wasteless

Waste Quantification Solutions to Limit Environmental Stress

Lead Partner: University of Trás-os-Montes and Alto Douro
Month: M6 - June 2023

D8.2 - Data Management Plan

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Project information

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Project Coordinator:	UTAD
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V0.1	15/06/2023	UTAD	First draft	Draft
V0.2	27/06/2023	UTAD	[Peer review]	Draft
V0.3	05/07/2023	UTAD	[Final draft]	Draft
V1.0	11/07/2023	UTAD	[Final approval and submission to the EC]	Final

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1. Executive Summary

The Data Management Plan (DMP) is an essential component of the WASTELESS project, specifically serving as Deliverable 8.2 (D8.2) within Work Package (WP) 8 - Project Management. This document outlines a comprehensive set of tools and strategies employed by the WASTELESS consortium to effectively manage the datasets generated throughout the project's duration. Moreover, the European Commission (EC) has been encouraging to open access and to reuse of digital research data generated by Horizon 2020 projects through the Open Research Data Pilot, following FAIR Data Principles, which all research data should be Findable, Accessible, Interoperable and Reusable (FAIR).

By emphasizing the adoption of best practices in metadata and archiving, the WASTELESS DMP will guarantee that the data remains easily FAIR for potential users. In its initial version at Month 6 (M6), the DMP provides valuable insights concerning data management policy, including types and formats of data to be collected and generated by the project, methodology and standards to be applied, data accessibility, exploitation, curation, and preservation. Nevertheless, the DMP is a dynamic document and will undergo updates to reflect any alterations in the project's rules and procedures as it progresses towards its conclusion (M36). These updates will ensure that the DMP remains aligned with the evolving needs and objectives of the WASTELESS project.

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2. Table of contents

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List of Acronyms

Abbreviation / acronym	Description
C&D	Communication and Dissemination
CoP	Community of Practice
D	Deliverable
DC	Dissemination and Communication
DEC	Dissemination, Exploitation and Communication
DMP	Data Management Plan
DOI	Digital Object Identifier
EC	European Commission
EU	European Union
FAIR	Findable, Accessible, Interoperable, Reusable
FLW	Food Loss and Waste
FSC	Food Supply Chain
GA	Grant Agreement
GDPR	General Data Protection Regulation
IPR	Intellectual Property Rights
ISO	International Organization for Standardization
KSP	Knowledge Sharing Platform
M	Month
MS	Member States
ORD	Open Research Data
REA	Research Executive Agency
SoMe	Social Media
WP	Work Package

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3. Introduction

The project WASTELESS - Waste Quantification Solutions to Limit Environmental Stress - has a central objective of studying the origins and locations of food waste generation within the value chain. This endeavour encompasses the formulation of new policies based on the findings, which will have direct implications for addressing significant food-related societal challenges and their impact on human well-being. By offering digital tools for more accurate measurement of Food Loss and Waste (FLW) and establishing effective prevention policies and business strategies, WASTELESS aims to contribute to long-term reductions in overall FLW, thereby alleviating climate and environmental pressures.

To ensure the success of FLW tracking and reduction, WASTELESS will engage key actors within the Food Supply Chain (FSC) and their representatives, including renowned researchers, advisors, and public authorities. Their expertise and recommendations will be directly incorporated into the project, utilizing the multi-actor partnership to facilitate dialogue, knowledge exchange, and communication. This collaborative approach will encourage cross-fertilization of ideas and novel collaborations, bolstering the development of innovative tools within the project's case studies and their subsequent replication beyond the project's scope.

The DMP is a crucial deliverable within WP8 of WASTELESS, which will describe the data management life cycle for all data sets that will be collected, processed, and generated by the project. The primary objective of this initial version of the DMP for the EU is to establish a consistent and high-quality framework that will enhance the potential for reusing the data acquired and processed within the project. This DMP will serve as a comprehensive guide to the consortium, providing clear and standardized instructions, procedures, and supporting documents to effectively address the diverse day-to-day activities of the project. Furthermore, this deliverable aims to guarantee that all collected data will adhere to the FAIR principles, Findability, Accessibility, Interoperability, and Reusability, aligning with the guidelines set forth by the Horizon 2020 FAIR Data Management and Open Research Data pilot.

