






## D6.5 – Data Management Plan

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## **Abstract**

This data management plan outlines the strategies and practices for effectively managing research data in the context of the Clean Aviation research proposal. The proposal aims to achieve disruptive aircraft performance compatible with the 2035 Entry-Into-Service (EIS) by addressing regulatory challenges and delivering innovative solutions.

The data management plan emphasizes the importance of data governance, documentation, storage, security, sharing, and preservation throughout the project. Data governance will ensure compliance with regulatory frameworks and promote responsible data practices. Thorough documentation will be maintained to enhance data discoverability and understanding.

Data storage will be carefully selected to ensure the availability, integrity, and durability of the research data. Robust security measures will be implemented to protect the data from unauthorized access, loss, or breaches. Data sharing protocols will facilitate controlled and ethical data exchange, enabling collaboration and maximizing data reusability.

In addition, the plan highlights the need for data preservation, considering long-term retention and archiving solutions. This is crucial for preserving the research data's integrity and facilitating future analysis or reuse.

By following this data management plan, CONCERTO will ensure effective data handling and compliance with best practices. This will enhance transparency, reproducibility, and the overall success of the project, enabling the development of innovative solutions and reinforcing European leadership in the aviation industry.

## **Keywords**

Data management plan; DMP; knowledge dissemination; knowledge transfer; data governance; data documentation; data storage; data security; data sharing; data preservation

## Document History

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draft	07/07/2023	Draft	Saullo G. P. Castro	First draft
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1	12/07/2023	First release	Saullo G. P. Castro	Comments implemented

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## Information Table

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## Partners involved in the document

*Lines of Beneficiaries not involved can be removed.*

N°	Role	Member name	Short name	Check if involved
1	COO	DASSAULT AVIATION	DAV	X
2	BEN	ARIANEGROUP SAS	AGS	
3	BEN	AVIATION DESIGN	AvD	
4	BEN	BNAE BUREAU NORMALISATION AERONAUTIQUE ESPACE	BNAE	
5	BEN	DEUTSCHES ZENTRUM FUR LUFT - UND RAUMFAHRT EV	DLR	
6	BEN	EASN TECHNOLOGY INNOVATION SERVICES BVBA	EASN TIS	X
7	BEN	IRT ANTOINE DE SAINT EXUPERY	IRT	
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10	BEN	OFFICE NATIONAL D'ETUDES ET DE RECHERCHES AEROSPATIALES	ONERA	
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Visit the website to find out more about Clean Aviation: [www.clean-aviation.eu](http://www.clean-aviation.eu)

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## 1. DATA SUMMARY

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### Will you re-use any existing data and what will you re-use it for?

No, there is no data available that answers our research questions.

### What types and formats of data will the project generate or re-use?

The present data management plan considers both **data** and **code** meaning all files underlying the results obtained in the project.

In the case of **data** files (for example: .csv, .txt, .dat, .hdf5, etc.), a distinction is made between **raw** (for example: files acquired from instrumentation, files generated in simulation, files compiled from online databases, etc.) and **processed** data (for example: cleaned-up/reduced data files, re-formatted data files, etc.).

In the case of **code**, a distinction is made between code that is **developed from scratch** from code that is **built upon pre-existing code**.

Having said that, this project will generate mainly:

- reports/documents
- data related to risk analysis for each one of the 3 Proof of Concepts (PoC)
- modelling/simulation data and code
- experimental data

All this data/code is classified in terms of its **confidentiality level**:

**Level 1:** data and code that will be published either by the time the related articles are published or after the project CONCERTO has finished;

**Level 2:** data and code only accessible by all CONCERTO partners;

**Level 3:** data and code only accessible by the contributors involved in generating or processing such data/code.

The following tables describe in more specific terms the data/code expected to be generated by the different partners, and their corresponding confidentiality level (level 1, 2 or 3). The tables also indicate when Dassault Sharepoint should be used to store data items falling under confidentiality levels 1 or 2, during the duration of the project.



