

re-value

Open Science and Data Management Plan 1

Re-Value Deliverable D9.3

Report information

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Executive Summary

This deliverable constitutes the initial Open Science and Data Management Plan (DMP) for the Re-Value project. It specifies Data Governance and handling of data in the project in the form of initial project guidelines, what types of data are expected to be generated in the project, whether and how it will be made open and accessible for verification and re-use, how it will be curated and preserved, and details ethical, privacy, and security issues. Re-Value has a commitment to open innovation, co-creation, and a collaborative approach with a range of societal stakeholders and extensive knowledge sharing. Core results of the project will be created together with these societal stakeholders and relevant European initiatives and policy makers.

All beneficiaries are informed of the need to follow applicable regulations around human participation, personal data collection or processing, informed consent, data processing, data security, and the relevant regulations such as GDPR, Horizon Europe Open Science guidance, FAIR guidelines, or Horizon Europe Ethics Guidance. The DMP information will be regularly updated to include updated data summaries, consent forms, compliance, and institutional approval where necessary. Processing of personal data will respect Data Protection Principles. The project will support openness according to the Horizon Europe (HE) principle "as open as possible, as closed as necessary" together with the project ambition of "Open by Default".

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1. Introduction

This initial document develops the Re-Value Open Science and Data Management Plan (DMP), including open access to research data, with all beneficiaries and WPs. It describes overall Data Governance in the project, including the lifecycle of data to be collected, generated, used, or processed within the project and the handling of data, including methodologies, data sharing, privacy and security considerations, legal and regulatory requirements, informed consent, open access, both during and after the project. This report does not cover all data generated in the project, but mainly those types that are part of research and open science; others are the responsibility of individual partners. This Deliverable is part of Task 9.2: Open Science and Data Management.

Re-Value has a commitment to open innovation, co-creation, and a collaborative approach with a range of societal stakeholders and extensive knowledge sharing. Core results of the project will be created together with these societal stakeholders and relevant European initiatives and policymakers. Project and research results will be shared with societal actors and through relevant networks, as well as through scientific channels under an Open Science approach, including Horizon FAIR principles for data access. Results, data, and documentation will be made publicly and openly accessible to societal stakeholders, cities, and the public, to achieve the project's ambitions.

Re-Value follows the principle "as open as possible, as closed as necessary" together with the project ambition of "Open by Default".

This document is partly based on the Horizon Europe Open Science strategy, namely on the summary¹:

Open science practices include early and open sharing of research (for example through preregistration, registered reports, pre-prints, or crowd-sourcing); research output management; measures to ensure reproducibility of research outputs; providing open access to research outputs (such as publications, data, software, models, algorithms, and workflows); participation in open peer-review; and involving all relevant knowledge actors including citizens, civil society and end users in the co-creation of R&I agendas and contents (such as citizen science).

Dissemination of results and the project value demonstration are supported by Open Science measures of Open Access (OA), Open Data, and Open Source. All public Deliverables and results will be freely published on the project website. The project will use open licenses for Deliverables, documentation, and publications. Creative Commons CC-BY4.0 will be the default. The project follows an OA strategy for all scientific publications arising out of the project. Each academic partner has a budget allocated for article processing fees. As a fallback, Green OA will be mandated through self-achieving in the university partners' institutional repositories. Where possible, venues with Open Peer Review will be preferred and preprints deposited. Additional results are expected to be published as Open Source or Open Data; IPR protection may be sought where relevant.

Data provided by the project will support a range of goals, such as improving dissemination and exploitation of data and results; improving access and reuse of research data; and knowledge sharing with citizens, the

¹ HE Programme Guide: V3.0 – 01.04.2023, Section 16: Open Science, https://ec.europa.eu/info/funding-tenders/opportunities/docs/2021-2027/horizon/guidance/programme-guide_horizon_en.pdf

wider public, interested stakeholders, and the scientific community. Documentation and research data repositories will follow the Horizon Europe best practice, with a focus on open access, peer-reviewed journal articles, conference papers, and datasets.

The project aims to make research data findable, accessible, interoperable and re-usable (FAIR) in line with the EC Guidelines on FAIR Data Management. H2020 documentation is used until the HE documents are fully available. Data collected during the project will adhere to FAIR Principles for data collection and management: Our data will be Findable, Accessible, Interoperable, and Reusable². Data will be housed in a persistent repository. Data will also be assigned identifiers and described through metadata as best as possible. In addition, the project will try to use language that is easily searchable, translatable, and retrievable in adherence to catalogue, dataset, and distribution metadata layers. Finally, the project will maintain the integrity of the metadata after the data is unavailable in order to preserve the integrity of the datasets.

A publication process is implemented by WP9 to ensure approval by project partners before knowledge publication, especially to safeguard IPR and confidentiality/data protection interests, as a refinement of Grant Agreement and Consortium Agreement.