This first DMP version, D8.2, was developed, according to Horizon Europe Data Management Plan Template, and submitted to the EC in fulfilment of the commitments outlined in the WASTELESS Grant Agreement (GA), no. 101084222, in M6 of the project. It should be noted that this plan will continually be updated throughout the life of the project in response to the changing needs of the project until its conclusion (D8.3 - M18 and D8.4 - M36). This deliverable summarises the data that will be collected during the project and review the data sources and collection purposes; sets out data naming, storing and sharing conventions and restrictions. It also describes the application of the FAIR data management principles; review the allocation of resources; data security and ethical aspects of data collection and usage. Hence, WASTELESS will help structure FLW content, making FAIR data and supporting information searchable and accessible.

The data resulting from WASTELESS project can be any kind, information, or knowledge (e.g., datasets, Wikis, or document repositories). Furthermore, storage services will be employed to facilitate efficient data management and accessibility. Computation services, such as high-performance computing or high-throughput computing, enable powerful processing capabilities for data analysis and handling. Additionally, analytical services, such as visualization tools, aid in interpreting and presenting insights derived from the collected data.

Hence, this deliverable, should encompass the following key elements:

- **Comprehensive Data Description**: Provide a detailed description of the data to be generated or collected, including the types of data involved and an estimation of its size. This will help in understanding the scope and nature of the data generated throughout the project.
- **FAIR Principles for Research Outputs**: Extend the application of FAIR principles to all other research outputs, beyond just data, to maximize their discoverability, accessibility, interoperability, and

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- reusability. This promotes effective collaboration, knowledge exchange, and reuse within the scientific community.
- **Data Management Strategies**: Outline the strategies and procedures that will be implemented to effectively manage the research data. This includes organizing, curating, accessing, sharing, and preserving the data throughout the project's lifecycle, ensuring its integrity and long-term usability.
- **Access and Reuse Guidelines**: Clearly define how the data will be made accessible for verification and reuse, considering relevant security and privacy considerations. This ensures that appropriate measures are in place to protect sensitive data while enabling its potential for future use.
- **Accessibility of DMP**: Register the DMP as a non-restricted, public deliverable to promote transparency and open access, in order to facilitate knowledge sharing and collaboration.
- **Cost Estimation**: Estimate the costs associated with data curation, storage, and preservation. Identify the individuals or teams responsible for data management and quality assurance processes, ensuring that the necessary resources and budget are allocated to support effective data management practices.
- **Ethical aspects**: Outline the all concerns, to ensure compliance with ethical principles and obtain necessary ethical approvals.

4. FAIR data

This document serves as a guide for Horizon 2020 beneficiaries to effectively manage their research data according to FAIR principles, making it findable, accessible, interoperable, and reusable. It emphasizes that good research data management is a critical pathway towards knowledge discovery, innovation, and the integration and reuse of data and knowledge.

4.1. Making data findable, including provisions for metadata

Will data be identified by a persistent identifier?

Every dataset published within the WASTELESS project will be assigned a persistent identifier to ensure its unique identification. To achieve this, the project will employ Digital Object Identifier (DOI), which are standardized by the International Organization for Standardization (ISO). DOIs serve as persistent identifiers or handles that uniquely identify objects, including datasets, providing a reliable and permanent reference to access and cite the data. By utilizing DOIs, WASTELESS will ensure the traceability and long-term accessibility of its published datasets. The open research data generated in the project will be archived on the Zenodo online repository which is assigned a unique DOI. This unique identifier enables easy traceability, referencing, and citation of the submitted data, enhancing its visibility and impact in the research community. The platform ensures the preservation of digital data and associated metadata through established practices such as mirroring and regular backups. Hence, Zenodo aligns with the principles set by the EU for open research data, making it a suitable choice for WASTELESS.

Will rich metadata be provided to allow discovery? What metadata will be created? What disciplinary or general standards will be followed? In case metadata standards do not exist in your discipline, please outline what type of metadata will be created and how.

The current version of the WASTELESS DMP does not contain an exhaustive compilation of all metadata pertaining to the data generated in the project. However, in this early stage of the project (M6), several file formats have been chosen because they are accepted standards and in widespread use:

• Documents, spreadsheets and presentations: Microsoft Office file formats, .doc, .docx, .xls, .xlsx, .ppt, .pptx. For larger datasets, .csv and .txt file formats will be used. Final and approved documents, .pdf documents.

