D6.5 – Data Management Plan (Issue 2)

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Abstract

The Impact Monitor project aims to develop a holistic impact assessment framework and toolbox to support the European Commission in making informed, science-based decisions regarding the environmental, economic, and societal impacts of European aviation research and innovation (R&I). This document outlines the project's Data Management provisions, detailing its adherence to open-science practices, research data management protocols, and compliance with FAIR principles. By integrating trusted repositories and secure storage/collaborative solutions, the strategy ensures that project data is findable, accessible, interoperable, and reusable. Key deliverables include publicly available datasets, open-access publications, and a comprehensive Data Management Plan (DMP) that facilitates collaborative research, transparent dissemination, and stakeholder engagement.

Keywords

Data management, FAIR principles, Open Science, DMP

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Information Table

Contract Number	101097011
Project Title	Impact Monitor
Topic	HORIZON-CL5-2022-D5-01-14
Type of Action	Horizon Research and Innovation Actions
Project Start Date	1 February 2023
Duration	24 Months
Project Coordinator	Deutsches Zentrum für Luft- und Raumfahrt e. V. (DLR)
Deliverable Number	D6.5
Deliverable Title	Data Management Plan (Issue 2)
Version	1.0
Status	Final
Responsible Partner	EASN-TIS
Deliverable Type	Document, Report
Contractual Date of Delivery	31 January 2025
Actual Date of Delivery	31 January 2025
Dissemination Level	PU

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Document History

Version	Date	Status	Author	Description
0.1	27/01/2025	Draft	Giota Sakellariou	First draft
1.0	31/01/2025	Final	Giota Sakellariou	Final version

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Table of Acronyms

Acronym	Description / Meaning
CA	Consortium Agreement
CC 0	Creative Commons Public Domain Dedication
CC BY	Creative Commons Attribution International Public License
CINEA	European Climate, Infrastructure and Environment Executive Agency
CPACS	Common Parametric Aircraft Configuration Schema
DA	Dashboard Application
DMP	Data Management Plan
DOI	Digital Object Identifier
EC	European Commission
ECMWF	European Centre for Medium-Range Weather Forecasts
EOSC	European Open Science Cloud
EU	European Union
FAIR	Findable, Accessible, Interoperable, Reusable
GA	Grant Agreement
GB	Giga Byte
MB	Mega Byte
OA	Open Access
PID	Persistent Identifier
R&I	Research & Innovation
RCE	Remote Component Environment

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1. INTRODUCTION

According to the European Commission (EC), Data Management Plans (DMPs) are a key element of efficient data management. A DMP describes the data management life cycle for the data to be collected, processed and/or generated by a research project. In general terms, the research data should be 'FAIR', which means findable, accessible, interoperable, and re-usable. These principles precede implementation choices and do not necessarily suggest any specific technology, standard, or implementation.

As part of making research data FAIR, a DMP includes information on:

- the handling of research data during & after the end of the project,
- which types of data will be collected, processed and/or generated,
- which methodology & standards will be applied,
- whether data will be shared/made open access, and
- how data will be curated & preserved (including after the end of the project).

The Impact Monitor consortium is dedicated in complying with the open-access (OA) and FAIR data management practices that are mandatory by the Granting Authority; in this frame, a first version of a DMP has been released within the first six months of the project (D6.3). The DMP has been a living document and was updated over the course of the project whenever significant changes arose, including new data or changes in data management procedures.

This report (D6.5) constitutes the updated – and final – DMP for the Impact Monitor project, which is funded by the Horizon Europe Programme under Grant Agreement number 101097011. The purpose of the DMP is to provide an overview of all datasets collected and generated within the project and to recap the consortium's data management policies enforced. Consequently, the deliverable is structured in three sections:

- Section 2 elaborates on the main principles upon which the data management policy for the Impact Monitor project is based on.
- Section 3 focuses on the data management practices implemented by the Impact Monitor consortium, and reports on how all the datasets have been managed and protected following the principles of Section 2.
- Section 4 summarizes the key points of this final DMP.

