

FEAST

Data
Management
Plan **DMP**



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Food systems that support transitions to hEalthy And Sustainable dieTs

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Table of Contents

Table of Contents.....	2
List of Figures.....	3
List of Tables	3
HISTORY OF CHANGES	4
Key Facts	4
ACRONYMS AND ABBREVIATIONS.....	5
Introduction.....	6
1.1 Research data management and management of other research outputs	6
1.2 FEAST’s Data Management Working Group	7
2 Data Summary	7
2.1 FEAST Strategic Objectives	7
2.2 FEAST Data Management Objectives	8
3 Data security.....	9
4 Ethics.....	10
5 Characteristics and uses of FEAST data	11
5.1 Types and formats of data FEAST will generate or re-use	11
5.2 Re-use of any existing data and the purpose of data re-use	12
5.3 Origin/provenance of the data, either generated or re-used.....	12
5.4 Expected size of the data that is intended to be generated or re-used	15
5.5 To whom might the data be useful (‘data utility’) outside FEAST.....	15
6 FAIR data.....	16
6.1 Making data findable, including provisions for metadata	17
6.2 Making data accessible.....	18
6.3 Making data interoperable	19
6.4 Increase data re-use	19
7 Other research outputs	20
8 Allocation of resources	20
9 Other issues.....	21
Glossary	22
Annex.....	23
Annex 1 - Naming conventions.....	23
Annex 2 - Survey Questions.....	24
Annex 3 – Brief Work Package Description.....	35
References	37

List of Figures

Figure 1	FEASTs hybrid cloud architecture for data storage	9
Figure 2	Percentage of FEAST partners with/without a data officer or those unclear about their situation	10
Figure 3	Percentage representation of the question about embargo period of data and publication	20

List of Tables

Table 1	Document history of changes	4
Table 2	List of acronyms and abbreviations	5
Table 3	Overview on data types and formats that will be generated or re-used in FEAST	11
Table 4	Purpose of re-using existing data in FEAST and sources of secondary data	13
Table 5	Estimated amount of primary and secondary data in terabyte that will be generated during the FEAST project.....	15
Table 6	Identified stakeholder groups that would be potential users of FEAST research data	16
Table 7	List of persistent identifiers (PIDs) that will be further explored by the FEAST team..	17
Table 8	List of trusted data repositories that will be further explored by the FEAST team	18
Table 9	List of data repositories operated by FEAST partners.....	19
Table 10	FEAST's naming convention for files	23

HISTORY OF CHANGES

Table 1 Document history of changes

HISTORY OF CHANGES		
Version	Publication Date	Changes
1.0	31.12.2022	First version See first document version here: https://zenodo.org/records/8074774
2.0	28.05.2024	Update of the funding logo and the disclaimer

Key Facts

Action Number: 101060536

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Action title: Food systems that support transitions to hEalthy And Sustainable dieTs

Date: 28.05.2024

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ACRONYMS AND ABBREVIATIONS

Table 2 List of acronyms and abbreviations

DMP	Data Management Plan
DMWG	Data Management Working Group
DOI	Digital Object Identifier
DPO	Data Protection Officer
EU	European Union
FAIR	Findable, Accessible, Interoperable and Reusable
FEAST	Food systems that support transitions to hEalthy And Sustainable dieTs
GDPR	General Data Protection Regulation
LL	Living Lab
NGO	Non-governmental organization
PID	Persistent Identifiers
SOP	Standard operating procedures
WP	Work Package

Introduction

“Good data management and stewardship is not a goal in itself, but rather a pre-condition supporting knowledge discovery and innovation”.¹

The structure of the FEAST DMP follows the structure of the template provided by the EU for Horizon Europe projects. This document is the first version of the FEAST DMP; the DMP will be continuously updated during the course of the project. All FEAST partners are responsible for data generated, creation of meta data, and following FAIR principles. Further to this, the DMP is designed to meet FEAST partner needs. To this end, to gain insight into partners’ specific needs as well as any data they will be collecting or producing in FEAST, a survey was conducted of all partners (the survey questions can be found in Annex 2 - Survey Questions).

The answers to the surveys are summarized in sections 5.1, 5.3, 5.4, 5.5, 6.2.1 and 6.4 and were used to inform the design and delivery of the FEAST DMP.

FEAST research data will align with the EC strategy on Web of FAIR Data and Services to interlink data spaces.

1.1 Research data management and management of other research outputs

Data will be managed comprehensively during the project through work package (WP) 1. The Data Management Plan (DMP) describes the management of data and other research outputs of the project. FEAST will make content discoverable, accessible, intelligible, and usable by all European citizens. The DMP includes information on the handling of research data during and after the project including: what data will be collected, processed, protected and/or generated, which methodology and standards will be applied, whether the data will be shared/made open access, and how data will be curated and preserved.

In addition, when possible, confidential data will be aggregated (spatially or by economic sector) in order to avoid any possibility of tracking down personal and individual information. During the course of the project, the DMP team will meticulously collect the individual inputs from every partner - complete, correct and harmonize as much as possible based on partner’s needs and practices. These processes will be regularly updated throughout the project. FEAST will be advised by the Data Protection Officers (DPO) available at partner institutes and/or the FEAST’s WP 9 (Ethics) which is coordinating all ethics related processes and procedures for the project, regarding the appropriate management and use of research data.

All data or documents produced or processed for governmental procedures are not affected by this DMP. 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 within 10 working days of any changes. This first version of the DMP establishes the underlying principles, methods and standards to direct data processing procedures (e.g. data collection, generation, etc.).

Rules and principles: FAIR (Findable, Accessible, Interoperable and Reusable) and ‘as open as possible, as closed as necessary’ will be FEAST’s guiding principles. Each partner in the FEAST Consortium is responsible for data stored locally and for complying with their own standard operating procedures (SOPs) and any FEAST-specific SOP that may be created, if deemed necessary, as well for complying to the relevant legal and ethical requirements.

The following general terms regarding data protection will be put into data management guidelines and followed by the partners in the FEAST Consortium:

- i. the amount of data collected is relevant and not excessive
- ii. data are stored securely with regular backups, based on data type and data importance
- iii. data are fairly and lawfully processed
- iv. data accuracy is ensured (i.e., all reasonable efforts to ensure data accuracy are undertaken)
- v. data are used only in ways that are compatible with original consent or agreement
- vi. and relevant national and international regulations regarding data protection will be applied

We will comply with General Data Protection Regulation (GDPR) provisions. Collection of personal data, as defined by GDPR, will be avoided as much as possible; in the instances where personal data is collected, appropriate mechanisms will be established to collect, store and use this data safely and securely.

1.2 FEAST's Data Management Working Group

The Data Management Working Group (DMWG) will meet at regular intervals (at a minimum, once every two months) to discuss relevant topics.