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- Illustrations and graphic design files: jpeg., .jpg, .png, .psd, .tiff, .ai
- Audio files: .mp3, .wav, .aac, .flac, .alac
- Video files: .mp4, .m4v, .mov, .wmv, .avi, .mpg
- Compressed folders: .zip, .rar

These file formats have been chosen because they are accepted standards and in widespread use. Files will be converted to open file formats where possible for long-term storage.

Will search keywords be provided in the metadata to optimize the possibility for discovery and then potential re-use?

Keywords will be provided to optimize the potential for reusing the data. This approach is intended to improve the findability of the data by incorporating both highly specific keywords that accurately reflect the content and more general keywords to ensure broader visibility in search results. By striking the right balance, we aim to enhance the overall accessibility and availability of the data, catering to various search contexts and user needs.

Will metadata be offered in such a way that it can be harvested and indexed?

The data will be available following the approach described above.

4.2. Making data openly accessible

Accordingly to the HORIZON 2020 Guidelines to the Rules on Open Access to Scientific Publications and Open Access to Research Data, "**open access"** can be defined as the practice of providing on-line access to scientific information that is free of charge to the reader. In the context of research and development, open access typically focuses on access to "scientific information" or "research results", which refers to two main categories: **i)** Peer-reviewed scientific research articles (primarily published in academic journals), and **ii)** Research data (data underlying publications, curated data and/or raw data). Besides, "**access**", includes not only the right to read, download and print, but also the right to copy, distribute, search, link, crawl and mine. The terms and conditions which define the right to access and reuse digital research data are outlined in the GA.

The main objectives of WASTELESS **open access** are:

- Attain international recognition for the academic and research capabilities of project partners.
- Establish a reputation for delivering high-quality project outcomes and results.
- Facilitate the exchange of information and knowledge among researchers.
- Encourage scientists, researchers, and students outside the project to compare their methods and results.
- Foster the development of new collaborations and partnerships.
- Advance research in the field.
- Enhance the visibility of the project on a broader scale.
- Validate the collected and published data to ensure its accuracy reliability and usability
- Validate the collected and published data to ensure its accuracy and reliability.
- Implement strategies for long-term preservation of research information, ensuring its accessibility and usability in the future.
- Engage the public in the project activities.

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Repository:

Will the data be deposited in a trusted repository?

The open data resulting from WASTELESS project will be deposit in open online repositories, namely, WASTELESS Website and Zenodo. Moreover, the WASTELESS intranet (Google Drive), created by the project coordination, will be also used by the WASTELESS partners, as a repository of internal information, deliverables, timelines, templates. Each online repository is assigned a unique DOI.

Have you explored appropriate arrangements with the identified repository where your data will be deposited?

The open access repositories where WASTELESS data will be deposited have been explored concerning data preservation practices, data access controls, metadata management capabilities, and long-term sustainability. The repositories align with WASTELESS data management needs and requirements. By establishing this arrangement with the repository, we ensure that our data will be appropriately managed, preserved, and made accessible to the intended audience in accordance with our data management plan and relevant policies.

Does the repository ensure that the data is assigned an identifier? Will the repository resolve the identifier to a digital object?

Each online repository, WASTELESS Website, Zenodo and intranet (Google Drive) is assigned with a unique DOI.

Will all data be made openly available? If certain datasets cannot be shared (or need to be shared under restricted access conditions), explain why, clearly separating legal and contractual reasons from intentional restrictions. Note that in multi-beneficiary projects it is also possible for specific beneficiaries to keep their data closed if opening their data goes against their legitimate interests or other constraints as per the Grant Agreement.

The project will use the WASTELESS Website and Zenodo as open repositories for public deliverables and dissemination materials (e.g., publications, reports, deliverables, datasets, posters, figures).

Moreover, due to the innovative nature of the ongoing research and development activities of WASTELESS, it is expected the publication of several scientific articles in high ranking journals. It will be explored a **"gold" standard open access**, i.e., an article will be immediately published in open access mode, which will ensure the widespread accessibility and visibility for WASTELESS results.

