NEUROPULS

Deliverable 1.2

Data Management Plan – iteration 1

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Author(s)	P01 – CNRS – Fabio Pavanello
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Document Validation

Project Coordinator	P1 CNRS – Fabio Pavanello
	Fabio.pavanello@cnrs.fr
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Document Abstract

This deliverable presents the first version of the NEUROPULS Data Management Plan (DMP). It describes the guiding principle for data management and gives an overview of what data will be gathered and processed in the project, accordingly to the Horizon Europe FAIR Data Management principle making data findable, accessible, interoperable and reusable.

The purpose of the DMP is to contribute to good data handling through indicating what research data the project expects to generate and describe which parts of the data that can be shared with the public. Furthermore, it gives instructions on naming conventions, metadata structure, storing of the research data and how to make public data available.

This deliverable will be regularly updated during the project lifetime when data management practices change.

List of acronyms / Glossary

CA: Consortium Agreement
CC: Common Creative
D: Deliverable
DMP: Data Management Plan
DPO: Data Protection Officer
DoA: Description of Action
DOI: Digital Object Identifier
EC: European Commission
FAIR: Findable, Accessible, Interoperable, Reusable
GA: Grant Agreement
GDPR: General Data Protection Regulation
IPR: Intellectual Property Rights
M: Month of the project
NDA: Non- Disclosure Agreement
ORDP: Open Research Data Pilot
PNB: Project NetBoard
V: Version
WP: Work Package
Gold Open Access: Open access publishing (gold open access) means that an article is immediately provided in open access mode on the publisher or journal's website. Some publishers charge Article Processing Chargers (APCs) to make articles open.
Green Open Access: Self-archiving (green open access) means that a published article or the final peer-reviewed manuscript is archived (deposited) in an online repository before, alongside or after its publication. In some cases, the author can choose to delay access to the article (embargo period). HE rules state that embargo periods cannot exceed six months, except for publications in social science and humanities where the maximum embargo period is twelve months.

Personal Data: Personal data is any information that relates to an identified or identifiable living individual. Different pieces of information, which collected together can lead to the identification of a particular person, also constitute personal data. Personal data that has been de-identified, encrypted or pseudonymised but can be used to re-identify a person remains personal data and falls within the scope of the law. Personal data that has been rendered anonymous in such a way that the individual is not or no longer identifiable is no longer considered personal data. For data to be truly anonymised, the anonymisation must be irreversible.

Zenodo: Zenodo is a catch-all research data repository that enables researchers, scientists, EU projects and institutions to share research results, make research results citable, and search and reuse open research results from other projects. Zenodo is harvested by the OpenAIRE portal and hosted by the CERN cloud infrastructure.

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1. EXECUTIVE SUMMARY

The NEUROPULS Data Management Plan (DMP) follows the Horizon Europe DMP template that was designed to be applied to any Horizon Europe project that produces, collects or process research data.

This DMP deliverable describes the data management principles and strategies, tools and NEUROPULS data that will be produced as part of the project activities and that are relevant to be included in the DMP. The consortium will also aim at open access when publishing papers and articles.

The DMP is a live document to be updated as the implementation of the project progresses and when significant changes occur in the data management plan.

2. INTRODUCTION

2.1 Why would I want to read this deliverable?

It provides an easy overview of research data the project is expected to generate, the types and formats of this data, and how this data is processed and stored to make them findable, accessible, interoperable and reusable, according to the principles of FAIR data management. The purpose of the DMP is to contribute to good data handling during the project's lifetime, and to describe how such data will be curated and preserved.

2.2 Intended readership/users

Internally in the project:

- All project participants who are responsible for, or in any way involved with, data collection and data handling can use this document for instructions on how to handle, store and process data.
- All project participants can use this document to get an overview of all data collected in the project and how this is processed and stored.

External audience:

- All relevant stakeholders who are interested in NEUROPULS related activities and research topics can use this document to get an overview of the data collected in the project, how to access this data, and, if applicable, how to re-use this data in their own activities.

– All persons who voluntarily participate in the pilots and contribute data to the project can use this document to learn how the project processes and store their data.

