Luxembourg National Research Fund (FNR): Luxembourg National Research Fund Data Management Plan (FNR)

DATA DESCRIPTION AND COLLECTION OR RE-USE OF EXISTING DATA

How will new data be collected or produced and/or how will existing data be reused?

Guidance:

- Explain which methodologies or software will be used if new data are collected or produced.
- State any constraints on re-use of existing data if there are any.
- Explain how data provenance will be documented.
- Briefly state the reasons if the re-use of any existing data sources has been considered but discarded.

What data will be collected or produced?

Guidance:

- Give details on the kind of data: for example, numeric (databases, spreadsheets), textual (documents), image, audio, video, or mixed media.
- Give details on the data format: the way in which the data is encoded for storage, often reflected by the filename extension (for example csv, xlsx).
- Justify the use of certain formats. For example, decisions may be based on staff expertise within the host organisation, a preference for open formats, standards accepted by data repositories, widespread usage within the research community, or on the software or equipment that will be used.
- Give preference to open and standard formats as they facilitate sharing and long-term re-use of data.
- Give details on the volumes (they can be expressed in storage space required (bytes), and/or in numbers of objects, files, rows, and columns).

DOCUMENTATION AND DATA QUALITY

What metadata and documentation will accompany the data?

Guidance:

- Indicate which metadata will be provided to help others identify and discover the data.
- Indicate which metadata standards (for example DDI, TEI, EML, MARC, CMDI) will be used.
- Use community metadata standards where these are in place.
- Indicate how the data will be organised during the project, mentioning for example conventions, version control, and folder structures. Consistent, wellordered research data will be easier to find, understand, and re-use.
- Consider what other documentation is needed to enable re-use. This may include information on the methodology used to collect the data, analytical and procedural information, definitions of variables, units of measurement, and so on.
- Consider how this information will be captured and where it will be recorded for example in a database with links to each item, a ‘readme’ text file, file headers, code books, or lab notebooks.

What data quality control measures will be used?

Guidance:

Explain how the consistency and quality of data collection will be controlled and documented. This may include processes such as calibration, repeated samples or measurements, standardised data capture, data entry validation, peer review of data, or representation with controlled vocabularies.

STORAGE AND BACKUP DURING THE RESEARCH PROCESS

How will data and metadata be stored and backed up during the research?

Guidance:

- Describe where the data will be stored and backed up during research activities and how often the backup will be performed. It is recommended to store data in least at two separate locations.
- Give preference to the use of robust, managed storage with automatic backup, such as provided by IT support services of the home institution. Storing data on laptops, stand-alone hard drives, or external storage devices such as USB sticks is not recommended.

How will data security and protection of sensitive data be taken care of during the research?

Guidance:

- Explain how the data will be recovered in the event of an incident.
- Explain who will have access to the data during the research and how access to data is controlled, especially in collaborative partnerships.
- Consider data protection, particularly if your data is sensitive for example containing personal data, politically sensitive information, or trade secrets.
- Describe the main risks and how these will be managed.
- Explain which institutional data protection policies are in place.

LEGAL AND ETHICAL REQUIREMENTS, CODES OF CONDUCT

If personal data are processed, how will compliance with legislation on personal data and security be ensured?

Guidance:

Ensure that when dealing with personal data, data protection laws (for example GDPR) are complied with:

- Gain informed consent for preservation and/or sharing of personal data.
- Consider anonymisation of personal data for preservation and/or sharing (truly anonymous data are no longer considered personal data).
- Consider pseudonymisation of personal data (the main difference with anonymisation is that pseudonymisation is reversible).
- Consider encryption which is seen as a special case of pseudonymisation
- Explain whether there is a managed access procedure in place for authorised users of personal data.

How will other legal issues, such as intellectual property rights and ownership, be managed? What legislation is applicable?

Guidance:

Explain who will be the owner of the data, meaning who will have the rights to control access:

- Explain what access conditions will apply to the data? Will the data be openly accessible, or will there be access restrictions? In the latter case, which?
- Consider the use of data access and re-use licenses.

- Make sure to cover these matters of rights to control access to data for multipartner projects and multiple data owners, in the consortium agreement.

Indicate whether intellectual property rights are affected. If so, explain which and how will they be dealt with.

Indicate whether there are any restrictions on the re-use of third-party data.

What ethical issues and codes of conduct are there, and how will they be considered?

Guidance:

- Consider whether ethical issues can affect how data are stored and transferred, who can see or use them, and how long they are kept. Demonstrate awareness of these aspects and respective planning.
- Follow the national and international codes of conducts and institutional ethical guidelines, and check if ethical review (for example by an ethics committee) is required for data collection in the research project.

DATA SHARING AND LONG-TERM PRESERVATION

How and when will data be shared? Are there possible restrictions to data sharing or embargo reasons?

Guidance:

- Explain how the data will be discoverable and shared (for example by deposit in a trustworthy data repository, indexed in a catalogue, use of a secure data service, direct handling of data requests, or use of another mechanism).
- Outline the plan for data preservation and give information on how long the data will be retained.
- Explain when the data will be made available. Indicate the expected timely release. Explain whether exclusive use of the data will be claimed and if so, why and for how long. Indicate whether data sharing will be postponed or restricted for example to publish, protect intellectual property, or seek patents.
- Indicate who will be able to use the data. If it is necessary to restrict access to certain communities or to apply a data sharing agreement, explain how and why. Explain what action will be taken to overcome or to minimise restrictions.

How will data for preservation be selected, and where data will be preserved longterm?

Guidance:

- Indicate what data must be retained or destroyed for contractual, legal, or regulatory purposes.
- Indicate how it will be decided what data to keep. Describe the data to be preserved long-term.
- Explain the foreseeable research uses (and/ or users) for the data.
- Indicate where the data will be deposited. If no established repository is proposed, demonstrate in the data management plan that the data can be curated effectively beyond the lifetime of the grant. It is recommended to demonstrate that the repositories policies and procedures (including any metadata standards, and costs involved) have been checked.

What methods or software tools are needed to access and use data?

Guidance:

- Indicate whether potential users need specific tools to access and (re-)use the data. Consider the sustainability of software needed for accessing the data.
- Indicate whether data will be shared via a repository requests handled directly, or whether another mechanism will be used?

How will the application of a unique and persistent identifier (DOI) to each data set be ensured?

Guidance:

- Explain how the data might be re-used in other contexts. Persistent identifiers should be applied so that data can be reliably and efficiently located and referred to. Persistent identifiers also help to track citations and re-use.
- Indicate whether a persistent identifier for the data will be pursued. Typically, a trustworthy, long-term repository will provide a persistent identifier.

DATA MANAGEMENT RESPONSIBILITIES AND RESOURCES

Who will be responsible for data management?

Guidance:

- Outline the roles and responsibilities for data management/stewardship activities for example data capture, metadata production, data quality, storage and backup, data archiving, and data sharing. Name responsible individual(s) where possible.
- For collaborative projects, explain the co-ordination of data management responsibilities across partners
- Indicate who is responsible for implementing the DMP, and for ensuring it is reviewed and, if necessary, revised.
- Consider regular updates of the DMP.

What resources will be dedicated to data management and ensuring that data will be FAIR?

Guidance:

- Explain how the necessary resources (for example time) to prepare the data for sharing/preservation (data curation) have been costed in.
- Carefully consider and justify any resources needed to deliver the data. These may include storage costs, hardware, staff time, costs of preparing data for deposit, and repository charges.
- Indicate whether additional resources will be needed to prepare data for deposit or to meet any charges from data repositories. If yes, explain how much is needed and how such costs will be covered.