



Edible Cities Network

Edible Cities Network – Integrating Edible City Solutions for social, resilient and sustainably productive Cities

EdiCitNet

Deliverable D7.3

Data Management Plan (Version 1.1)



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1. Executive Summary

This Data Management Plan (DMP) characterises the existing and planned data management, data security, data access and policies within the EdiCitNet project.

As a key element of professional data management, the EdiCitNet DMP documents the context in which research data will be created and how it is handled and serves in particular to interpret and

reproduce research results in later years and to be able to use them afterwards.

The DMP is a dynamic document and will be updated during the project if necessary, changes arise. Horizon 2020 recommends creating new versions whenever there are significant changes in the project, such as new research data, strategic changes, or changes in external factors.

2. Introduction

The EdiCitNet project focuses on harmonizing and worldwide spreading of Edible City Solutions (ECS) to foster ecological, social and economic resilience in cities. Regarding the overarching goal - the creation and implementation of a global reference framework for nature-based solutions (NBS) for food and raw material production in cities, various ECS (e.g. roof and facade greening, neighbourhood gardens, indoor farming) will be tested and monitored in 5 so-called Front-Runner Cities (Rotterdam, Andernach, Oslo, Berlin and Havana) and the results will initially be made available to 8 Follower Cities for the co-creation of their specific "Edible City Master Plans" and later to the entire Edible Cities Network.

In order to achieve these objectives, data in different contexts or cities will of course also be included and recorded. It is intended to make existing data available for urban stakeholders and to a broader community of researchers, policy makers, SMEs and NGOs. In addition, new data will be generated during the project and will be used for transition pathways development of Follower Cities and beyond. These data will be shared to highest possible resolution to the broader research community, stakeholders, and policy makers, in part through the EdiCitNet toolbox, including a database, catalogue and serious game that will be developed during the project, while respecting the legal framework.

3. EdiCitNet Mission statement

As an Innovation Action with intentions at a Technical Readiness Level (TRL) of about 5-9, EdiCitNet does of course not focus on the recording, storage and publication of large amounts of data. The whole project is rather implementation and solution oriented and works most of the time via demonstration and test approaches of often already developed solutions. Nevertheless, as a basis for the many solutions to be developed, data is generated (e.g. for monitoring and evaluation) for which there must be an appropriate handling. The EdiCitNet project is committed to provide open access data as requested by the European Commission's (EC) guidelines for projects funded

under Horizon 2020 by following the FAIR Data Management Plan template. EdiCitNet's DMP will enhance knowledge discovery and integration, innovation, easy access and further reuse of data. It is necessary to guarantee that all data generated within the project is well managed during and beyond the duration of the project and preserved for further use. As the project involves many different participants and stakeholders, it is important to always maintain a collaborative and reliable approach. Therefore, EdiCitNet will ensure the accessibility and the interoperability of the research data and adopt adequate measures to guarantee data protection and confidentiality.

4. Main section

4.1 Data Summary

What is the purpose of the data collection/generation and its relation to the objectives of the project?

The data collected by EdiCitNet will include data from literature review, experts' interviews and existing real case studies. Besides, the project will generate significant amounts of data related to the monitoring of the edible nature-based solutions (i.e. Edible City Solutions) performance that will be implemented in the Front-Runner Cities (FRC). These data will correspond to the description of the ECS design, implementation and operation through a number of indicators regarding technical, environmental, social and economic aspects. All together will compose the EdiCitNet database. The purpose of data collection will be as follow (1) to support the work of the EdiCitNet consortium by storing and organizing data and information on one place during and beyond the project, (2) to achieve the aims of the project and be the basis for developing a catalogue of ECS and the serious game in Tygron, (3) to support design of ECS within the urban planning process, (4) to support experts and public in the process of designing ECS, (5) to inform the general public about ECS and their role in cities, and (6) enable re-use of data in future related research.

What types and formats of data will the project generate/collect?

Even though data is included in various forms in all work packages, larger data volumes are recorded mainly in WP 2, 5 and 6 due to the guarantee of the EdiCitNet Toolbox, the implementation of the Living Lab Monitoring or the provision of the EdiCitNet Marketplace.

The data types collected and generated include bibliographic (theoretical) data about characteristics of ECS including crops, yield, costs and benefits and economics of setting up different types of food production systems, experimental data collected from running living labs within EdiCitNet in FRC as well as data from existing urban farming projects in Follower Cities (FC) and wider, and model data – these are data supplied by specific experts (agronomists, economists, social scientists) and describe specific needs for setting up an ECS, e.g. water and nutrients requirements per plant in given climate for given production technology or impact of gardens to criminal reduction etc. Model data will be used to simulate all aspects (technical, economic, social) of setting up an ECS. The simulations will be stored as simulation data. Any kind of data format is envisioned: text, numeric, symbolic, images, videos, etc. (see table below).

Table 1: EdiCitNet data types

| Data type | Format(s) | Used in work package | Source and used methods/tools | Purpose |
|---------------------------|-----------------|----------------------|---|--|
| City Team Meeting Records | doc, xlsx | WP1, WP4 | Communication with City Team Coordinators | Track and assess the performance of City Teams |
| Bibliographic data | pdf, xlsx, docx | WP1, WP2, WP5 | Scopus and Web of Science | Gather information on previous studies |
| Sister-projects data | xlsx | WP2 | Projects' websites and direct interviews | Gather information on similar projects' tools/models |

