FoodE

D1.2 Data Management Plan (month 6)

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Project Acronym and Name	FoodE – Food Systems in European Cities
Type of action	IA – Innovation Action
Grant Agreement No.	862663
Work package	WP1 Coordination, project management and quality control
Dissemination level	Public
Document type	ORDP
Lead partner	ILS
Authors	Runrid Fox-Kämper, Kathrin Specht
Contributors	All partners
Planned delivery date	31/07/2020
Actual delivery date	24/07/2020
Project website	foode.eu
Project start date	01/02/2020
Duration	48 months
Version	1
Total number of pages	19
Keywords	Data collection, metadata, keywords, storage, app development, open access

Project consortium

No.	Institution Short name	Institution Full name	Country
1	UNIBO	ALMA MATER STUDIORUM – UNIVERSITÀ DI BOLOGNA	IT
2	APT	INSTITUT DES SCIENCES ET INDUSTRIES DU VIVANT ET DE L'ENVIRONNEMENT - AGRO PARIS TECH	FR
3	RMN	COMMUNE DE ROMAINVILLE	FR
4	SWUAS	FACHHOCHSCHULE SUDWESTFALEN	DE
5	ILS	INSTITUT FUR LANDES- UND STADTENTWICKLUNGSFORSCHUNG gGMBH	DE
6	FLY	FLYTECH SRL	IT
7	NOL	NOLDE ERWIN	DE
8	BOL	COMUNE DI BOLOGNA	IT
9	NAP	COMUNE DI NAPOLI	IT
10	UNINA	UNIVERSITA DEGLI STUDI DI NAPOLI FEDERICO II	IT
11	HCA	HAGUE CORPORATE AFFAIRS BV	NL
12	LAN	GEMEENTE LANSINGERLAND	NL
14	WR	STICHTING WAGENINGEN RESEARCH	NL
16	POL	POLAR PERMACULTURE SOLUTIONS AS	NO
17	TAS	TASEN MICROGREENS AS	NO
18	MBI	ASOCIATIA MAI BINE	RO
19	ARC	ARCTUR RACUNALNISKI INZENIRING DOO	SI
20	BEE	DRUSTVO URBANI CEBELAR	SI
21	SBD	AJUNTAMENT DE SABADELL	ES
22	ISL	ORGANIZACION DE PRODUCTORES DE TUNIDOS Y PESCA FRESCA DE LA ISLA DE TENERIFE	ES
23	ULL	UNIVERSIDAD DE LA LAGUNA	ES
24	UAB	UNIVERSITAT AUTONOMA DE BARCELONA	ES
25	METAINST	STICHTING METABOLIC INSTITUTE	NL
26	NBL AS	NABOLAGSHAGER AS	NO

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Document Control Sheet

Version	Date	Summary of changes	Author(s)
0.1	24/06/2020	First draft	ILS
	07/07/2020	First draft reviewed by WP1 leaders and task leaders	ILS, UNIBO
0.2	09/07/2020	Revised draft reviewed and filled in with the partners' contributions	All partners
0.3	23/07/2020	Revised draft reviewed by all partners	All partners
0.4 final	24/07/2020	Final version including feedback from all partners	ILS, UNIBO

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0 Scope of the Data Management Plan

This Data Management Plan (DMP) describes how research data is managed throughout the lifetime of the project "FoodE – Food systems in European Cities Innovation Action" (Feb 2020 – Jan 2024) and after its end. It summarizes procedures and minimum requirements to organize data in a consistent way according to the FAIR (**F**indable, **A**ccessible, **I**nteroperable, **R**e-usable) principles.

All data or documents produced or processed for governmental procedures are not affected by this data management plan. This plan is a working document and will be regularly updated when necessary, and all project partners will be informed about the changes made to this document.

Please note that agreements on common standards, folder structure and identifiers will be updated at the upcoming project steering committee (SC) meetings and internal coordination quality assessments. They will be made available via the project management tool 4PM and in the general assembly (GA).

1 Data summary

1.1 Data collection purpose and relation to objectives

The purpose of the data collection and data generation within the FoodE project is to involve European local food initiatives in the design, implementation and monitoring of environmentally, economically and socially sustainable city/region food systems (CRFS). The key challenge of the project is to improve food and nutrition security of European citizens by shaping a sustainable environment able to increase accessibility and availability of affordable, safe and nutritious food. This challenge will be tackled by setting up a co-creation mechanism, based on Citizen Science[1] and Responsible Research & Innovation principles[2], where public authorities, citizens, SMEs and non-profit organisations can share ideas, tools, best practices and new models, supporting cities and regions in becoming innovative and sustainable food systems.

FoodE will use both primary data generated in the course of the project and secondary data from existing sources and will also generate administrative data. Within the project, qualitative and quantitative analytical methods, such as surveys, interviews, case studies, modelling and simulation will be used to generate, collect and process mainly numerical and textual primary data but also to process secondary data from already existing sources. Administrative data wil be generated through participatory activities and provided by stakeholders and pilots involved. In FoodE, data will be generated or processed, related to the project's objectives, tasks and purposes (Table 1).