H2020 Programme AGA – Annotated Model Grant Agreement

In order to make it easier to find publications and ensure that EU funding is acknowledged as required, the partners will also provide the bibliographic metadata that identify the deposited publication. These will be in a standard format and include the following H2020 Programme AGA – Annotated Model Grant Agreement guidelines:

- the terms "European Union (EU)" & "Horizon 2020"
- the name of the action, acronym and grant number
- the publication date
- the length of the embargo period (if applicable)
- a persistent identifier (i.e. Digital Object Identifier – DOI, or others).

However, due to the potential confidentiality, some of the data generated might not be publishable because of Intellectual Property Rights (IPR) issues (e.g., patent & utility model, industrial design, copyright, trademark, or confidential information). Some of that data are likely to be still exchanged internally, as, e.g., results required to progress towards the objectives of the project, and their internal use is regulated by the GA. The guidelines

for the exploitation and IPR strategy will are predicted to be published at M36, D7.6 – Exploitation and IPR Strategy.

If an embargo is applied to give time to publish or seek protection of the intellectual property (e.g. patents), specify why and how long this will apply, bearing in mind that research data should be made available as soon as possible.

No embargo is expected at the moment.

Will the data be accessible through a free and standardized access protocol?

The repository Zenodo is free of charge, since it is funded by the EU.

If there are restrictions on use, how will access be provided to the data, both during and after the end of the project? How will the identity of the person accessing the data be ascertained?

Users are required to register to use the repository. Furthermore, restricted access might be considered because of IPR issues, e.g., for some categories of data (e.g., patent & utility model, industrial design, copyright, trademark, or confidential information). Data files and datasets designated for restricted access are accessible only to their respective owners and individuals authorized by the owners. This restricted access feature allows researchers to upload their datasets and define specific conditions under which they grant access to the data. Researchers seeking access to restricted data must provide a justification demonstrating how they meet the specified conditions set by the data owners. This process ensures that access to sensitive or restricted data is carefully managed and granted to individuals who meet the necessary requirements and adhere to the designated conditions.

Is there a need for a data access committee (e.g. to evaluate/approve access requests to personal/sensitive data)?

For now, there is no need for a data access committee.

Metadata:

Will metadata be made openly available and licenced under a public domain dedication CC0, as per the Grant Agreement? If not, please clarify why. Will metadata contain information to enable the user to access the data?

As outlined in WASTELESS GA, metadata of deposited publications must be open under a Creative Common Public Domain Dedication (CC 0) or equivalent, in line with the FAIR principles (in particular machine- actionable) and provide information at least about the following: publication (author(s), title, date of publication, publication venue); HORIZON Europe funding; grant project name, acronym and number; licensing terms; persistent identifiers for the publication, the authors involved in the action and, if possible, for their organisations and the grant. Where applicable, the metadata must include persistent identifiers for any research output or any other tools and instruments needed to validate the conclusions of the publication.

How long will the data remain available and findable? Will metadata be guaranteed to remain available after data is no longer available?

The data is expected to remain available throughout the project, especially concerning the data published in the chosen repositories. In case data is no longer necessary/useful (e.g., outdated, not relevant), the WASTELESS coordinator may decide to remove it from the website and online repositories.

Even if the data becomes unavailable, it is essential to ensure that the corresponding metadata remains accessible. Metadata provides valuable information about the dataset, including its description, structure, and

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contextual details. By preserving the metadata, users can still understand the nature of the dataset and its potential relevance, even if they cannot directly access the actual data. This allows for continued transparency and supports the potential for future use and understanding of the dataset, even in cases where the data itself may no longer be available.

Will documentation or reference about any software be needed to access or read the data be included? Will it be possible to include the relevant software (e.g. in open source code)?

If necessary, documentation or references about any required software to access or read the data will be included. It is important to provide clear instructions and guidelines on the software tools or applications necessary to effectively utilize the data. This documentation will help users understand the technical requirements and provide guidance on how to access and interpret the data.

Furthermore, whenever possible and appropriate, relevant software, including open-source code, will be made available alongside the data. This ensures transparency and facilitates reproducibility, allowing other researchers or users to replicate the data analysis and derive meaningful insights. Including the relevant software in open-source format promotes openness, collaboration, and the sharing of knowledge within the research community.