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<b>Dassault Aviation</b>					
Nature of (generated / processed) data or code	Format	Store using Dassault Sharepoint	Corresponding Deliverables	Confidentiality Level	Expected Storage space needed
Reports containing processed data	.xls, .doc, .eps, .ps .pdf	YES	D4, D5, D6, D17, D18, D19, D41, D42, D58, D59, D73, D74, D75, D85, D86, D88, D89, D90, D91, D92, D87	Levels 1, 2 and 3	1 TB
Models	.dwg, .dxf .dgn, .stl .3ds				
Media files	.mpg, .mov, .wmv, .rm .jpg, .tif, .ps, .png				
Raw and processed test data	.txt, ASCII files, .xls				



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<b>INEGI</b>						
Nature of (generated / processed) data or code	Format	Store using Dassault Sharepoint	Corresponding Deliverable	Confidentiality Level	Expected Storage space needed	
Python scripts	.py	NO	D4.7; D4.9-D4.14; D4.24-D4.26	Level 3	10 MB	
Fortran subroutines	.f, .for, .f90, .obj	NO	D4.7; D4.9-D4.14; D4.24-D4.26	Level 3	1 MB	
Simulation input and output databases - Abaqus	.inp, .odb	NO	D4.7; D4.9-D4.14	Level 3	1 TB	
Raw test data	.txt, .csv, .tif, .jpg	NO	D4.8	Level 3	100 GB	
Reduced test data and simulation data	.txt, .xlsx, .mat	NO	D4.8-D4.10	Level 3	1 GB	
Normalised reduced test and simulation data (.txt, .xlsx, .mat)	.txt, .xlsx, .mat	YES	D4.9-D4.14	Level 1	1 GB	



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<b>ONERA</b>					
In the CONCERTO project, ONERA will generate data obtained from computations with ONERA's software or data obtained from test measurements performed in ONERA's test benches. It is not planned to perform any code development at ONERA.					
Nature of (generated / processed) data or code	Format	Store using Dassault Sharepoint	Corresponding Deliverable	Confidentiality Level	Expected Storage space needed
Data files	Not specified	NO	Not specified	Level 3	Not specified

<b>ISAE-SUPAERO</b>					
Nature of (generated / processed) data or code	Format	Store using Dassault Sharepoint	Corresponding Deliverable	Confidentiality Level	Expected Storage space needed
Database of certification requirements for H2-powered aircraft	Unknown	YES	D-3.2.3-1	Level 2	10 MB



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<b>PVS</b>					
Nature of (generated / processed) data or code	Format	Store using Dassault Sharepoint	Corresponding Work Package	Confidentiality Level	Expected Storage space needed
Reports containing processed data	.xls, .doc	YES	WP3.1.3., WP3.2.3., WP3.3.3.	Level 2	200 MB
Raw test data	.csv, .txt, .cls	NO	WP4.1.3., WP4.2.3., WP4.3.3.	Level 3	0.5 GB
Processed test data	.csv, .txt, .xls	YES	WP4.1.3., WP4.2.3., WP4.3.3.	Level 2	0.5 GB



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UP					
Nature of generated / processed data	Format	Store using Dassault Sharepoint?	Corresponding Deliverable	Confidentiality Level	Expected Storage space needed
Reports	.pdf	YES	D3.7: High Voltage Distribution PoC: Analysis of CS-25 in force, Risks and Gaps (WP3.2.2)	Level 3	Unknown
	.pdf		D3.14: High Voltage Distribution PoC: New Regulatory Material and Rules Intermediate Report (WP3.3.2)		
	.pdf		D3.15: High Voltage Distribution PoC: New Regulatory Material and Rules Final Report (WP3.3.2)		



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<b>Leonardo</b>					
Nature of generated / processed data	Format	Store using Dassault Sharepoint?	Corresponding Deliverable	Confidentiality Level	Expected Storage space needed
Reports	.pdf	YES	D1.1 – Linked Projects Mapping	Level 1	Unknown
	.pdf		D1.2 – Needs & exchanges	Level 2	
	.pdf		D2.1 – Process and Methods Synthesis Report	Level 2	
	.pdf		D7.2 – Cooperation Plan	Level 2	



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## What is the purpose of the data generation or re-use and its relation to the objectives of the project?

This project will generate mainly the following research data/code:

- **reports/documents**
- data related to **risk analysis** for each one of the 3 PoCs
- **modelling/simulation** data and code mainly for validation purposes
- **experimental** data mainly for testing purposes

**Reports/documents** will be generated in all Work Packages (WPs), specially WP1 and WP2. WP1 will identify the existing projects which are of interest of CONCERTO activities and will organize information/data exchanges between CONCERTO WPs. WP2 will identify general principles for certification of new technologies; it will define and organize the PoCs; and it will identify concept development enablers.