The initial focus of the DMWG will be to:

- Get feedback on the DMP from FEAST's Secretariat
- Decide which tools will be used for data management during the project
- Decide whether partners need training
- Communicate with WP 9 (Ethics) to coordinate (see also section 4)

2 Data Summary

2.1 FEAST Strategic Objectives

To achieve our ends, FEAST will deliver on four interlinked objectives which will help us achieve our ambition of catalysing the transition to 'Win-Win-Win-Win' food systems in Europe over the five years of this work.

FEAST Objective 1: Identify, understand and measure the barriers and facilitators that influence the dietary behaviour of different groups (particularly vulnerable groups in Europe), accounting for geographical, socio-economic, behavioural, gender and cultural differences (WPs 2, 3, 4, 5, 6 – see Annex 3 for a description of FEAST WPs)

FEAST Objective 2: Co-create (ideation, design and testing) innovative and effective tools, programmes and strategies, including social innovations, in collaboration with key stakeholders in Europe that will enable consumers to make informed food choices that promote the self-management of healthier and more sustainable dietary behaviours and lifestyles (WPs 3, 4, 5, 7)

FEAST Objective 3: Empower individuals to lead healthier lives by adopting healthier and more sustainable dietary behaviours, choices and lifestyles through evidence-based strategies and tools that address all food system actors at the level of Member States, EU and wider international community (WPs 2, 4, 5, 6, 7, 8)

FEAST Objective 4: Boost the adoption of food and health policy interventions that aim to drive the transition to healthier and more sustainable diets by all stakeholders within the food system by using co-design and scientific testing of communication strategies, and associated monitoring approaches, that could be used by policymakers (WPs 3, 4, 5, 6, 7, 8).

2.2 FEAST Data Management Objectives

The purpose of data generation is to answer research questions linked to FEAST's objectives. For this purpose, data is collected, analyzed and generated in individual WPs. The data generated in the project are considered as primary data; secondary data (re-use of existing data) will be collected in the project and combined with the primary data to deliver on FEAST objectives.

For example:

- **FEAST Objective 1:** Primary (questionnaires and semi-structured interviews and focus groups) and secondary data (big data sets) on granular temporal and spatial data accounting for geographic, socio-economic, behavioral, gender, and cultural differences related to individual and group dietary behaviours.
- **FEAST Objectives 2 and 3:** Primary (questionnaires on dietary patterns and food environments as well as semi-structures interviews and focus groups) and secondary data (big data sets, literature reviews) on dietary patterns and levers for change to inform catalogues of best practice and/or simulation models to support better food environments that enable individuals to make better dietary choices.
- **FEAST Objective 4:** Data-informed communications materials.

The characteristics and uses of different types of data (primary and secondary) within FEAST are described in greater detail in section 5.

To deliver FEAST's project objectives through the safe, effective and efficient use of data, FEAST will focus on four overarching objectives for data management:

1. To maintain responsible conduct of research across all WPs, including strict compliance to ethical guidelines and safe data management.
2. To ensure there is a strong process in place for protecting data and IP, following the rules 'as open as possible, as closed as necessary'.
3. To ensure that findings are actively shared with the FEAST Consortium's key stakeholders.
4. To harmonize and standardize data according to the requirements of FEAST.

FEAST DMP Objectives 1 and 2 will guide all data-related processes and procedures to ensure all regulatory requirements are met and data-related risks are minimized (see sections 3 and 4 on Data Security and Ethics).

FEAST DMP Objectives 3 and 4 aim to promote the appropriate use and dissemination of FEAST data and will address:

- i. the licenses that will be used to make different types of data available
- ii. identifying the purpose for which data were collected
- iii. preparing and corresponding metadata for the data sets and making it available or
- iv. using persistent identifiers for the data to make it findable

To this end, FEAST DMP Objectives 3 and 4 will be guided by FAIR principles, which will be covered as follows:

- F - Making data findable, including provisions for metadata (chapter 6.1)
- A - Making data accessible (chapter 6.2)
- I - Making data interoperable (chapter 6.3)
- R - Increase data re-use (chapter 6.4)

3 Data security

FEAST uses a hybrid cloud architecture to secure data (Figure 1). Data collected and stored in FEAST is secured at multiple levels. For day-to-day work, the Microsoft Cloud is used. This is where documents and data such as deliverables, reports, interim publication statuses, etc. are being collaboratively worked on. The documents and data are versioned, which enables them to be restored. The data on the cloud platform is backed up to external servers in regular cycles. No personal data, or sensitive data in the broadest sense, is stored in the area.

The storage of sensitive data is done on the local servers of the partners who are responsible for data collection, analysis and anonymization. Access to sensitive data is regulated individually according to needs. Backup procedures are implemented and controlled by os4os.

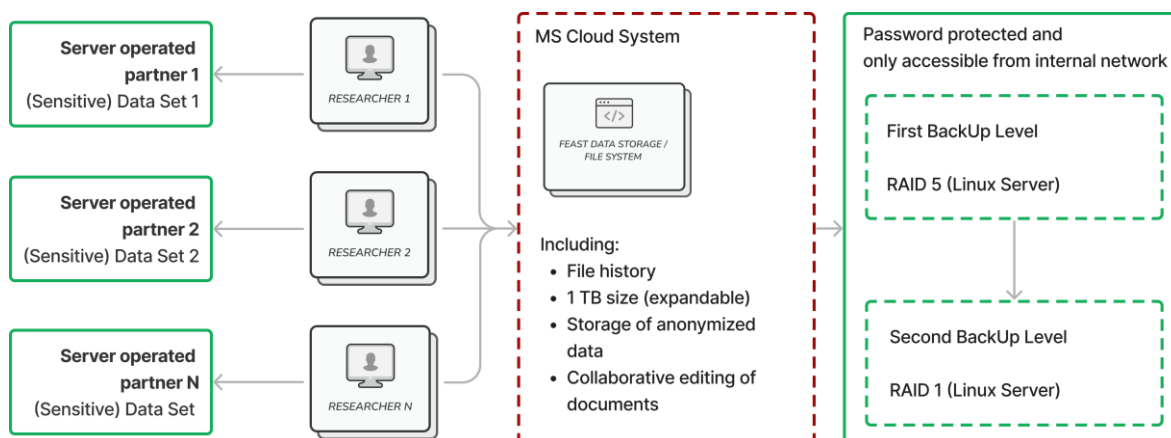


Figure 1 FEASTs hybrid cloud architecture for data storage

Long term preservation of public data is ensured by the chosen data repositories that have specific preservation policies (see section 6.2.1).