[1] https://ecsa.citizen-science.net/sites/default/files/ecsa_ten_principles_of_citizen_science.pdf
[2] https://ec.europa.eu/programmes/horizon2020/en/h2020-section/responsible-research-innovation

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Table 1. Summary of data collection purposes and type per WP tasks

WP	Purpose of data collection/task	Type of data and data source	Software and databases used
1	T1.4: Innovation management. Data to monitor innovations generated by the project	Primary data generation: - data related to innovation, such as new concepts, knowledge, methods, ownerships; - data related to intellectual property rights (IPR) collected from all project partners	Microsoft Office
2	T2.1 Review and inventory of innovative CRFS projects	Primary data generation: - surveys submitted to CRFS projects´ leaders	Online survey tool (by Arctur), data stored in secured database on Arctur´s servers; Microsoft Office, audio files Sphinx
		Secondary data use: - literature review on previous research and databases for CRFS projects inventory and internet research for complementary information;	Scopus, WoS Web browsers
	T2.2 Methodological framework development	Primary data generation: - participatory consultations and interviews with pilot owners and selected CRFS stakeholders on methodological framework indicators and features during cross-pollination events, other events and project meetings and individual contacts	Microsoft Office
		Secondary data use: - literature review on existing knowledge and tools for the integrated methodology development;	Scopus, WoS, Mendeley
	T2.3 Data collection and inventory	Primary data generation: - technical aspects by sampling; - food supply systems and technologies data by interviews and on field research; - social aspects by interviews and on field research; - dietary habits, perceptions, values, and attitudes by interviews and on field research, food offer and food commercialization by interviews and on field research; - economic and costing aspects	Microsoft Office Matlab SPSS / R EnergyPlus Audio SimaPro Sphinx Gabi Online survey tool
		Secondary data use to fill the gaps in: - safety issues and contamination risks and strategies for ensuring product quality, - growing systems used in innovative CRFS, - main social aspects - dietary habits, perceptions, values, and attitudes, on food offer and food commercialization - economic and costing aspects by literature review	Scopus, WoS, Mendeley/Endnote Ecoinvent Gabi

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	T2.4 Assessment of pilots and identification of best performances	Primary data generation: - environmental, social, and costing aspects of selected pilots by interviews and on field research Secondary data use to fill the gap in: - technical, environmental, technological, and costing aspects of CRFS projects by literature review	Google Forms, Google G-Suite, Microsoft Office SimaPro Ecoinvent SimaPro Gabi Microsoft Office
	T2.5 Pilot decision support tool and self-monitoring	No specific data collection is foreseen in this task, as data from other task will be used to develop a tool.	
3	T3.1.MyLocalFoodE initiative creates a catalogue of networking and cross-pollinations initiatives in CRFS, creates stakeholder panels in partner cities and launches the MyLocalFoodE initiatives	Primary data generation: - survey distributed by mail and webform to collect experiences and create a catalogue of initiatives; Secondary data use: - literature/web review Administrative data generation: - personal data (names, e-mail addresses, phone numbers, social media accounts, personal views and opinions) provided by stakeholders forming the stakeholder panels; - contact list of local and national stakeholders	Microsoft Office, Google Forms, Google G-Suite, Database (TBD) Geographic Information System tool (TBD) Maybe audios and/or videos WoS Microsoft Office Online surveying tool (TBD)
	T3.2 FoodE App intends to mobilise and interconnect users and stakeholders. It´s development builds on a theory-based framework development for a CRFS-oriented App. It will be regularly updated and improved by evaluation App use data	Primary data generation by - data stemming from T 3.1 and T.2.1; - from the use of the App, once this is up Secondary data use by: - generation through extensive literature review; - "market research", study of existing applications Administrative data generation: - personal data of registered users (registered users, consent-based);	The App itself Online database (Scopus and WoS) Mendeley) Google Play Store Microsoft Office
	T3.3 FoodE KidScience uses data to create awareness of school pupils, raise interest to engage in the MyLocalFoodE initiative and in the FoodE e-book for young minds	Primary data generation: - interviews and questionnaires applied to teachers; - email and webform to collect experiences - interviews of stakeholders and experts and photography Secondary data use: - literature review, visual content from our archives, partners archives and other creative commons licensed resource - extensive literature review and other WP results; - educational tools: photos, drawings and other infographics	Microsoft Office, Audio Search engines such as Ecosia, Online database (scientific and kid literature, photo databases…)