Data related to **risk analysis** for each one of the 3 PoCs will be generated mainly in WP3. WP3 will develop processes and methods to guarantee compliance with the certification requirements derived from WP2 and WP1, defining the general concept associated to the different PoCs.

**Experimental** data used for testing purposes, and **modelling/simulation** data and code used for validation purposes will be generated in, mainly, WP4 and WP5. WP4 will develop acceptable Means of Compliance (MoC) regarding aircraft safety, security and environmental protection for each one of the PoCs. This will be done by running simulations and experiments for testing and validation/demonstration purposes. WP5 will develop the digital framework that will implement the derived standards and workflow for data exchange with EASA.

## What is the expected size of the data that you intend to generate or re-use?

Based on the estimates provided in a previous answer, the total expected size of the data is of about 2 - 5 TB.

## What is the origin/provenance of the data, either generated or re-used?

The following general guidelines will be considered:



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- choose open/standard formats whenever possible;
- add proper embedded and supporting documentation to each dataset and code. For example:
  - add a top-level README file (in .txt or .md format) to each dataset/code working directory using a fixed template;
  - document vocabularies and ontologies used (either in the README, or in the file headers or in XML files);
  - set up conventions for code development (paying attention also to code sustainability and readability).
- Use version control for data and code when applicable.
- Follow a proper directory structure and directory/file-naming conventions.

### **To whom might your data be useful ('data utility'), outside your project?**

The data generated in our project holds utility for various stakeholders outside our project, including:

- **Research community:** Researchers and scientists in related fields can use our data for comparative analysis, validation, and further investigations.
- **Industry and technology developers:** Companies and developers can leverage our data for training algorithms, improving technologies, and driving advancements.
- **Policy makers and government organizations:** Our data can inform evidence-based policymaking, support decision-making, and aid in strategic planning.
- **Nonprofit organizations and public interest groups:** Our data can support advocacy efforts, public awareness campaigns, and research initiatives.
- **Educational institutions:** Our data can serve as teaching and learning resources for students, researchers, and educators in relevant academic programs.

By recognizing the broader utility of our data, we can promote data sharing and dissemination to maximize its impact and value beyond our project's scope.



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## 2. FAIR DATA

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### 2.1 Making data findable, including provisions for metadata

#### Will data be identified by a persistent identifier?

All data/code following under the confidentiality level 1 will be published in public repositories in Zenodo. Zenodo is a trusted archive that provides a persistent identifier (DOI) to each published dataset, which makes the published dataset findable, accessible and citable in the long-term.

#### 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.

Each dataset will contain either embedded or supporting metadata following standard vocabularies and disciplinary taxonomies.

Regarding citation metadata of datasets that will be published, Zenodo uses standard citation metadata based on MARCXML, Dublin Core (according to OpenAIRE Guidelines), DataCite, DCAT and JSON-LD (Schema.org). Thus, datasets published on Zenodo allow a detailed description and inclusion of keywords to improve the findability of the data. In addition to that, the DOI of the related article(s) will be added in the citation metadata of each repository. Likewise, the DOI of each dataset will be added to the related article(s) (e.g. Data Availability section).

Some examples of datasets curated by the CONCERTO Data Manager (Saullo G. P. Castro), that will also serve as guidance for CONCERTO published datasets, are given below:

- Marco Desiderio. (2023). Data set: Fokker F-28 Fellowship typical fuselage surface model for crashworthiness [Data set]. Zenodo. <https://doi.org/10.5281/zenodo.7724227>
- Chen, Sian Ying, van de Waerdt, Wydo, & Castro, Saullo G. P. (2022). Data set for design for bird strike crashworthiness using a building block approach applied to the Flying-V aircraft (2022-11-01) [Data set]. Zenodo. <https://doi.org/10.5281/zenodo.7270376>
- Foulds, Deacon, Knebusch, Johannes, Gundlach, Janto, Castro, Saullo G. P., & Govers, Yves. (2021). SmartBlades 2.0 Rotor Blade Nastran Models (2021-11-26) [Data set]. Zenodo. <https://doi.org/10.5281/zenodo.5729717>



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

Datasets published via Zenodo will be tagged with keywords that follow general purpose vocabularies such as the Library of Congress subject Headings (LCSH).

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

All citation metadata in Zenodo can be harvested via the OAI-PMH protocol and is findable by portals such as BASE, Google Dataset Search, and DataCite Search.

