data versioning is the storage of contrary versions of data that were created or changed over time. When datasets are to be updated, the partner that possesses the data has the responsibility of versioning control. In case of publicly available data, the partner has to ensure that only the latest version is published. Metadata information can be used to identify the description and location of datasets stored in a database and link to each data item.

3.3 Data Accessibility

To be accessible, metadata and data should be readable by humans and by machines, and it must reside in a trusted repository. Open science is a policy priority for the European Commission and will become the *modus operandi* in Research and Innovation programmes, as it enables science to become more accessible to all levels of society. It aims to make research findings available -to both amateurs and professionals-free of charge and open up access to all parts of the research process, such as methodology, tools, results, publications, data, software, peer reviews etc. HERITACT will adopt the Open Science approach in various aspects of the project, in order to increase transparency and reproducibility of the proposed research process, collaborations, knowledge circulation and innovation, visibility and impact of the project outcomes and lastly to support research integrity.

Data will be curated ensuring the FAIR principles and using standard formats (such as: CSV format) and non-private formats. These data will be offered with their data dictionaries and definitions of data will be generated to ensure the reusability of the project data. All data generated in the context of HeritACT will be made available to all partners (one contact person per partner) on request according to a standardized data sharing agreement. All personal data must be subjected to full pseudonymization before sharing with the partners or any data uploaded to public data repositories including those of scientific journals.

Some confidential data might be shared with third parties only after signing an appropriate data use agreement. In particular, the agreement will set the responsibilities and the permissible actions, following the recommendations of the Data Monitoring Committee and the consent of the Executive Board. HeritACT consortium will generally ensure open access to any peer-reviewed scientific publications coming out of its results.

Means of publication

Diverse potential means of publication will be utilized for providing access to the HeritACT Open Data, as presented in Table 1. At this point, only the project website

and its social media accounts (Twitter, LinkedIn, and Instagram) have been utilized. All other channels will be created when appropriate material for publication is available.

Table 1. Means of publication.

Data type	Means of publication
Datasets	Project Website, Zenodo, OpenAIRE
Deliverables	Project Website, Zenodo, OpenAIRE
Dissemination material	Project Website, Social Media, OpenAIRE, Zenodo
Software	Zenodo, GitHub
Scientific publications	Project Website, Zenodo, open access journals, research oriented social media

Publications and datasets will be linked using DOIs. Datasets with dissemination level "confidential" will not be shared due to privacy concerns. Instead, they will be archived in a secure data repository with controlled access to authorized consortium members only.

Open science practices

This Open science is a policy priority for the European Commission and will become the modus operandi in Research and Innovation programmes, as it enables science to become more accessible to all levels of society. It aims to make research findings available -to both amateurs and professionals-free of charge and open up access to all parts of the research process, such as methodology, tools, results, publications, data, software, peer reviews etc. HERITACT will adopt the Open Science approach in various aspects of the project, in order to increase transparency and reproducibility of the proposed research process, collaborations, knowledge circulation and innovation, visibility and impact of the project outcomes and lastly to support research integrity.

Publications: In regard to publications there are two ways to capture the impact benefits of Open Access, while facilitating project reporting and knowledge management: 1. Self-archiving / "Green" open access: the published article or the final peer-reviewed manuscript is archived in an online, freely accessible repository

before, at the time, or after publication for a period of up to 12 months. In certain cases, open access is granted only after an embargo period has elapsed (usually 6 months). 2. Open access publishing/ "Gold" open access: the published article is immediately accessed in open access mode. The publication costs in this case are not borne by subscribing readers; instead, the funding entity of the research (university, institute, etc.) undertakes the cost. In other cases, the open access publishing costs are covered by subsidies or other funding models. Within the context of the HERITACT project, "Green" open access to the data will be primarily adopted, while also publishing in *Open Research Europe*, the European Commission open access publishing platform, will be supported.

Education and skills: All scientists in Europe should have the necessary skills and support to apply open science research routines and practices. For this reason, the HERITACT project will include Open Science training for the young generation of researchers in workshops that will be held throughout the lifetime of the project. These events will capitalize upon support, previously acquired knowledge and expertise and training materials provided by OpenAIRE and FOSTER communities.