The project is built around transparency and openness. 64 out of 68 deliverables are public (only 4 on project management are sensitive), as support for outreach and replication. Deliverables are expected to be used both internally and externally, to both inform project team members about activities and results, and to inform external stakeholders, potential collaborators, and replicators. This means that documentation is written with a focus on usefulness for the project and other European Cities and stakeholders.

In addition, Re-Value aims to fulfil all ethical requirements. It acknowledges that compliance with ethical principles is of utmost importance, especially regarding human participants and processing of personal data. Beneficiaries will ensure respect for people and for human dignity and fair distribution of the benefits and burden of research, and will protect the values, rights and interests of the participants. All partners are aware of the Horizon Europe Rules of Participation³ and the Ethics clauses in Article 14 of the Grant Agreement and the obligation to comply with ethical and research integrity principles set out therein and explained in the annotated Model Grant Agreement⁴. The project will respect the privacy of all stakeholders and citizens and will seek free and fully informed consent where personally identifiable data is collected and processed. Processing of personal data will respect Data Protection Principles.

NTNU appoints an Open Science and Data Manager (the Project Manager), in close collaboration with all beneficiaries and WPs, also on knowledge management and scientific validity of results. It will maintain and evolve the Data Management Plan (DMP) linked to the Open Science approach and ensure open access to research data.

This public document describes the status of the DMP at the time of delivery. It will be refined by future deliverables of the DMP and updates in individual Work Packages. This document is based on the main formal project description of the Grant Agreement (101096943) and additional documentation built so far

² FAIR principles: <https://www.go-fair.org/fair-principles/>

³ REGULATION (EU) No 2021/695 (Rules for participation and dissemination in Horizon Europe): <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32021R0695>

⁴ EU Grants: Horizon Europe AGA — Annotated Model Grant Agreement: V1.0 - Draft – 01.04.2023 General MGA, https://ec.europa.eu/info/funding-tenders/opportunities/docs/2021-2027/common/guidance/aga_en.pdf

in the project. The Consortium Agreement of Re-Value further details the Consortium Governance, relations of beneficiaries, access rights to beneficiaries' background and foreground for project purposes⁵, and IPR processes.

Large parts of this document are based on previous experiences of the Coordinator and the partners, in particular from the projects +CityxChange⁶, CrAFt⁷, and NEB-STAR⁸, as well as from the respective HE guidance.

⁵ 'Background' means any data, know-how or information — whatever its form or nature (tangible or intangible), including any rights such as intellectual property rights — that is: - held by the beneficiaries before they acceded to the Agreement and - needed to implement the action or exploit the results. From: EC, AGA – Annotated Model Grant Agreement, Version 1.0 Draft.

https://ec.europa.eu/info/funding-tenders/opportunities/docs/2021-2027/common/guidance/aga_en.pdf

⁶ +CityxChange Deliverable D11.10 Data Management Plan 4:

<https://cityxchange.eu/knowledge-base/d11-10-data-management-plan-4/>

⁷ CrAFt Deliverable D7.4 Open Science and Data Management Plan 2:

<https://craft-cities.eu/wp-content/uploads/2023/06/D7.6-Open-Science-and-Data-Management-Plan-2.pdf>

⁸ NEB-STAR Deliverable D7.4 Open Science and Data Management Plan 1:

<https://nebstar.eu/reports/d7-4-open-science-and-data-management-plan-1/>

2. Open Science Approach

Re-Value will generate and collect different types and forms of data. This includes reports, documentation, specifications, tools, workflows, methodologies, process data, city reports and studies, city open data, mapping data, geo-tagged photographs, OpenStreetMap datasets, 3D models, aggregations and simulations in the Digital Twins and other digital tools, and more. Open standards are preferred, with agreement on compatibility between partners for any exchange. The project expects to use existing Open Source systems and make any own developments available under applicable open licences.

The consortium will publicly provide Open Data arising from the project where possible to support a number of goals, such as:

- improved support to European Cities, supporting Open Science, benchmarking with other projects
- improving dissemination, contribution to other Information Systems and Databases, exploitation of data and results
- improving access and re-use of research data generated within the project
- knowledge sharing with cities, citizens/inhabitants, societal stakeholders, the wider public, industry, and the scientific community.

Where possible, data/documentation will be made available through Open Data repositories, the project website, or linked with publications.

We follow the HE guidance on Open Science principles:

Open science in Horizon Europe⁹

Open science is an approach based on open cooperative work and systematic sharing of knowledge and tools as early and widely as possible in the process. It has the potential to increase the quality and efficiency of research and accelerate the advancement of knowledge and innovation by sharing results, making them more reusable and improving their reproducibility. It entails the involvement of all relevant knowledge actors.

