Research data management policy

1) Foreword

In the present policy, “Research data”, “ and “INRiM affiliates” are defined as specified in Annex 1.

INRiM acknowledges the fundamental importance of the data produced in the course of the research activity as the supporting evidence of any scientific result. INRiM recognizes the importance of correct data management in maintaining the quality and integrity of scientific research and is therefore committed to pursue the highest standards in all aspects of data management, including data acquisition, correct organisation, storage, long-term archiving and public sharing.

INRiM recognizes that the availability of reliable and easily retrievable data represents a qualifying objective of any research project, as well as a requisite for the verification of the reliability and correctness of the research process and reproducibility of the project results.

INRiM acknowledges that, even after the end of a research project, research data represent a valuable heritage and an important long-term resource for societal progress.

The present Research Data Management (RDM) policy aims to support the researcher in his/her activity and to contribute to a favourable and sustainable research environment.

2) Area of application

The present policy addresses all affiliates of INRiM and applies to all research projects, solely for the parts of which INRIM is fully responsible. In the event of research activities funded by a third party with specific grant agreements regarding the control, access, storage or publication of data, these agreements prevail on the present policy, in compliance with the current legislation and the instructions provided by the Italian National Agency for the evaluation of Universities and Research Institutes (ANVUR).

3) Research data management

Research data must be properly archived and managed, in order to be *Findable, Accessible, Interoperable and Reusable* (FAIR).

In compliance with the current legislation pertaining to the protection of personal data and intellectual property, in compliance with ANVUR instructions and regulations, in respect of the Statute and the regulations of INRiM, with the only exception of existing specific agreements

with third parties, research data must be made available in the public domain for the sake of scientific and historical research as well as for public interest. Shared research data must be attributed with an appropriate *open* usage licence which complies with the "open definition"[1] like, for instance, the Creative Commons Attribution (CC-BY).

Openly shared research data must be stored, in respect of adequate international standards, in a digital repository like, Zenodo, which respects the FAIR principles and it is registered in the main repository registries, like re3data.
Shared research data must also be provided with permanent identifiers like, for instance, a Digital Object Identifier (DOI).

For their future reuse, research data must be made available in citable form, in compliance with citation norms and any requirement regarding their publication and use. The origin and any subsequent source of the reused data must be maintained clearly traceable.

Research data must be archived for as long as needed, in compliance with intellectual property rights or requirements by research funders, and in observation of any applicable legal and contractual provision (as the EU disciplinary guidance for protection of personal data). The minimum archive duration for research data is ten (10) years from the date of their public release. After this period, data may be deleted unless some relevant research interest remains.

In the event that research data must be destroyed or deleted (e.g. because of expiry of the archiving period) such action will be carried out only after careful consideration of all the legal and ethical aspects. The eventual deletion or destruction of research data must in any case be traceable and documented, and the related records must remain accessible. At the same time, the possible interests of third party research funders and other stakeholders, as well as aspects of confidentiality and security, must be taken into account.
Details for the practical implementation of RDM, following the principles illustrated above, are available in specific *RDM guidelines*.

4) Responsibility, duties, rights

The responsibility for collection, management and conservation of research data is shared between INRiM and its affiliates, limited to their specific areas of competence and respecting all internal regulations.

4.1 Responsibilities of INRiM affiliates

INRiM affiliates are responsible for:

[1] http://opendefinition.org/

- management of research data in compliance with the principles and requirements of the present policy, of all organisational, normative, institutional, legal and contractual regulations which apply to the research data and the associated documentation (such as, information regarding the context or the origin of the research data);
- collection, documentation, storage and regulation of access and conservation (or destruction) of the research data, in agreement with a Data Management Plan (DMP)[2] specifically prepared for each research project;
- preparation of the DMP in collaboration with the project leader, following the RDM guidelines, with a clear definition of the rights of use of the data especially after the end of the project. These rights include the attribution of appropriate licences, as well as regulations of data management dealing with any interruption or termination of the employment of the affiliate at INRiM;

4.2 Responsibilities of INRiM

Considering the given availability of financial and human resources, INRiM is responsible for:

- maintenance of organisational units, services and hardware and software infrastructures needed to provide access to and storage of research data;
- appointment of competent support staff (e.g. data stewards) and the provision of adequate training in data management to INRiM affiliates;
- provision of adequate support for the preparation of DMPs;
- setting suitable conditions for INRiM affiliates to exercise their own duties and responsibilities in compliance with contractual and legal obligations.