Citizen science: HERITACT project intends to promote citizen active engagement into research to improve its outcomes while reinforcing societal trust in science. Including collaborative and participatory approach within networks for the acquisition, analysis, and assessment of data from public sources, and sharing knowledge and data as early as possible in the research process in open collaboration with all relevant knowledge actors will enhance the quality of project outcomes and will contribute to the overall goal of openness to knowledge sources and knowledge actors. This approach will be implemented by taking the following course of action:

- ✓ A dedicated section into the HERITACT website will be focused on collecting inputs and experiences, from similar projects or initiatives aiming to introduce in this way a network of knowledge on how to successfully approach NEB principles in different contexts. A **Collaborative Platform** will operate as an integrated part of HERITACT website, in order to capitalize on this repository of knowledge and expertise to effectively engage citizens, architects, designers and scientists in research or institutes, being open to the ideas of a wide array of contributors and committed to supporting a diversity of perspectives. As a transformation agent, it will also invite students and researchers from all disciplines, interested and engaged in sustainability, inclusivity, accessibility and innovation, to actively participate in workshop tracks on specific themes, present their ideas directly to experts and participate in a public dialogue with decision-makers from higher education, politics and industries alike.

-
- ✓ The HERITACT toolset will be developed based on a framework process that enables citizen participation in the scientific research process at all stages, from envision, through design, actions and reproducibility.

Open cultural archives & repositories: HERITACT will leverage the Europeana cultural platform as the basis for a common data space for cultural heritage. The project's goal is to build a two-way interaction with this platform. On the one hand by having access to digitized cultural heritage images such as 3D models of historical sites and high-quality scans of paintings provided by museums, galleries, libraries, archives across Europe as a means of inspiration to support HERITACT objectives and on the other hand by sharing relevant project outcomes, via Europeana, to be reused by the public.

3.4 Data Interoperability

The vocabularies of data/metadata, standards and methodologies must be followed in order to enable the interoperability. Within the scope of HeritACT, guidelines for the different types of information should be followed in order to ensure the data interoperability, such as:

- if the data is part of the domain with a common open format, the open format should be chosen.
- if the data does not belong to the previous category, in an open format that is easily readable by the machine should be chosen.

3.5 Data Re-use

Data and collections must have clear usage licenses and clear provenance and meet relevant community standards for the domain. HeritACT aims to provide third parties with the opportunity to access, exploit, reproduce, and disseminate all public datasets. This process will be regulated by using Creative Commons Licenses (CC)¹³. Creative Commons licenses will constitute a standardized way to grant the public permission to use HeritACT work under copyright law. A CC license is one of several public copyright licenses that enable the free distribution of an otherwise copyrighted work. It also enables authors to give other people the right to share, use, and build upon a work that they have created. CC provides an author flexibility and protects the people who use or redistribute an author's work from concerns of copyright infringement if they abide by the conditions that are specified in the license by which the author distributes the work.

¹³ <https://creativecommons.org/licenses/>

3.6 FAIRification process

As mentioned above, most of the requirements for findability and accessibility can be achieved at the metadata level. Interoperability and reuse require more efforts at the data level. Figure 3 depicts the FAIRification process adopted by GO FAIR, focusing on data, but also indicating the required work for metadata.