2.3 Objectives and scope of the document

The DMP describes the data management life cycle for the data to be collected, processed and/or generated by NEUROPULS project, as a Horizon Europe project. The DMP aims at defining the management strategy of data generated during the project with the purpose to making research data findable, accessible, interoperable and re-usable (FAIR).

2.4 Structure of the deliverable

The document is structured following the guideline of Horizon Europe programme on FAIR Data Management in Horizon Europe including the following information:

- DMP guiding principles and strategy
- Description of NEUROPULS type of data
- Description of FAIR DATA characteristics including DMP Review Process & data inventory
- Allocation of resources
- Data Security
- Ethical Aspects
- Conclusions

3. DATA SUMMARY

The NEUROPULS DMP aims to provide a strategy for managing key data generated and collected during the project and optimize access to and re-use of research data. The DMP is intended to be a 'living' document that will outline how the NEUROPULS research data will be handled during and after the project, and so it will be reviewed and updated at regular intervals.

All European Union funded projects must try to disseminate as much information as possible. In this regard, the main purpose of the DMP is to ensure the accessibility and intelligibility of the data generated during the NEUROPULS project in order to disseminate information in the best possible way. Each data set created during the project will be assessed and categorized as open, embargo or restricted by the owners of the content of the data set.

All the data sets, regardless of their categorization, will be stored in each of the participant entities databases and in the Project NetBoard (PNB) folder created as internal database of the partners. In addition, those categorized as open or embargo will be publicly shared (in the case of embargo, after the embargo period is over) through the public section of the project website and ZENODO (https://zenodo.org/).

ZENODO is an open access repository for all fields of science that allows uploading any kind of data file formats, which is recommended by the Open Access Infrastructure for Research in Europe (OpenAIRE).

3.1 DMP guiding principle

The DMP of NEUROPULS is realized within the Work Package 1 (WP1).

The NEUROPULS project DMP follows the principle of Open Access according to the Horizon Europe guideline summarized in the diagram here below.
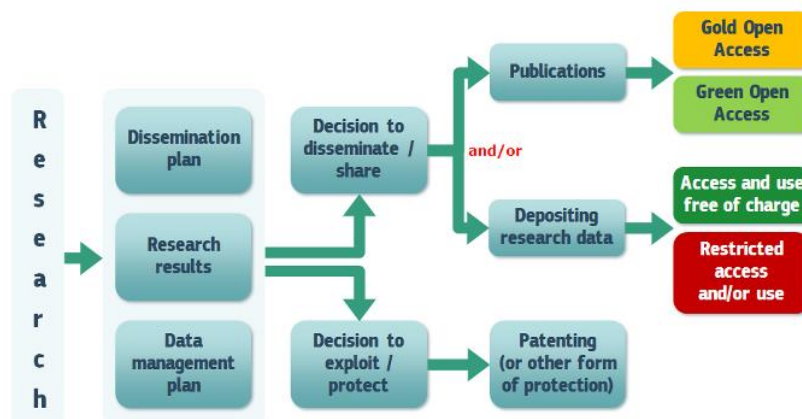

Figure 1: open access to research data and publication diagram

The other main principles for the NEUROPULS project DMP are the following:

i.   This DMP has been prepared by taking into account the template of the "Guidelines on Data Management in Horizon Europe" sent to the coordinator by the NEUROPULS Project Officer

ii. The DMP is an official project Deliverable (D1.2) due in Month 9 (M9 – September 2023), but it will be updated throughout the project. The first initial version will evolve depending on significant changes arising and periodic reviews at relevant reporting stages of the project.

iii. The consortium complies with the requirements of Regulation (EU) 2016/679 and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC (General Data Protection Regulation - GDPR). Guidance on how these regulations interact with open-access data policy can be found here: https://www.openaire.eu/ordp/

iv. Type of data, storage, confidentiality, ownership, management of intellectual property and access: procedures that will be implemented for data collection, storage, access, sharing policies, protection, retention and destruction will be in line with EU standards as described in the Grant Agreement (GA) and the Consortium Agreement (CA).