| | | | | |
|--|--|---------------|--|---|
| Monitoring data on indicators from FRC | xlsx, docx etc. | WP5 | Experimental data generated within LL, qualitative and quantitative interviews | Impact monitoring of ECSs in LL |
| User's profiles | SQL | WP2, WP4 | Web-based survey | Information on ECS participants |
| ECS' profiles | SQL | WP2, WP4, WP6 | Web-based survey | Information on ECS characteristics |
| ECS' experiences | doc, pdf, SQL | WP4, WP6, WP5 | qualitative interviews Web based survey (survey monkey) | assess the participant perception and social impacts of ECS |
| User's experiences | SQL | WP2, WP5 | Web-based survey | Information on ECS users' perceptions |
| Classification data: products and activities | xlsx, pdf | WP2 | public servers (RAMON) | EdiCitNet data organization |
| Spatial data (land use, land cover, buildings) | shp, GEOJSON, GeoTiff | WP2 | INSPIRE, Cities' administrations, public (national) servers, CLC, Urban Atlas | Modelling ECS impacts to cities resources management |
| Other data needed for modelling purposes: meteo data, crops data, water uses data | SQL, csv, xlsx, text | WP2 | Multi-sources: bibliographic, sister-projects, public (national) servers, LL, web-based survey | Simulate ECS performance on economic, social, ecological and agricultural topics. |
| Data based upon the International Accounting Standards (IAS) | Xls, spatially defined (area, coordinates) | WP6 | EU Business Registers Interconnection System (BRIS) | Businesses applying ECS analysis and catalogues. Green jobs |
| Economic and financial data based upon the FADN methodology | Xls, spatially defined (area, coordinates) | WP6 | Simplified Farm accountancy data network method applied to ECS in order to harmonize the results with the EU CAP | ECS financial and economic viability analysis |
| Sociological data | Spatially defined, xls, interviews (transcripts) | WP4, WP5 | Sociological data (household income, crime rate, GINI, education data, age, gender, disabilities, health and functionality, social | Identification of social impact of implemented ECS |

| | | | | |
|--|-----------------------|---------------|--|--|
| | etc.) | | impact, perceptions of ECS, etc.) | |
| Scenario simulation | xlsx | WP2 | Serious game sessions | Information on scenarios built by serious game players. |
| Transition pathways | docx, xlsx interviews | WP4 | Focus groups in FC | Information to plan and implement transition pathway, lessons learned and guidelines |
| Co-Creation and City Team evaluation | doc. pdf, xls | WP1, WP3, WP7 | interviews, E-survey (survey hero) | Evaluation of work in progress and needed adaptations |
| Users Profile in Edible Cities Network and Edi-CitNet Marketplace | SQL, xlsx, mp4, jpeg | WP6, WP7 | Surveys, Web-based survey (SurveyHero) | Information in order to initiate and expand the network and marketplace and to enable exchange between users |

Members of the multi-stakeholder based Edible Cities Network and the EdiCitNet Marketplace have the possibility to deposit data via web-based surveys about the organization and their own work on the platforms of the project (CMT and website) in order to increase the targeted exchange among themselves. The data includes general information about the form of organization, the number of employees and the main goals as well as short introduction videos.

A range of theoretical, experimental and simulation data will be collected on open access databases for easy accessibility. Besides, openly accessible data will be the comprehensive result data

Will you re-use any existing data and how?

The EdiCitNet database will incorporate and re-use any relevant data and information from repositories or official portals that might be useful for the project objectives, including previous EU funded H2020 or FP7 projects such as Oppla, EKLIPSE, FoodMetres, GREENSURGE, NWRM or ThinkNature. Current on-going projects, e.g. SNAPP and COST CA17133 as well as others will be considered (NATURVATION, Urban GreenUp, UNaLab). These data collections will be first

sets of characterized ECS that might be used to create the figures and plots in scientific publications, such that other researchers can compare their results easier and such that further results including historic data can be produced quicker.

All non-personal data collected through the web-based survey will be available in the toolbox interface, which will be visualized on the interface and will be able to be downloaded in operable formats (like csv). This will include data on ECS as well as data on ECS users' experiences. The data generated through the serious game will be published in open reports (published on the project's website) as well as in scientific publications.

reviewed and a specific API will be developed to interact between them and EdiCitNet tools. Besides, existing data on Front Runner and/or Follower Cities regarding relevant experiences on ECS will also be explored and potentially incorporated into the EdiCitNet database. To this aim, EdiCitNet is part of the Task Forces created at EU level among the NBS-sister projects, specifically the "Data management and EU evidence-based platforms" Task Force.

Business registry established on the EU level will

be the core component for the ECS business evaluation and its integration in the overall data and information management framework of the EDI-CITNET project. Beside the revenues and expenditures identification it will support the identification of green jobs, equity, liabilities, and other important performance indicators of ECS businesses. Sociological data source is the EUROSTAT and corresponding national statistical offices. Corresponding more detailed analysis will follow the reference methodologies defined by these.

What is the origin of the data?

Seven main sources of information can be identified: (1) literature review; (2) experts interviewing; (3) historical data from existing FRC and FC experiences; (4) new empirical (model) data by specific experts corresponding to the design, implementation and evaluation of ECS along the project (Living Labs in Front-Runner Cities); (5) Public national and EU data servers; (6) Sister projects and finally (7) simulation data from scenarios evaluation by means of the EdiCitNet toolbox (including the catalogue of ECS and the serious game Tygron).

The origin of the data for the business evaluation is BRIS - Basic source of data: https://e-justice.europa.eu/content_business_registers_at_

4.2 FAIR data

4.2.1 Making data findable, including provisions for metadata

Are the data produced and/or used in the project discoverable with metadata, identifiable and locatable by means of a standard identification mechanism (e.g. persistent and unique identifiers such as Digital Object Identifiers)?

Main external data that are re-used are already equipped with the metadata descriptors (i.e. EUROSTAT, INSPIRE). Data collection, which is beyond the definitions of the standard classifications and nomenclatures, will follow the specifications of the DCAT-AP 2.0.1 metadata standard (<https://joinup.ec.europa.eu/collection/semantic-interoperability-community-semic/solution/dcat-application-profile-data-portals-europe/release/201-0>).

