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Soggetto Proponente: Università degli Studi di Roma Tor Vergata

DATA MANAGEMENT PLAN (DMP)

Version 1.0 – February 2026

This document reports on how the Extended Partnership beneficiaries make their research data and outputs findable, accessible, interoperable, and reusable (F.A.I.R.) to ensure they are soundly managed. Good research data management is not a goal in itself, but rather the key conduit leading to knowledge discovery and innovation, and to subsequent data and knowledge integration and reuse.

The Data Management Plan (DPM) describes the data management life cycle for the data to be collected, processed, and/or generated by the project. As part of making research data findable, accessible, interoperable, and reusable (F.A.I.R.), the DMP includes information on:

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

As is the norm with Data Management Plans, the initial version of the DMP cannot provide detailed answers to all the questions. Rather, the DMP is intended to be a living document in which information can be made available on a finer level of granularity through updates as the implementation of the project progresses and when significant changes occur. Therefore, the DMPs have a clear version number and include a timetable for updates. The DMP will be updated in the context of the periodic evaluation/assessment of the project and in time for the final review at the latest.

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1. DATA MANAGEMENT SUMMARY

The RESTART project is a multidisciplinary research effort that aims to address 12 grand challenges to shape the TLC of the future. Data represent a crucial asset for present and future TLC, since the learning process is as good as the data it is fed with. As a result, data collection and curation are strategic for the RESTART project itself.

Given the dimension, the multidisciplinary, and the heterogeneity of the activities inside the eight spokes, the RESTART datasets cover a wide range of formats (text, images, videos, table, relational databases, code, statistical and computational datasets, etc.). For this reason, it is important for the cost- and time-effectiveness of the RESTART project to rely on existing ecosystems for data procurement, management, and curation equipped for making research data findable, accessible, interoperable, and reusable. Currently, the project uses primarily the following Data Management Methodology:

1. Data Collection: data are collected through:
    - the institutional website (www.fondazione-restart.it, hosted on BlueHost, one of the world's leading professional web hosting companies, particularly renowned for the WordPress CMS), using online forms and interactive tools;
    - dedicated campaigns, such as surveys, online forms, designed to collect specific information from participants.
2. Internal Data Management: once collected, data are stored and managed in a controlled and secure environment, enabling collaboration among project members. SharePoint (a cloud-based collaborative platform provided by Microsoft) is used to facilitate versioning, access control, and change tracking.
3. Data Exposure and Dissemination: processed data are made available:
    - on the institutional website[1], via download or direct viewing, while respecting privacy and sensitive data protection;
    - on public platforms such as www.dati.gov.it (the open data portal of the Italian Public Administration, compliant with the DCAT-AP_IT standard), to ensure proper cataloguing, discoverability, and open access according to open data guidelines.

Additional platforms may be considered if needed, as the project evolves.

The RESTART project advances from the awareness of ethical and legal challenges to concrete tools that operationalize ethics with value-sensitive design, incorporating values and norms for privacy protection, fairness, transparency, and pluralism. As the project matures, it aims to become a European scientific reference point for research in the telecommunications sector in the future, providing advanced resources and services to the international community, contributing to strengthening Europe's research leadership.

The RESTART project follows a structured approach to data management, ensuring compliance with the F.A.I.R. (Findable, Accessible, Interoperable, and Reusable) and F.A.C.T. (Fairness, Accuracy, Confidentiality and Transparency) principles. Data are collected, managed, exposed, and catalogued through dedicated tools and platforms, with clearly defined roles for each principle, ensuring high-quality, ethical, and reusable research outputs, as summarized below.

[1] https://fondazione-restart.it/missions/mission-7-communication-standardization-and-open-source-solutions/

Phase	Tool / Platform	F.A.I.R.	F.A.C.T.
Collection	Website + Campaigns	Provenance	Fairness
Management	SharePoint	Accuracy, Reusability	Confidentiality
Exposure	Institutional Website	Accessibility	Transparency
Cataloguing	dati.gov.it	Findability, Interoperability	Fairness, Transparency

Phase–Function Matrix for Data Management

RESTART project can generate and manage several types of data across its eight spokes, including:

- Unstructured data: textual documents, images, videos, social media contents;
- Structured data: tabular data, relational databases, code, statistical and computational datasets.

Datasets follow standard formats to ensure interoperability and reusability: CSV, or JSON for tabular and structured data, TIFF or JPEG for images, MP4 for videos, and UTF-8 encoding TXT for textual data (proprietary formats such as XLSX and DOCX are provided for collaboration but are almost always accompanied by open alternatives). Metadata are provided to guarantee accurate cataloguing, provenance, and discoverability. Data are then fully described and are accessible to be reused and also employed in complex experiments and workflows. The reuse of datasets is one of the main aims of RESTART project, promoting repeatable and open science in large-scale data mining.