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			Adobe Photoshop, GIMP or similar Microsoft Office, Google Forms, Google G-Suite
		Administrative data generation: - anonymized list of children involved - list of schools	Microsoft Office, Google Forms, Google G-Suite
4	T4.1 FoodE "Calls for ideas" An open challenge for participatory co-design activities will be launched and selected CRFS project ideas will be awarded in a ceremony	Primary data generation: - surveys or questionnaires submitted to pilot owners about project status, planned participatory activities and target stakeholders - publishing the results from the open challenges	Microsoft Office (excel, word) Google Forms, Google G-Suite Online Survey tools (TBD), Public voting (online platform)
		Administrative data generation: - from pilots, relevant for internal communication (e.g. update mailing list) and for public communication (e.g. address and coordinates of pilot site). - from participatory activities (e.g. participant list) organized at the pilot locations/cities.	Microsoft Office (excel, word)
	T4.2 Executive project finalisation	-	-
	T4.3 Pilot implementation	Primary data generation: - of scientific value (e.g. yield, resource use, whether data etc.) on field research (manual collection, measurement devices such as sensors). - by surveys and interviews on technological upgrades in the different pilot categories. - by multimedia data on pilots and on site-activities (photos, videos) for the public - by surveys submitted to FoodE partners for collecting information on previous activities linked to and/or relevant for pilot projects (e.g. size of the activities, type of service provided, number of beneficiaries) for comparative data before and after FoodE.	Standardized database (TBD aligned with WP2) Matlab, R Microsoft Office (excel, word), Google Forms, Google G-Suite Online survey tools (TBD) CRFS projects' official Web pages, Web browsers Google Forms, Google G-Suite
		Secondary data use: - literature/web search and other WPs' results and databases for CRFS projects inventory (for complementary information)	Scopus, WoS, Mendeley/Endnote Microsoft office (word, excel)
	T4.4 Participatory pilot monitoring	Primary data generation: - sets of performance indicators (based on FoodE framework) for each pilot case and results from the actual monitoring and data collection	TBD/ compatible with the FoodE App
		Secondary data use: - WP2 results and literature/web search (for complementary information)	Web browser, online databases (Scopus, WoS)

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5	T5.1 will classify CRFS business models and conduct SWOT analyses	Secondary data use: - by desktop research (state-of-the-art and developments on CRFS beyond FoodE: scientific literature, reports, other projects), - data from T2.1 review and inventory	Microsoft Office WoS, Scopus, Web browers
	T5.2 Definition of simplified dataset of indicators used for the online survey tool and certification standard	Secondary data use: - literature review; - data from T2.4 CRFS' sustainability assessment and T.4.3 pilot implementation	Microsoft Office WoS, Scopus
	T5.3 Development of the online survey tool on the FoodE App for different user groups	Depending on T.3.2 FoodE App development	TBD
	T5.4 The FoodE label serves as a standard certification scheme for CRFS	Secondary data use: - data on T2.4 CRFS' sustainability assessment - data from T4.3 and T.5.2 (simplified dataset of indicators) - state-of-the-art literature review on labels	CO20ZWaste LCADB, Gabi, Ecoinvent Simapro
6	T6.1 will analyse EU and national framework conditions and policies and identify constraints and challenges	Primary data generation: - qualitative interviews for content analysis and - cross evaluation of App posts, Secondary data use: - analysis of publicly available policy and planning documents and literature	Audio files, MaxQDA Microsoft Office Literature database (Zotero)
	T6.2 will analyse the roles and relationship of different actors in the food system	Primary data generation: - additional interviews and observations in case study cities - workshops for participatory network analysis Secondary data use: - Data from T4.3, T6.1 and T7.2.1	Audio files, MaxQDA Microsoft Office; Interview-based mapping tool (Net-Map) Microsoft Office Software for creating visual maps (like InDesign)
	T6.3 Framework development for the replication of best practices	Primary data generation: - Data from T.2.5, T4.3, T6.1 and T6.2 will be used to identify factors of success or failure	Factor analysis with statistical software (STATA) Microsoft Office
	T.6.4 Development of scenarios for upscaling and of a guidebook	Primary data generation: - Scenario techniques to forecast future pathways of EU CRFS Secondary data use: - Data from T6.1, T6.2 and T6.3	Microsoft Office InDesign or similar software to create visual maps Microsoft Office

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7	7.1 Planning and coordination of internal communication and dissemination activities including visual identity, dissemination and communication strategy, website	Primary data generation: - Visuals and texts will be designed by HCA and all FoodE partners. - Website technology will be developed by ARCT, and will be provided for external users, no sensitive personal data will be included within website. Secondary data use: - images and photos will be provided by partners and collected from free-to-use sources on the internet.	Illustrator Microsoft Office Video recording software (TBD) ADS4 (website Software) Free photo repository (Pixabay, Pexels, Unsplash, etc.)