### **Will the data be deposited in a trusted repository?**

Commercially sensitive data/code will not be deposited in a trusted repository. It will be archived following institutional policies at the servers of the respective owner institution.

Data/code that is tagged as **Level 1** will be deposited in Zenodo, which is indeed a trusted repository.

## **2.2 Making data accessible – Repository**

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

In principle we do not foresee the need for any special arrangements with Zenodo, since the publishable data/code will be of manageable size (i.e., the datasets can be deposited in 50 GB free-of-charge repositories). If Level 1 datasets end up being larger than initially expected (surpassing Zenodo's free-of-charge quota) it will be either considered in the project's budget or the datasets will be published via the 4TU.ResearchData archive (which has a 1 TB quota per year free-of-charge for TU Delft depositors). If needed, research data management support staff available at partner institutions will be approached.

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

Zenodo provides a persistent identifier (DOI) to each published dataset.

## **2.3 Making data accessible – Data**

**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.**



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Part of the data/code is commercially sensitive, and because of that it will not be published. This is the data/code categorized as **Level 2** or **Level 3** in the Confidentiality Levels defined by CONCERTO.

IP provisions will be laid down in the consortium agreement.

**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.**

A 5 years embargo will be applied for publishable data, after it has been exploited by CONCERTO partners.

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

Datasets published on Zenodo are accessible to the public by downloading the data from the internet using TCP/IP protocol.

**If there are restrictions on use, how will access be provided to the data, both during and after the end of the project?**

During the project, WP leaders will oversee the right to access the data/code.

As the project evolves, datasets tagged as Level 1 will be published via Zenodo at the time the related (journal) articles are released to the public. Datasets tagged as Level 2 or Level 3 will remain under restricted access, maintained at the respective owner(s) institutional network drives, accessible to the respective team leaders for future in-house reuse.

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

For Level 1 datasets, once they are publicly released, there is no need to identify the people accessing/reusing the data.

For Level 2 and Level 3 datasets, the datasets will remain in-house at their owner institution(s). Access to such data will be given only to staff members of the respective institution(s).

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

No, there is no need for a data access committee.



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## 2.4 Making data accessible – 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?**

Only confidentiality Level 1 data/code will be published, including its (citation) metadata. In Zenodo all metadata is publicly accessible and licensed under public domain (no authorization is needed to retrieve it).

Regarding the datasets that will not be publicly released, information about the datasets will be presented in the related (journal) articles following the HE Open Science policy.

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

Level 1 data will be available by means of the DOI linked to the data objects. In Zenodo the (meta)data is stored in high-availability servers at CERN which is expected to be active for >15 years.

Regarding the datasets that will not be published, they will be archived for the long-term following the owner(s) institution(s) archiving policies.

**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)?**

No software is being generated as part of the assets to be published during and after this project.

## 2.5 Making data interoperable

**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?**

To ensure data interoperability and facilitate data exchange and re-use, we will follow established vocabularies, standards, formats, and methodologies. We will adopt semantic web technologies like RDF and OWL, use widely recognized data exchange formats such as CSV, JSON, XML, and JSON-LD, and employ standardized vocabularies and ontologies. We will also adhere to community-endorsed interoperability best practices and engage with relevant communities to adopt domain-specific standards. Data documentation and metadata creation will follow recognized standards such as DataCite, DCMI, and RDA. By doing so, we aim to enhance the consistency, accessibility, and reusability of our data across disciplines and promote seamless collaboration.



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**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?**

If the use of uncommon or project-specific ontologies or vocabularies becomes necessary, we are committed to providing mappings to more commonly used ontologies. These mappings will help establish connections and enable interoperability with existing and widely adopted vocabularies, ensuring compatibility, and facilitating data integration across different domains.

Additionally, we understand the importance of openly publishing any generated ontologies or vocabularies that we create. By making them openly available, we enable others to reuse, refine, and extend these resources. Open publication promotes transparency, encourages collaboration, and allows for broader community engagement in improving and expanding the ontologies and vocabularies. This approach aligns with the principles of open science and the broader goal of fostering a culture of sharing and collaboration within the research community.

**Will your data include qualified references[1] to other data (e.g. other data from your project, or datasets from previous research)?**

All cross references between the generated data objects and existing data objects will be created by means of the "Related Identifiers" fields that is part of the metadata on Zenodo. In addition to that, the DOI of each dataset will be added to the related article(s) in a 'Data Availability Statement' section or other sections alike.