2. COMPLIANCE WITH THE F.A.I.R. PRINCIPLES

2.1. Findable

The RESTART project ensures that data are findable by implementing systematic identification, description, and cataloguing procedures throughout the data lifecycle. Each dataset is associated with rich, structured metadata describing its content, origin, temporal coverage, and update frequency. Metadata are published through the institutional website and through www.dati.gov.it, the official open data portal of the Italian Public Administration, which guarantees visibility within national and European open data ecosystems. The adoption of the DCAT-AP_IT metadata profile, aligned with the European DCAT-AP specification, ensures the use of standardized fields, persistent identifiers, and machine-readable metadata, thereby enabling efficient indexing, harvesting, and discovery by search engines, data catalogues, and automated agents.

All the elements published by the RESTART project are discoverable through www.dati.gov.it. Each element is identified by a unique id and a unique URL pointing to institutional website. The institutional website that the RESTART project leverages is a smart service for finding and accessing datasets, methods, and publications. Resources are appropriately published and classified within the institutional website, where they can be searched through a set of keywords or filtered with reference to a specific category. The search or filter result can be sorted alphabetically and exported in different formats.

Without any kind of registration, the RESTART project enables the user to discover datasets and access the dataset's metadata. For the datasets that are publicly available, a direct link for the download is provided, also outside RESTART premises, through alternative well-established repositories (e.g., Zenodo, GitHub, etc.). For the datasets with different access policies, the download of an item requires the registration and login of the user (through Microsoft SharePoint).

2.2. Accessible

Data accessibility is ensured using robust, well-established digital infrastructures that support long-term availability and reliable access. Public datasets are made accessible via HTTPS through the institutional website and through www.dati.gov.it, allowing users to download data or consult them directly online, while private datasets are available only to consortium members or on request, and registration and login of the user are necessary (through Microsoft SharePoint).

The RESTART project uses a bottom-up approach to data sharing: each spoke is required to deposit its data in the trusted repository and provide open access to it. Exceptions to open access are allowed only if duly justified, in case of legitimate interests or external constraints.

Access conditions, reuse licenses, and technical access information (e.g., file formats and download mechanisms) are explicitly documented in the metadata. Any restrictions related to personal data, confidentiality, or sensitive information are managed in compliance with the General Data Protection Regulation (GDPR) and applicable national legislation, ensuring that access limitations are proportionate, transparent, and clearly justified while preserving the maximum possible level of openness.

2.3. Interoperable

The RESTART project fosters interoperability by adopting open, non-proprietary data formats and standardized metadata models that facilitate data exchange and integration across heterogeneous systems. Datasets published on www.*dati.gov.it* conform to the DCAT-AP_IT standard, ensuring semantic and structural interoperability with other public sector and research datasets at both national and European levels. Where applicable, controlled vocabularies, shared classifications, and consistent naming conventions are used to describe data elements, thereby reducing ambiguity and supporting automated processing. This approach enables the integration of project data into broader analytical frameworks, data portals, and interoperable services.

The RESTART project commits to relying on (i) (meta)data that use a formal, accessible, shared, and broadly applicable language for knowledge representation, (ii) (meta)data that use vocabularies that follow FAIR principles, and (iii) (meta)data that include qualified references to other (meta)data.

Research outputs are mostly produced by using non-proprietary, free-of-charge programming languages and stacks of standard technologies, and by reusing open-source or free-of-charge software solutions, so as to ensure their technological interoperability.

2.4. Reusable

Reusability is addressed through comprehensive documentation, data quality assurance processes, and clear governance of data versions and provenance. Data are collected and managed in a controlled collaborative environment (SharePoint), which provides mechanisms for versioning, access control, audit trails, and traceability of modifications. Prior to dissemination, datasets undergo validation and consistency checks to

ensure accuracy and completeness. Published datasets are accompanied by detailed metadata, methodological descriptions, and explicit licensing information consistent with open data principles, enabling third parties to correctly interpret, replicate, and reuse the data over time for research, policy-making, and other secondary uses.

RESTART monitors that all the partners comply with privacy and licensing restrictions declared for their data and takes care of the costs (if any) associated with their long-term preservation. The available and newly gathered datasets are registered following the specification defined in this document.

The data generated within the RESTART consortium may be subject to an embargo period to give time to the data owners to disseminate their research results through papers or to seek patents. When data owners request an embargo period, proper justifications are asked. The embargo period is decided on a case-by-case basis, always keeping in mind that research data should be made available as soon as possible.

The data remain reusable as long as the RESTART project allows.