	T7.2 The visibility and participation strategy will generate strategic texts and visuals. It will build on stakeholder mapping and analysis, press communication and social media activities, assure a long-term run of the MyLocalFoodE and launch the final event	Primary data generation:
		- Visuals and texts will be designed by HCA
		
		Secondary data use:
		- images and photos will be provided by partners and collected from free-to-use sources on the internet;
		
		Administrative data:
		- Personal data (names, e-mail addresses, phone numbers, social media accounts, personal views and opinions) from
		  - stakeholders
		  - participants in MyLocalFoodE initiative events
		  - participants in the final event
			Illustrator
			Microsoft Office
			
			Free photo repository (Pixabay, Pexels, Unsplash etc.)
			
			Online surveying tool
			Social media account
			List of followers
			Microsoft Office

	T7.3 Exploitation strategy will generate strategic texts and visuals, collect contact details and information from stakeholders	Primary data generation: - Visuals and texts will be designed by HCA Secondary data use: - images and photos will be provided by partners and collected from free-to-use sources on the internet; Administrative data: - Personal data (names, e-mail addresses, phone numbers, social media accounts, personal views and opinions) will be provided by stakeholders	Illustrator Microsoft Word Free photo repository (Pixabay, Pexels, Unsplash etc.)
	T7.4 Practice abstracts will generate strategic texts and visuals	Primary data generation: - Visuals and texts will be designed by HCA Secondary data use: - images and photos will be provided by partners and collected from free-to-use sources on the internet	Microsoft Office Illustrator Microsoft Word Free photo repository (Pixabay, Pexels, Unsplash etc.)
8	Ethic requirements	No data used or generated	-

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1.2 Type and formats of data

FoodE generates primary quantitative as well as qualitative data, re-uses secondary data and organizes administrative data. The preferred data file format is a commonly accepted format (Table 2). Export or conversion to standard file formats should be aimed at.

Table 2. Summary of data formats

Type of data	Formats used	Formats for sharing, re-use and preservation
Numerical or textual data	Microsoft Office (.xls/.xlsx; .doc/.docx; .ppt/.pptx) gdocs etc	numerical: comma-separated values (.csv) Rich Text Format or text (.rtf/.txt) document with fixed formatting (.pdf) G-Suite formats
Video data	mp4 format (.mp4)	format for videos
Visual data	jpeg, .png, .svg, .tiff, gif	photo material (.jpeg, .png, .svg, .tiff, gif)
Audio data	mp3 format (.mp3)	audio recordings will be deleted after their transcription and only the processed transcripts will be shared and preserved
Statistical data	Stata format (.dta)	comma-separated values (.csv); Stata format (.dta)
Modelling data	Matlab (.mat)	numerical: comma-separated values (.csv) Rich Text Format or text (.rtf/.txt)

Documentation files explaining all relevant details regarding data collection, processing methodologies and quality assurance will be deposited in institutional or public repositories along with the data sets in .odt, .rtf or .pdf formats. Spatial (GIS) data, and any non-standard file formats, should be stored together with the information about the appropriate software to guarantee long-term data access.

1.3 Data re-use

The FoodE project capitalises on efforts to integrate existing knowledge and therefore re-uses existing data for stocktaking. Existing data will be used where appropriate as part of state-of-the art analysis referring to all relevant thematic contexts of CRFS, e.g. business models, social inclusion, urban regeneration, community building, ecosystem services and sustainability assessment. The backbone of FoodE´s objectives originates from key projects and initiatives conducted by the project partners in recent years and on which the project can built (see Table 3).

Table 3: Key projects conducted by FoodE project partners in recent years

Title	Timeline	Focus
EUPHOROS	2008 - 2012	Environmental impact of greenhouses
Ecotech Sudoe	2011 - 2013	Social and Environmental LCA
FertileCity	2014 - 2019	Integrated rooftop greenhouses
UrbanGreenTrain	2015 - 2017	Urban agriculture training curriculum
SUSTURBANFOOD	2016 - 2018	Urban food systems methodological framework
Groof	2017 - *2021*	Integrated rooftop greenhouses
FEW-meter	2018 - 2021	Circular urban metabolism
Newbie	2018 - 2021	Innovative business models
VALUMICS	2018 - 2021	Sustainable food supply chain drivers

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1.4 Origin of data

Various types of datasets are generated in FoodE (see Table 1). Besides data collected from existing quantitative databases (secondary data), the generated primary data originates from social-empirical research, such as surveys, interviews or events. Further data will be generated by conducting experiments as well as assessments of innovative CRFS and use of the FoodE App.

1.4.1 Survey data

Various surveys are planned in order to collect information on innovative CRFS, stakeholder mapping and governance analysis. By the time of the deliverable (July 2020), a first survey was prepared to collect data from more than 600+ potentially innovative CRFS projects and initiatives all over Europe (WP2, task 2.1) by means of an online questionnaire. Questions address besides personal information, the type, main activities, size of the initiative, its relations to other key partners, its impact and the impact of the COVID-19 crisis.

Other surveys will follow in the project, utilizing a range of response types include numerical information, predetermined choice options, text, etc.