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2. DATA MANAGEMENT POLICY

Impact Monitor aimed at developing a coherent and holistic impact assessment framework and toolbox to support the European Commission (EC) in making science-based informed decisions for technology and policy assessment of the environmental, economic, and societal impact of European aviation R&I. Specifically, the assessments focused on greenhouse-gas emissions, local air-quality, and noise. The project has example use cases at aircraft, airport, and air transport system levels to demonstrate the collaborative assessment framework. The underlying system of systems architecting process has been supported by digital technologies for collaborative engineering.

The major technical innovations achieved by Impact Monitor can be divided into the following pillars:

1. Collaborative impact assessment framework & toolbox
2. Multi-level, demonstration use cases for the demonstration of framework's capabilities
3. Dashboard Application for data visualization

Two additional and horizontal activities include the identification of interfaces with key stakeholders and the implementation of dissemination and communication activities in line with the open-science practices and research data management policies.

Focusing on the third pillar, it is obvious that the application of open-science practices and data management constitute an integral part of the project's implementation, ensuring the proper handling of knowledge derived from Impact Monitor.

2.1 Open-science practices

During the project implementation, a large amount of information has been collected, and a broad set of data has been produced. Considering the importance of Open Science and Open Innovation, the project embraced these practices to foster a collaborative and open environment that improves the quality, efficiency, and responsiveness of research. Sharing the project's results and publicly releasable datasets is set to advance public knowledge and contribute to the research community by facilitating further research that builds on these findings. In coherence with the data management plan, the Impact Monitor consortium adopted an open science model for selecting findings delivered by the project. Specifically, the open outcomes of Impact Monitor include the subset of documents that can be classified as publicly releasable, and papers/presentations veering project results that have been communicated at conferences and other events.

The publicly releasable results have in published in open access. Open access is being granted to selected research data underlying the scientific publications. Some models that have been utilized for releasing information include a project-dedicated community in ZENODO (for both publications and open/public datasets) and a GitHub profile for open-source models, while the European Open Science Cloud (EOSC) for hosting and processing research data and the Open Research Europe open-access publishing platform for the publication of research stemming from Horizon Europe funding across all subject areas may be exploited.

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2.2 Research data management

This process within the research lifecycle includes the organisation, storage, preservation, security, quality assurance, allocation of persistent identifiers (PIDs) and rules and procedures for sharing of data including licensing.

The beneficiaries managed the digital research data collected and generated responsibly, in line with the FAIR principles and by taking all the following actions:

- Establish a data management plan (and regularly update it) and deposit as soon as possible the data in a trusted -open access- repository.
- Ensure open access -via the repository- to the deposited data, under the latest available version of the Creative Commons Attribution International Public License (CC BY), following the principle 'as open as possible as closed as necessary', unless providing open access would in particular:
  - be against the beneficiary's legitimate interests, including regarding commercial exploitation, or
  - be contrary to any other constraints, in particular the EU competitive interests or the beneficiary's obligations; if open access is not provided (to some or all data), this is justified in the DMP.
- provide information via the repository about any research output or any other model and instruments needed to re-use or validate the data.

Metadata of deposited data remain open under a Creative Common Public Domain Dedication (CC 0) or equivalent (to the extent legitimate interests or constraints are safeguarded), in line with the FAIR principles, and provide information about the following:

- datasets (description, date of deposit, author(s), and embargo period);
- Horizon Europe funding;
- grant project name, acronym and number;
- licensing terms;
- persistent identifiers for the dataset.

Where applicable, the metadata include persistent identifiers for related publications and other research outputs.