3.2 NEUROPULS Data Management strategy

The DMP's Data Management strategy of NEUROPULS project is focused on the observation of FAIR (Findable, Accessible, Interoperable and Reusable) Data Management Protocols.

This document addresses for each data set collected, processed and/or generated in the project the following elements:

Dataset reference and name: Internal project Identifier for the data set to be produced. This will follow the format:

> ***ProjectName_TaskNumber_PartnerName_DataSubset_DatasetName_Version_DateOfStorage,*** where the project name is NEUROPULS, the Partner Name represents the name of the data custodian (WP Leader / TK Leader). (ex. *NEUROPULS_TK1.5_CNRS_ProgressReport_v2.1_171221*)

Dataset description: description of the data generated or collected, including its origin (in cases where data is collected), nature and scale and to whom it could be useful, and whether it underpins a scientific publication. Information on the existence (or not) of similar data and the potential for integration and reuse.

Standards and metadata: reference to existing suitable standards. If these do not exist, an outline on how and what metadata will be created.

Data sharing: description of how data will be shared, including access procedures, embargo periods (if any), outlines of technical mechanisms for dissemination and necessary software and other tools for enabling reuse, and definition of whether access will be open or restricted to specific groups. Identification of the repository where data will be stored, if already existing and identified, indicating the type of repository (institutional, standard repository for the discipline, etc.). In cases where the dataset cannot be shared, the reasons for this will be stated (e.g. ethical, rules of personal data, intellectual property, commercial, privacy-related, security-related).

Archiving and preservation (including storage and backup): description of the procedures to be put in place for long-term preservation of the data, including an indication of how long the data should be preserved, the approximate end volume, associated costs, and how these are planned to be covered.

3.3 NEUROPULS type of data

Annex I provide a list of all datasets currently expected to be generated in the NEUROPULS project and their planned accessibility. We recognise that this list will develop and grow as the project evolves.

Once generated (or collected), these data will be stored in several formats, which are: Documents, Images, Data, and Numerical codes.

In particular the following project deliverables are relevant:

D7.1: Visual identity, project website and social network account

This deliverable is part of WP7 which is the main interface between the project and the general public, academics, and industrials. It describes the website dedicated to the NEUROPULS project, its logo and the key communication tools.

D7.2: Update to the Dissemination and Communication plan: iteration 1

D7.2 aims at creating and publishing the public dissemination material (website, newsletters, etc.), adapting the dissemination support to the target, keeping track of publications and public disclosures. Management of Intellectual Property (IP) and patent submissions is also part of this deliverable.

D7.10: Update to the Exploitation plan: iteration 1

D7.10 aims at collecting key exploitable results of the project, identifying market opportunities through potential markets or potential customers, and building potential business models using NEUROPULS solution. Management of Intellectual Property (IP) and patent submissions is also part of the exploitation deliverable.

Summarizing, NEUROPULS generates and collects the following research data relevant for the DMP:

Table 1: NEUROPULS research data

Title	WP No.	Lead Beneficiary	Nature
D7.1: Visual identity, project website and social network account	7	HPE BELGIUM	Report
D7.2: Update to the Dissemination and Communication plan: iteration 1	7	HPE BELGIUM	Report
D7.10: Update to the Exploitation plan: iteration 1	7	CEA LETI	Report

Upload instructions - Zenodo

Scientific publications, public deliverables and public datasets must also be uploaded to the *European Commission Funded Research (OpenAIRE) Community* in Zenodo.

To do this you must complete the following steps:

1. Create a profile in Zenodo to be able to upload files
2. On the Community site, click the green "New upload" button in the top right corner
3. Enter requested data and confirm the upload. The information requested is located in the metadata list on Teams.
4. Remember to add the European Commission community in the box labelled "communities". You can use the search function to locate the community and add it. The data will then automatically be uploaded to both communities, so you don't have to do it twice.

Uploading should be done as soon as possible and at the latest on article publication. Data Controllers are responsible for uploading datasets generated by them.

4. FAIR DATA

4.1 Making data findable, including provisions for metadata

Metadata is data on the research data themselves. It enables other researchers to find data in an online repository and is, as such, essential for the reusability of the dataset. By adding rich and detailed metadata, other researchers, can better determine whether the dataset is relevant and useful for their own research. Metadata (type of data, location, etc.) will be uploaded in a standardized form. This metadata will be kept separate from the original raw research data.