Furthermore, coordination with and between those responsible for data security in our partner organisations will be established to ensure efficient and effective coordination on data security matters. To this end, many of our partners already have data security officers (Figure 2):

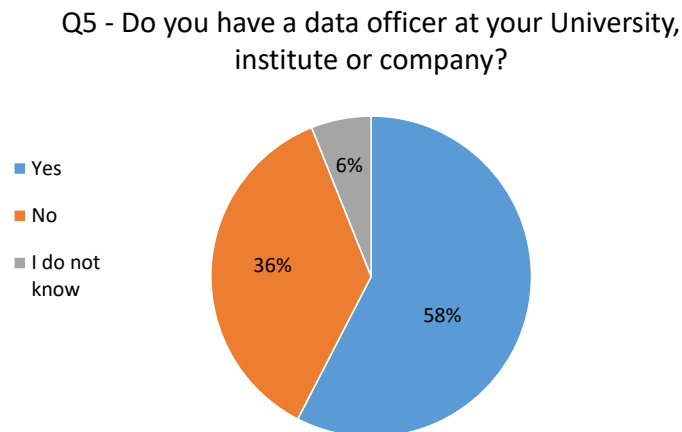


Figure 2 Percentage of FEAST partners with/without a data officer or those unclear about their situation

4 Ethics

Any ethical or legal issues that can have an impact on data management will be discussed in the context of the ethics review being led as part of FEAST's WP9. FEAST partners will comply with the ethical principles as set out in the GA. Furthermore, the ethics aspects of the DMP will be further developed in collaboration with WP9 at a later date.

Informed consent

The research team member will explain the study to the potential participant verbally in simple language, providing all pertinent information (general purpose, procedures, what participation entails, risks, benefits, autonomy and alternatives to participation, and confidentiality), and allow the participant ample opportunity to ask questions or voice concerns. After a verbal explanation, the research team member will provide the potential participant with the written consent form and participant information sheet and allow sufficient time for the participant to absorb and understand the information to consider whether to participate in the research. After allowing the potential participant time to read the consent form and participant information sheet, the research team member will allow the potential participant the time and space to address any additional questions or concerns he, she or they might have. If the potential participant decides to participate in the study, the research team member will ensure the participant signs and dates the approved informed consent form. The research team member will then provide the participant with a signed copy and keep the original signed copy of the informed consent form in the research files.

We will not recruit or consent minor participants who are between 12 and 16 years of age (as per Heidelberg Institute of Global Health (HIGH) ethical review board's definition of a minor), until we have attained active parental consent.

Data confidentiality, protection and storage

By signing the informed consent form participants declare that they agree that the principal investigator and the research team members collect and process the participant’s personal data for the purpose of the analyses describe in the participant information form. Personal data are, e.g., name, birth date, and address. The purpose of storing and analyzing data is to measure the effect of the program and to understand how it has worked. The principal investigator will use this personal data for purposes of administration and study conduct. The principal investigator will use these data – after having assigned a pseudonym – for purposes of research and statistical analysis. The code key – which allows bringing together personal data with participant identity – is accessible only for the principal investigators and the study team members. The code key will be destroyed after 10 years.

The principal investigator passes participant pseudonymized data on to the cooperation partners of the study who perform further statistical analyses. These partners will be listed in the participant information form.

Each participant will have the right of disclosure of their personal data by the principal investigator. The participants also have the right of correction of incorrect personal data by contacting the principal investigator. **At any time**, participants can cancel their agreement to participate in this study and/or their agreement to processing their data collected for this study. Participants can also request deletion of their data. Please also note that the (anonymous) results of this study may be published in the medical scientific literature, in a form which does not allow any conclusions on individual participants.

5 Characteristics and uses of FEAST data

5.1 Types and formats of data FEAST will generate or re-use

Table 3 gives an overview on data types and formats that will be generated or re-used in FEAST.

Table 3 Overview on data types and formats that will be generated or re-used in FEAST

Data type	Data format
Image (I)	Joint photographic experts group (JPEG or JPG), Graphics interchange format (GIF), Scalable vector graphics (SVG), Portable networks graphic (PNG), Tagged image file format (TIFF or TIF)
Video (V)	Moving picture experts group layer four (MP4), Audio video interleave (AVI), QuickTime Movie file (MOV)
Audio (A)	MPEG 4 audio (M4A), MPEG layer audio 3 (MP3), Waveform audio file (WAV)
Presentation (P)	PowerPoint presentation (PPT or PPTX), Open document presentation (ODP), Apple Keynote file (KEY)
Document (D)	Portable document format (PDF), Word document (DOC and DOCX), Hypertext markup language (HTML and HTM), Microsoft excel spreadsheet file (XLS and XLSX), Text file (TXT)
Other (O)	.csv (R), .shapefile (QGIS), statistical datasets formats, ESRI shapefile, feature layer, web maps, non-digital documents

5.2 Re-use of any existing data and the purpose of data re-use

FEAST partners were asked about their need for and motivations to re-use existing data. The key reasons for data re-use were as follows:

- To answer the research questions addressed in the project
- To avoid re-collection of already existing data
- To build on already existing knowledge

FEAST partners were asked to articulate more specific needs, which are highlighted in Table 4.

5.3 Origin/provenance of the data, either generated or re-used

As FEAST consists of academic and non-academic partners, the sources of data that can be re-used are heterogeneous. Most of the academic partners will use data from scientific publications (literature reviews) or existing big data sets while non-academic partners, mainly the Living Lab (LL) cities, will use data generated in past projects and data from local communities (non-scientific unstructured data) for their work. FEAST partners will build on already existing knowledge to the greatest degree possible. More specific sources of secondary data per WP is summarised Table 4.

Table 4 Purpose of re-using existing data in FEAST and sources of secondary data

WP	Purpose of data re-use (Q12)	Sources of secondary data (Q13)
2	<ul style="list-style-type: none"> - To better understand the current dietary patterns and their sustainability in Europe and collect knowledge about current consumption patterns - Considering the data collected by other partners secondary data: re-analysis or primary analysis of data collected within FEAST - External secondary data: a cost-effective way to build knowledge, with the 'cost' both related to the monetary cost for the consortium and the effort invested by participants - To understand current needs, problems, and constraints about healthy food and its consumption, especially by vulnerable people 	<ul style="list-style-type: none"> - Questionnaires on dietary patterns and attitudes, behaviors - Questionnaires from other stakeholders
3	<ul style="list-style-type: none"> - Generate broader insights and generation of new hypotheses - Build on already existing knowledge to develop tools and models - Avoid re-collection of already existing data - Pool analysis across different comparable datasets 	<ul style="list-style-type: none"> - The Business Impact Assessments on Obesity and Population Nutrition (BIA-Obesity) for Belgium and France as collected and analyzed as part of the STOP Horizon2020 project² - Questionnaires on dietary patterns, - Workshop guidelines and protocols
4	<ul style="list-style-type: none"> - To create a baseline for measuring impact of Living Lab (LL) interventions - Re-use datasets collected and avoid repetitive acquisition, develop and test tools for the community platform, LL and community of practice - To develop tools, mapping problems and stakeholders - To help to develop and test community-based solutions to challenges related to healthy/sustainable dietary behavior - Monitor developments in the number of shops that provide fast food over the years (between 2011 and 2021 we have an increase of 46%) (Rotterdam LL) - Data concerning our schools (Avignon LL) 	<ul style="list-style-type: none"> - Statistical data and generated data about food for schoolchildren - Policy recommendations - Questionnaires on dietary patterns, catalogues of best practices and workshop guidelines - Food insecurity mapping through tools and maps of the areas of the LLs (GIS data) - Existing mapping of problems and mapping of stakeholders - Data collected in other LL interventions following our proposed methodology