## 2.6 Increase data re-use

**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.)?**

Whenever applicable, for the confidentiality Level 1 data to be generated within CONCERTO, tutorials and README files explaining the datasets will be made available together with the datasets in order to increase its reusability.

README files will contain information about:

- dataset title and authors
- general description of the dataset (what the data is about, for what purpose, how it was collected, etc.)
- relevant keywords



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- date of data collection
- date of dataset publication
- license of the dataset
- description of data collection methods (incl. instrumental or software settings, facilities and protocols)
- methods for processing the data (incl. software used to process the data, theoretical techniques, instrumental techniques)
- file overview (directory structure)
- references, caveats and assumptions

In the case of code, a top-level README (.txt or .md) file will also include information about what the code does; how to compile/run the scripts; and requirements (versions, libraries, dependencies, environment setup).

**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?**

The datasets published via Zenodo will be released via open licenses such as CC-BY for data and Apache 2.0 for code (unless the code builds upon a copyleft licensed code, in which case we will comply with the parent code license).

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

Yes.

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

Yes.

**Describe all relevant data quality assurance processes.**

The following checklist will be used as a reference for data quality:

- regardless if the dataset is archived or published, each dataset:



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- should have a **proper directory** (tree) structure, with a **consistent file/directory naming convention**. Basic rules:
  - do not use only numbers to name files
  - avoid use of whites paces in file/directory names
  - separate data files from code files (e.g. in different sub directories)
  - distinguish datasets per processing level (raw data, processed data, visualizations, finalized data)
- Files must be in **open/standard formats**.
- Datasets must have at least a **top-level README** file with the following basic structure:
  - title
  - authors (and ORCIDs)
  - description of data
  - data collection methods
  - data processing methods
  - description of the directory structure
  - caveats and assumption
  - references
  - license
- Datasets tagged as **Level 1** should be deposited in **Zenodo**.
  - Citation metadata items (such as authors, description, title, etc.) should describe the dataset accordingly.
  - Citation metadata keywords should follow a standard vocabulary (e.g. LCSH).



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- Uploaded files should not be corrupted.
- All files mentioned in the README should be present in the repository.
- There should be a license file.
- The DOI of the related article(s) and dataset(s) should be added in the citation metadata. Likewise, the DOI of the dataset should be added in the related article(s) and dataset(s).
- Datasets tagged as **Level 2** or **3** should be archived in a secure institutional storage (of the owner institution), accessed by the respective team member (staff member of owner institution) in the long-term. This information should be updated in this DMP (see 'Allocation of resources' section of this DMP, question #3).

**Further to the FAIR principles, DMPs should also address research outputs other than data, and should carefully consider aspects related to the allocation of resources, data security and ethical aspects.**

All data sets that are an integral or partial part of research outputs will be properly cited by means of the generated DOIs in the corresponding scientific manuscripts.



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### 3. ALLOCATION OF RESOURCES

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#### **What will the costs be for making data or other research outputs FAIR in your project (e.g. direct and indirect costs related to storage, archiving, re-use, security, etc.) ?**

The direct costs include the expenses for data storage and archiving, which will vary depending on the volume of data generated and the duration of storage required. Furthermore, costs for enabling re-use, such as time and resources spent on data cleaning, annotation, and description, should be considered. We also need to budget for the implementation of security measures, which may involve encryption, access controls, and regular security audits.

Indirect costs include the time and effort spent by the team in managing the data, including the work done by TU Delft as the responsible party for data management. Within the indirect costs, we can list some tasks such as monitoring compliance with FAIR principles, coordinating data sharing among partners, and liaising with external data repositories. Dassault Aviation, as the leading partner, will need to allocate resources for oversight and coordination of these activities.

#### **How will these 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)**

The costs for ensuring FAIR data in our project will be covered through a combination of funding sources and contributions. By leveraging these funding sources and contributions, we can ensure that all expenses related to making our research outputs FAIR are adequately addressed:

- Funding from the Horizon Europe Grant that directly supports the research data management costs that comply with the Grant Agreement conditions, for each partner involved.
- Project partners, such as Dassault Aviation and TU Delft will allocate resources from their budgets to cover some of the costs based on their roles and capacities.



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## Who will be responsible for data management in your project?