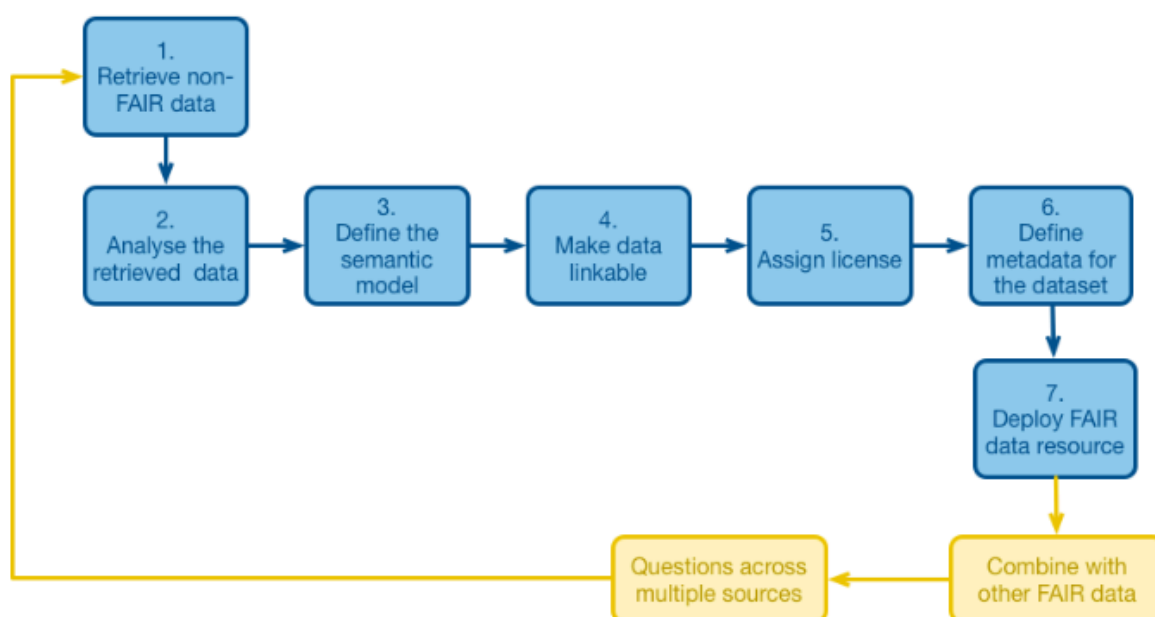


Figure 3. The FAIRification process adopted by GO FAIR.

The FAIRification process consists of the following steps:

- 1. Retrieve non-FAIR data:** gain access to the data to be FAIRified.
- 2. Analyse the retrieved data:** inspect the content of the data and the relations between the data elements.
- 3. Define the semantic model:** define a ‘semantic model’ for the dataset, which describes the meaning of entities and relations in the dataset accurately, unambiguously, and in a computer-actionable way.
- 4. Make data linkable:** The non-FAIR data can be transformed into linkable data by applying the semantic model defined in step 3.
- 5. Assign license:** The absence of an explicit license may prevent others to reuse data, even if the data is intended to be open access.

- 6. Define metadata for the dataset:** As explained by many of the FAIR principles, proper and rich metadata support all aspects of FAIR.
- 7. Deploy FAIR data resource:** deploy or publish the FAIRified data, together with relevant metadata and a license, so that the metadata can be indexed by search engines and the data can be accessed, even if authentication and authorisation are required.

4/ HeritACT Open Data Catalogues

4.1 Introduction

As previously highlighted, the Data Monitoring Committee and the Executive Board will decide if the datasets and/or other material produced during the project lifecycle will be open accessed. The publication status of the project deliverables has already been defined in the DoA while other project outputs will be examined carefully before they are published. The HeritACT publication infrastructure will facilitate the process. In this chapter, the types and categories of data considered for public dissemination are analysed.

4.2 HeritACT public deliverable catalogue

Based on the DoA, most HeritACT deliverables are public and will be presented in the project website (deliverable D10.1) which was developed by STRATA. STRATA is also the deliverable leader of D10.2 'Communication, exploitation & dissemination'. All public deliverables (Table 2) are also considered for publication in a Zenodo profile (dedicated to the project) while other channels may be utilized in order to increase the dissemination of the project's results.

Table 2. List of project's public deliverables.

Deliverable	Due date (month)	Deliverable Type	Dissemination channels	Dissemination Status
D1.1. Project Reference Manual & Quality Management Plan	4	Report-Document	Project Website	Public
D1.2. Data Management Plan	6	Report-Document	Project Website	Public

D1.4. Ethical Compliance Report v1.0	18	Report-Document	Project Website	Public
D1.6. Ethical Compliance Report v1.0	36	Report-Document	Project Website	Public
D2.1. Heritage as an integral dimension of NEB and Green Deal	4	Report-Document	Project Website	Public
D2.2. Stakeholder analysis and methodology report	4	Report-Document	Project Website	Public
D2.3. Accessibility, usability and inclusiveness requirements	5	Report-Document	Project Website	Public
D2.4. HERITACT Community led design framework	5	Report-Document	Project Website	Public
D3.1. Contextual classification of the digital tools	7	Report-Document	Project Website	Public
D3.2. ParticiMap tool	11	Other	Project Website	Public
D3.3. NegoDesign tool	11	Other	Project Website	Public
D3.4. SustainTAG tool	11	Other	Project Website	Public
D3.5. DesignYourHeritage tool	11	Other	Project Website	Public
D3.6. Fund4Act	11	Other	Project Website	Public