<p>5</p>	<ul style="list-style-type: none"> - To ensure that standardised and recognised data sets that have already been rigorously analysed and reviewed to ensure reliability are used e.g., measures of food insecurity that are already out there - To choose a good tool, extra information for app and feature determination, test applications (from other companies), develop FEAST tools - To build the design challenges to be answered within the hackathons - To develop concrete solutions within the hackathons starting from existing open source projects or existing datasets/knowledge 	<ul style="list-style-type: none"> - Workshop guidelines/protocols already held - Code already developed, - Previous surveys - Knowledge from other EU projects (deliverables, open datasets, papers, collections of methodologies, best practices, or use cases)
<p>6</p>	<ul style="list-style-type: none"> - To calibrate the model with existing data from public sources in order to address the research questions posed in the project - To enable comparisons of the results with results from other researchers using the same public data sources and apply modelling approaches using existing databases or primary data collected by other WPs in FEAST. - To highlight the links between drivers impacting food choice and behavior, at different levels (micro, meso, macro) 	<ul style="list-style-type: none"> - FAOSTAT data³ - National data on agricultural practices and dietary patterns - National dietary surveys for model development - Existing databases, especially from Eurostat and land use - Existing simulation models - Statistic data on food and health systems provided by official governmental institutions
<p>7</p>	<ul style="list-style-type: none"> - Assessing policy dialogue methodologies and examining evidence related to thematic areas that support policy action for transforming food systems to be healthy and sustainable - Build on existing knowledge for literature review, network analysis of European food stakeholders/policies - Develop tools and policy recommendations from other sources 	<ul style="list-style-type: none"> - Literature review (peer-reviewed and gray literature) and expert interviews and data scraping using the internet - Questionnaire data and catalogues of best practices - EU-level consultations, multi-level policies, roundtables, and interviews - Best practice and policy recommendations from other associated projects
<p>8</p>	<ul style="list-style-type: none"> - To frame existing initiatives on food behavior change - To build a syllabus for researchers or people interested in the topics of food and health - To communicate and disseminate best practices from partners and other projects- 	<ul style="list-style-type: none"> - Documents provided by the partners for communication and dissemination (e.g. cook book, GFO materials, WHO materials)

5.4 Expected size of the data that is intended to be generated or re-used

To estimate the size of the primary and secondary dataset that will be generated over the course of the project, FEAST partners were asked if they could estimate the minimum and maximum amount of data they will generate (Annex 2, Q16). The data categories from Table 3 were used to inform the calculations.

FEAST partners estimate between 0.024 and 0.717 terabytes will be needed for data storage (Table 5). The evolution of data production will be monitored and the storage needs will be revisited and revised if needed.

Table 5 Estimated amount of primary and secondary data in terabyte that will be generated during the FEAST project

	Min.	Max.
Primary data	0.017	0.395
Secondary data	0.007	0.322
Sum	0.024	0.717

5.5 To whom might the data be useful ('data utility') outside FEAST

Given FEAST's reach across micro, meso and macro levels of the food system, there is a requirement to communicate and provide data access to a variety of external audiences outside the FEAST consortium to ensure effective data re-use of FEAST's research data.

FEAST internal: Co-leaders of tasks mainly (WP4 and WP5)

The data generated in FEAST will be converted into a suitable form and made available to various 'data-utilities' during the project. Mapping potential data users with appropriate services are important to encourage subsequent use of the data and to support relevant actors can make concrete use of FEAST results. An extended analysis of FEAST stakeholders and potential data users can also be found in FEAST's DEC Strategy, particularly in section 2.2.

FEAST partners were asked to identify potential stakeholders that will be interested in re-using FEAST research data, common to all WPs are following groups:

- Other researchers, scientists and
- Research institutions, Universities
- Broader scientific communities

More specific stakeholder groups that would be potential users of FEAST research data are summarised in Table 6:

Table 6 Identified stakeholder groups that would be potential users of FEAST research data

WP	To whom might your data be useful ('data utility'), outside the FEAST project? (Q22)
2	<ul style="list-style-type: none"> - Food companies and government stakeholders - Policy makers, local governments, national governments, researchers
3	<ul style="list-style-type: none"> - Public, government - Stakeholders with an interest in duplicating or assessing interventions, researchers - Living labs involved in FEAST and other funded EU projects working in a similar area
4	<ul style="list-style-type: none"> - Local and EU level policy makers, local authorities - Public and other food sustainability stakeholders - Policy makers at local governments in EU - Local communities, citizens, and stakeholders in the LL sites - Other municipalities (not part of FEAST) - Schools, health service providers, - Local product suppliers (farmers, fishermen and their associations) - Non-Governmental Organizations (NGOs) - Local governments working on a food strategy - Stakeholders working with people in vulnerable situations
5	<ul style="list-style-type: none"> - Other cities that want to use digital applications, other cities that want to assess citizen needs - Policy makers and researchers looking to build on the evidence generated from FEAST's trials - Local authorities interested in the FEAST project and solutions; Profit/not-for-profit organizations taking care of vulnerable people (ie. hospitals, shelters, hospices) - Start-ups
6	<ul style="list-style-type: none"> - Other researchers, policy makers, other actors in the food system - The results of the model will be useful for policy makers. - The model script and data used will be published in an open-access journal
7	<ul style="list-style-type: none"> - Policy makers - Civil society organisations and citizens - Other related Horizon Europe projects and other research teams
8	<ul style="list-style-type: none"> - Citizens - Small and medium-sized companies (SMEs) - Other funded research projects, NGOs (e.g. WHO, Food and Agriculture Organization of the United Nations (FAO)) - Media

6 FAIR data

Making research data interoperable and machine-actionable following FAIR principles will involve the federation of existing research data infrastructures and the realisation of a Web of FAIR Data and Related Services for Science.⁴ The ability of machines to find and use data automatically, and to support its re-use by individuals, are fundamental components of the FAIR Principles.¹

Linked to FEAST DMP Objectives 3 and 4, the following section describes the methods and mechanisms that will be used in FEAST to make the research data generated in FEAST FAIR. Chapter

6.1 shows how the data can be made findable (F). Chapter 6.2 is dedicated to the A, accessible, here among other things, repositories are identified which are suitable for FEAST datasets. The last two chapters describe how FEAST’s data can be made interoperable (6.3) and thus re-usable (6.4).