[european_level-105-en.do](https://ec.europa.eu/eurostat/tgm/table.do?tab=table&init=1&language=en&code=sdg_8_10_11_12_13_14_15_16_17_18_19_20_21_22_23_24_25_26_27_28_29_30_31_32_33_34_35_36_37_38_39_40_41_42_43_44_45_46_47_48_49_50_51_52_53_54_55_56_57_58_59_60_61_62_63_64_65_66_67_68_69_70_71_72_73_74_75_76_77_78_79_80_81_82_83_84_85_86_87_88_89_90_91_92_93_94_95_96_97_98_99_100).

Sociological data source is the EUROSTAT and corresponding national statistical offices. Corresponding more detailed analysis will follow the reference methodologies defined by these.

What is the expected size of the data?

The size of the data is today not known but it is not expected to be larger than 10 TB. Initial developments with storing results from bibliography and different kinds of experimental measurements will permit revising this initial data management plan during the course of the project.

The spatial data collected within EdiCitNet will potentially have the nature of “big data” as it will address a wide spectrum of INSPIRE defined spatial data infrastructure. The size of the data cannot be estimated yet, but will be added as soon as possible.

To whom might it be useful ('data utility')?

The data will be valuable for the following potential end-users: urban planners, consultants, entrepreneurs, authorities, researchers, educators, students and, in principle, any citizen interested in implementing NBS/ECS to regenerate urban areas.

All data and software that will be published in the data repository edoc, will get a DOI for easy citation and unique identification.

What naming conventions do you follow?

A structured data storage is essential for proper and secure storage of data files and records. For any file-based storage this includes clear and unambiguous file naming, the use of proper versioning, clear and intuitive folder structure. The use of a standard file naming convention per data type, and a clear versioning will be encouraged. The recommended general naming convention for EdiCitNet is as follows:

EdiCitNet_[work package & task No]_[Data collection method]_[File name]_[Version

No]_[YYYYMMDD].[File format]

For example: EdiCitNet_WP7_T5_Interview_MOOCevaluation_V1_20221211.mp4

Shared files and files within the folder “Data archive” will follow a hierarchical folder structure (see Fig 1).

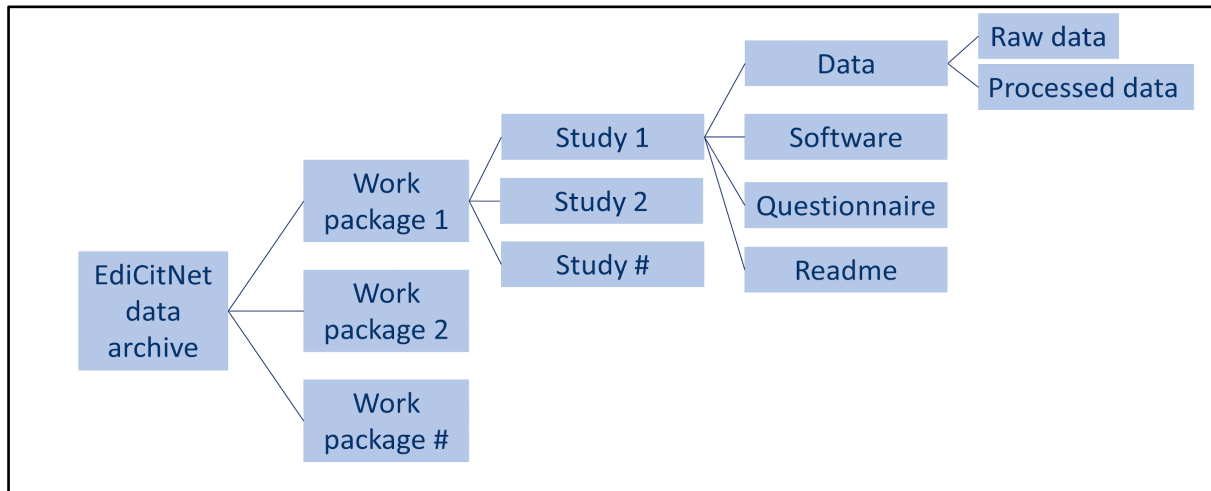


Figure 1: Hierarchical folder structure for shared and archived files within EdiCitNet

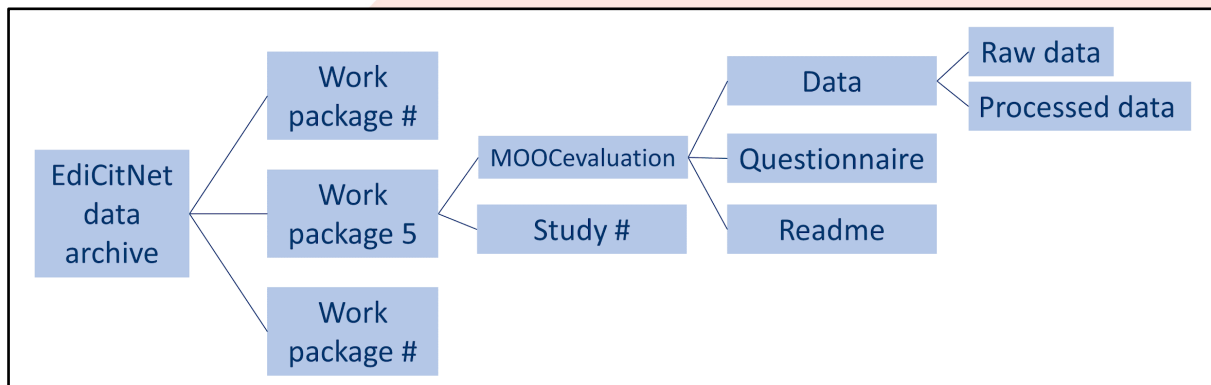


Figure 2: Example for EdiCitNet WP5 folder structure

Will search keywords be provided that optimize possibilities for re-use?

Yes, keywords search will be provided in the EdiCitNet toolbox as well as in the data repository to facilitate data re-use, following the Oppla’s repository keywords, plus other specific for NBS for food production, to foster integration with it.

Do you provide clear version numbers?