D3.7. HERIcraft	11	Other	Project Website	Public
D3.8. Usersence tool	11	Other	Project Website	Public
D3.9. HERITACT toolkit	12	Other	Project Website	Public
D4.1. Stakeholders engagement roadmap	10	Report-Document	Project Website	Public
D4.2. HERITHUB specifications report	11	Report-Document	Project Website	Public
D4.3. Community based system dynamics models	20	Other	Project Website	Public
D4.4. Urban sustainability weighting system	20	Report-Document	Project Website	Public
D4.5 Co-recognition insights report	15	Report-Document	Project Website	Public
D4.6. Co-envison experiences report	20	Report-Document	Project Website	Public
D5.1. Pilot sites specifications	19	Report-Document	Project Website	Public
D5.2. Green tensegrity installation	34	Demo, pilot, prototype	Project Website	Public
D5.3. Small scale pavilion structure	34	Demo, pilot, prototype	Project Website	Public

D5.4. Urban mobile furniture	34	Demo, pilot, prototype	Project Website	Public
D5.5. Digitally fabricated vegetable garden	34	Demo, pilot, prototype	Project Website	Public
D5.6. Temporary structures from recycled material	34	Demo, pilot, prototype	Project Website	Public
D5.7. Reactivation of open spaces and buildings through NBS	34	Demo, pilot, prototype	Project Website	Public
D5.8. Virtual exhibition archive development	27	Other	Project Website	Public
D5.9. Virtual exhibition archive implementation	34	Demo, pilot, prototype	Project Website	Public
D5.10. Projection mapping on kinetic surfaces development	27	Other	Project Website	Public
D5.11. Projection mapping on kinetic surfaces implementation	34	Demo, pilot, prototype	Project Website	Public
D5.12. AR enriched human-place interaction development	27	Other	Project Website	Public
D5.13. AR enriched human-place interaction implementation	34	Demo, pilot, prototype	Project Website	Public

D5.14. Eleusis activation events	34	Demo, pilot, prototype	Project Website	Public
D5.15. Milan activation events	34	Demo, pilot, prototype	Project Website	Public
D5.16. Ballina activation events	34	Demo, pilot, prototype	Project Website	Public
D6.1. Impact assessment and Validation Handbook	7	Report-Document	Project Website	Public
D6.2. Community participation report	34	Report-Document	Project Website	Public
D6.3. User experiences analysis, monitoring and evaluation	34	Report-Document	Project Website	Public
D6.4. Solutions assessment and Validation Report	34	Report-Document	Project Website	Public
D6.5. Solutions life cycle assessment report	34	Report-Document	Project Website	Public
D6.6. Guidelines for NEB principles adoption through heritage	34	Report-Document	Project Website	Public
D7.3. HERITACT's visual identity, website, and social media	2	Other	Project Website	Public
D7.4. Communication and Dissemination Impact Report	36	Report-Document	Project Website	Public

D7.6. Report on networking activities	36	Report-Document	Project Website	Public
D7.7. Policy Brief	36	Report-Document	Project Website	Public

4.3 HeritACT data catalogues

In case that a need for the public dissemination of the raw pilot data arises, the data will be made available only after signing a data agreement that will be developed for this purpose, under the supervision of the DMC and the approval of the Executive Board. Therefore, in this case the data will be gathered and used by the DMC for data dissemination suggestions. Any change in relation to the data publicity status will be documented in the forthcoming updated versions of the Data Management Plan.

4.5 HeritACT Publications catalogue

HeritACT aims to raise public awareness about the project achievements by continuously presenting and providing information in different channels. In fact, various publication means have been identified such as articles, newsletters, videos etc. that will be promoted through suitable communication channels. All available publication material will be described in Table 3 in order to provide an overview of the project outcomes and results to the general public and its target groups. Until now, posts in HeritACT social media accounts have been created. Table 3 will be updated in the forthcoming updated versions of the DMP.

Table 3. List of HeritACT publications by August 2023.

Type of Publication	Title	Description	Means of Publication	Release date	Format	Link
Article	Chronicle of a kickoff: the HeritACT project and how to enhance cultural and	Announcement of the project launch and the outputs of the meeting.	IDEAS FOR CHANGE website	04-04-22	Website article	Link here

	historical heritage					

5/ Allocation of resources

It is intended that the HeritACT project team will handle research data in accordance with FAIR principles aiming to render the research data collected/generated by the project Findable, Accessible, Interoperable and Reusable. Through the implementation of the FAIRification process, which includes choosing standards to describe the data, HeritACT will develop a deployment plan for the FAIRified datasets, which will include choosing appropriate hosting platforms and tools.