2.1 Co-creation and involving all relevant knowledge actors

Re-Value follows open innovation, co-creation, and collaborative approaches with a range of societal stakeholders and extensive knowledge sharing, creating a bridge between science and practice to speed up the transformation towards climate-neutral cities across Europe creating actionable futures that are not only sustainable but also inclusive, empowering and accessible to all, with costs and benefits shared on the basis of social solidarity and justice. Re-Value also embraces the driving values of the New European Bauhaus: Sustainability, Aesthetics, and Inclusion. Core results of the project will be created together with these societal stakeholders and relevant European initiatives and policy makers.

The Horizon Europe guidance on Open Science principles includes options for data collection and analysis from citizens using a citizen science approach. The project will examine possibilities of crowdsourcing data

⁹ HE Programme Guide: V3.0 – 01.04.2023, Section 16: Open Science, https://ec.europa.eu/info/funding-tenders/opportunities/docs/2021-2027/horizon/guidance/programme-guide_horizon_en.pdf

and analysis, possibly through open science platforms such as EU Citizen Science or local systems. Guidelines for developing specific data collection efforts using the pillars of open science may be developed. It will also be assessed in the relevant tools and guidance, and also be a focus for the cities' and universities' work.

Re-Value inherits from the New European Bauhaus (NEB) a human-centred approach to achieving climate neutrality. In addition, Re-Value develops and tests different ways of engaging inhabitants and stakeholders not only in its pilots, but also in the development of wider city transition strategies in the form of Territorial Transformation Plans (TTP).

2.1.1 New European Bauhaus and Inclusiveness & Diversity

The NEB values and characteristics inform Re-Value's Open Science strategy. At this point, no specific activities have been defined yet. Possible examples may include:

- Conveying the importance of citizen science to stakeholders
- Including citizens and inhabitants in project activities and planning
- Sharing citizen science platforms with stakeholders, from cities, universities, or European initiatives
- Providing ideas for in-person citizen science activities
- Encouraging the development of participatory citizen science projects for municipalities and communities
- Describing crowdsourcing, participatory research, design thinking, and volunteer monitoring as possible citizen science endeavours
- Highlighting and providing examples of how citizens can be part of city transitions to climate neutrality
- Suggesting ways to create policy from citizen science initiatives and activities

This plan for prioritising citizen science is being developed in alignment with the Re-Value Inclusiveness and Diversity plan¹⁰, which aims to provide guidelines for being Beautiful, Regenerative, Resilient, Just, Inclusive, Sustainable, Diverse, and Climate-Neutral by 2030. It suggests the following steps to achieve the alignment of project activities with the Inclusiveness and Diversity project goals:

- Encourage partners to identify challenges and opportunities regarding I&D and develop a roadmap to approach them
- Discuss and visualise their assumptions and expectations about how things will work within and across activities, and articulate them
- Take stock of existing stakeholders and activities, and map which stakeholders should be included in each activity beyond the usual suspects, and how to engage them
- Help partners with innovative co-creative methods
- Identify how to support stakeholder-driven activities and/or how to co-create activities with stakeholders, building on their needs and priorities and taking into account the issues of residents' trust in co-creative processes
- Target different stakeholders through the use of a diverse set of methods
- Present information in a condensed form, visually and/or in non-expert language

¹⁰ Re-Value Deliverable D9.2: Inclusiveness and Diversity Plan 1, forthcoming

- Create a shared vision and understanding with the selected stakeholders, clarify roles and responsibilities, and set priorities - to show that we use their time responsibly
- Compare documented experiences with expectations and assumptions, and update plans for further implementation correspondingly.
- Monitor and evaluate operationalization of Inclusiveness and Management Plan¹¹
- Make sure the derived methods and data can be replicated in other (at least European) contexts (transferability)
- Look for additional funding, connections, and projects
- Celebrate achievements

2.2 Open Access to results and publications

The dissemination activities within the project will include a number of scientific and other publications. Re-Value is committed to dissemination and the principle of Open Access for scientific publications arising from the project, in line with the Horizon Europe's Open Science Policy¹². It further aims to make research data open as described above. A budget has been set aside for the academic partners to support gold open access publishing. The Open Research Europe publishing and repository platform will be assessed for use.

Publication of scientific papers will be encouraged by the Re-Value consortium. For cases where it may interfere with seeking protection of intellectual property rights (IPR) or with publication of confidential information, a permission process for publishing any information arising from the project is put in place in the Consortium Agreement. Notification needs to be given at least 30 days before the publication, with objections subject to the rules of the Consortium Agreement.

The project aims for Gold Open Access publication of scientific peer-reviewed papers where possible and will adopt a Green Open Access strategy as a fallback.