1.4.2 Interviews

Various consortium project partners will conduct qualitative face-to-face interviews, in person, by phone or video connections. Interviews will be conducted e.g. in WP3 with teachers to gain insights into how to increase awareness of school pupils and raise their interest in taking part in the FoodE KidScience activities or in WP 6 with policy-makers to identify supportive and hindering policies for sustainable CRFS.

Most interviews will be of semi-structured nature. Interviewees will be informed in advance (via email, phone or face to face) about the purpose and context of the interviews, and are requested to sign and return an informed consent form (scanned pdf) or to express consent orally in the recording of the interview. The transcripts of the qualitative interviews will be sent to the interviewees for comments and approval upon request.

Neither the recordings nor the individual interview summary as interview datasets are public research material, but may be made accessible in case of later needs, e.g. for academic peer review purposes in an anonymized format. Synthesis of clusters of interviews can be considered for publication in scientific articles but also in policy, business and management briefs. The basic set of questions for interviews may be published as well. Synthesizing interpretations of the interviews are presented in various WP deliverables.

1.4.3 Events and Workshops

Within WP3, a series of dissemination and awareness creation events will be conducted (MyLocalFoodE Initiative). Open-science events organized by HEIs, roundtables involving CRFS managers and NGOs, initiatives devoted to young minds and organized by school pupils will be organized. Partly, and due to COVID-19 crisis, these events will be held online, including participatory tools for co-design (including world cafés and hackathons) and may be recorded upon consent of the attendants. Programme, activities and summaries are eligible for publication on the website and submission of copies to third parties.

Data collected from dissemination activities involving school pupils, will be used to support research activities in awareness creation for young people. Data will be used in public events, among MyLocalFoodE initiatives, with the purposes to: i) return a feedback of the in-class

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experience to the involved kids families; ii) engage school pupils in presenting sustainable CRFS concepts; and iii) developing (within hackathons) innovative strategies for developing innovative CRFS in their regions. Awareness creation activities in school pupils will be included in the European Guidebook to Sustainable CRFS.

1.4.4 FoodE App

The FoodE App is a core element of the project. By actively participating in the development of the FoodE App, users will not only become aware of local initiatives, but also engage in the cross-evaluation of existing CRFS, therein accessing benefits and services provided by CRFS catalogued in the database. The app will continuously evolve during the project, collecting inputs from both the pilot implementation (WP4) and the indicators identification and validation phase (WP2 and WP5).

During the project, participants' personal data collected in the FoodE app will be used for research purposes. Data will be used for reports, articles, infographics. Participants' personal data will be analysed through third party services and software. Personal data, such as socio-economic information and food habits, will be used for app user profiling, dissemination of information, promotion of CRFS products and services, promotions of events at the CRFS level, engage in environmentally-oriented loyalty programme, engage in promoting special benefits and awards and to share FoodE research findings.

WP8 is responsible for complying with ethics requirements regarding the procedures and criteria used to identify and recruit research participants and the protection of personal data (see Section 5).

1.5 Size of data

The expected size of data is still uncertain at this early stage of the project but it is estimated that it may not exceed 50 GB. In the next version of the DMP the size will be updated in more detail.

1.6 Data utitlity

The generated data produced can be relevant for different user groups. They include practitioners (management, policy, stakeholders) who may benefit from data generated on how to improve interactions within actors of the food chain, for empowering local communities and for cities interested to become sustainable food-hubs.

The scientific community may benefit from data generated to develop and test method for assessing the sustainability of CRFS: The data could also be used as a source for further studies, comparisons and for different analyses e.g. in other spatial contexts in Europe and beyond.

2 FAIR Data

This DMP follows the EU guidelines[3] and describes the data management procedures according to the FAIR principles. The acronym FAIR identifies the main features that the project research data must have in order to be **f**indable, **a**ccessible, **i**nteroperable and **r**e-useable, allowing thus for maximum knowledge circulation and return of investment.

[3] Guidelines on FAIR Data Management in Horizon 2020 (Version 3.0, 26 July 2016), http://ec.europa.eu/research/participants/data/ref/h2020/grants_manual/hi/oa_pilot/h2020-hi-oa-data-mgt_en.pdf

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2.1 Making data findable, including provisions for metadata

Research data in FoodE will be organized in a transparent and standardized way in order to make it findable over a long period of time. Minimal agreements for file formatting assure meaningful data storage.

2.1.1 Findability and metadata provision

Data collected/generated by FoodE, either as intermediate or final product such as deliverables, reports, factsheets, guidelines for training etc., should be made available to all project partners for practical use within the project. For that reason, the data management system 4PM has been adjusted to the needs of FoodE. All information collected in FoodE by the consortium partners as part of WPs and task activities is first stored in 4PM, which serves as a central mean for internal data storage and information exchange among all consortium partners. This platform is regularly updated, and the data quality is controlled by the coordination team from UniBo, with the overview from the steering committee (SC). 4PM is password protected, accessible only by assigned project partners. 4 PM will be used through the whole project lifetime. After project ends, data will be archived 1 additional year.