5) Validity and application

5.1 Validity

The present policy takes effect on **1 February 2022** and will be updated at least every two years.

5.2 Application

The application of the present policy is put into practice following the practical instructions outlined in a series of documents referred to as *RDM Guidelines*.

[2] A Data Management Plan (DMP) is a written formal document which describes the entire life cycle of data during a research project, and after the project is completed. As such the DMP may be subject to continuous update. The DMP ensures that research data are accessible, traceable, available, authentic, citable and that they comply with clearly defined legal requirements and with appropriate safety obligations for their re-use. Ultimately, DMPs may be prepared to become *machine actionable*.

Particularly, the RDM Guidelines provide information on the following subjects:

- choice of a suitable data repository
- criteria for the selection of data to be archived or openly shared and methods for data storage/sharing
- research software
- data licences
- DMP templates and examples

Furthermore, for supporting the correct application of the RDM policy by the affiliates, INRIM is committed to the nomination of a data steward.

Annex 1 - Definitions

Research data: digital format data produced as the result of a research activity, or illustrating different phases of research work. Particularly, research data include records of numerical data, symbols, text and audio-visuals collected or used to validate scientific results and findings, as well as the software tools used to analyse and elaborate research data in order to produce the final research results.

Typical examples of research data include those acquired during the measurement process, reference values of physical quantities and laboratory standards, results of investigations and studies, collections of samples and objects, test procedures, simulations and protocols. The wide range and variety of data types reflects the diversity of scientific fields, methodologies and research procedures. Throughout the duration of a project, research data may evolve taking different forms (gradations of raw data, processed data - including negative or inconclusive results, openly shared data, published data), and may as such have different types of access authorization or licence attributions.

Research data management: includes the organisation, acquisition, collection, elaboration, documentation and storage of data, in agreement with the present policy and the instructions further specified in the RDM Guidelines. It ensures access, reuse, reproducibility of research data as the prerequisite to rigorous and transparent scientific results and findings.

INRiM affiliate: who contributes to the research activities of INRIM, including the employees and associates of INRiM, postdoctoral researchers, and all others, being e.g. affiliated to other institutions, who are trained at INRIM (e.g. PhDs) or are temporarily visiting INRIM.

Research project: the scientific endeavour undertaken in response to a research need, independently from the source of funding. Research projects may include: experimental activities, theoretical investigations, feasibility studies, data processing. Also, the research activities undertaken to fulfil the obligation needed for the achievement of a Bachelor or Master Degree or a PhD title establish a research project. Every research project is supervised by a Project Leader who is responsible for the research data management and the preparation of a DMP.

The following three approaches, found in the international academic environment, support the above indicated definitions of research data:
a. According to the LERU Roadmap for Research Data (LERU Research Data Working Group, Advice Paper No. 14 – December 2014):
“Research data, from the point of view of the institution with a responsibility for managing the data, includes: All data which is created by researchers in the course of their work, and for which the institution has a curational responsibility for at least as long as the code and relevant

archives/ record keeping acts require, and third-party data which have originated within the institution or come from elsewhere."
b. The Australian Griffith University:
"Research data are factual records, which may take the form of numbers, symbols, text, images or sounds, which are used as primary sources for research, which are commonly accepted in the research community as necessary to validate research findings."
c. The University of Minnesota:
"Research data are data in any format or medium that relate to or support research, scholarship, or artistic activity. They can be classified as:
• Raw or primary data: information recorded as notes, images, video footage, paper surveys, computer files, etc.
• Processed data: analyses, descriptions, and conclusions prepared as reports or papers
• Published data: information distributed to people beyond those involved in data acquisition and administration."

Useful references and important documents about the research data management principles:
● https://www.force11.org/group/fairgroup/fairprinciples
● http://learn-rdm.eu/en/research-data-management-toolkit-now-available/
● https://ec.europa.eu/research/openscience/pdf/eosc_declaration.pdf#view=fit&pagemode=none
● "Musterleitlinie für Forschungsdatenmanagement (FDM) an Hochschulen und Forschungseinrichtungen" https://zenodo.org/record/1149133#.X5_sZohKg2w