The specific requirement for open access to scientific publications is also anchored in the Grant Agreement (Annex 5 "Specific rules (if applicable)"):

"The beneficiaries must ensure open access to peer-reviewed scientific publications relating to their results. In particular, they must ensure that:

- at the latest at the time of publication, a machine-readable electronic copy of the published version or the final peer-reviewed manuscript accepted for publication, is deposited in a trusted repository for scientific publications
- immediate open access is provided to the deposited publication via the repository, under the latest available version of the Creative Commons Attribution International Public Licence (CC BY) or a licence with equivalent rights; for monographs and other long-text

¹¹ Re-Value Deliverable D7.1 Monitoring and Evaluation Model (initial version), forthcoming

¹² Horizon Europe's Open Science Policy:

https://research-and-innovation.ec.europa.eu/strategy/strategy-2020-2024/our-digital-future/open-science_en;

Comparison of H2020 and HE: <https://openscience.eu/Open-Science-in-Horizon-Europe>; HE Programme Guide: V3.0 – 01.04.2023, Section: Open

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

formats, the licence may exclude commercial uses and derivative works (e.g. CC BY-NC, CC BY-ND) and

- information is given via the repository about any research output or any other tools and instruments needed to validate the conclusions of the scientific publication.”

All research partners have an Open Access strategy. At the minimum, this will include self-archiving of publications in known centralised or institutional repositories, or for example Zenodo or OpenAIRE¹³.

Institutional repositories are:

- NTNU: institutional archive NTNU Open¹⁴
- UNIBO: CRIS¹⁵ (mirrored in OpenAIRE¹⁶) and AMS Acta¹⁷
- VITO: Zenodo¹⁸
- LNEG: LNEG’s Scientific Repository¹⁹
- IZTECH: DSpace²⁰
- UNG: Repository of University of Nova Gorica (RUNG)²¹
- SU: DSpace²²

2.2.1 Open Source Considerations

Licenses for results will be aimed to be as open as possible, with CreativeCommons for documentation and similar core project results (see above), and GNU-style licenses for other results such as software as a default. For example, GPLv3 (GNU General Public License)²³, MIT²⁴, or Apache²⁵ are open and permissible licenses, with GPL additionally using a share-alike model for sharing only under the original conditions (reciprocal license).

Adaptations are expected for where needed to be aligned with commercial IPR strategy. A balance is needed for openness and need for marketability, patenting, and other IPR issues. This will be handled jointly with the Project Coordination Team.

2.2.2 Acknowledgements

Authors will ensure appropriate bibliographic metadata is published as well, where possible. It will be in a standard format and include the terms "European Union (EU)" & "Horizon Europe"; the name of the action,

¹³ OpenAIRE: <https://www.openaire.eu/>

¹⁴ Open Access NTNU: <https://www.ntnu.edu/ub/research-support/open-access>

¹⁵ UNIBO, Current Research Information System: <https://cris.unibo.it/>

¹⁶ UNIBO OpenAIRE:

https://explore.openaire.eu/search/dataprovider?datasourceId=openoar_____::64c53a52cb3bd1a01c03a64db985c0c

¹⁷ UNIBO AMS ACTA: <https://amsacta.unibo.it/>

¹⁸ <https://zenodo.org/communities/vitobelgium>

¹⁹ LNEG Scientific Repository: <https://repositorio.lneg.pt/?locale=en>

²⁰ IZTECH DSpace: <http://roar.eprints.org/7618/>

²¹ University of Nova Gorica: <https://repositorij.ung.si/info/index.php/eng/>

²² Sofia University: <https://research.uni-sofia.bg/>

²³ GPL 3.0: <https://www.gnu.org/licenses/gpl-3.0.en.html>

²⁴ MIT License: <https://opensource.org/license/mit/>

²⁵ Apache License, Version 2.0: <https://www.apache.org/licenses/>

acronym & grant number as below; publication date, length of the embargo period, if applicable; and a persistent identifier.

These requirements are also codified in the Grant Agreement, Article 17.2 on Visibility – European flag and funding statement.

Authors will aim to retain copyright and usage rights through open licenses, such as Creative Commons Attribution License (CC-BY4.0²⁶/CC-BY-SA) or otherwise publisher agreements to similar effect will be pursued. Project participants will ensure that all publications acknowledge the EU funding and the name and grant number of the project, where suitable also including the standard disclaimer as also found on metadata on the second page of this document. Publications should contain an acknowledgement text:

“This work has been [partially] performed within the project Re-Value – Re-Valuing Urban Quality & Climate Neutrality in European Waterfront Cities²⁷, that has received funding from the European Union’s Horizon Europe research and innovation programme under Grant Agreement No. 101096943.”

Deliverables are public by default through a Creative Commons CC-BY4.0 license. Other CC licenses may be applied after consultation.

External third-party material such as images, tables, or text will be labelled as such, to clearly identify such content and exclude it from the free use given for consortium-generated material. This can be done by excluding such content in the general license statement and by identifying copyright information next to all third-party material included in documents, for example in figure captions, or citations²⁸.

2.3 Open Research Data

Quality-assured data is a cornerstone of scientific research and of industry and city developments. Research data should be freely, publicly, and permanently available where possible and appropriate to support validation of results and re-use of data for example in research, development, and open or citizen science as well as Open Innovation.