If there are no objections from the point of view of the grant agreement and the consortium agreement, and if the considered data is not subject to sharing limitations due to EU regulations, collected and processed data is supposed to be made available as open access for third parties beyond the consortium through data publications and will be advertised and linked via the FoodE website www.foode.eu and other means of dissemination in social media. An exception can be made for those data of which a majority of the consortium is of the opinion that there is no value added for third parties or if the data generator is not interested in facilitating access to the broader public.

To make availability meaningful for third parties the information should be easy to find and identify. At the moment of publication of project results, each research team will deposit and describe the relating underlying data set(s) in institutional or public data repositories that can attribute persistent unique identifiers to the deposited items. Partners are strongly recommended to use the persistent unique identifiers (DOI or Handle[4]) to cite the data sets as underlying data within their research publications.

For data that cannot be shared, meta-information will be made available for third parties, as much as possible in compliance with the OpenAIRE 3.0 requirements for data archives[5]. As a consequence the project data sets will be visible through the OpenAIRE portal[6], facilitating project reporting procedures. Likely, standards will beare applied similar to e.g. The Dublin Core Metadata Element Set (ISO Standard 15836) as a basic standard which is widely applied, well understood and implemented[7].

The provided metadata will include the following variables:

- Original purpose, project WP/task
- Data type (qualitative or quantitative; primary or secondary)
- Data collection method
- Data analysis method
- Creation date/period

[4] https://www.doi.org/factsheets/DOIHandle.html
[5] OpenAIRE Guidelines for Data Archives, https://guidelines.openaire.eu/en/latest/data/index.html
[6] OpenAIRE, https://www.openaire.eu/
[7] Dublin Core Metadata Initiative, http://dublincore.org/

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- Creator (name, email)
- Owner(s) (organisation(s) + prime contact)
- Data product
- Author of data product
- Kind of quality check (e.g., none, peer-reviewed)
- Level of openness; allowed types of re-use (incl. licenses)
- Link to the content of work packages

Specific keywords derived, when possible, from Thesaurus[8] and controlled vocabularies will be associated to each data set to enhance semantic discoverability.

2.1.2 Naming conventions

All FoodE documents should be provided with a unique filename to ensure effective version control and data storage. Naming conventions so far are proposed for the following items. (Table 4).

Table 4: Naming conventions for files

Document status	File name
Meeting agendas and minutes	
Draft	FoodE_WP<WPno.>_<Type>_<Date of meeting>_<Agenda or Minutes>_V<version no.> e.g. FoodE_WP1_kickoff_20200213_Agenda_V3
Final	FoodE_WP<WPno.>_<Type>_<Date of meeting>_<Agenda or Minutes e.g. FoodE_WP1_kickoff_20200213_Agenda
Deliverables, Milestones and Reports	
Draft	FoodE_WP<WPno.>_<Del. Or Mil. Or Rep.no.>_<YYMMDD>_V<version no.> e.g. FoodE_WP1_D1.6_200310_V1
Final	FoodE_WP<WPno.>_<Del. Or Mil. Or Rep.no.>_<resp. beneficiary> e.g. FoodE_WP1_D1.6_ILS
Presentations	
Draft	FoodE_<conf. title>_<authors>_<YYMMDD>_V<version no.> e.g. FoodE_SURE2020_Specht_etal_200515_V1
Final	FoodE_<conf. title>_<authors>_<Date of conf.> e.g. FoodE_SURE2020_Specht_etal_200706
Conference and Journal Papers	
Draft	FoodE_<journ. or conf. title>_<authors>_<YYMMDD>_V<version no.> e.g. FoodE_Sustain_Specht_etal_20200515_V1
Final	FoodE_<journ. or conf. title>_<iIssue or Conf. date>_<authors> e.g. FoodE_Sustain_15_Specht_etal
Images	
Photos	FoodE_<location>_<YYMMDD>_<author>_<copyright restricted or free> e.g. FoodE_Bologna_191020_Specht_restricted
Others (diagrams, etc.)	FoodE_<title>_<authors>_copyright restricted or free e.g. FoodE_GattChartDeliverables_Orsini_free

These naming conventions are obligatory for any data that will be stored in the data management system 4PM and in repositories. It is advisable to generally follow the proposed naming conventions for any data created in FoodE. For the storage of data within 4PM sections for each WP are be provided. Subfolders are named according to the WP tasks. All contributors to the FoodE project will be instructed in benefitting as much as possible from 4PM.

2.2 Making data open accessible

In general, all data is accessible by all consortium partners via the password protected 4PM project management system. Partners can access all areas of WPs in which they are involved.

[8] https://www.thesaurus.com/

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As a guiding principle, FoodE seeks to make research data openly available, whenever possible, in order to allow dissemination, validation and re-use of research results. To achieve this, FoodE will follow the "Guidelines to the Rules on Open Access to Scientific Publications and Open Access to Research Data in Horizon 2020" to adhere to the rules on open access to scientific peer reviewed publications and research data that will be generated along the project.[9] For this purpose, all files will be converted to standard and well-documented open formats and the data sets will be deposited together with all relevant documentation and explanation.