The datasets stored on local will be tracked by version history provided by Microsoft Share-Point in addition to manual versioning through the naming convention (see above). Developed software that requires version control will be tracked by Git.

What metadata will be created? In case metadata standards do not exist in your discipline, please outline what type of metadata will be created and how.

In order to keep data findable, it is necessary to provide its metadata. Metadata is a systematic method for describing such resources and thereby improving access to them. Author, date created, date modified and file size are examples of very basic document metadata. CERIF (Common European Research Information Format) is the standard that the EU recommends to its member states for recording information about research activity. Since version 1.6 it has included specific support for recording metadata for datasets. Besides, DCAT-AP for vocabulary and FIWARE for data models are the

recommended standards to be adopted to ensure interoperability. CKAN API standard will be considered for API development to ensure interoperability with existing repositories and databases.

Business data follows the definitions of the IAS (International Accounting Standards), and EU rules on financial information disclosed by companies as defined by the accounting rules - Directive 2013/34/EU (Directive 2013/34/EU of the European Parliament and of the Council of 26 June 2013 on the annual financial statements, consolidated financial statements and related reports of certain types of

4.2.2 Making data openly accessible

Which data produced and/or used in the project will be made openly available as the default? If certain datasets cannot be shared (or need to be shared under restrictions), explain why, clearly separating legal and contractual reasons from voluntary restrictions.

As a general rule, all data produced by EdiCitNet, which has been described above, will be made openly available, under an Open License. Specifically, it is expected that data related to the social media, to any publicity, designated courses, open access publications, survey results, public deliverables will be made openly available by default. If data cannot be made openly available (e.g. due to privacy and data protection reasons), this data will be properly anonymized or generalized (i.e. grouped by categories) so that the resulting datasets will be open as well. Moreover, the sensitive data will be encrypted from the origin to ensure the users confidentiality. In addition, it is agreed within the consortium that the information that has to be kept confidential within EdiCitNet will be marked with a watermark (or similar) with a mention “keep information confidential within EdiCitNet project consortium”.

Regarding re-used data from other projects or scientific articles, we will check its individual licenses to properly share this data. Before the re-use of data, the permission or the licence of the creator must be obtained. The source is always referenced and data cited properly to make data provenance clear.

Business data in the EU is granted with open access in most of the EU countries (<https://e->

undertakings).

FADN methodology shall be applied for the business analysis of the ECS which are not business related (not providing accounting results) and focused on agricultural productions. In this way the production related to the ECS is comparable (and to certain extent) harmonized with the overall CAP, granting the metadata harmonization with Council Regulation (EC) No 1217/2009 of 30 November 2009. Being fully aware that the method is aiming at the commercial farm the same methodology can be slightly modified and adopted for the ECS.

justice.europa.eu/content_business_registers_at_european_level-105-en.do.

FADN data/information will be anonymized and provided for the reference crop pattern/ECS. Data on the sociological dimension of the ECS implementation will be by its source anonymized and shown averaged in order not to disclose any personal information (meeting GDPR requirements).

How will the data be made accessible (e.g. by deposition in a repository)?

All data, software, documentation (readme) and metadata will first be collected and stored by the coordinator UBER within SharePoint with regular backups (every other week) within the institutional storage service 'HU-Box' of Humboldt-Universität zu Berlin. HU-Box offers a synchronized cloud storage with integrated version control. Data is stored on institutional servers of Humboldt-Universität zu Berlin. This ensures regular and automatic nightly backups with at least four copies at two locations in Berlin.

If data is to be published and made available in the EdiCitNet toolbox the work package leader will copy the respective files to the folder “data archive” within SharePoint. A student assistant at UBER will regularly check the folder for new files and will publish them together with the readme (see annex 1 for readme template), metadata, and DOI allocation at the certified institutional data repository 'edoc' (<https://edoc.hu-berlin.de>). The DOI and metadata is then made available in the EdiCitNet toolbox for others to find, open and re-use (see data workflow below)

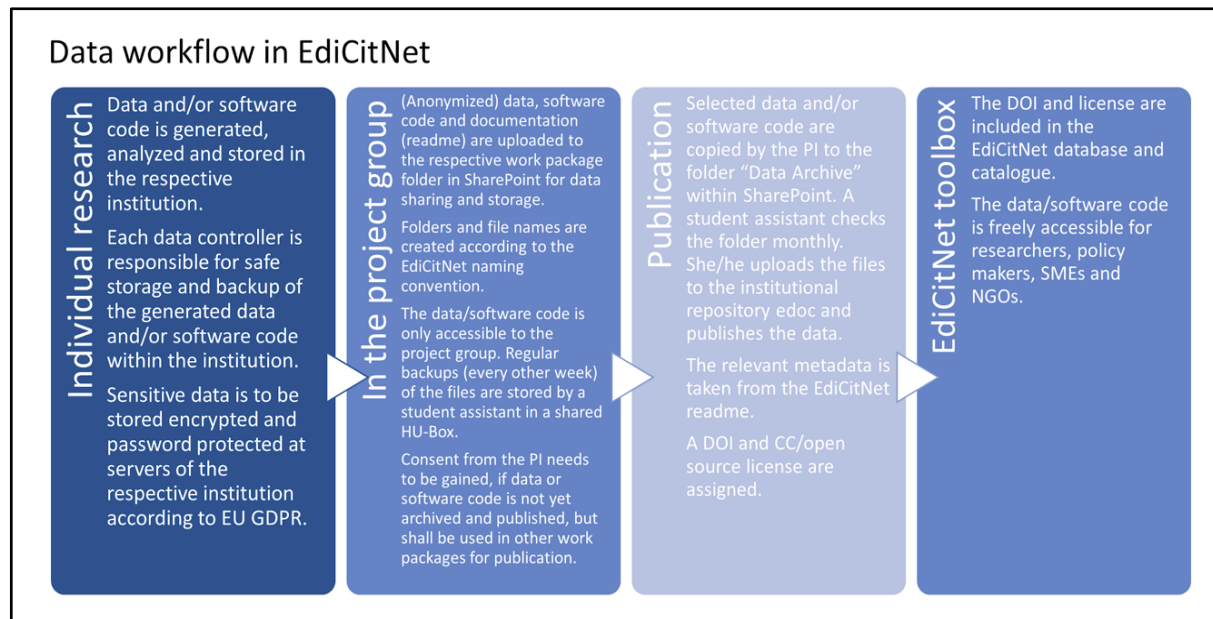


Figure 3: Data workflow in EdiCitNet

After the deposit at edoc and EdiCitNet toolbox, the files may be uploaded to other institutional repositories (e.g. [UdG](#), [UL](#)) and platforms like Oppla as well. Sensitive data will only be available within legal means (consent) from the respective institution of the data controller. The storage and/or archiving of sensitive data without informed consent of the participants is not allowed.