Re-Value aims to provide open access to raw and aggregated curated datasets. The project aims to make research data findable, accessible, interoperable and re-usable (FAIR) in line with the HE Guidelines on FAIR Data Management.

Data will be made accessible for verification and reuse through appropriate channels and repositories. Limits of access and availability are to be given in individual data descriptions and will be further developed within the project with the aim of greater openness.

²⁶ Creative Commons License Attribution 4.0 International (CC BY 4.0): <https://creativecommons.org/licenses/by/4.0/>

²⁷ Re-Value website: <https://re-value-cities.eu/>

²⁸ For example, in the license label at the beginning of this document: “CC-BY4.0 Creative Commons Attribution, except where otherwise noted.” and a full copyright and attribution next to any third-party content in the document. See also the CC guidelines: https://wiki.creativecommons.org/wiki/Marking/Creators/Marking_third_party_content

Where research data is made available, it will be made available in recognized repositories such as OpenAIRE or Zenodo, or local repositories of universities or national research institutes, with possible assistance from national OA desks.

The project aims to make anonymised data sets public where suitable, but will aim to strike a balance between publication of data and privacy and confidentiality issues. When in doubt, the consortium will refrain from publishing raw datasets and only report aggregate measures. Decisions will be made on a case-by-case basis by senior researchers to ensure that privacy, anonymity, and confidentiality are not breached by publication of datasets or any other type of publication. In addition, ongoing consultation with the relevant Data Protection Offices can be sought during the lifetime of the project.

This will also ensure that data is preserved, available, and discoverable. In any case of data dissemination, national and European legislation will be taken into account. Similar to publications, also for data the project will mostly adopt Creative Commons licenses ranging from attribution to share-alike licenses (such as CC-BY 4.0/CC-BY-SA 4.0).

As above, publications will have bibliographic metadata attached where possible, which is extended to research data. Where possible, research data and associated metadata will be made available in common standards and possibly as Linked Open Data in line with FAIR principles. Annotations will be at minimum at the dataset level, to support interoperability.

There is currently no separate operating budget for this, as it will be taken as part of the budget for website and platform management, use existing infrastructure at the Coordinator, other partners, or will use free and open repositories.

2.4 Open City Data

Apart from research data repositories, the cities in Re-Value may have relevant data in their own City Open Data Portals. If suitable, specific data arising from the project may be made available, or may be sourced from there.

Current city data portals or related sources are described in the following table. These are also linked with the work in Innovation Cycle #2 on “Scenario-building: Assessment of Challenges, Solutions and Opportunities for Cities on Data Driven Co-Creation”.

City	OpenData
Rijeka	City OpenData: http://data.rijeka.hr/dataset/
Rimini	City OpenData: https://opendata.comune.rimini.it/ National OpenData: http://dati.istat.it/Index.aspx
Cascais	City OpenData: https://data.cascais.pt/en/geral/data-hub/open-data City OpenGeoData: https://geocascais.cascais.pt/#
Pisek	National Open Data: https://data.gov.cz/ SmartCity: https://smart.pisek.eu/portal.html
Constanta	City OpenData: https://constantina.insse.ro/
İzmir	National Statistical Data: https://biruni.tuik.gov.tr/bolgeselistatistik/sorguGiris.do

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Alesund	National statistics: https://www.ssb.no/kommuneareal/alesund Map-based data: https://kartserver.esunmore.no/geoinnsyn/?project=%C3%85lesund&layers=Tekster,Eiendommer&application=geoinnsyn&zoom=9&lat=6942846.00&lon=365283.00
Burgas	National Statistical Data: https://www.nsi.bg/en/content/11406/district-burgas SmartCity Portal https://smartburgas.eu/bg
Bruges	City Open Data: https://www.brugge.be/opendata , https://brugge.incijfers.be/ Open data of the province: https://provincies.incijfers.be/databank

3. Data Management, Sharing and Open Access

Re-Value distinguishes four key categories of data arising from the project:

Underlying research data: data necessary for validation of results presented in scientific papers, including associated metadata, which works hand in hand with the general principle of openness of scientific results. The consortium will provide timely open access to research data in project-independent repositories and link to the respective publications, to allow the scientific community to examine and validate the results based on the underlying data. Re-Value has a commitment to publish results via Gold Open Access and has allocated a budget for it. The deposition of research data will depend on the type and channel of publication, ranging from associating data with a publication at the publisher, university or national research data repositories, or the use of the OpenAIRE infrastructure, following the Horizon Europe best practice, with particular focus on peer-reviewed journal articles, conference papers, and datasets of various types.