The costs related to making the data and other research results available according to FAIR guidelines have not yet been determined. This also applies to the costs related to storage, archiving, reuse, security, etc. for the short- and long-term retention of the data. The costs depend on factors, such as size of different data types, quantity of data sources, period, and frequency of collected samples as well as the amount of required meta-data. Such costs estimation is not possible during this initial phase of the project but will be presented in an updated deliverable version.

6/ Data Security

Any personal data under the Agreement will be processed under the responsibility of the data controller of the granting authority in accordance with and for the purposes set out in the Portal Privacy Statement. It will be ensured that personal data is:

- processed lawfully, fairly and in a transparent manner in relation to the data subjects,
- collected for specified, explicit and legitimate purposes and not further processed in a manner that is incompatible with those purposes - adequate, relevant and limited to what is necessary in relation to the purposes for which they are processed - accurate and, where necessary, kept up to date,
- kept in a form which permits identification of data subjects for no longer than is necessary for the purposes for which the data is processed,
- processed in a manner that ensures appropriate security of the data.

Any needed restriction in access to the data will be evaluated before final publication, in accordance with ethical aspects and with protection of personal data (GDPR regulation). All the consent forms related to the Working Age activities will explicitly indicate that the pseudonymized dataset will be published on a public repository.

7/ Ethics

The objective of involving volunteers is to monitor and observe and track important aspects of the affective and aesthetic state of the user during the experience, including uncertainty, boredom, being in a state of flow, valence and arousal, and intense stress. HeritACT will use dedicated sensors for psycho-physiological signals (e.g. respiration, galvanic skin response, blood volume pulse), to measure the users' experience during their interaction within their living environment. Participants will be recruited in accordance with inclusion criteria, and represent different sexes, age groups, ethnicities and socio-economic characteristics to ensure equal representation of all parts of the population.

Advances in technology are creating large pools of data and are providing the capabilities to use them in ways that can create a direct impact on our everyday lives. Algorithms in AI, for instance, enable such an analysis of the data collected that may allow decision making even on critical matters. The effectiveness of such decision making -that can be certainly applicable across various sectors- depends largely -among other-on the quality of the data used and the algorithm per se, possibly, creating enormous benefits for societal flourishing, but also posing risks such as discrimination against individuals and -ultimately-social ultimately exclusion. Taking into account the huge potential of AI, while acknowledging the ethical and legal implications involved, HeritACT project will take into account a series of instruments of horizontal relevance, as well as sector specific. The researcher will, therefore, consider, among other, the following regulations and soft law instruments linked both to the performance of scientific research in the context of Horizon Europe and to the scope of HeritACT.

The research envisioned by HeritACT involves participation of humans and it is, therefore, subject, also, to the Ethics requirements in place by the respective institutions that are responsible for the performance of the piloting activities. As far as human participation is concerned, it is considered that this is meant to be on a voluntary basis, in the sense that individuals will participate in the pilot activities for user experience evaluation after providing explicit agreement allowing for such a participation.

All research involving wearables or other portable devices will be agreed by the appropriate organization through a strict process of independent ethical review and approval. Written evidence of explicit and affirmative valid consent will be obtained from all interviewees and other research participants and recorded using signed valid Consent Forms. All research participants will be expected to give valid consent

to take part in research activities. Each will be given a Participant Information Leaflet which explains the nature of the research, why they have been chosen to take part, what participation will involve, the benefits and risks of participation and full assurances of confidentiality and anonymity. They will be told how their data will be recorded, used and stored, and given details of how to withdraw their data if necessary. No participant will be identifiable from any research reports or outputs unless they have given explicit consent for this to happen. Research activities will take place in 'safe' environments. It is not anticipated that the research will involve participants who are under 18 years old.