Restrictions on data access or impossibility to share them will be considered only in the following cases:

- collected data belonging to third party which have denied permission for sharing them on account of confidentiality and proprietary issues;
- protection of personal data of key informants involved in surveys, events, interviews, and case studies;
- when availability of the data would mean that the project's main aim might not be achieved (in this case reasons will be explained in the meta data description)

As a consequence, all possible and legitimate actions and strategies will be adopted to allow data sharing including:

- converting the files to standard open formats;
- providing all relevant documentation and explanation for the data and the data sets;
- obtaining the consent of stakeholders involved in events or interviews for using anonymized and aggregated data of statements or interviews;
- obtaining copyright permissions from third party data owners to be allowed to re-use, reproduce and distribute the collected data;
- in case of copyright on raw data derived, collected or elaborated from pre-existing databases or from other original sources (i.e. papers, journal articles, book chapters, reports, video and audio sources), collected data will be made available if the reproduction and sharing are allowed by expressed permission of the right holders or by applicable copyright exceptions and exemptions.
- Specifically, reproductions and communication of brief excerpts of texts and of other protected works are permitted for illustration purposes for scientific research, provided that the source, including the author's name, is acknowledged and provided that the use does not conflict with the exploitation of the original source and does not unreasonably prejudice the legitimate interests of right holders. Otherwise, only aggregate data resulting from the analysis will be openly published.
- When the sources are freely available on-line in their original repositories, but direct reproduction is not allowed, a detailed account on how the data set was created from the original data will be provided, together with the specification of open repositories from where the original data sets are available. Raw data consisting in full-texts will not be made available without copyright holders permission.

Final products as specified in the GA (such as policy/business briefs, handbooks, journal articles etc.) are accessible publically via the webpage. Information planned to be made accessible for third parties will be reviewed with respect to data quality and data protection regulation prior to its submission to facilities/third parties and will be anonymized following the principles of research integrity, the responsible conduct guidelines of the partner organizations, and the European Code of Conduct for Research Integrity (ALLEA 2017[10]).

[9] https://ec.europa.eu/research/participants/data/ref/h2020/grants_manual/hi/oa_pilot/h2020-hi-oa-pilot-guide_en.pdf
[10] https://ec.europa.eu/research/participants/data/ref/h2020/other/hi/h2020-ethics_code-of-conduct_en.pdf

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Each different data set is deposited by the team that is responsible for the data collection and management in the repository of their choice. It is required that chosen repositories are indexed in OpenAire[11] or listed in the Registry of Research Data Repositories.[12] As a general rule, Zenodo[13] will be used for open dissemination and preservation of research data by all research teams that do not have suitable institutional, national, or disciplinary data repositories.

To facilitate intelligibility and reuse, the data sets will be deposited in the data repositories along with all relevant documentation explaining data collection procedures and analysis.

In general, there will be no need to use specific software to access project data, since researchers will convert the data into open formats. In case particular software is used in data processing, full explanation and instructions will be included in the deposited documentation (tools and software necessary to reuse of data sets is described in 1.2 and Table 2).

All data containing personal or sensible data will be shared only in anonymized form and in line with Deliverables 8.1 und 8.2. In case of specific requests of access to restricted data by single researchers, research institutions, reviewers and committee, aimed for example at verifying the quality of the research results and at reproducing them, UNIBO will act as contact point and will evaluate each request consulting the Partner(s) that produced the requested data.

2.3 Making data interoperable

FoodE will use common data formats as described in section 1.2 and 2.2. All data sets will be described using standard descriptive metadata, as described in section 2.1 and DataCite Metadata Schema[14] in order to ensure metadata interoperability for indexing and discoverability. All relevant documentation explaining codebooks, users' manuals, data collection procedures and analysis will be made available along with the data in order to guarantee intelligibility, reproducibility and the validation of the project findings.

Categories regarding official data relative to EU funded projects included in Annex II of commission regulation (EC) No 1828/200611[15] will be used to name the variables analysed within the project. In the same way variable names of data derived from other official sources, such as Eurostat, will be consistent with the original source names. Variable names of data derived from surveys will match the survey question items as closely as possible.

2.4 Increase of data re-use

FoodE supports the European 2020 strategy in boosting and enabling innovations on European scale. Through their consortium organisations and individual members, the partners have close links to related national and international projects, policy and innovation initiatives carried out by various partners within the project consortium.

In case FoodE data is reused in another project or an operational group, a link should be provided from the original project folder to the new project. As a principle, datasets should never be duplicated and/or moved to a different project without reference to the FoodE project. In case of duplicating datasets for reanalysis or new visualizations within other projects the original dataset is conserved in a folder including date stamp. The duplicate is saved in a new folder including date stamp and reason for duplication.