4.3. Making data interoperable

Are the data produced in the project interoperable, that is allowing data exchange and re-use between researchers, institutions, organisations, countries, etc. (i.e. adhering to standards for formats, as much as possible compliant with available (open) software applications, and in particular facilitating re-combinations with different datasets from different origins)?

It is expected that the data generated throughout the project will exhibit a high degree of interoperability. This will be achieved by adhering to recognized standards for file formats and metadata. Commonly accepted formats and standards will be employed to ensure compatibility and facilitate seamless integration of data across different systems and platforms. This adherence to standardized formats and metadata will ensure the consistency and compatibility across the project's datasets, facilitating accessibility and interoperability.

As the project progresses and data collection activities unfold, further information and guidelines on promoting data interoperability will be provided. Specifically, deliverable 4.1, D4.1 – WASTELESS data collection, interoperability, and governance plan (M12), will outline strategies and measures to enhance data interoperability. Any necessary updates or revisions to the DMP will be incorporated in subsequent version (M18), ensuring that the project maintains a robust and up-to-date approach to data interoperability throughout its lifespan.

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?

In the event that uncommon or project-specific ontologies or vocabularies need to be used, efforts will be made to provide mappings to more commonly used ontologies. This will enable interoperability and facilitate the integration of data with existing resources in the broader research community. The D4.1 – WASTELESS data collection, interoperability, and governance plan (M12), will outline strategies and measures to enhance data interoperability.

Will your data include qualified references1 to other data (e.g. other data from your project, or datasets from previous research)?

The data generated within our project will include qualified references to other relevant data sources. This may include references to datasets from previous research, as well as data from within our own project that is deemed relevant and complementary.

4.4. Increase data re-use (through clarifying licenses)

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.)?

Throughout the project, it is expected that the data resulting from WASTELESS will be properly analysed and validate. More information will be reported in D4.1 – WASTELESS data collection, interoperability, and governance plan (M12). Hence, this information will be updated in the next DMP version (D8.3, M18).

Will your data be made freely available in the public domain to permit the widest re-use possible? Will your data be licensed using standard reuse licenses, in line with the obligations set out in the Grant Agreement?

As outlined in WASTELESS GA, metadata of deposited publications must be open under a Creative Common Public Domain Dedication (CC 0) or equivalent, in line with the FAIR principles.

Will the data produced in the project be useable by third parties, in particular after the end of the project?

The data produced will be useable by third parties both during and after the end of the project.

Will the provenance of the data be thoroughly documented using the appropriate standards?

The provenance of the data will be thoroughly documented, including using the appropriate standards which will be defined during the project. Hence, this information will be updated in the next DMP version (D8.3, M18).

Describe all relevant data quality assurance processes.

The data quality and consistency will be explored in D4.1 – WASTELESS data collection, interoperability, and governance plan (M12). Hence, this information will be updated in the next DMP version (D8.3, M18).

5. Other Research outputs

In addition to the management of data, beneficiaries should also consider and plan for the management of other research outputs that may be generated or re-used throughout their projects. Such outputs can be either digital (e.g. software, workflows, protocols, models, etc.) or physical (e.g. new materials, antibodies, reagents, samples, etc.).

Beneficiaries should consider which of the questions pertaining to FAIR data above, can apply to the management of other research outputs, and should strive to provide sufficient detail on how their research outputs will be managed and shared, or made available for re-use, in line with the FAIR principles.

It will be considered throughout the project. Hence, this information will be updated in the next DMP version (D8.3, M18).

6. Allocation of resources

During the duration of the project, the costs related to research data management, such as data storage, processing, are eligible if they comply the conditions and guidelines outlined in the WASTELESS GA (defined in ARTICLE 6 - ELIGIBLE AND INELIGIBLE COSTS AND CONTRIBUTIONS). As a consequence of ARTICLE 6 non-compliance of GA, the grant may be reduced (ARTICLE 27 - REJECTION OF COSTS AND CONTRIBUTIONS) and may also lead to other measures described (CHAPTER 5 - CONSEQUENCES OF NON-COMPLIANCE).