6.1 Making data findable, including provisions for metadata

To make data findable, the data must be described by metadata; a good description of the data sets is the prerequisite for identification and thus findability.

Data sets including publications will be publicly available. A persistent identifier (PID), such as Digital Object Identifiers (DOI), will be used for naming and locating documents, data, and software in a consistent manner.

PIDs can identify many different entities:⁵

- **Digital** - Documents, data, software, services
- **Physical** - People, instruments, artefacts, samples
- **Conceptual** - Organizations, projects, vocabularies

Given this, the FEAST team will define a set of PIDs that will be used to foster the findability of FEAST’s research data. Table 7 shows a first collection of PIDs that can be used.

Table 7 List of persistent identifiers (PIDs) that will be further explored by the FEAST team

PID Name	Description and Hyperlink
DOI	DOI.ORG provides a PID called DOI to Registration Agencies to identify digital objects https://www.doi.org/
ORCID	ORCID provides a PID (an ORCID ID) that a researcher owns and controls and that distinguishes the researcher from every other researcher. https://orcid.org/ (Physical - People)
ROR	The Research Organization Registry (ROR) is a global, community-led registry of open persistent identifiers for research organizations. ROR includes IDs and metadata for organizations and counting. Registry data is available under CC0 and openly available via a search interface, REST API, and data dump. https://ror.org/ (Conceptual – organization)

FEAST’s DMWG will also explore Registration Agencies (RAs) such as Datacite or Crossref¹ and their potential use in FEAST.

¹ Global provider of DOIs for research data to locate, identify, and cite research data. <https://datacite.org/> and <https://www.crossref.org>

6.1.1 Metadata to allow discovery and Search Keywords

Digital artefacts will be described with rich metadata, assigned a PID and be released with a clear and accessible usage licence to facilitate sharing and exploitation of research data by the academic, not for profit, public and private sectors. FEAST will collect and structure metadata to enable discovery and reuse and will follow metadata standards that comply with the corresponding data repositories such as Zenodo (general standards). The identification of the right metadata will be done at a later stage of the project.

The following list provides a first overview of metadata classifiers that can be assigned to the data sets:

- Original purpose, project WP/task
- PID
- Publication data
- Title
- Authors of data product
- Description
- Data source, collection and analysis method
- Licence
- Keywords

Therefore, the FEAST DMWG will request data suppliers (FEAST research partners) to ensure that any dataset should be provided with a corresponding metadata file.

A list of search words is planned. Search words that are suitable for the individual data sets will be decided specifically on the basis of the data set and the standards of the data repositories that will be used to publish FEAST’s research data.

6.2 Making data accessible

6.2.1 Data Repositories and Metadata

FEAST partners are already using different repositories for the deposition of their research data. The consortium will decide which data repositories are going to be used for the project once the data collection process has started and the data is described with metadata. Code will be stored at partner Git repositories. Table 8 shows a first collection of trusted data repositories that will be further explored for use in FEAST.

Table 8 List of trusted data repositories that will be further explored by the FEAST team

Repository Name	Hyperlink
Mendeley Data	https://data.mendeley.com
Zenodo	https://zenodo.org
FigShare	https://figshare.com
GitHub and/or GitLab to publish code	https://github.com/ , https://gitlab.com/

In addition to the more general data repositories, there are also specific data repositories operated by FEAST partners, as shown in Table 9.

Table 9 List of data repositories operated by FEAST partners

FEAST partner	Hyperlink
University of Heidelberg (UKHD)	https://heidata.uni-heidelberg.de/
Institut de Recherche Pour Le Developpement (IRD)	https://dataverse.ird.fr/
Katholieke University of Leuven (KUL)	https://rdr.kuleuven.be/

6.2.2 Data Licence and Metadata

FEAST's partners will follow the principle 'as open as possible and as closed as necessary' for output sharing and achieving a high impact. Based on FEAST partner requirements and the data they will collect, we will explore different options with the Data Protection Officer (DPO) of FEAST partners to determine restrictions on data use, how access will be provided to the data and how the identity of the person accessing the data be ascertained. FEAST will use systematically, and obligatory, open licensing models (mainly CC-BY), as defined by the Open Knowledge Foundation⁶. The licensing models will be applied to publications, content, data and code. Metadata of deposited publications will be made open under a Creative Common Public Domain Dedication (CC 0) or equivalent as defined in the Grant Agreement under Article 17.

The FEAST DMWG will further evaluate if there is a need to set up a data access committee.

6.3 Making data interoperable

FEAST partners will use common vocabularies and protocols to ensure FEAST data aligns with other datasets in the sector. There are several protocols that can be used to facilitate these processes, including:

- MAXQDA - a software program designed for computer-assisted qualitative and mixed methods data, text and multimedia analysis
- Community-endorsed ontologies, such as used by FAO, based on <https://www.fao.org/agrovoc/about>
- Data content (structure, period, sample population, etc.) will be described using the Data Documentation Initiative (DDI) standard and a methodological overview (.docx)
- CESSDA – European social science research protocols
- OpenAIRE Guidelines - <https://guidelines.openaire.eu/en/latest/>

If no suitable vocabularies or protocols can be found, or if they are not suitable for the data collected in FEAST, mappings to more commonly used standards will be carried out.

6.4 Increase data re-use

Documentation needed to validate data analysis and facilitate data re-use will be provided as soon as relevant data sets are published. FEAST's research partners will provide readme files, study

protocols and analyses in an analytical plan document (e.g., data cleaning steps) with all relevant information to enable validation of the data analysis as well as facilitate data re-use.

This can include, but is not limited to:

- information on methodology (methodology documents)
- codebooks, software manuals
- protocols on data cleaning, analyses, variable definitions, units of measurement
- definitions
- clear contact information

FEASTs default way of publishing papers and data will be through the gold standard. Nevertheless, at this stage it is not yet clear whether embargo times will be needed, as the survey of partners shows. Around 58% of FEAST’s partners do not see a need of an embargo period, 42% are uncertain whether one is necessary for their outputs (Figure 3). Further to this, partners will clarify which data needs to be closed once data generation has begun.