2.3 Compliance with the FAIR Principles

According to the Horizon Europe guidelines, projects should provide open access to research data and outputs. In this frame, the Impact Monitor consortium demonstrates compliance with the relevant guidelines of the EC for effective data management via sound implementation of the FAIR principles, advocating for research data to be produced, collected, and processed within Impact Monitor being Findable, Accessible, Interoperable and Reusable. Information classified as publicly releasable adheres to these principles. A classification of the data types collected and generated within Impact

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Monitor is as follows: 1) Numeric, 2) Visual, 3) Simulated (model, model type, computer code, data type, format), 4) Discipline-Specific Information, 5) Reused-Data, 6) Instrument-specific, and 7) Text. To ensure compliance with the **FAIR principles**, the Impact Monitor consortium applied the specific measures described below:

- ***Findability of data/research outputs***: Machine-readable metadata accompany the generated datasets following standard metadata schemes. Both data and metadata are assigned with a globally unique and persistent identifier (DOI) and are indexed in a searchable resource. Trusted repositories used for openly accessible Impact Monitor data currently include ZENODO, GitHub, and partner institutional repositories, while EOSC and Open Research Europe are alternative options.
- ***Accessibility of data/research outputs***: For the Impact Monitor data and research outputs that are characterized as openly accessible, the consortium partners followed two main routes: 1) Self-archiving at trusted repositories as mentioned above (e.g., ZENODO, GitHub), and 2) Open access (OA) publishing, as required by Horizon Europe, to all publicly released scientific publications resulting from the project. OA is also granted via the Impact Monitor website for all publicly releasable documents, deliverable reports and produced dissemination materials.
- ***Interoperability of data/research outputs***: The deposition of data, available in standardized formats, is based on a DataCite standard characterized by controlled vocabulary, depending on the different types of metadata: a) Descriptive metadata (Author, Title, Abstract, Date, Location, Time, Data collection method), b) Structural metadata (links to related digital objects), c) Technical metadata (data format, hardware/software used, calibration, version, authentication, encryption, metadata standard).
- ***Reusability of data/research outputs***: The project data will remain reusable by submitting it in standardized, wide-spread data formats. Possible embargo periods and specific restrictions regarding the re-use have been defined and are reported in this DMP. The reusable data have been released with a clear and accessible data usage license (Open Definition license) which allows further processing.
- All Impact Monitor partners remain responsible for ensuring that project-related data/research outputs are safely handled and stored.

Each Impact Monitor Partner has provided an updated DMP form, describing in general the project data types and formats along with their expected size, the strategy of how they have been rendered as FAIR, the open data sets, and the type of documentation that enables data analysis and facilitate data reuse. The joint output of these detailed DMPs per project partner are summarized in the following section.

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3. DATA MANAGEMENT PLAN

This section provides a description of the final DMP for the Impact Monitor project, that adheres to the principles covered in Section 2. The individual DMPs of the partners who have specified a plan for how they shared and safeguarded their created and acquired data sets, combined with a tracking list detailing the types and formats of the shared information, constitute the overall final DMP.

3.1 Data Summary

The use of existing software models and data is in line with the project methodology and objectives, focusing on the development of a collaborative framework and toolbox using already-available models and building on existing knowledge.

Existing data have been reused to establish connections between the different models, initiate the collaborative assessment workflows as part of the demonstration use cases, and for dissemination purposes. The pre-existing data included disciplinary data from assessment models and collaborative assessment data from the workflow, mostly acquired from the models provided by other partners and other public resources (e.g., aircraft and engine data for development and validation of dashboard components, along with models and RCE workflows).

Impact Monitor mainly utilized disciplinary input and output data from assessment models according to CPACS standard, collaborative assessment data from workflow modelled in MDAx and executed in RCE. Reused data formats included:

- CPACS files (.xml, .xsd)
- Images (.jpeg, .png, .svg)
- MDAX (.mdax)
- RCE (.wf)
- .csv
- .kml
- .mpg, .mp4
- so6
- .stp
- .txt,
- .pdf
- scripts & docs (docx, xlsx, pptx)
- BADA3/4 (.opf, .apf)
- .py
- GRIB - Weather information (.grb)
- other text files (Air space configuration)

These input and output data were associated with airport modelling, aircraft movements simulation, noise, emissions, and third-party risk calculations. Reused data is related to air traffic, weather, air space structure and air space costs, while aircraft and engine data were reused for the development and validation of the dashboard components. Generated data included trajectory points, and tool-specific data combinations, aiming to enable the seamless simulations of the proposed workflow.