Operational and observational data: This category includes curated or raw data arising from the implementation, testing, and operation of the demonstrators (operational data), and data from related qualitative activities, such as surveys, interviews, fieldwork data, engagement activities (observational data). Re-Value will make this data available, in Re-Value or respective partner repositories (as above in subsection Open Access to results and publications), opening it up for project partners and stakeholders, and to citizens and interested third parties to support engagement and innovation, where possible and allowed under regulations and privacy issues.

Monitoring and evaluation data: This data will specifically be captured to track KPIs of the project performance and will be regularly reported to the EC (see details in Re-Value Deliverable D7.2 M&E Report 1 (forthcoming)). The KPI data is considered an internal management tool, but selected KPIs may be shared on the website. Evaluation of the project will be done in respective other deliverables and shared that way.

Documentation, instruments, and reusable knowledge: This concerns general and specific documentation of the project and demonstration/implementation projects, including tools, methods, instruments, software, and underlying source code needed to replicate the results. A number of collaboration and document management tools will be used, including the project website (WP8, see also D8.1 Re-Value Communication, Dissemination & Exploitation Plan 1). Clean and consistent documentation and publication will support dissemination impact. All public Deliverables will be published on the project website in Open Access with open licenses.

3.1 Data Handling Descriptions

Apart from other mechanisms within the project, such as communication, outreach, citizen participation, peer-to-peer learning workshops and networks, measures such as sharing of data, documentation, and results will be an important contributing factor to the project goals. The project will ensure that research data is 'findable, accessible, interoperable and reusable' (FAIR), in line with the HE Guidelines on FAIR Data Management.

The protection of personal data will be a governing principle. Internal and confidential information, personal and privacy-related data and financial information are treated confidentially. Relevant data protection acts including GDPR compliance are ensured, and all personal data is anonymised before it is used for

academic/commercial enterprise. Research data is treated according to the policies of the participating research institutions. For personally identifiable information and research data, the policies of the participating research institutions will be strictly followed. Sharing of data within the consortium is governed by the DMP. Sharing of data with external parties is governed by appropriate agreements if needed. NTNU as the Project Coordinator will ensure long-term data curation and preservation beyond the project period for a minimum of 2 years.

The following describes the guidelines and expectations for relevant data sets along with detailed description, metadata, methodology, standards, and collection procedure. Further details are types of data, data formats and vocabularies, storage, deadlines for publication, data ownership rules, and detailed decisions regarding data management and protection.

Issues to be defined will be, for example, the confidentiality needs of utility providers, the privacy needs of citizens, commercialisation and cybersecurity issues, together with general ethical, legal, and regulatory considerations and requirements.

At the time of writing, most tasks have not yet fully defined the type and structure of the data that they need or will generate or can make available. As part of future DMPs, storage, processing, protection, dissemination, retention, destruction will be collected and documented in ongoing refinements.

For this, individual Tasks within the Work Packages will specify and implement approaches related to data collection, management, and processing measures that are most appropriate based on data avoidance, especially concerning personally identifiable aspects of data sets.

Individual data collection will be handled by the involved partners in the Work Packages, keeping most data processing close to the source and within the originating partners.

To ensure maximum use and quality of open research data and re-use of existing data, the project will aim to base much of the internal collaboration on structured research data sets collected in standardised formats. This will help that deposited datasets will be evaluated internally as well regarding their use for the scientific community ('dogfooding', an organisation using its products and services also internally. In this case, also avoiding duplicate work by making as much data as possible available in structured formats for internal use and external dissemination). Such an approach should also support outreach activities such as hackathons, by enabling low-barrier access for external stakeholders. Where possible, research data and associated metadata (standardised as Dublin Core, W3C DCAT, or CSVW) will be made available in common standard machine-readable formats such as Linked Open Data (LOD) in line with FAIR considerations.

The data handling summary is shown in Section 6: Data Summaries.

3.2 Access Rights and Procedures, IPR

In line with the Consortium Agreement and the Grant Agreement, research results are owned by the partner that generates them. However, the stated aim is to make data and results publicly available, whenever possible. Data published or otherwise released to the public will include disclaimers and/or terms of use as deemed necessary.

Further access rights and regulations are set forth in the Consortium Agreement as rights and obligations of partners. This also concerns the relations of beneficiaries and access rights to beneficiaries' background and foreground for project purposes, such as IPR, data, systems, services, or frameworks. Partners are expected to share data with each other for project purposes. Where necessary, specific agreements or data processing agreements may be drawn up, with the Coordinator supporting on a project-level.

Regarding the protection of intellectual property rights (IPR), detailed terms for access rights and collective and individual exploitation of intellectual property are agreed upon in the Consortium Agreement (Section 6.3., Section 6.4, Attachment 1) and Grant Agreement (Section 2, Article 16).

Most Deliverables are public, only some management ones are confidential (SEN-sensitive). The latter ones can contain project internals that do not need to be public. Where detailed specifications may contain potentially patentable information, these may be kept confidential. The main approach and commitment is still to have all core results public and replicable. See also the Section above on Open Source considerations.