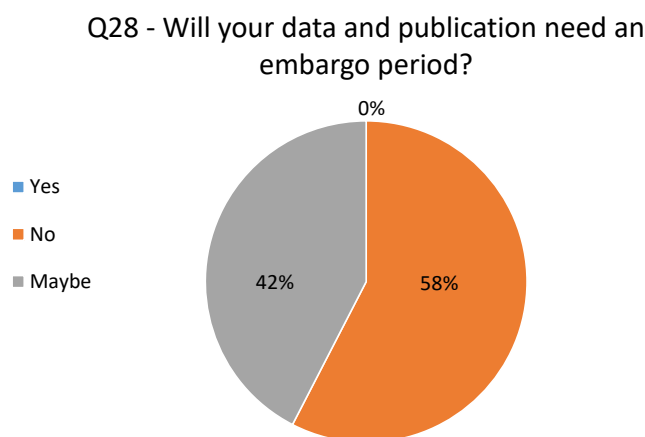


Figure 3 Percentage representation of the question about embargo period of data and publication

7 Other research outputs

Other research outputs like graphical abstracts of FEASTs research approach, infographics, posters, power point presentations, videos, etc. will be made accessible through the FEAST web page. As far as possible, licenses for further use will be indicated. The website will be available online for at least three years after the end of the project and will be operated and maintained by the partner os4os.

8 Allocation of resources

Figure 1 in section 3 shows the hybrid cloud infrastructure set up in FEAST. The costs for the operation of the cloud system and the Back-Up systems is covered by FEAST’s partner os4os. The costs for the operation of the institutional servers at partners’ home institutions are covered by each partner. Furthermore, several research partners have allocated costs for open access publication. However, since publication costs can vary widely, the data management working group

(DMWG) will work on a list of potential journals in which to publish to help increase the visibility of FEAST results while also supporting appropriate cost planning.

Data set creators, generally researchers, will be responsible for data management/following the FAIR principles (e.g. creation of metadata, etc.). The DMWG will provide support to individuals and institutions by developing guidelines, courses, provide relevant information, provide relevant tools and infrastructure.

Long term preservation will be ensured by uploading the final data sets and publication to trusted repositories (see section 6.2.1). The allocation of resources for long term preservation will be discussed at a later stage of the project.

9 Other issues

There are no other issues at the time being.

Glossary

The following glossary provides definitions of the most important terms used in the DMP. Citation to the relevant source is provided.

Data controller	A person, company or other body that determines the purpose and means of personal data processing.
Data processor	A natural or legal person, public authority, agency, or other body which processed personal data on behalf of the controller.
Data Protection Officer (DPO)	The primary role of the data protection officer (DPO) is to ensure that her organisation processes the personal data of its staff, customers, providers or any other individuals (also referred to as data subjects) in compliance with the applicable data protection rules. ⁷
FAIR Principles	FAIR stands for Findable, Accessible, Interoperable and Reusable. It refers to the FAIR Data Principles developed by the FORCE 11 community, that recommend data should be shared according to these four concepts. ⁵
Metadata	With metadata in the context of this PID policy we mean all kinds of assertions about properties of the bit sequence of a digital object such as descriptive, deep scientific, contextual, provenance, access permissions, transactions etc. This kind of metadata is not stored in the PID record as kernel attributes, however the PID record in general should point to the metadata. ⁵
Personal Data	Any information relating to an identified or identifiable individual, for example name, phone number, address, photo, social security number etc..
Persistent Identifier (PID)	A persistent, unique and globally resolvable identifier that is based on an openly specified PID Scheme. ⁵
Processing personal data	Any operation or set of operations performed upon personal data, whether or not by automatic means, such as collection, recording, organization, storage, adaption or alternation, retrieval, consultation, use, disclosure by transmission, dissemination or otherwise making available, alignment or combination, blocking, reassurance or destruction.
Sensitive personal data	Personal data revealing racial or ethnic origin, political opinions, religious or philosophical beliefs, trade-union membership, and data concerning health or sex life.

Annex

Annex 1 - Naming conventions

Following table gives an overview of naming conventions for different data types, files etc.. A defined structure of file names ensures a better version control and archiving of data.

Table 10 FEAST's naming convention for files

Project Acronym	WP<Nr.>	Name	Type	Date	Version
FEAST	WP	Clear and unique name	MM	YYYYMMDD	V

Name: A clear and unique name should be used to identify the document. The names may contain clues as to whether it is:

- Agenda
- Meeting minutes
- Deliverables (Del), Milestones (Mil) and Reports (Rep)

Types:

- Image (I)
- Video (V)
- Audio (A)
- Presentations (P)
- Document (D)
- Other (O)

Example:

FEAST's Data Management Plan - **FEAST_WP1_DMP-PlanDel1.2_D_20221210_V1**

Annex 2 - Survey Questions

In the following the questions asked to the partners for the development of the DMP are shown. Each FEAST partner got the questionnaire as a PDF. The aim of sending the PDF to the partners was that they could collect the relevant information before they started to answer the questions in the online system. The partners should enter their answers collectively, i.e. one answer to the questionnaire per partner.

The questionnaire included in total 7 sections, each section aimed to address a specific topic.

FEAST DMP questionnaire

Welcome to the FEAST DMP questionnaire.

We need your active support in WP1 for the development of our Data Management Plan (DMP). The following questionnaire aims to support our process for the design of our DMP. Many thanks for contributing.

Section 1 – General information

Q1: *Partners name (s):*

Q2: *In which work package (WP) are you involved?*

Section 2 - General questions on DMP and FAIR

In this section of you will be asked general questions. The aim is to get a better understanding of the partners structure and where we need to start.

Q3: *Do you know for what FAIR stands for?*

Options to answer the question:

Yes

No

I'm not sure

Q4: *FAIR stand for Findable, Accessible, Interoperable and Reusable.*

"Today, applying FAIR principles has to be extended to the whole research lifecycle, to ensure transparency, assessment, attribution and reproducibility. For this to happen, all outcomes of science, such as data, software and other digital outputs, have to be FAIR."

Source: Strategic Research and Innovation Agenda (SRIA) of the European Open Science Cloud (EOSC) <https://eosc.eu/sria>

Do you apply the FAIR principles in your research?

Options to answer the question:

Yes, I'm used to design my work according to the FAIR principles.

Partially, I try as much as possible to be in line with the FAIR principles.

No, this is completely new to me.

Q5: *Do you have a data officer at your University, institute or company?*

Options to answer the question:

Yes

No

I do not know

Q6: *Please rate how important data management is for your work (1 = less important, 10 = highly important)*

Options to answer the question:

0	1	2	3	4	5	6	7	8	9	10
less important					highly important					

Section 3 - Collection of primary data.

In this section, you will be asked questions on primary data. By primary data we mean data that you will collect, analyze and generate in the individual work packages. Primary data is not data that you already have. Data that you already have or can get access over data repositories is secondary data. Questions to secondary data will be asked on a separate section of this questionnaire.

The answers in this section are optional, you can continue in case you do not know the answers.

Q7: *What is the purpose of your data generation? (e.g. answer the research questions addressed in the project, share the data with locals or industry, develop tools, etc.).*

Please try to name as many as possible.