Existing data are originated from publicly available sources, the public domain (e.g., ECMWF and EUROCONTROL), previous research studies (e.g., FutPrInt50), open-source research studies and data acquired from models provided by other partners. Other data comprise data web public and institutional information at national and European level, which are useful for regulatory and industrial stakeholders involved in air transport development prospectives and innovative opportunities, and data from public repositories about air space and air traffic.

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In relation the project's objectives, the models and data used enabled simulation for different weather conditions and air space configurations. These demonstrative outputs foster raising awareness on sustainability issues and supporting decision-making towards achieving sustainability ambitions. The developed operational solutions are devoted to mitigating anthropogenic climate warming and to increase the air quality around airport terminal area.

The data size was mainly below 100 MB, with the partners distinguing their size requirements as follows:

- DLR: Mainly < 100 MB and sometimes around 500 MB for disciplinary input and output data; around 25 GB in total
- CIRA: < 200 Mb
- ONERA-TML: Individual data files mainly <10 MB; possibly some up to 100 MB
- USTUTT-UPC: 1-95 GB
- CU: Overall data including Dashboard and Use Case from the framework around 5 GB.

The data reused or generated within the project may be useful for various stakeholders, including the public, the EC, aircraft design entities, researchers, regulatory and industrial stakeholders involved in air transport development prospectives and innovative opportunities, and sectors outside aviation. In general, data is reused and generated to fulfil the requirement of the dashboard application, i.e., to help researchers, scientists, analysts, and policy makers to be able to perform required studies and assessments.

3.2 FAIR Data

3.2.1 Findability

The open accessible generated data are appointed with a persistent identifier (PID), a DOI (Digital Object Identifier), and managed via the ZENODO and GitHub trusted data repositories. The corresponding metadata will comprise search keywords and versioning of different releases to optimize search and potential reuse.

Especially concerning the dashboard application, all data will be visible based on use cases execution. While no dissemination/collection of data or metadata is planned, users of the dashboard application will be allowed to download processed data/final outputs from a use case, using .csv files.

Within the project's implementation, additional repositories have been utilized for internal exchanges between the project partners, including GitLab (sharing of software for the framework development), NextCloud (collaboration platform in the frame of the use cases), and the Impact Monitor SharePoint (for sharing documents, reports, deliverables, etc.). These platforms are not meant for external distribution of data or knowledge.

3.2.2 Accessibility

Openly accessible data are deposited in trusted repositories ZENODO/GitHub, which ensure that the data is assigned an identifier and that are based on free and standardized access protocol (like the csv and xlxs that are in standardised formats). The data model and framework will be open source

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and documented, while the dashboard application directly reads required data without retrieving the actual data. Required inputs and working procedure for the dashboard will be provided in documentation/manual which will help the users on how to use the tool.

Some data, e.g. disciplinary input and output data from models, will remain closed access to the tool owners and some data will be closed access to project team only. Public deliverables will be made publicly available by default. Other data can be shared externally only after approval of each project partner involved in the data creation process.

No embargo is provisioned for the above intellectual property. The data will be available as long as the website and the repositories (ZENODO, GitHub) are up and running.

3.2.3 Interoperability

One of the efforts of the partners in the project is to produce data which are interoperable, not only within the consortium, but also towards externals. Therefore, the adoption of standards is highly promoted in the project, and already available standard data models, i.e. CPACS, are also adapted to serve the project purposes. Other data types are already baed on established standards, like Grib files that are standard for weather related data, and .so6 that is an EUROCONTROL standard.