3.3 Document Management

As noted in the Re-Value overall consortium plan (D9.1: Consortium Plan 1, internal document), documents in the consortium are handled in one overall platform for collaboration and findability. The project has set up a shared file repository in the form of a Google Drive, including collaborative editing tools for documents, spreadsheets, and presentations. The repository is only accessible by invitation. Access will be granted to registered members of the consortium. Generally, it is recommended to not share highly sensitive data, as far as it needs to be shared, on this system, in line with partners' policies.

The handling of sensitive documents will be coordinated according to existing processes of the partners and where needed coordinated with the Data Protection Officer (DPO) of the host partner or respective other partners. The partners have internal repositories and processes for dealing with such sensitive data and how it can be shared for research.

Additional sharing and development tools can be set up by specific tasks if needed, such as version control software that is outside the scope of the overall platform, and may be documented there.

3.4 Archiving and Preservation

Deliverables will be archived on the project website. The internal datasets will be backed up periodically so that they can be recovered (for re-use and/or verifications) in the future. Published datasets, raw or aggregated, will be stored within internal and external repositories and thereby ensure sustainability of the data collection. Records and documentation will be in line with common standards in the research fields to ensure adherence to standards, practices, and data quality.

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For all tasks, digital copies of all data will be stored for a minimum of two years after the conclusion of the grant award or after the data is released to the public, whichever is later. All information and data gathered and elaborated will be suitably described in the respective Deliverables. All public Deliverables will be made available and archived on the project website²⁹ and through the EU Community Research and Development Information Service CORDIS for the project³⁰.

The partners together with NTNU as the Coordinator will ensure long-term data curation and preservation beyond the project period. It will be implemented as sustainability of project documentation, results, and website, linked to WP6, WP9, and the other WPs.

²⁹ <https://re-value-cities.eu/>

³⁰ <https://cordis.europa.eu/project/id/101096943>

4. Ethics Considerations

Some of the activities in Re-Value will require data processing and some may require evaluation involving human research subjects and the collection of personal data, as part of, for example, community engagement activities.

The ethics self-assessment and Ethics Summary Report of the project preparation phase with the EC identified two potential ethical issues: 1) human participation, 2) personal data collection of data subjects. An initial assessment was included in the GA in Section 4 and summarised below:

Ethical dimension of the objectives, methodology and likely impact

The project will process personal data of human participants through activities such as events, workshops, interviews, surveys, and co-creation activities, as standard methods of social science and humanities research. NTNU and the other universities have extensive experience with this type of work and the needed methodology as well as ethics approval requirements and processes, including informed consent, treatment of personal data, and safeguarding personal interests, anonymisation, and publication of results in compliant ways. No negative impacts of the activities are currently foreseen. Details will be developed within the WPs and within the DMP in WP9 with the relevant partners.

Compliance with ethical principles and relevant legislations

All planned activities are foreseen to be well within all applicable legal and ethical guidelines and regulations. Where ethical board approval will be needed, it is foreseen that it will be granted as part of the usual work and methods of the partners.

Partners will adhere to strict ethical principles in all work that they do. Compliance with applicable national and EU regulations and legislation, as well as ethical requirements will be ensured before any activities are taking place. This is the responsibility of the leading partner and participating partners, and will be planned and documented in the DMP. For cross-country activities, partners will ensure that the activity is legal in all participating jurisdictions.

GDPR compliance will be ensured, and all partners are aware of the respective regulations, including their own responsibility for any GDPR-governed activities. Partners will comply with data storage, retention, access rights, anonymisation, and deletion policies of their institutes for personal data.

NTNU (homed in Norway as a non-EU-member state) will follow the HE rule of ensuring that its activities are allowed in at least one EU Member State. Norway implements most EU regulations, so there is a very limited gap in regulations. The NTNU Data Protection Officer is aware of these requirements. The same provisions will be ensured by the partners GIB from Switzerland, and by Izmir municipality and IZTECH from Turkey.

5. Dissemination and Exploitation

Disseminating and exploitation of the project outputs and results are an important step to achieve the project goals. This is done in cooperation with W8 on Outreach, Communication and Dissemination, Exploitation; and all other relevant WPs. As detailed above, data will be made as open as possible. All consortium partners together take responsibility for exploitation and dissemination of results and to ensure visibility and accessibility of results. Implementing FAIR data principles will support the openness and re-use of data. Different dissemination channels are expected to be used and maintained during and after the project as shown in the following table:

Dissemination type	Usage	Policy
Material on Project Website	Main reference point for project dissemination and data description. (Includes some of the material below as well.) We also encourage dissemination on partner websites	Creative Commons where applicable. External rights clearly marked.
Deliverables	Deliverables to the EU and the public. Disseminated through the project website ³¹ and the EU CORDIS system.	Dissemination level set per deliverable, public by default and open with Creative Commons Attribution CC-BY4.0. External rights clearly marked.
Social media	Support of communication activities.	To be decided. Creative Commons where applicable.
Mission platform	Disseminating and exploiting the Re-Value outputs through the Mission Platform (NetZeroCities).	Creative Commons where applicable.
Partner Channels	Support of communication activities, with significant reach within different target audiences.	Creative Commons where applicable.
Newsletter	ICLEI will dedicate two issues per year of its long-established Informed Cities newsletter to Re-Value topics.	Creative Commons where applicable.
Publications	Scientific and other publications arising from the project	Open Access and Open Licenses as detailed above. Creative Commons where possible.