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

In WASTELESS GA it is outlined all specific eligibility conditions for making data FAIR. It was defined a specific budget for each consortium partner for:

- Online communication and dissemination: project Website, Systemic user-friendly toolbox (WASTELESS Open access Blockchain), Social media. The repository Zenodo is free of charge, since it is funded by the EU.
- Communication actions and materials (e.g., leaflets, roll-up, videos, flyers, posters, merchandising).
- Organization and participation in eLearning, training activities, and workshops.
- Publication of open access scientific articles.
- Participation in international and national dissemination events.

Further alterations or additional details will be reported in the future versions of the DMP.

Who will be responsible for data management in your project?

All WASTELESS partners are responsible to:

- Prepare the datasets to make FAIR the data collected within its own activities;
- Guarantee that their activities are in line with all applicable local, government and international laws, regulations and guidelines.
- Contribute for the project promotion and share the collected and generated knowledge by using their own Dissemination and Communication (DC) channels and tools (e.g., website, mailing lists, newsletters, social media, and events), report all Dissemination, Exploitation and Communication (DEC) activities in the DEC Reporting document, following the WASTELESS strategy defined in the deliverable 7.2, D7.2 – DEC Plan (M6).
- Certify that all costs related to research data management, such as data storage, processing, and preservation, comply with the cost eligibility requirements stated in GA.

Besides, in each WP, the different partners have specific responsibilities concerning data FAIR management:

- WP1 – Transversal community of practice and framework for measurement and monitoring of FLW
  - **IFA**: **i)** develop of a Community of Practice (CoP) to publicise the project policy concerning FWL best practices and recommendations, between competent authorities, for the purpose of replicating it at Member States (MS) level, which will be reported in deliverable 1.4, D1.4 – CoP and replication at MS level (M36); **ii)** outline five policy briefs based on qualitative data analysis from the case studies and tools implementation from WP3 and WP4, which will be reported in D1.5 – 5 Policy briefs for experts and policy makers (M36).
- WP4 – Data collection, management, and integration
  - **EUROFIR**, **JSI** and **SDU**: ensure that the datasets generated by WASTELESS are made (as) Open (as possible) and adhere to the FAIR principals (findable, accessible, interoperable, and reusable). Guidelines will the published in the D4.1 – WASTELESS data collection, interoperability, and governance plan (M24).
- WP6 – Classification of the tools, methodology and reduction actions into a systemic toolbox for replication
  - **JSI**: **i)** develop an open access digital platform for stakeholders to measure and monitor FLW, a systemic user-friendly toolbox (WASTELESS Open access Blockchain); **ii)** publish of Practice abstracts, which will include will include classified tools to measure FLW (those developed in WP3 and others) and best practices to reduce FLW (identified in WP5), including an ontological representation of this classification framework designed to make it computer-understandable and reusable beyond the project. The Practice abstracts will follow the EIP-AGRI format (D6.2

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– Practice Abstracts - batch 1 - early phase, at M18, and D6.3 – Practice Abstracts -batch 2 - advanced phase, at M32).

- **UTAD**, **SPES** and **WIISE**: stablish a roadmap for data collection hub replication.

- WP7 – Exploitation, communication, dissemination
  - **EUROFIR**: manage the WASTELESS Zenodo community.
  - **VIMOSZ**: **i)** develop the project Website (domain wastelesseu.com), officially launched in M3, described in D7.7 – Website and social media (M3) **ii)** creation of the project Social Media (SoMe) accounts, LinkedIn and Twitter; **iii)** design and implementation project goodies, project roll up, pp, templates with target messages to all stakeholders and with focus on two-way communication to include stakeholder engagement workshops (related to the testing in WP4 and WP5); **iv)** lead and prepare press releases and briefings (such as news for the written media, radio, and TV) for the electronic and print media. **v)** monitorization of the project Communication and Dissemination (C&D) activities (with EUROFIR support), and provide an updated version (D7.3 – DEC Plan – update, at M18), and a final report on all C&D activities (D7.4 – DEC final report, at M36).
  - **IFA**: develop 2 promotional videos, the 1st to be launched until M12 (presenting the project, objectives, partners, case studies and predicted outcomes), and a final one to be launched by M34 (presenting the results achieved).
  - **IFA**, **EUROPATAT**, **VIMOSZ**, and **EUROFIR**: develop a Knowledge Sharing Platform (KSP), Sustainable Food Systems Innovation Platform, an online environment to share knowledge on food systems and raise awareness about the project among different stakeholders (this platform will be described in D7.1 – Knowledge sharing platforms for food systems (M18).
  - **IFA**, **EUROFIR**, **VIMOSZ**, and **CTIC-CITA**: conceive and develop an e-learning platform in IFA Moodle site, which will host all trainings developed in the project. The training results and feedback from participants will be reported in detail in D7.5 – Report of learning outcomes (M34).
  - **IFA**, **VIMOSZ**, **UTAD**, and **EUROPATAT**: prepare Newsletters, 2 *per* year (1st release in M6), which will include five sections, coordinator report, invited guest opinion article, case studies updates, news and events, and networking.
  - **UTAD**, **HACETTEPE**, **SDU**, **ISA**, and **JSI**: publish of scientific papers at leading international journals, following the Standard Operation Procedures (SOPs) for Publication.
- WP8 – Project Management:

UTAD, as WASTELESS Coordinator:

i) supervise the compliance by the Parties with their obligations under the Consortium Agreement and the GA;

ii) provide support and manage the project activities, internally and with the EC;

iii) generate, collect, review and submit reports, and other and specific requested documents to the GA;

iv) monitor the overall financial resources defined in the GA, as well as manage any potential deviation that may occur from the original plan;

v) coordinate and prepare the project meetings and events, such as online Discussion forum after M12, to share the project scientific advances to all interested target groups in the food sector, and WASTELESS final conference with the contribution of all WP leaders, in which WASTELESS results will be presented to the main target audience including national governments, the EC, Industrial and Professional Associations, the research community, and the press.

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

All Fair data will be preserved throughout the project when relevant. After the end of the project, the WASTELESS Website will include an active open data section for at least 3 years. Also, the WASTELESS Community of Practice will be maintained as long as relevant to provide valuable input to other projects or solution developers in a similar context. In case data is no longer necessary/useful (e.g., outdated, not relevant), the WASTELESS coordinator may decide to remove it from the website and online repositories.
Additional details will be reported, as needed, in future versions of the DMP.

7. Data security

The data must be processed as stablished in the WASTELESS GA (ARTICLE 13 - CONFIDENTIALITY AND SECURITY and ARTICLE 15 - DATA PROTECTION) in compliance with the applicable EU, international and national law on data protection (in particular, EC Regulation 2016/67916).

The WASTELESS partners are authorized to provide their personnel with access to personal data solely for the purpose of implementing, managing, and monitoring the Agreement. It is the partners duty to guarantee that their personnel are obligated to maintain the confidentiality of such data. Additionally, it is required to notify individuals whose data is being transferred to the granting authority and furnish them with the Portal Privacy Statement. This ensures transparency and adherence to data protection regulations, enabling individuals to comprehend how their personal data is being handled.

As a consequence of ARTICLE 13 non-compliance, the grant may be reduced (ARTICLE 28 - GRANT REDUCTION of GA), and may also lead to other measures described (CHAPTER 5 of GA).

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

Throughout the project, to uphold confidentiality, all data files will be securely transmitted through protected connections. It is critical that personal data will not be storage in open data repositories, WASTELESS Website and Zenodo. Also, passwords will not be shared via email, but instead exchanged through direct, personal communication between the partners. This approach ensures enhanced security measures are in place for data transfer.

Each partner is accountable for ensuring the secure and safe storage of the data, based on their security policies and procedures, and adhering to the data protection laws of the EU. Once the project is concluded, the repository holding the dataset will assume all responsibilities pertaining to data recovery and secure storage.

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

Each partner involved in the project will be responsible for ensuring the regular backup and secure storage of all generated data, whether in its raw form or derived from other partner's data. Internal safekeeping procedures will be followed to maintain the integrity and safety of the data. Additionally, if any data is shared within the Consortium, the data owner will also be accountable for determining and implementing appropriate methods for information sharing. This ensures that data ownership and data sharing practices are clearly defined and upheld throughout the project.

Furthermore, as certain data may be shared among all Consortium members using free cloud platforms such as WASTELESS intranet (Google drive), the Coordinator will assume the responsibility of regularly backing up the entire content of the shared area. The frequency of backups will depend on the level of activity and data updates. This precautionary measure aims to mitigate the risk of accidental data loss and ensure the preservation of valuable research data throughout the project.

