



Initial Data Management Plan

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1. Executive Summary

The deliverable D9.2 *Initial Data Management Plan* includes all information concerning data management such as FAIR data, security, and ethics. The DMP (Data Management Plan) is based on the Horizon Europe Data Management Template [1]. It describes how research data will be gathered and used and how it will be exploited, shared, and preserved. D9.2 is a living document and will be regularly updated during the course of the project whenever significant changes arise. Built upon this initial plan, a final DMP (D9.3) will be produced in M32 of the project.

The coordinator of the HEIDI project (VIF) will be the responsible party for data management within the project work.

The HEIDI data management follows the EU and national legislation and ensures that all partners of the consortium follow national and EU regulations such as the GDPR.

Keywords: Data Management Plan, FAIR data, Data security, ethics

2. Objectives

The DMP plays a key role in supporting the HEIDI researchers to adequately manage research outputs, data and publications. The Initial Data Management Plan (D9.2) and the Final Data Management Plan (D9.3) will outline the methodology used within HEIDI to adhere to the FAIR principle, as well as to ensure its preservation and open access to enhance its reuse. The DMP is a living document and will be regularly updated throughout the project's lifetime.

The consortium is aware that effective data management for scientific knowledge, its dissemination and transfer are key issues for the proper implementation of HEIDI, as outlined in Article 17 of the Grant Agreement (GA) [2] and the Consortium Agreement (CA) [3].

For HEIDI to be successful, all partners in the consortium will adhere to common data management principles to ensure that data collected, processed and/or generated during the project duration is properly managed, archived and retained in accordance with the FAIR principle, even when access is restricted. The first data management processes were already established during the proposal phase. For this deliverable these processes are further elaborated, following the Horizon Europe Data Management Plan Template [1].

The data management process will be monitored within WP9, led by VIF, which will also be the responsible party for overall data management.

D9.2 relates to all objectives of HEIDI.

3. Data Summary

As it is common in all research projects, data is generated in the HEIDI project. For HEIDI, this is even more true as experimental studies are conducted.

Data is generally divided into two categories:

- **Primary Data:** New data generated within the HEIDI project (e.g., from studies, simulation activities, communication activities etc.)
- **Secondary Data:** Existing data relevant for HEIDI (e.g., from open access data bases, data from former project etc.)

3.1 Deliverables

Based on the Grant Agreement [2], all deliverables will be made available as PDF files. After approval of the funding authorities, the public deliverables will be published on the HEIDI website. 26 out of 37 deliverables are public in the HEIDI project. Sensitive deliverables will not be shared with the public. All deliverables are stored on the HEIDI SharePoint and hence accessible for all partners of the consortium.

3.2 Dissemination and Communication Activities

Data generated from dissemination and communication activities are only used for monitoring the activities within WP8. Data is only used internally and will be open for the HEIDI partners. The monitoring of these activities is described in detail in D8.2 *Dissemination and communication plan* [4].

3.3 Promotional Material and Videos

Promotional material such as flyers, posters or videos are used to disseminate HEIDI. This presentation material will be publicly available and published on the project website in PDF format. The material is also available for all partners on the project SharePoint.

The project videos will also be published on YouTube, the website and on social media.

3.4 Publications

Project related publications will be made freely and openly available via a trusted repository (i.e., the Open Research Europe platform) with the respective acknowledgement of funding set for HEIDI. This is also stated in the GA [2] and CA [3] of the HEIDI project. Publications are also monitored via SharePoint.

3.5 Project-internal communication

The communication between the partners is fully confidential, unless otherwise specified.

3.6 Experimental Study Data

Experimental methods and measurement types are open, the actual data itself is closed unless specified otherwise. Data from the studies is saved on the HEIDI SharePoint, the partner's own servers and selected data on EOSC or similar platforms.

3.7 Modelling Data

Methods, functionalities, and exemplary outputs are open, the actual models are closed unless specified otherwise. The data is saved on the HEIDI SharePoint, the partner's own servers and selected data will be made public on EOSC or a similar platform.

3.8 Methods

All methods used in HEIDI are public, unless specified otherwise. They are saved on the HEIDI SharePoint, the website and the partner's own servers.

4. FAIR Data

As data will be generated during the course of the project, this chapter describes how the FAIR data principle (Findable, Accessible, Interoperable, Re-usable) [5] can be ensured.

4.1 Making data findable, including provisions for metadata

All project partners will adhere to common data management principles to ensure that data collected, processed and/or generated during the project is properly managed, archived and retained in accordance with the FAIR principle, even if access is restricted. Data created within HEIDI will be stored in the SharePoint specifically set up for the project by VIF and an access control list will be established according to the confidentiality levels.

Publications will be identified using a DOI and the respective data will be made available in open-access repositories according to the GA [2] and CA [3].

A structured data storage is important for the proper handling and storage of data within the project. In the project handbook (D9.1 *Quality Assurance and Risk Management Plan* [6]) the naming conventions for deliverables and documents have been established. The conventions are as follows for:

General Documents: HEIDI_Title_vX.X.doc/pdf/xls...

Deliverables: HEIDI_DX.X_Title_vX.X.doc/pdf...