3.2.4 Re-usability

Yes, the data model and framework will be open source and documented. Already now, CPACS is open source and documented on the website. Some data will be closed access to the tool owners and project team only as described before and in the consortium agreement. Deliverable reports will be provided for the utilisation and application of the Dashboard Application (DA), but some data will be closed/restricted access to tool owners and project team only, and no use case data will be provided from the DA directly.

Regarding the reuse of data, specific restrictions are applied in accordance with legal and contractual constraints. Some data are closed access to the tool owners and project team only as described in the accessibility section, due to IPR restrictions. The openly accessible data will remain reusable by releasing it in standardized, wide-spread data formats, along with documentation.

The current Creative Commons license will be used for storing data, powered by the trusted repositories. For data that are derived from the public domain, the data usage lincence applied from the source (ECMWF & EUROCONTROL) is used.

No embargo periods or specific restrictions regarding the reuse of the open data are foreseen. However, sensitive personal data files, related to Stakeholders, Project Coordinators, Leaders, Point of Contacts which have been contacted or could be available to support further assessment activities, can be used only internally within the Impact Monitoring framework, e.g., IMPACT MONITOR 2.

Further data quality assurance processes are not applied, as data will not be archived.

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3.3 Other Research Outputs

The framework will be open access, whereas models will stay disclosed with each project partner. The workflow process data is expected to stay within the project consortium. The workflow results data is expected to be made available. The specific context will be based on the provisions of the Consortium Agreement. Data are disclosed through project's TeamSite and according to the partners' internal procedures.

The research outputs will be available and shared via the public deliverables, the website, and the trusted repositories used. Scientific publications will be published as open access as far as possible. Description of the software and workflows will be provided through the public deliverable reports. Possible additional research outputs, such as SUAVE models, SUAVE enhancement (CPACS capability etc.), DYNAMO and FARM trajectory optimization and prediction, and research papers, are managed through open access databases.

3.4 Allocation of resources

The costs for making data and other research outputs FAIR are covered by the project grant, including the costs for developing and releasing the website. The selected trusted repositories are free to use and support long term preservation of data, while the coordinator provides a common working environment (TeamSite) to facilitate consortium collaboration, without any further costs.

The website will be continued throughout Impact Monitor 2 and results will be archived and available also on ZENODO. If needed, existing storage devices will be used, thus no cost associated.

FAIR data will be accessible for a minimum period of 10 years.

3.5 Data Security

Sensitive data produced or used in the project are stored in different repositories. Partners store unshared data on personal drive and personal cloud spaces (e.g. GitLab and GitHub), or institutional data servers. Data within the project is shared on the TeamSite (powered by Microsoft SharePoint).

The TeamSite is managed by DLR and only accessible to invited partners with their personal accounts and credentials. TeamSite is a tool for collaboration within the project. It has an extendable storage quota and includes an automatic versioning system. However, the tool does not provide an archive or backup system and is therefore not meant for long-term preservation. For that purpose, DLR-managed server infrastructure will be used to archive all documents and data generated from the project.

All data, source codes and mathematical models connected to the DA are stored in official and secure computers, with cloud backup using personal credentials.

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3.6 Ethics

There are not any ethical or legal issues related to the sharing of data that, according to the Project Grant Agreement, should be made openly accessible (e.g. those made available through public deliverables). However, model outputs can be only shared within the Consortium, and often with limitations.

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4. DISCUSSION

The Data Management Plan implemented in the Impact Monitor project exemplifies a robust framework for ensuring the efficient handling, dissemination, and long-term accessibility of research data, aligning with Horizon Europe's guidelines and FAIR principles. The project successfully integrated open-science practices, leveraging trusted repositories like ZENODO and GitHub to facilitate transparent sharing of publicly releasable data. These efforts contributed to fostering collaboration, advancing public knowledge, and supporting further research within the aviation sector and beyond.