Options to answer the question:

Free text box

Q8: *What kind of primary data are you going to generate in FEAST? (e.g. literature reviews, questionnaires on dietary patterns, workshop guidelines/protocols, catalogues of best practices, simulation models, policy recommendations, etc.)*

Options to answer the question:

Free text box

Q9: *What types of primary data are you going to generate?*

Please specify your specific data types such as GIS, statistical, modelling data in the text box.

Options to answer the question:

Image

Video

Audio

Presentation

Document

Other (free text box)

Q10: *What formats of primary data are you going to generate?*

Please specify your specific data formats such as ESRI shapefile (for GIS), .dta for statistical or .mat for modelling in the text box.

Options to answer the question:

Image - Joint photographic experts group (JPEG or JPG)

Image - Graphics interchange format (GIF)

Image - Scalable vector graphics (SVG)

Image - Portable networks graphic (PNG)

Image - Tagged image file format (TIFF or TIF)

Video - Moving picture experts group layer four (MP4)

Video - Audio video interleave (AVI)

Video - QuickTime Movie file (MOV)

Video - Flash video format (FLV)

Video - Advanced video coding, high definition (AVCHD)

Audio - MPEG 4 audio (M4A)

Audio - MPEG layer audio 3 (MP3)

Audio - Waveform audio file (WAV)

Presentation - PowerPoint presentation (PPT or PPTX)

Presentation - Open document presentation (ODP)

Presentation - Apple Keynote file (KEY)

- Documents - Portable document format (PDF)
- Documents - Word document (DOC and DOCX)
- Documents - Hypertext markup language (HTML and HTM)
- Documents - Microsoft excel spreadsheet file (XLS and XLSX)
- Documents - Text file (TXT)
- Other (free text box)

Q11: What is the expected size of the primary data you are going to produce?

MB is megabyte and GB is gigabyte.

Options to answer the question:

	< 5 MB	5 - 20 MB	20 - 100 MB	100 - 500 MB	500 MB - 10 GB	> 10 GB
Size per image file	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Total size of image files	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Size per video file	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Total size of video files	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Size per audio file	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Total size of audio files	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Size per presentation file	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Total size of presentation files	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Size per document file	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Total size of document files	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Section 4 - Collection of secondary data.

In this section you will be asked questions on secondary data (re-use of data). By secondary data we mean data that you will re-use in the individual work packages.

Q12: *What is the purpose of re-using existing data? (e.g. answer the research questions addressed in the project, avoid re-collection of already existing data, build on already existing knowledge, develop tools, etc.).*

Please try to name as many as possible.

Options to answer the question:

Free text box

Q13: *What kind of secondary data are you going re-use in FEAST? (e.g. literature reviews, questionnaires on dietary patterns, workshop guidelines/protocolls, catalogues of best practices, simulation models, policy recommendations, etc.)*

Options to answer the question:

Free text box

Q14: *What types of secondary data are you going to re-use?*

Please specify your specific data types such as GIS data in the text box.

Options to answer the question:

Image

Video

Audio

Presentation

Documents+

Other (free text box)

Q15: *What formats of secondary data are you going to re-use?*

Please specify your specific data formats such as ESRI shapefile (for GIS), .dta for statistical or .mat for modelling in the text box.

Options to answer the question:

Image - Joint photographic experts group (JPEG or JPG)

Image - Graphics interchange format (GIF)

- Image - Scalable vector graphics (SVG)
- Image - Portable networks graphic (PNG)
- Image - Tagged image file format (TIFF or TIF)
- Video - Moving picture experts group layer four (MP4)
- Video - Audio video interleave (AVI)
- Video - QuickTime Movie file (MOV)
- Video - Flash video format (FLV)
- Video - Advanced video coding, high definition (AVCHD)
- Audio - MPEG 4 audio (M4A)
- Audio - MPEG layer audio 3 (MP3)
- Audio - Waveform audio file (WAV)
- Presentation - PowerPoint presentation (PPT or PPTX)
- Presentation - Open document presentation (ODP)
- Presentation - Apple Keynote file (KEY)
- Documents - Portable document format (PDF)
- Documents - Word document (DOC and DOCX)
- Documents - Hypertext markup language (HTML and HTM)
- Documents - Microsoft excel spreadsheet file (XLS and XLSX)
- Documents - Text file (TXT)
- Other (free text box)

Q16: *What is the expected size of the secondary data you are going to re-use?*

MB is megabyte and GB is gigabyte.

Options to answer the question:

	< 5 MB	5 - 20 MB	20 - 100 MB	100 - 500 MB	500 MB - 10 GB	> 10 GB
Total size of image files	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Total size of video files	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Total size of audio files	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Total size of presentation files	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Total size of document files	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q17: Can you provide links to data you are going to re-use?

Options to answer the question:

Yes

No

I do not know yet. I need to do further analysis.

Q18: Please provide us the web links to the data you are intending to re-use. This information is valuable for us in multiple ways. We can analyse the data repositories you are using, identify if the data has persistent identifier (PID), the data license etc..

Options to answer the question:

Free text box

Section 5 - Additional questions.

In this section of you will be asked additional questions.

Q19: Are you able to share your data with the FEAST consortium?

Options to answer the question:

Yes

No

Maybe

Q20: *What kind of data do you want to share?*

Options to answer the question:

Free text box

Q21: *What is the reason for not sharing the data?*

(e.g. unknown license, IP conflicts, sensitive, confidential, proprietary, and personal data, etc.)

Options to answer the question:

Free text box

Q22: *To whom might your data be useful ('data utility'), outside the FEAST project?*

Please name as many as possible.

Options to answer the question:

Free text box

Section 6 - FAIR Data

The FAIR Data principles apply not only to 'data' in the conventional sense, but also to the algorithms, tools, and workflows that led to that data.

The next sections will focus on the FAIR principles and how to implement them into FEAST.

A good source to read more about the FAIR principles is the following publication:

Mark D. Wilkinson et al. (2016). The FAIR Guiding Principles for scientific data management and stewardship | Scientific Data. <https://www.nature.com/articles/sdata201618>

Section 6.1 - Making data findable, including provisions for metadata. The F in FAIR

Following the FAIR principles you will be asked in this section several questions related to the findability of your data.

Q23: *To make data findable we need to create for our data, metadata.*

Do you use specific metadata standards in your research field?

Options to answer the question:

Yes

No

I do not know

Q24: *Can you please provide us information on metadata standards you are using.*

Options to answer the question:

Free text box

Section 6.2 - Making data accessible. The A in FAIR

Q25: *Data Repositories.*

During the course of FEAST we will upload our (research) data to trusted repositories. Below you see some examples. Do you plan to upload your data to one or more of the repositories? Please indicate in the others field data repositories you already used in past or planning to use in FEAST.