What methods or software tools are needed to access the data?

The data will be accessible through standard publicly available software such as a web browser and, when needed, complemented by customized tools (e.g. API) developed by the project. EdiCitNet database/repository will provide basic robust, fast services. Open access (using open web search tools) is especially envisaged for the Catalogue of Edible City Solutions, which is a focal point of different activities of the project as well as key dissemination framework.

Business data will be granted the same open access as for the generally open data of the companies.

Is documentation about the software needed to access the data included?

Standard publicly available software will be used where possible, but if specialist software

tools are developed, i.e. specific API created, a short text file (e.g. ASCII) will be provided with the data file to explain the software and version required. The datasets that will be made available will follow the file standards, using open-source formats as much as possible.

Is it possible to include the relevant software (e.g. in open source code)?

The majority of the software programmes are available as commercial products or as free-ware. For the software developed in the project, the source code will be deposited in the Github repository. A commercial software will be used during the project (i.e. Tygron, which requires a license) to build the serious game (The Edible Game) but the more relevant simulation results from this software, as well as the methodology to build this game, will also be publicly available. The open-source code will be provided according to the consortium agreement in accordance with the Intellectual Property rights agreement.

Where will the data and associated metadata, documentation and code be deposited? Preference should be given to certified repositories which support open access where possible.

All data, software, documentation (readme) and metadata will be made available through UBER's institutional data repository '[edoc](#)'. It is a certified repository with DOI allocation that

guarantees long-term availability and ensures FAIR data publication. Furthermore, data will be made available through EdiCitNet toolbox and the Oppla platform for wide re-use. EdiCitNet partners are free to share the outcomes of EdiCitNet via other platforms or repositories (e.g. [UdG](#), [UL](#)), in addition. This ensures wide distribution and supports re-use.

According to EU GDPR, sensitive data that cannot be anonymized either needs to be deleted after the project or stored within the respective institution to adhere to the informed consent sheet.

Have you explored appropriate arrangements with the identified repository?

The institutional repository [edoc](#) is informed about the project and can publish the datasets without additional costs.

If there are restrictions on use, how will access be provided?

In compliance with the principles of the Directive (EU) 2019/1024 of the European Parliament and of the Council of 20 June 2019 on open data and the re-use of public sector information, data availability is pre-categorised at this stage in one of three ways:

- Open data that is shared for re-use or that underpins a scientific publication. There are no restrictions on the use of the published data, but users will be required to acknowledge the consortium and the source of the data in any resulting publications.
- Consortium Confidential data that is accessible to all partners, but retained within the consortium and subject to the project Non-Disclosure Agreement (NDA). This is the case for data that is kept for exploitation within the project. Once the data is exploited, generally by publishing its main results, the data will be made available as open data.

4.2.3 Making data interoperable

Are the data produced in the project interoperable, that is allowing data exchange and re-use between researchers, institutions, organisations, countries, etc. (i.e. adhering to standards for formats, as much as possible compliant with

- Personal data, processed by one of the partners of the Consortium, corresponding to the informants, collected mainly by the web-based survey and interviews. Once anonymized or grouped, it will be classified as open.

Is there a need for a data access committee?

No, not at this time with the current state of knowledge.

Are there well described conditions for access (i.e. a machine-readable license)?

The Creative Commons licenses will be used. These include CC0 and CC BY (see <https://creativecommons.org/publicdomain/zero/1.0/> and <https://creativecommons.org/licenses/by/4.0/>). EdiCitNet supports a large array of widely used as well as domain specific, machine readable licences. The owner of the data will determine which of these licenses will be used when data is published. However, it is the project's recommendation to choose CC0 for data and CC BY for media.

Software developed within EdiCitNet will be made available either under GNU's General Public License 3.0 (<http://www.gnu.org/licenses/gpl-3.0.en.html>) or MIT license (<https://opensource.org/licenses/MIT>).

How will the identity of the person accessing the data be ascertained?

Users are required to register to download and use the EdiCitNet toolbox providing their name and email. They will receive an email from the Consortium so that they can confirm their registration as a user (two-step identification). The identity of the person accessing the EdiCitNet open access web-based catalogue and edoc repository will not be verified otherwise. However, we expect users to follow the standard norms of scientific citation and use of the data in this context will be tracked through scientific citation.

available (open) software applications, and in particular facilitating re-combinations with different datasets from different origins)?

Yes, the data produced in the project will be

interoperable as the datasets will adhere to standardised, open formats. As mentioned in section 1. “Data Summary”, in order to comply with interoperability and re-usability requirements and to facilitate the exchange between researchers and institutions, standard and open file formats will be used in the EdiCitNet project as much as possible. Interoperability is ensured also by early definition of standard classification structure used by the project. The EdiCitNet database will be developed integrating existing standard classifications (e.g. Eurostat, INSPIRE data specifications, classifications from other projects e.g. GREENSURGE), existing data (e.g. GIS open access data), existing (well established) modelling approaches and will be compliant with “Data management and EU evidence-based platforms” Task Force to ensure interoperability of data (among NBS sister projects, Oppla/ThinkNature).