Key achievements include the development of a comprehensive Data Management Plan (DMP) that meticulously categorized data types, formats, and access protocols while prioritizing security and accessibility. The adherence to FAIR principles ensured that research outputs were findable, accessible, interoperable, and reusable, maximizing their impact and utility. Open-access publishing and the use of standardized protocols further enhance the discoverability and usability of project data for diverse stakeholders, including researchers, policymakers, and industry professionals.

The project's emphasis on reusability and interoperability highlights its commitment to sustainability and innovation. By employing standard data models, such as CPACS, and adhering to established formats, the consortium enabled seamless integration of data and models, fostering interoperability both within and outside the project. The decision to make the developed framework open source while restricting sensitive or proprietary models to consortium partners demonstrates a balanced approach to openness and intellectual property protection.

Furthermore, the implementation of secure data storage and access systems, including trusted repositories, the project TeamSite and institutional data servers, safeguarded sensitive information while maintaining collaborative efficiency. These measures reflect a strong commitment to data security and responsible data management practices, addressing all necessary technical considerations.

By enabling transparent data sharing and fostering interdisciplinary collaboration, the project's data management policy contributes significantly to advancing research and innovation toward sustainable aviation. Moving forward, the legacy of this policy, alongside its reusable datasets and open-access framework and dashboard, offers a valuable foundation for ongoing and future initiatives in the field.

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ANNEX – DMP QUESTIONNAIRE

All partners are invited to report their plans regarding data management so as to be in line with the mandatory Open Science (OS) practices set by the EC.
Please complete as many fields of the questionnaire as possible following **3 main steps:**

- Insert the Beneficiary name
- Provide your answers or select them from a dropdown menu, wherever available, in each of the Thematic Areas (I-VI)/ Be mindful of the helpful pop-up info in column A
- Elaborate on your answers, whenever needed, in the comment area

Beneficiary Name

I. Data summary	Answers related to the generated/reused project data	Comment Area: Participants are encouraged to elaborate here on their answers whenever it is needed
1. Will you re-use any existing data and what will you re-use it for? State the reasons if re-use of any existing data has been considered but discarded.		
2. What types and formats of data will the project generate or re-use?	*Example: Data types and formats simulation data (Text, graphics): .txt, .jpeg*	
3. What is the purpose of the data generation or re-use and its relation to the objectives of the project?		
4. What is the expected size of the data that you intend to generate or re-use?	*Example: 50MB*	
5. What is the origin/provenance of the data, either generated or re-used?	*Example: another research program (specify its name)*	
6. To whom might your data be useful ('data utility'), outside your project?		

IIa. Making data findable, including provisions for metadata	Please carefully read the explanatory notes, where available, in column A by setting your mouse cursor on the question and provide your detailed answers.	Comment Area: Participants are encouraged to elaborate here on their answers whenever it is needed
1. Data and metadata should be identified by a persistent identifier (PID). Which identifier do you plan to use?	*Example: DOI (Digital Object Identifier)*	
2. Machine-readable metadata will accompany the generated datasets following standard metadata schemes. What types metadata will be created?	*Example: - Documentation will include a standardized folder structure, codebooks (metadata about the data), logbooks (metadata about data processing), analysis plans, input and output files from databases and statistical software* *- The following metadata will be provided (as Excel file) for each experiment: Experiment number, Condition, Date, Entity, Description, Format*	
3. Will search keywords be provided in the metadata to optimize the possibility for discovery and then potential re-use?		
4. Will metadata be offered in such a way that it can be harvested and indexed? Which searchable resource do you plan to use for indexing?		