4.2 Making data accessible

Data gathered during the HEIDI project will be open by default. Sensitive data will not be published and only shared within the consortium.

All data is stored on the HEIDI SharePoint. Only members of the consortium have access to it. The repository is administered by the coordinator (VIF). Only VIF can grant access to new members. The platform is used to share files easily. Access to certain documents can be restricted individually.

All public deliverables as well as open access publications and dissemination material are published on the HEIDI website [7]. In this project, the majority of deliverables is public (26 out of 37).

Open Access is also ensured through the Annex of the GA [2].

4.3 Making data interoperable

Interoperability should be ensured by using common data formats such as docx, .pdf, .mp4, .xls, .txt. For publications, text file formats should be chosen. Readers should be able to read it online and download it for free.

The communication and working language in HEIDI is English. It is used to increase the interdisciplinary interoperability in the whole project work.

The HEIDI project makes further use of a technical infrastructure developed by VIF called DATA.BEAM [8] which is a modular hard- and software approach to combine different kinds of sensor data (driver, vehicle, pedestrian), external sources (e.g., HMI) and computation systems. The docker-based open system architecture and public available communication protocols allow multiple project partners to integrate closed- and open-source software components. For testing different scenarios in either simulator or real-world-environments a data-abstraction layer allows a seamless swap of input interfaces. This enables different studies or use-cases to use basically the same software by replacing single components of the complete system.

4.4 Increase data re-use

Assessment of the re-use of data will be made during the course of the project. If not stated otherwise, all data generated in HEIDI is considered confidential according to the CA [3] signed by all partners of the consortium.

As soon as public data is available, they will be published for open access.

5. Allocation of Resources

5.1 Costs of making data FAIR

All costs for setting up, running and maintaining the SharePoint for HEIDI are covered by the project coordinator (VIF). The repository will not be updated after the end of the project, the files saved will nevertheless still be available after the project end.

Costs for publications are covered by the corresponding authors and partners. To cover these costs, resources and efforts have been allocated to each partner's budget. This should also ensure open access for publications. All details can be found in the GA [2].

5.2 Responsibilities of data management

The coordinator, VIF, is the responsible party for data management. VIF sets up and maintains the SharePoint, including access management and user requests. Further, the coordinator performs the security assessment. The data provider itself is responsible for the quality of the gathered data. All partners of the HEIDI project ensure that data will be handled according to the FAIR principles.

5.3 Long-term preservations

Long-term preservations of all used and gathered data is considered by the partners. The website and the SharePoint repository will be available 4 years after the end of the project.

6. Data Security, Ethics and Other Issues

6.1 Data Security

All data gathered within the project will be handled as secure as possible. The whole HEIDI consortium will try to ensure the protection of data. The shared data will be stored on a secure platform with restricted access for parties outside the consortium. Data transfer from one partner to the other must be done securely. The HEIDI project will ensure to be compliant with the EU regulations regarding protection of personal data.

6.2 Ethics

As studies are part of the HEIDI project, compliance with the highest ethical standards on EU and national level is an important topic for the consortium. For this matter, the deliverable D5.1 *Ethical guidelines and procedures* [9] has been submitted. The deliverable explains how personal and sensitive data is collected, stored and processed. Further, all key principles of HEIDI data use and management are defined in D5.1. As personal data is gathered, the consortium appointed an external ethics advisor to assist with all matters concerning ethics.

6.3 Other Issues

No other issues have been identified. When needed, further issues will be added.

7. Conclusion

The initial DMP for HEIDI serves as guideline for the consortium. It should ensure that all partners are aware of data management procedures, regulations and recommendations and are supporting corresponding actions.

HEIDI will be compliant to the FAIR principle [5], the Consortium Agreement [3] and the Grant Agreement [2].

D9.2 is only an initial plan and will be updated regularly. This ensures a reliable and secure data management for HEIDI.

8. Abbreviations

Term	Definition
CA	Consortium Agreement
D	Deliverable
DMP	Data Management Plan
DOI	Digital Object Identifier
EOSC	European Open Science Cloud
EU	European Union
FAIR	Findable, Accessible, Interoperable and Re-usable
GA	Grant Agreement
GDPR	General Data Protection Regulation
HEIDI	Holistic and adaptive Interface Design for human-technology Interactions
HMI	Human-Machine Interface
M6	Month 6
PU	Public
R	Document, Report
WP	Work Package

9. References

- [1] Horizon Europe Data Management Plan Template, Version 1.0, 2021-05-01
- [2] Grant Agreement Number 101069538 – HEIDI
- [3] Consortium Agreement HEIDI, final version
- [4] HEIDI Deliverable D8.2 “Dissemination and communication plan”, submitted: February 2023
- [5] Horizon Europe Programme Guide: https://ec.europa.eu/info/funding-tenders/opportunities/docs/2021-2027/horizon/guidance/programme-guide_horizon_en.pdf, Version 2.0. 2022-04-11 (last accessed February 2023)
- [6] HEIDI Deliverable D9.1 “Quality Assurance and Risk Management Plan”, submitted: December 2022
- [7] <https://heidi-project.eu/>
- [8] <https://www.v2c2.at/databeam/>
- [9] HEIDI Deliverable D5.1 “Ethical Guidelines and procedures”, submitted: January 2023