3. COMPLIANCE WITH THE F.A.C.T. PRINCIPLES

3.1. Fairness

The RESTART project adheres to the principle of fairness by ensuring that data collection, processing, and dissemination activities are conducted in an ethical, inclusive, and non-discriminatory manner. Data are collected through transparent and purpose-driven instruments, such as institutional web forms and targeted surveys, designed to minimize bias and avoid unjustified exclusion of individuals or groups. When data concern individuals or stakeholders, collection practices are aligned with applicable ethical standards and legal frameworks, ensuring that data are used only for legitimate, predefined objectives and that no unfair treatment or misrepresentation arises from data processing or reuse.

3.2. Accuracy

Accuracy is ensured through structured data collection methodologies and controlled internal data management processes. Data gathered via online forms and dedicated campaigns are validated during collection and further checked during processing to detect inconsistencies, errors, or incomplete records. The use of a collaborative and controlled environment such as SharePoint supports version control, traceability, and systematic review of datasets, reducing the risk of data corruption or loss of integrity. These mechanisms ensure that disseminated datasets accurately reflect the original sources and remain reliable for analysis and reuse.

3.3. Confidentiality

The project guarantees confidentiality by implementing appropriate technical and organizational measures to protect personal, sensitive, or restricted data throughout the data lifecycle. Access to internally managed data is regulated through role-based permissions and access control mechanisms within the collaborative platform. Prior to public dissemination, datasets are reviewed to identify and remove or anonymize personal or sensitive information, in full compliance with the General Data Protection Regulation (GDPR) and relevant national legislation. This approach ensures that data protection requirements are respected while enabling the widest possible dissemination of non-sensitive information.

3.4. Transparency

Transparency is ensured by clearly documenting data collection methods, processing workflows, access conditions, and dissemination practices. Information regarding data sources, methodologies, update frequencies, and reuse licenses is made publicly available through metadata and accompanying documentation on the institutional website and open data portals. The publication of datasets on www.dati.gov.it further enhances transparency by providing standardized metadata descriptions and clear governance information. This enables users to understand how data were generated, processed, and shared, thereby fostering trust, accountability, and informed reuse.

4. ALLOCATION OF RESOURCES

Data management is considered a core component of the project, and the following resources are allocated:

- Personnel: time spent on data curation, metadata creation, and repository uploads by Program Manager, Spoke and Partner Leaders, Principal Investigators and IT support;
- Infrastructure: secure storage, cloud services (SharePoint), and certified repository hosting (BlueHost and www.dati.gov.it);
- Tools: software for data processing, backup, versioning, and metadata management;
- Estimated costs: the project has allocated a portion of the budget specifically for long-term preservation, repository fees, and software licenses.

These investments ensure the project's datasets remain FAIR and FACT-compliant, and usable by the wider research community.

5. DATA SECURITY

Collected data are stored in secure environments using SharePoint and dedicated web services, with periodic backups and versioning enabled. Data integrity checks are performed Access is controlled according to role, ensuring that only authorized personnel can modify sensitive data.

Processed datasets are shared through:

- Open access: on www.dati.gov.it and the institutional website, under appropriate licenses (e.g., CC-BY).
- Restricted access: sensitive or proprietary data are available only to consortium members or on request (through Microsoft SharePoint).

Clear allocation of responsibilities, shown in the following table, is essential to ensure data security and high-quality data management.

Role	Function
Program Manager	Oversees data collection, storage, quality control, and compliance with FAIR/FACT principles.
Spoke Leaders, Partner Leaders and Principal Investigators	Oversee data integrity and documentation within their scope.
IT/Data Support Staff	Maintain secure storage, backup, and access control; implement versioning; handle upload, cataloguing, and public dissemination
Legal/Ethics Officer	Ensure compliance with GDPR, consent, and ethical standards.

Roles and Responsibilities

Further details are contained in the "Rules for the use of work tools and IT systems of the RESTART Foundation"[1]. Foundation personnel is informed about rules and best practices in IT systems management.

6. LEGAL AND ETHICAL ASPECTS

All data collection complies with the GDPR and relevant Italian and European legislation on personal data. For participant-based datasets, informed consent is obtained using clearly worded online forms. Sensitive datasets are anonymized or pseudonymized where possible.

Ethical considerations, including fairness, transparency, and non-discrimination, are integrated throughout the project in line with RESTART's value-sensitive design approach. The RESTART project also leverages the Ethical Committee of the RESTART Foundation and of the Partners involved.

We adopt also a Do No Significant Harm (DNSH) and risk-based approach, focusing on serious and complex use cases related to the RESTART research activities. Specific care is taken for the collection and handling of health data, as will be detailed in the following release of this DMP.

7. DMP UPDATES

The DMP is a living document and will be periodically reviewed to reflect the project's evolution. The Frequency of review is upon significant changes to the datasets, storage systems, or legal requirements.

The Data Management Plan was approved by the Board of Directors on February 9, 2026.

[1] https://fondazione-restart.it/it/amministrazione-trasparente/disposizioni-generali/atti-generali/atti-emanati-dalla-fondazione/