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IIb. Making data accessible	Please carefully read the explanatory notes, where available, in column A by setting your mouse cursor on the question and provide your detailed answers.	Comment Area: Participants are encouraged to elaborate here on their answers whenever it is needed
1. In which trusted repository will you deposit the openly accessible data?	*Example: ZENODO, Figshare, European Open Science Cloud, Open Research Europe, or partner institutional repositories*	
2. Have you explored appropriate arrangements with the identified repository where your data will be deposited?		
3. Does the repository ensure that the data is assigned an identifier? Will the repository resolve the identifier to a digital object?		
4. 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.		
5. 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.		
6. Will the data be accessible through a free and standardized access protocol?		
7. If there are restrictions on use, how will access be provided to the data, both during and after the end of the project?		
8. Will the collected/generated data require special software, hardware or any specific technique or tools to be accessed or "read"? If so, will it be possible to include the relevant software/ tools (e.g. in open-source code)?		
9. How long will the data remain available and findable? Will metadata be guaranteed to remain available after data is no longer available?		
10. Will documentation or reference about any software be needed to access or read the data be included?		

IIc. Making data interoperable	Please carefully read the explanatory notes, where available, in column A by setting your mouse cursor on the question and provide your detailed answers.	Comment Area: Participants are encouraged to elaborate here on their answers whenever it is needed
1. 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?	*According ot the GA, the deposition of data, available in standardized formats, will be based on a DataCite standard characterized by controlled vocabulary, depending on the different types of metadata: a) Descriptive metadata, b) Structural metadata, c) Technical metadata*	
2. Will your data include qualified references to other data (e.g. other data from your project, or datasets from previous research)?		

IId. Increase data re-use	Please carefully read the explanatory notes, where available, in column A by setting your mouse cursor on the question and provide your detailed answers.	Comment Area: Participants are encouraged to elaborate here on their answers whenever it is needed
1. The project data will remain reusable by submitting it in standardized, wide-spread data formats. Will you provide documentation 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.)?		
2. Will you pose embargo periods or specific restrictions regarding the re-use of data?		
3. The reusable data should be released with a clear and accessible data usage license (Open Definition license) which will allow further processing. Please specify the license type.		
4. Describe all relevant data quality assurance processes.		

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III. Other Research Outputs	Describe the other research outputs that the project will generate	Comment Area: Participants are encouraged to elaborate here on their answers whenever it is needed
1. 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 the project. Such outputs can be either digital (e.g. software, workflows, protocols, models, etc.) or physical (e.g. new materials, antibodies, reagents, samples, etc.). Please shortly specify.		
2. How these research outputs will be managed and shared, or made available for re-use, in line with the FAIR principles?		

IV. Allocation of resources	Describe the other research outputs that the project will generate	Comment Area: Participants are encouraged to elaborate here on their answers whenever it is needed
1. What will the costs be for making data or other research outputs FAIR in the project (e.g. direct and indirect costs related to storage, archiving, re-use, security, etc.)?		
2. How will these costs be covered? Note that costs related to research data/output management are eligible as part of the Horizon Europe grant (if compliant with the Grant Agreement conditions)		
3. How will long term preservation be ensured? Discuss the necessary resources to accomplish this.		

V. Data security	How will the data be curated and preserved, including Data storage and backup, during and after the end of the project?	Comment Area: Participants are encouraged to elaborate here on their answers whenever it is needed
1. What provisions are or will be in place for data security (including data recovery as well as secure storage/archiving and transfer of sensitive data)?		
2. Will the data be safely stored in trusted repositories for long term preservation and curation?		

VI. Ethics	How will the data be curated and preserved, including Data storage and backup, during and after the end of the project?	Comment Area: Participants are encouraged to elaborate here on their answers whenever it is needed
1. Are there, or could there be, any ethics or legal issues that can have an impact on data sharing?		

VII. Other issues	How will the data be curated and preserved, including Data storage and backup, during and after the end of the project?	Comment Area: Participants are encouraged to elaborate here on their answers whenever it is needed
1. Do you, or will you, make use of other national/funder/sectorial/departmental procedures for data management? If yes, which ones (please list and briefly describe them)?		

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