Options to answer the question:

DataHub (<https://datahub.io/>)

FigShare (<https://figshare.com/>)

Mendeley Data (<https://data.mendeley.com>)

Zenodo (<https://zenodo.org/>)

DANS (<https://dans.knaw.nl/en/>)

Other (free text box)

Q26: *Do you have an institutional data repository?*

Options to answer the question:

Yes

No

I do not know

Q27: *Can you please provide us the link to your institutional repository?*

Options to answer the question:

Free text box

Q28: *Research data should be made available as soon as possible.*

The best way to realise this is through Open Access publications published under Gold Open Access. Will your data and publication need an embargo period? <https://scientific-publishing.webshop.elsevier.com/publication-process/difference-between-green-gold-open-access/>

Options to answer the question:

Yes

No

Maybe

Q29: *What is the reason for not publishing under Gold Open Access protection of the intellectual property (e.g. patents)?*

Options to answer the question:

Free text box

Section 6.3 - Making data interoperable. The I in FAIR

Q30: *What data and metadata vocabularies, standards, formats or methodologies will you follow to make your data interoperable to allow data exchange and re-use within and across disciplines? Will you follow community-endorsed interoperability best practices? Which ones?*

Options to answer the question:

Free text box

Q31: *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? Will you openly publish the generated ontologies or vocabularies to allow reusing, refining or extending them?*

Options to answer the question:

Free text box

Section 6.4 - Increase data re-use. The R in FAIR

Q32: *How will you provide documentation needed to validate data analysis and facilitate data re-use (e.g. readme files with information on methodology, codebooks, data cleaning, analyses, variable definitions, units of measurement, etc.)?*

Options to answer the question:

Free text box

Section 7 - Additional Feedback

Thank you for taking the time to answer the questions. It is very important for us to be in close contact with all project partners and to gather information accordingly.

Q33: *Do you have any further points that you would like us to consider but which were not asked for?*

Annex 3 – Brief Work Package Description

WP 1 & 9 - Project Management & Ethics requirements

The overall purpose of the activity is to provide project management and coordination for the FEAST project across all other activities. All partners will contribute to effective management through a contract and delivery of technical and financial reports.

WP2 - Mapping & monitoring dietary patterns

Current research on mapping and monitoring dietary behaviours is limited to a few EU countries using different survey focuses, methods, and tools. The most popular ‘food frequency questionnaire’, for example, can measure adherence to healthy diets and in few cases minimally or partially capture the behavioural and communication aspect of food that leads to improved healthy diets. Our approach will advance the state of the art by first reviewing current literature and subsequently improving and integrating tools while applying robust methods including cross-sectional surveys, experiments and the collection of primary data through citizen science initiatives to triangulate our data and overcome these limitations. Our aim will be to fully capture which foods are over- and under-consumed by vulnerable societal groups and the factors influencing their behaviours. These insights will support the development of targeted strategies for specific population segments to enable the transition to healthier and more sustainable diets.

WP3 - Mapping and Monitoring factors that shape food environments

Food environments (consisting of public and private sectors as well as communities) have an important role in determining the types of food citizens have access to. The individual and collective actions of these sectors will, to a large extent, determine the opportunities that citizens have to eat healthy and sustainable diets. We will apply rigorous methods to gain insight into the roles of business, governments and communities in influencing the transition to healthier and more sustainable food environments in line with Farm2Fork aims. The overarching objective here is to improve our understanding of the barriers and enabling factors affecting food system actors’ efforts to improve food environments and to produce, process, promote and provide affordable, sufficient, healthy and environmentally, socially and economically sustainable food products, processes and services to respond to citizens’ needs, requirements and preferences.

WP4 - Co-developed community-based solutions

Food systems across Europe are very heterogeneous. Despite the fact that different areas will face similar problems (such as high consumption of unhealthy/unsustainable diets, especially among vulnerable groups), the root causes that lead to and perpetuate these problems will be different across different contexts. This means that it will not be possible to create one-size-fits all solutions for these problems and it means that co-created solutions that account for local contextual factors will be essential to effectively tackle these problems. The overarching objective of WP4 is to co-develop community-based solutions to support the just transition to healthier and more sustainable dietary behaviour.

WP5 - Co-developed tech-based solutions

Technology-based solutions can play a very important role in supporting the transition to healthier and more sustainable dietary behaviours at the micro and meso-levels of food systems. The goal of WP5 is to design novel technology-based solutions, scale solutions and evaluate the causal impact of existing technologies for promoting the transitions to healthier and more sustainable diets, particularly in vulnerable groups. These solutions will be tested for both individuals and communities.

WP6 - Understanding and measuring the impacts

Our goal with this WP is to work on a common modelling framework that can be used across regions (both cities and rural areas) with a vision of weaving outcomes together for regional and global comparative analyses. Simulation models that are able to more clearly articulate how actions on a micro level are going to have an impact on a macro level can be used to design solutions at a macro level and vice versa. The applicability for policy makers will be key and the produced model will be as easy to handle as possible. Formally, the model will make it possible to i) characterise and prioritise the determinants of food system evolution and ii) assess the impacts of public actions or changes in behaviours. Our approach will directly address the challenge of building an architecture that takes into account the heterogeneity of the nature of the information and the scales of relations.

WP7 - Policy dialogues to inform food system governance

The primary objective of WP7 is to co-design policy and recommendations for policymakers using a policy dialogue methodology underpinned by scientific evidence and stakeholder engagement to facilitate the transition towards healthy and sustainable diets. The key output will be a road-map and set of policy briefs identifying opportunities across different policy levels, involving different food system actors, to achieve a fairer/more equal transition to healthy and sustainable dietary behaviours.

WP8 - Dissemination, Exploitation and Communication

FEAST is designed to create a paradigm shift for food systems to ones that are fairer, healthier and more environmentally friendly for all actors (primary production to consumption), particularly vulnerable populations. Our pathway to impact will begin by working through our Multi-Actor Approach (MAA) to leverage the results and outputs from FEAST to ensure broad-scale strategic dissemination of the project's findings and key messages, enabling their uptake and integration in future strategies and practices developed by local, regional and national governments, and simultaneously engaging the general public (consumers, citizens), production/supply side actors and young professionals in the implementation of such strategies - thus inspiring each target group to move upwards in the engagement pyramid, and further exploiting FEAST's potential to build capacity. The dissemination and exploitation planning will ensure the generated results achieve FEAST's intended outcomes and maximises the overall impacts of the project by efficiently reaching clearly defined stakeholders through wide-reaching communication activities, efficient dissemination and impactful capacity building. The overarching objective of WP8 is to raise levels of awareness of food systems actors, including citizens, about transition towards healthy and sustainable food behaviours.

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www.feast2030.eu



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