What data and metadata vocabularies, standards or methodologies will you follow to make your data interoperable?

Accessibility and interoperability of the metadata/case studies in the EdiCitNet database will be assured since we will follow the procedures established and recommended by the Task force “Data management and EU evidence-based platforms”. DCAT-AP for vocabulary and FIWARE for data models are the recommended standards to be adopted to ensure interoperability. The APIs to be developed (to

4.2.4 Increase data re-use (through clarifying licences)

How will the data be licensed to permit the widest re-use possible?

The data will be licensed following the Creative Commons licenses CCO or CC BY and by adding machine readable licences. Software developed within EdiCitNet will be made available under GNU’s General Public License or MIT license.

When will the data be made available for re-use? If an embargo is sought to give time to publish or seek patents, specify why and how long this will apply, bearing in mind that research data should be made available as soon as possible.

This is related to the data categories specified above. Open data will be available without embargo. Confidential data will be kept until its

interact with existing knowledge repositories and databases) will be also compliant with this task force to ensure interoperability of data (among NBS sister projects, Oppla/ThinkNature), specifically with CKAN API standard will be considered. Metadata within edoc will follow the Dublin Core standard and is available through an API for easy access.

We are evaluating to describe the data in compliance with the ThinkNature/Oppla templates.

Will you be using standard vocabularies for all data types present in your data set, to allow inter-disciplinary interoperability?

EdiCitNet is currently co-developing a document on common glossary and terminology. Standard vocabularies will be used for all datasets, when possible: to ensure inter-disciplinary interoperability and re-use among all EU H2020 NBS-sister projects. Task force on “Data Management and EU NBS Knowledge Repository” recommends the DCAT_AP standard.

In case it is unavoidable that you use uncommon or generate project specific ontologies or vocabularies, will you provide mappings to more commonly used ontologies?

The project will avoid generating its own ontologies and vocabularies.

proper exploitation and will be open after that. Personal data can move to open after anonymization or grouping.

Are the data produced and/or used in the project usable by third parties, in particular after the end of the project? If the re-use of some data is restricted, explain why.

During the project, only open data is completely usable by third parties though the repositories. However, it is expected that at the end of the project, all the data generated could be classified as open since it will have been already exploited.

How long is it intended that the data remains re-usable?

After the end of the project, the EdiCitNet

database will be re-usable and remain available indefinitely in the mentioned repositories, that do not depend on the project itself, with no access or time restrictions, except when it could become obsolete.

Are data quality assurance processes described?

The data quality of the EdiCitNet database is ensured by different measures. These include

4.3 Allocation of resources

What are the costs for making data FAIR in your project?

The process of making the data meeting FAIR principles was already anticipated with the definition of the WP2 of the EDICITNET project and tasks assigned to different partners related to it. Beside that the FAIR principle is also shared with the other partners of the project providing the data in suitable, format enabling findability, accessibility, interoperability, and reusability already at the source of the data and information.

There are no expected costs for data storage in the institutional repositories more than the person hours dedicated to prepare and upload the data, which had been already included in the dedication in person month of each partner to the different WP.

How will these be covered? Note that costs related to open access to research data are eligible as part of the Horizon 2020 grant (if compliant with the Grant Agreement conditions).

This is included in the grant agreement as a service purchased.

Who will be responsible for data management in your project?

The project coordinator has the ultimate responsibility for the data management in the project. ICRA and UL will also be responsible for all data stored in the database, catalogue and generated by the serious game (Tygron). The generators of the Living Labs (ECS

4.4 Data security

What provisions are in place for data security (including data recovery as well as secure storage and transfer of sensitive data)?

All data is securely stored on institutional

validation of the sample/information by the local partner (academic or cities), the WP leader and the toolbox developer; besides, some samples will be replicated and/or compared with results of similar studies and systematic distortion will be controlled. Quality assurance is also supported by the multi stage use of the collected data anticipated by the project. With this, each stage is also providing a validation process for the previous steps.

implementations) data will manage their own data. NIBIO is responsible as WP5 lead and thus FRC data collector and BOKU as WP4 lead and thus FC data collector.

As stated before in figure 3, the principal investigators will be responsible for the preparation and anonymisation of the data, software, metadata and documentation for the upload to the official repositories. A student assistant at UBER is responsible for the upload of the files to the repository. The PI will ensure that the data complies with all the requirements to be classified as open. That is, if the data is generated by the project, the PI will verify that it complies with the standards for publishing and that it has been properly exploited within the project.

Are the resources for long term preservation discussed (costs and potential value, who decides and how data will be kept and for how long)?

The datasets, software, metadata and documentation uploaded in the institutional repositories will be kept indefinitely, the only restriction is whether they become obsolete. Regarding the web-based EdiCitNet platform, the aim is to remain beyond the project as a p2p platform to share knowledge among people interested in ECS. The main barrier to this is to find a server to host the platform beyond the project. WP2 leaders are committed to explore the possibilities once the platform is already working and, thus, could be showcased to possible interested parties.

servers (see annex 2), with their own security, versioning and backup provisions. Sensitive data will be kept separately and encrypted to ensure data protection. Once published, all data will be archived within the institutional

repositories and stored in Oppla.

For the EdiCitNet catalogue, an alert system will be implemented to ensure warning messages if there are problems during file transfer from the data originators to the data centre.

Is the data safely stored in certified repositories for long-term preservation and curation?

4.5 Ethical aspects

Are there any ethical or legal issues that can have an impact on data sharing? These can also be discussed in the context of the ethics review. If relevant, include references to ethics deliverables and ethics chapter in the Description of the Action (DoA).

Ethical issues have low potential impact on data sharing in EdiCitNet. Some potential limitations could be identified in the analysis of the social impacts of ECS, as the social impacts and their examination is of special importance. It is anticipated that all data and information that might contain sensitive information (i.e. personal data) will be already aggregated and de-individualised at early stages of the research process, therefore they will not enter the shared data/information framework at all.