³¹ Re-Value website: <https://re-value-cities.eu/>

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Monitoring & Evaluation, KPIs	Monitoring of indicators for project performance	Most project KPIs measure internal progress. Some with outside relevance will be shared in respective channels. Evaluation results of the project will be published in respective deliveries and deliverables. Details can be found in the forthcoming D7.2: Re-Value M&E Report 1.
Research data as laid out in Data Management section	Underlying research data of the project	Open Access with limitations due to privacy, as detailed above, in accordance with the FAIR guidelines on Data Management
Live events and accompanying records, photos, videos, etc.	Documentation of events, analysis, research, dissemination	Consent will be asked of participants. Minutes etc. will be mainly used internally. Dissemination on outreach channels as above in the table.
Any other data	TBD	Wherever possible, open through Creative Commons or other open licences.

6. Data Summaries

6.1 Data Summary Template

The following table shows the data handling summary template we intend to use within the DMP and within Tasks for documentation. Fields can be optional depending on cases:

Task/Dataset Name	
Task/Demo/Activity	
Description	
Purpose, relevance, justification of data collection and relation to objectives	
Methodology/Approach	
Data source, data ownership	
Standards, data formats, vocabularies	
FAIR considerations/ compliance (findable, accessible, interoperable, reusable)	<p>See also OpenAIRE on principles and minimal requirements: https://www.openaire.eu/how-to-make-your-data-fair See also older H2020 guidelines: https://ec.europa.eu/research/participants/data/ref/h2020/grants_manual/hi/oa_pilot/h2020-hi-oa-data-mgt_en.pdf See also well-described sub-requirements: https://www.go-fair.org/fair-principles/</p>
Data Storage & Technical Aspects	e.g. relevant software, any restrictions/access limitations, or codes needed to access data etc.)
Security & Privacy considerations	
Exploitation/Dissemination path	
Dissemination level	
Stakeholders and/or target groups	
Notes/Comments	

6.2 Data Summaries

This section is empty at the beginning of the project.

7. Conclusion

This deliverable constitutes the initial DMP for Re-Value at the time of delivery. The Project Management Team will regularly follow up with the consortium members to refine and update the DMP. Responsibilities reside with NTNU and all consortium members.

More detailed procedures, descriptions, forms, etc. will be added as they become available through the ongoing work in the respective Work Packages. The next update will include detailed data summaries for the work that is being started in that period.

The DMP will be updated annually, with the next regular update due in M19 as D9.6 Open Science and Data Management Plan 2. Updates will include more detailed processes and descriptions of data sets.

Glossary of Terms

CA	Consortium Agreement
DMP	Data Management Plan
EC	European Commission
FAIR	Findable, Accessible, interoperable and re-usable
GA	Grant Agreement
GDPR	General Data Protection Regulation
HE	Horizon Europe
IPR	Intellectual Property Right
KPI	Key Performance Indicator
M&E	Monitoring and Evaluation
NEB	New European Bauhaus
OA	Open Access
PC	Project Manager
PM	Project Manager
WP	Work Package

About Re-Value – Re-Valuing Urban Quality & Climate Neutrality in European Waterfront Cities

The Re-Value partnership consists of nine European waterfront cities and selected European organisations that work to make the urban transition irresistible for everyone. This is done by demonstrating how climate neutrality and urban quality can be aligned, by re-valuing the cities’ connection to their waterfronts, strengthening co-benefits and mitigating potential adverse impacts.

Ålesund (Norway), Bruges (Belgium), Burgas (Bulgaria), and Rimini (Italy) demonstrate how integrated urban planning and design can be optimally deployed to achieve climate neutrality and significantly reduce GHG emissions by 2030. In addition, Cascais (Portugal), Constanța (Romania), İzmir (Türkiye), Písek (Czechia), and Rijeka (Croatia) learn, replicate and develop their own participatory story-building, data-driven scenarios, and financial and partnership models on integrated urban planning and design to accelerate their journeys to climate neutrality.

The partnership is coordinated by the Norwegian University of Science and Technology (NTNU) and is funded by the European Union's Research and Innovation funding programme Horizon Europe under grant agreement 101096943.

Learn more about the partnership and the outcomes on re-value-cities.eu.

Partners



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