HeritACT will consider, among other, the following regulations and soft law instruments relevant, also, for the performance of scientific research in the context of Horizon Europe framework:

- The Convention for the Protection of Human Rights and Fundamental Freedoms, in particular, its Articles 7 and 8.3.
- The Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data (General Data Protection Regulation).
- Charter of Fundamental Rights of the European Union, specifically Article 8 concerning the protection of personal data.
- The Proposal for a Regulation of the European Parliament and of the Council laying down Harmonised Rules on Artificial Intelligence (Artificial Intelligence Act) And Amending Certain Union Legislative Acts Com/2021/206 Final.
- The Ethics Guidelines for Trustworthy AI, High-Level Expert Group on Artificial Intelligence set up by the European Commission, of 8th April 2019.
- Directive (EU) 2016/1148 of the European Parliament and of the Council of 6 July 2016 concerning measures for a high common level of security of network and information systems across the Union, also, known as NIS Directive.
- Regulation (EU) 2019/881 of the European Parliament and of the Council of 17 April 2019 on ENISA (the European Union Agency for Cybersecurity) and on information and communications technology cybersecurity certification and repealing Regulation (EU) No 526/2013 (Cybersecurity Act) (Text with EEA relevance).
- The European Code of Conduct for Research Integrity.
- Horizon Europe Programme Guidance: How to complete your ethics self-assessment.

The above list captures the applicable regulations that are of direct relevance for the project. It is, not, however, meant to be exhaustive, also, due to the changing regulatory landscape. It is of high relevance to stress out HeritACT will reach out to individual stakeholders, including vulnerable groups, with the intention of engaging them into research, so as to identify their needs and requirements. This will eventually lead to the co-development of innovative solutions, whose effectiveness will be assessed through pilot site demonstrations. In this respect, all personal data collected and further processed will be handled in accordance with the GDPR, including, those providing of the processing of special categories of personal data (e.g. biometric). HeritACT consortium is aware of the sensitivity of the personal data to be processed (including biometric data), and of the additional requirements that are necessary to guarantee an appropriate level of protection in this respect, including, for instance, the necessity to obtain an explicit consent that remains relevant. It should be, also, noted that it will be obtained beforehand, after duly informing the involved parties. If consent cannot be given in writing, for example because of illiteracy, there is a provision for non-written consent, which must be formally documented and independently witnessed. The consent templates will be annexed to D1.3- Legal & Ethical Compliance report focusing on Legal and Ethical requirements that is due at an early project stage.

Overall, the ethics approach will ensure that partners are working in an ethically sound way and in compliance with the applicable regulatory framework, as well as with respect to the rights and freedoms of the participants in the project, including the right to privacy. To this end, alignment with the ethical principles of safety, inclusion, privacy, accountability, responsibility, and explainability will be supported throughout the project duration. In this context, with respect to the research participant groups, particular emphasis will be put, for instance, on the representation of both men and women aiming that inclusion and diversity are achieved in reality and that the project results are, thus, of relevance for the population at large.

Furthermore, taking into account the particularities associated with the participation of vulnerable groups such as elderly, physically disabled, mentally disabled, HeritACT will provide for their participation in a non-discriminatory manner. It will ensure the protection of the right of the participants to have access to all necessary information and to be notified in an appropriate manner of all the alternatives, risks and benefits that ensue from their involvement into the project. To this end, in view of preparing recruitment material, researchers should consider the purpose of the research, the environment where the research will be conducted and be particularly aware of the special problems of research regarding the participation of vulnerable groups.

8/ Conclusions & next actions

The present version of the HeritACT Data Management Plan aims to provide information concerning the data that will be collected and used by the project partners throughout the project's lifespan and, eventually, be openly accessible. DMP has been based upon the information and data of the available procedures, infrastructure, and work planning by project partners during the first six months of the project. It provides adequate provisions for the data access, preservation, sharing, and eventual deletion, both during and after the project.

More specifically, the present version of the DMP, firstly, records the DMP connection with various work packages and deliverables highlighting the data generation and collection issues, the data management organisational structure and the HeritACT publication infrastructure. The HeritACT Data Management Framework is thoroughly described emphasizing the FAIR principles (findability, accessibility, interoperability, and re-use) and FAIRification process. HeritACT open data catalogues are presented, including the project's public deliverables, the data catalogues as well as the publications catalogue. Lastly, Ethics or legal issues that could have an impact on data sharing are analysed.

As project activities keep progressing, project partners will be able to identify the type of datasets that will be produced during their demonstrations. The next deliverable update is scheduled for month 15 where more data will be generated. By the time of the second update, new and diverse material will be available, such as videos, reports, newsletters, and scientific publications.