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Regarding data published on the open data repositories, the responsibility for storage data in WASTELESS Website lies with VIMOZ, ensuring the preservation and availability of the data as published. Additionally, Zenodo provides an automatic backup system to further safeguard the data.

8. Ethical aspects

The WASTELESS is committed to upholding the highest ethical standards and the applicable EU, international and national law on ethical principles, as highlighted in ARTICLE 14 — ETHICS AND VALUES of WASTELESS GA. The partners must ensure the respect of basic EU values (e.g., respect for human dignity, freedom, democracy, equality, the rule of law and human rights, including the rights of minorities).

The project will strictly adhere to the EC Ethics Self-Assessment Guidelines, including the EC Ethics and data protection. In the event of any substantial new ethical issues arising, the project beneficiaries will promptly inform the granting authority, Research Executive Agency - REA.

To collect data from PR4 (Automatic system for FW assessment at household level) application users, the participants will be requested to provide informed consent regarding privacy policies and data protection. Personal data will be encrypted and stored in a secure research folder within the digital workplace, managed exclusively by the designated data manager. Access to this folder is restricted to the data manager alone, and personal data will not be transported outside the network drives. Automatic daily backups of all research data will be performed by the division IT on networked drives. Informed consent, as required, will be collected in accordance with Article 7 of the General Data Protection Regulation. The project does not involve any animal experimentation, eliminating ethical concerns in that regard. Workshops, focus groups, and interviews will solely involve willing and voluntary adult participants who engage in training sessions, interviews, and questionnaires. The utilization of the artificial intelligence model as the analytical core for the digital platform and the implementation of blockchain technology for information sharing do not give rise to ethical concerns related to human rights and values.

It is also important to point out that a WP dedicated to ethics issues, WP9, incorporated into the workflow with an Ethics deliverable 9.1 (D9.1 - POPD - AI - H - NEC - Requirement No. 1), scheduled for submission in M18, will address all ethics requirements (e.g., relevant information, authorizations, and approvals) and ensure full compliance with ethical principles throughout the project.

As a consequence of ARTICLE 14 non-compliance, the grant may be reduced (ARTICLE 28 - GRANT REDUCTION of GA), and may also lead to other measures described (CHAPTER 5 - CONSEQUENCES OF NON-COMPLIANCE).

9. Other issues

No other national/funder/sectorial/departmental procedures for data management are currently in use.

10. Conclusion

The WASTELESS project has established a clear approach to Data Management, considering the diverse datasets involved. While the project recognizes the potential benefits of making research data FAIR to enhance scientific information access and maximize the impact of research investments.

However, in compliance with the requirements of the WASTELESS GA, the project has outlined an approach to

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Open Access for project results and underlying datasets that can be disclosed. This ensures transparency and allows for the dissemination of information that aligns with the project's objectives and contractual obligations.

The WASTELESS Website and Zenodo repository will be used for long-term open access storage. As this was designed for the purpose of sharing EC project data, is well suited to the project requirements and FAIR data principals. The WASTELESS intranet (Google drive)will be used by consortium partners as guidance support, considering always an Open Science policy, on authorship, acknowledgement, confidentiality, notification, and reporting of publications, as well as some good practices.

Finally, the WASTELESS DMP will be updated, D8.3 (M18), to reflect the evolving nature of the project, until its conclusion, D8.4 (M36). This includes incorporating new data sets, publications, changes in data access or curation policies, and other relevant developments to maintain an accurate representation of the project's data management activities.

11. Bibliography

Open Research Data Pilot

FAIR Data Principles

FAIR Data Management

Horizon Europe Data Management Plan Template

Digital Object Identifier

HORIZON 2020 Guidelines to the Rules on Open Access to Scientific Publications and Open Access to Research Data

H2020 Programme AGA – Annotated Model Grant Agreement

D7.7 – Website and social media

DEC Reporting document

D7.2 – DEC Plan

EIP-AGRI

Standard Operation Procedures (SOPs) for Publication.

EC Regulation 2016/67916

EC Ethics Self-Assessment Guidelines

EC Ethics and data protection

General Data Protection Regulation

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