Informed Consent

Any person participating in EdiCitNet interviews, workshops or other activities that may lead to the collection of data that will subsequently be used in the project will be provided with a form for information and consent. The different consent forms (informed consent, consent forms for legal representatives and consent form for the collection, storage and further processing of the data) are provided as online links as well as PDFs in the respective project languages. The consent forms will be stored and the consent can be revoked at any time. Participation in any activities happens on a voluntary basis.

It is the initial responsibility of the organisations conducting the survey to make the data anonymous or to obtain informed consent if personal information is collected. Information and different consent sheets are available as online links on the website and as PDFs in the respective project languages on SharePoint (see D9.1, D9.3, D9.4). All consent sheets must be

UBER will ensure long-term preservation and curation through archiving all relevant project outcomes at the institutional edoc repository. Most sites will also hold a copy of their own processed data, effectively acting as a second distributed database. All open datasets will be stored on institutional repositories from some partners' universities, thus ensuring long-term preservation and curation as well.

submitted to the coordinator as the organisation with overall responsibility for treatment of personal data.

Traumatised and unstable people

Even if it is not intended to make direct contact with traumatised and unstable persons, how to deal with them is explained in D9.5.

Involvement of non-EU countries

The non-EU partners of EdiCitNet will confirm that the ethical standards and guidelines of Horizon2020 are strictly followed, regardless of the country in which the research is conducted. Activities carried out outside the EU are carried out in accordance with the legal obligations of the country in which they are carried out, with the additional condition that the activities must also be permitted in at least one EU member state. Within the framework of EdiCitNet, data is transferred between non-EU countries and countries of the European Union in order to generate joint progress for the development of the master plans and to promote the expansion of the Edible Cities Network. All data transferred between the project partners (within or outside the EU) is limited to pseudonymised or anonymised data and the transfer is only done in encrypted form via secured channels.

Confidentiality of sensitive economic data

Another sensitive data might originate from the WP6 analysing business potential, companies, and green jobs. Similar to the ethical data these will be treated in accordance with the defined non-disclosure agreements with the analysed companies. Similar to individual data these will be protected at the early stages of elaborations, again de-individualized and aggregated.

Is informed consent for data sharing and long-term preservation included in questionnaires

dealing with personal data?

Yes, all the data collected will be following the requirements of 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, and repealing Directive 95/46/EC (General Data Protection Regulation). The processing, including the exchange of data and the long-term preservation of questionnaires related to personal data, will be based on the consent obtained from each person affected. As long as persons have not given their express written consent, personal data collected within the framework of the EdiCitNet project will only be stored, evaluated and used in anonymised form. The persons are informed comprehensively about the intended use of the information collected from them and must agree to

the data collection with their active consent in the form of a written consent. The identity of each person who is interviewed or otherwise meaningfully involved in the project (e.g. via e-mail correspondence) is protected by this anonymisation of data. The anonymisation process guarantees that no specific person can be identified. Statistics and tables of quantitative research will be published in such a way that it will not be possible to identify any person.

Other issues

Do you make use of other national/funder/sectorial/departmental procedures for data management? If yes, which ones?

We will make use of UBER data policy (<https://hu.berlin/rdm-policy>) and other relevant policies for data management, e.g. subject-specific regulations

5. Conclusions

The EdiCitNet project recognized efficient and effective data management already at the early stages of the proposal development. Therefore, the DMP is a quite straightforward process following an already defined pathway, nevertheless raising attention on some specific issues. Development of the central information framework according to the FAIR data management principle is a prerequisite for all project partners recognizing also the complexity of the domain EDICITNET project is addressing.

With the data management plan some specific protocols (i.e. FAIR, GDPR, Open Access) are adopted which would enable better-defined and more consistent data management by introducing standardized data/information processes, which have to be interlaced with every activity of the project.

For this purpose, an abstract of the DMP will be circulated among the partners in order to raise their attention and ensure the actual application of the DMP defined processes and protocols.

Annexes

Annex 1: EdiCitNet readme template



EdiCitNet Readme Template

Creator(s):

Reason(s) for the data analysis:

Creation date of file(s):

Used method(s):

Used software (incl. Version and add-ons) and tools:

Data (file names and content):

Additional files:

License:

Notes:

Annex 2: EdiCitNet institutional storage locations

| Institution/short name | Storage location | Backup | Data security/access |
|------------------------|--|---|---|
| UBER | HU institutional server | Nightly every 24 hours. Data is saved at two separate locations in Berlin | Only EdiCitNet members and authorized personnel from the IT service (Computer and Media Service) can access the data. |
| UBER | E-doc | Nightly | Open access |
| UBER | HU Box | Nightly | Only members of the project within the institution (HU) |
| UBER | SharePoint | Every other week | Only EdiCitNet project group members |
| ANDERNACH | Institutional server | daily | staff working in the department, limited access |
| OSLO | Institutional server | Daily | Staff working in the department, limited access |
| BERLIN | Institutional server | backup of changes daily, whole backup weekly | Staff working in the department, limited access |
| SANTFELIU DE LL | <i>to be clarified</i> | | |
| SEMPETER | Municipality Sempeter – Vrtojba on the user disk and institutional server. | Daily saved data at two locations NAS storage. | Only authorized personnel (EdiCitNet members and IT service) can access the data. |
| CARTHAGE | <i>to be clarified</i> | | |
| LOMÉ | Computer Service Disk, external disk | Constantly | Only EdiCitNet members and Lomé team |
| MONTEVIDEO MEC | MEC institutional server | Every day | Only EdiCitNet members and authorized personnel from MEC- Directorate International Cooperation and Projects can access the data. |
| BuGG | Institutional server | daily | Only BuGG's-Team and persons invited to collaborate |