Each partner institution will be responsible for the proper management of the data and code they generate/collect. The following table lists the team members who will be overseeing the data/code management at their respective institutions:

Partners	Contact person
TU Delft - Delft University of Technology	Saullo G. P. Castro S.G.P.Castro@tudelft.nl +31 15 27 87367
Dassault Aviation	Geoffrey Meillon concerto-arttic@eurtd.com + 77 98 85 225
INEGI - Instituto de Ciencia e Inovacao em Engenharia Mecanica e Engenharia Industrial	Albertino Arteiro aarteiro@fe.up.pt +351 22 508 1719
ISAE-SUPAERO	Joël JEZEGOU joel.jezegou@isae-supero.fr +33 56 133 8355
ONERA - Office National d'Etudes et de Recherches Aérospatiales	Jean-Luc GODARD jean-luc.godard@onera.fr +33 14 673 4216
PVS - Pipistrel Vertical Solutions d.o.o.	Andrej Bernard Horvat andrej.horvat@pipistrel-aircraft.com +38 6 40 766 697

## How will long term preservation be ensured? Discuss the necessary resources to accomplish this (costs and potential value, who decides and how, what data will be kept and for how long)?

Long-term preservation of data is expected to be at least 15 years from the moment the datasets are finalized (for data of all confidentiality levels).



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## 4. DATA SECURITY

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### **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)?**

All researchers will be managing the data/code using work laptop/pc provided by their respective institution. This will ensure the devices follow institutional security protocols arranged by the respective ICT Department. In addition to that, recommended institutional services will be used for cloud storage and data transfer. For the development of code, researchers will be encouraged to use version control and have remote repositories in institutional instances for sensitive code (e.g. TU Delft Gitlab) or Github for non-sensitive developments.

The following table summarizes these services and security protocols available at partner institutions:

TU Delft During the course of the research project, researchers will work on TU Delft laptops. These are encrypted following AES-128 bit protocol. all data will be stored on local servers maintained and automatically backed up by TU Delft ICT. Every night the data will be automatically backed up. The data will be replicated over different sites/data centers. Data can be recovered with the help of TU Delft ICT services in the event of an incident. Only team members have access to the designated server.

The [Faculty Data Steward](#) will provide additional advice, as needed, on data storage during the research project. This data storage solution offers secure storage and transfer.

INEGI Level 3 data and codes will be shared with CONCERTO contributors through the WP and/or PoC leader's and contributor's specific data management systems. Cloud drives based on institutional instances of OneDrive and Google Drive are available at INEGI for storing, sharing and preserving data, and the FileSender system is available at INEGI for sharing data. INEGI also provides an internal FTPS system for storing, sharing and preserving data.

ONERA All the data generated by ONERA in the CONCERTO project will remain ONERA property as defined in the Grant Agreement, Article 16 and Annex 5, and in the Consortium Agreement, Section 8 and Section 9.

All these data will be managed and stored at ONERA according to the "Procedure for Technical Documentation Management", this procedure being defined in the frame of the "Quality Management System" adopted by ONERA and respecting the ISO9001 standard (ONERA is ISO9001 certified).



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## 5. ETHICS

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

There are no ethical or legal issues impacting the data sharing of the CONCERTO project.

**Will informed consent for data sharing and long-term preservation be included in questionnaires dealing with personal data?**

Not applicable since this project will not collect nor process personal data for research purposes.



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## 6. OTHER ISSUES

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**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)?**

We are going to be in compliance with Horizon Europe FAIR data principles, sharing data as open as possible and as closed as necessary. In addition to that, the project will be conducted in line with the [Netherlands Code of Conduct for Research Integrity](#) and the following institutional research data policies:

Technische Universiteit Delft [TU Delft Research Data Framework policy](#)

[TU Delft Research Software policy](#)

[TU Delft Faculty of Aerospace Engineering Research Data Management Policy](#)

University of Stuttgart [Research data management policy of the University of Stuttgart](#)

[DFG - Guidelines for Safeguarding Good Research Practice](#)



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## 7. REFERENCES

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**[1] A qualified reference is a cross-reference that explains its intent. For example, X is regulator of Y is a much more qualified reference than X is associated with Y, or X see also Y. The goal therefore is to create as many meaningful links as possible between (meta)data resources to enrich the contextual knowledge about the data. (Source: <https://www.go-fair.org/fair-principles/i3-metadata-include-qualified-references-metadata/>)**



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