



D1.4

SMARTHANDLE Data Management Plan 3



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Abstract

As the Industry 4.0 paradigm introduces interconnectivity between production resources, the fields of Artificial Intelligence (AI) and Big Data are finding applicable scenarios on the production shopfloor. This leads to an exponential increase on the amount and type of data required to be maintained for a functional production integration system. SMARTHANDLE utilizes the fields of AI and Big Data to facilitate Human-Robot-Collaboration (HRC) in diverse production environments followed by different types and amount of data, thus creating the need of constructing a Data Management Plan (DMP).

The DMP describes the lifecycle of collected/generated data, the methodology of keeping these data safe, the accessibility and reusability of data and how data may be used through the lifespan of the project and addresses the compliance of maintained data to Findable-Accessible-Interoperable-Reusable (FAIR) principles. Additionally, the DMP provides an insight into applicable Ethics during the handling of personal data in the lifespan of the project. During the project, the SMARTHANDLE Data Management Plan has been open to facilitate changes and was considered a constantly evolving document that was updated as necessary throughout the project's progression.

The first DMP iteration D1.2 provided a structured overview of the expected data to be collected or generated within SMARTHANDLE, outlined preliminary methodologies for FAIR compliance, security, and ethics. The second version, D1.3 included details regarding expected data for each software module that was documented in D2.2 "Design of SMARTHANDLE reference software and hardware architecture".

This is the third and final version the DMP delivered in M36. Its goal is to provide up-to-date information adhering and adapting to changes in the data needs that emerged during the last period. Beyond its role within SMARTHANDLE, this final version functions as a reference framework for future projects that generate heterogeneous technical, experimental, and human-centric data in collaborative robotics settings.

In doing so, it distils project experience into a concise set of reusable patterns for structuring data lifecycles, repository choices and FAIR-compliant practices in similar research and innovation contexts.



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Executive summary

This document outlines the data management methodology utilized in the SMARTHANDLE project. The methodology aims to ensure the proper handling of data collected and generated during the project's activities throughout its lifecycle. The DMP also identifies the steps needed to make data Findable, Accessible, Interoperable and Re-usable, properties commonly abbreviated as FAIR. The document also outlines security measures and addresses ethical considerations surrounding data management.

As the final version of the DMP, this deliverable consolidates and clarifies the methodology and processes for effective data management during the final period. This final version presents a mature, stable framework intended to inform both SMARTHANDLE partners as well as future research initiatives.

This is the final version of a document that, during the project, functioned as a constantly evolving Data Management Plan and was updated as necessary throughout the project's progression, considering its advancements and results. The first version, D1.2, was delivered in M06. The second version of the DMP, D1.3, has been submitted in M18 of the project. This is D1.4, the third and final version of the document, that is delivered on M36. It includes incremental updates on the information adhering and adapting to changes in the data needs that emerged during the last period and improved descriptions of different sections that enhance clarity and reusability.

The DMP is structured in the following sections:

- Section 1 provides introductory information about the DMP, the context in which it has been elaborated as well as about its objectives and structure.
- Section 2 presents a summary of the data to be collected or/and generated during the activities of SMARTHANDLE including the purpose of its collection/generation as well as its types and formats. Additionally, it outlines its origin, expected volume and the stakeholders that may find it useful.
- Section 3 describes the methodology that is applied in the framework of SMARTHANDLE in order to safeguard the effective management of data across their entire lifecycle, making it FAIR.
- Section 4 estimates the resources required for making the project's data FAIR, while also identifying data management responsibilities.
- Section 5 outlines the data security strategy applied within the context of SMARTHANDLE along with the respective secure storage solutions employed.
- Section 6 addresses ethical aspects as well as other relevant considerations pertaining to the data collected/generated during the implementation of the project.
- Section 7 provides concluding remarks on the project's Data Management Plan (DMP).