[11] OpenAIRE, https://www.openaire.eu/
[12] Re3data, https://www.re3data.org
[13] Zenodo, https://www.zenodo.org
[14] https://schema.datacite.org/meta/kernel-4.0/doc/DataCite-MetadataKernel_v4.0.pdf
[15] https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:02006R1828-20111201

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Files to be made accessible for third parties will be declared under Creative Commons Licensing[16] system, the recommended options are:

- Attribution-ShareAlike 4.0 International (CC BY-SA 4.0)
- Attribute 4.0 International (CC BY 4.0)

CC BY 4.0 license permits users to freely share, modify, and use the data, subject only to full credit to the author(s). As an exception, CC BY NC 4.0, which requires full credit but limits reuse for commercial purposes, will be chosen when the data is collected from pre-existing sources that limit their free reuse (for example, when exception for illustration for scientific research is applicable, the reproduction of short excerpts will be possible only for not-commercial purposes).

3 Allocation of resources

Responsible for data management are the data set creators who are generally the leaders of the WPs directly involved in the data generation and collection. All project partners have to be aware that making data FAIR requires a certain share of person-months. This includes e.g. the conversion of data files into open source formats, gaining permission for re-using data from other contexts, and deposit procedures. All WPs in which data is created or used are involved in this task and have to contribute to FAIR data management as part of the allocated budget.

The costs for implementing and running the data management system 4PM up to one year after the termination of the project are included in the budget of ARC.

On partner level, all FoodE partners who intend to publish scientific papers have allocated costs in their budgets for open access publications. Costs for setting up and maintaining the website Foode.eu at least three years after the termination of the project are covered in the budget of ARC.

There will be no costs for depositing public shareable data as the chosen repositories do not apply fees for data storage.

The costs for coordinating the data generation and use by the partners, for preparing and updating the DMP, and for providing guidance on data management and open access issues, account for 5 person-months for the whole duration of the project and are included in the budget of ILS.

4 Data security

The 4PM platform for internal data sharing and knowledge exchange is password-protected as here sensitive data such as minutes from internal meetings etc. are stored for internal transparency.

Backup procedures are implemented and controlled by the coordinators (UniBo) and the responsible partner for 4PM (Arctur). At each institution, research data will be stored in computers, laptops, intranets or hard-drives accessible through institutional password periodically modified according to national law provisions for data security and protected by regularly updated antiviruses. None of the project data will be left inadvertently available.

[16] https://creativecommons.org/licenses/

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Long term preservation of public data is ensured by the chosen data repositories that have specific preservation policies. Zenodo policy e.g. ensures that the items will be retained for the lifetime of the repository and in case of closure, best efforts will be made to integrate all content into suitable alternative institutional and/or subject based repositories.

5 Ethical aspects

Each partner participating in the project, fully complies with the principles and standards sanctioned by the General Data Protection Regulation (GDPR) which provides a common legal framework for all EU Member states and sets guidelines for the collection and processing of personal information of individuals within the European Union (Regulation 2016/679 EU).

All FoodE activities are following the guidelines from the German Research Foundation [17]. This includes that all authors of publications agree on the sequence of authorship, acknowledging that authorship itself is based on a significant contribution to the design of the research, relevant data collection, or the analysis or interpretation of the results.

Further all FoodE partners follow the responsible conduct guidelines of their organizations as described in detail in *D8.2 - Protection of personnel data*. D8.2 contains detailed information on the procedures that are implemented in each partner organization for data collection, storage, protection, retention, and destruction in compliance with national and EU legislation. Deliverables *D8.1 – Humans* details the procedures and criteria that will be used to identify and recruit research participants, as well as it contains information on the informed consent procedures that will be implemented for the participation of humans, before research activities start. In all forms of stakeholder interactions, participants will be informed that participation is voluntary, that consent can be refused and that withdrawal is possible at any time.

Data collected for analyses will be recorded and anonymised so that individual identification of participants is not possible, securing data protection and privacy. Contact information for actors willing to share their experiences will only be made available when stakeholders explicitly agree to this. To secure the rights and acknowledge the contributions of participants, all participants in the innovation action will be invited to provide feedback on participatory events, and provide summaries on the project outcomes. Those participants who contribute substantially, e.g., by describing innovations in detail, will be directly acknowledged at their consent.

The project SC will raise the question of ethical issues including data collection/generation on every meeting of the consortium in order to keep the awareness of their sensitivity among all partners, in particular when it comes to assessment approaches and initiatives in which school kids will be involved.

6 Other issues

In order to ensure guidelines for selection, quality assurance and data protection, all project partners are informed about the details of this Data Management Plan. In addition, the Coordinator and the SC will oversee the adequate implementation of the open data availability via the website and other means.

[17] https://www.dfg.de/download/pdf/foerderung/rechtliche_rahmenbedingungen/gute_wissenschaftliche_praxis/kodex_gwp_en.pdf

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