| | | | |
|---------------|---|--|---|
| BHFP | Microsoft Teams | Constantly | Currently FP Director and BHFPs IT support team (SCIP), if other members of staff start to work on EdiCitNet they will be invited to access that area of FP Teams |
| FSUB | UB server -UB one drive: all infos, Dropbox FSUB (only administrative/financial and deliverables) | Constantly | Only FSUB staff members working on EdiCitNet have access to it. |
| TO | TO member's own computer disk, Institutional servers in Germany | Constantly | Only TO member involved in EdiCitNet has access to these computers |
| UT SEMIDE | UT SEMIDE Local Area Network server | every 24 h | Only UT SEMIDE staff members working on EdiCitNet have access to it. Back up access on NAS only by IT department |
| UT SEMIDE | Google Drive | Constantly | for working documents with no sensitive data. Only Team and persons invited to collaborate |
| REACT | Google Drive External hard Drive | Constantly | Only Team and persons invited to collaborate |
| HIDROLAB | SharePoint Online and Teams (Microsoft 365) and personal Google drive (when sharing with MS not possible) | Every 4 h to an on-premise server and every 8 h to a cloud server (still in testing phase) | Only Hidrolab's Team and persons invited to collaborate |
| MUNDRAUB | Google Drive | Constantly | Only Team and persons invited to collaborate |
| NABOLAGSHAGER | Google Drive | Constantly | Only Team members and those invited to collaborate (we are in the process of transferring to Microsoft SharePoint). |

| | | | |
|-----------------|---|---|---|
| NOLDE & PARTNER | Institutional storage Server | Daily | restricted access only for invited members |
| UOB | 1) WP leads; 2) MS Teams | 1) when requested by WP leads; 2) constantly | Only Team and persons invited to collaborate |
| UL | SharePoint Online and Teams (Microsoft 365) Google drive, UL server | Constantly | Only Team and invited collaborators |
| BOKU | BOKU server | daily | Only EdiCitNet members and authorized personnel from the IT service (Computer and Media Service) can access the data. |
| | Microsoft Team | Constantly | Only Team and persons invited to collaborate |
| | Google Drive | Constantly | Only Team and persons invited to collaborate |
| UDG | UdG - Lequia server (PA-PITU) | Daily | Only UdG - Lequia staff |
| UDG | Teams (Microsoft 365) | Constantly | Only UdG - EdiCitNet team members |
| WU | OneDrive (WU's institutional server) | constantly | only WU team members |
| Oslomet | OneDrive | Immediate | Only EdiCitNet project members |
| ICRA | ICRA's server (VFS) | Nightly (every 24 hours) | ICRA's IT staff. |
| ICRA | Microsoft Teams | Constantly | EdiCitNet members |
| NIBIO | Institutional server, limited access folder | Daily | NIBIO staff working on EdiCitNet project and authorised IT staff |
| | Institutional MS Teams / MS SharePoint | Constantly | Personally, invited project staff employed at NIBIO or other partners and authorised NIBIO IT-staff |
| RMIT EUROPE | SharePoint Online and | Constantly | RMIT Europe staff |

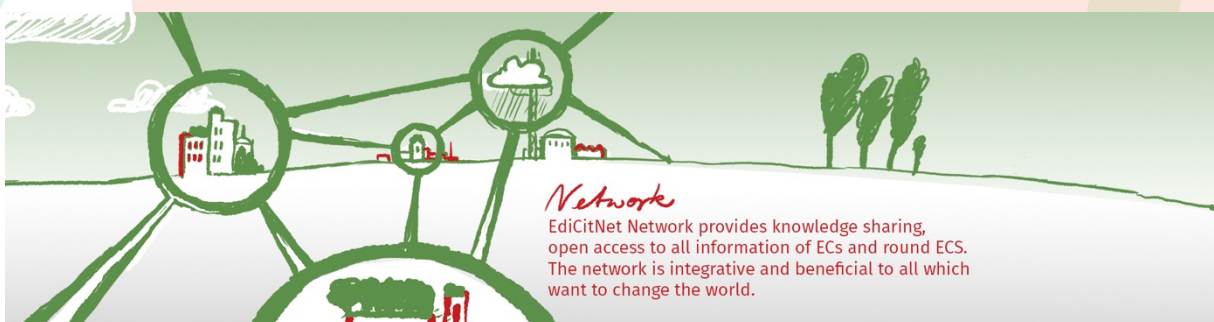
| | | | |
|-------|------------------------------|-------|--|
| | Teams (Microsoft 365) | | |
| PKU | <i>to be clarified</i> | | |
| PRINZ | Institutional storage Server | daily | restricted access only for invited members |

Glossary

| Abbreviation | Description |
|--------------|---|
| API | Application Programming Interface |
| DMP | Data Management Plan |
| DoA | Description of Action |
| DPO | Data Protection Officer |
| EdiCitNet | Edible Cities Network |
| EC | European Commission |
| ECS | Edible City Solutions |
| FAIR | FAIR data principles – Findability, Accessibility, Interoperability, Reusability (2016 Hangzhou summit) |
| FC | Follower City |
| FRC | Front-Runner City |
| GA | Grant Agreement |
| GDPR | General Data Protection Regulation |
| IP | Intellectual Property |
| KPI | Key Performance Indicators |
| LL | Living Labs |
| NBS | Nature-Based Solutions |
| NDA | Non-Disclosure Agreement |
| NGO | Non-Governmental Organisation |
| POPD | Protection of Personal Data |
| SME | Small and Medium-sized Enterprises |
| TRL | Technical Readiness Level |

About the EdiCitNet project

EdiCitNet is demonstrating innovative Nature-Based Solutions (NBS). **Edible City Solutions** are going one step further: We include the whole chain of urban food production, distribution and utilisation for **inclusive urban regeneration** and address societal challenges such as mass urbanisation, social inequality and climate change and resource protection in cities. The key components (1) **City Teams**, (2) **Living Labs**, (3) **Masterplans** and the (4) **Edible Cities Network** with *Toolbox* and *Marketplace* form the basic structure of EdiCitNet.



Thank you!  **www: edicitnet.com**



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