The bibliographic metadata include all of the following:

– the terms "European Union (EU)" and "Horizon Europe";
– the name of the action, acronym and grant number;
– the publication date, and length of embargo period if applicable;
– a persistent identifier.

NEUROPULS open data will be collected in an open online research data repository: ZENODO. Its repository structure, facilities and management are in compliance with FAIR data principles. Zenodo is an OpenAIRE that allows researchers to deposit both publications and data, providing tools to linking them to these through persistent identifiers and data citations. Zenodo is set up to facilitate the finding, accessing, re-using and interoperating of data sets, which are the basic principles that ORD projects must comply with. Zenodo repository is provided by OpenAIRE and hosted by CERN.

Zenodo is a catch-all repository that enables researchers, scientists, EU projects and institutions to:

- Share research results in a wide variety of formats including text, spreadsheets, audio, video, and images across all fields of science;
- Display their research results and get credited by making the research results citable and integrating them into existing reporting lines to funding agencies like the European Commission;
- Easily access and reuse shared research results;
- Integrate their research outputs with the OpenAIRE portal.

Search keywords

Zenodo allows to perform simple and advanced search queries on Zenodo using the keywords. Zenodo also provides a user guide with easy to understand examples. The Data Controllers at each pilot site will be responsible for uploading public datasets that they have generated and to assign specific keywords relevant to these datasets. Dataset specific keywords must be descriptive to the content of the dataset. In addition, the project has defined a set of general keywords that should apply to all public datasets, scientific publications and public deliverables. These are as follow:

- Neuromorphic Computing
- Edge Computing
- Photonics
- IoT Security
- Anomaly Detection
- Autonomous Driving
- Cybersecurity
- GNSS Anti-Jamming

Naming conventions

Files and folders at data repositories will be versioned and structured by using a name convention consisting as follow:
FileType_FileVersion/Number_NEUROPULS_PartnerNumber-PartnerName_YYMMDD.FileExtension (ex. D1.2_NEUROPULS_P1-CNRS_230926.doc)
FileType are:

- D stands for Deliverable
- DS stands for DataSet
- F stands for File (generic, ex. images, table, document)

Version numbers

Individual file names will contain version numbers that will be incremented at each revision (V*zz*).
Zenodo provides DOI versioning of all datasets uploaded to their communities, which allows us to edit and update the uploaded datasets after they have been published.
This also allows us to cite specific versions of an upload and cite all versions of an upload.

4.2 Making data openly accessible

In order to maximise the impact of NEUROPULS research data, the results are shared within and beyond the consortium. Selected data and results will be shared with the scientific community and other stakeholders through publications in scientific journals and presentations at conferences, as well as through open access data repositories.

The NEUROPULS project datasets are first stored and organized in a database by the data owners (personal computer, or on the institutional secure server) and on the project database (project website). All data are made available for verification and re-use, unless the task leader can justify why data cannot be made openly accessible. To protect the copyright of the project knowledge, Creative Commons license will be used in some cases.

The NEUROPULS dataset deliverables are both public (data access policy unrestricted) and they will be accessible by:

- NEUROPULS project web site
- Partners database
- OpenAIRE
- ZENODO (https://zenodo.org) for ORDP data and datasets
- Open access journals

All data deposited on Zenodo are accessible without restriction for public. For other data, potential users must contact the IPR (Intellectual Property Rights) team or the data owner in order to gain access. If necessary, appropriate IPR procedure (such as non-disclosure agreement - NDA) will be used.

4.3 Making data interoperable

Partners will observe OpenAIRE guidelines for online interoperability, including OpenAIRE Guidelines for Literature Repositories, OpenAIRE Guidelines for Data Archives, OpenAIRE Guidelines for CRIS Managers based on CERIF-XML. These guidelines can be found at: https://guidelines.openaire.eu/en/latest/.

Partners will also ensure that NEUROPULS data observes FAIR data principles under Horizon Europe open-access policy.

In order to ensure the interoperability, all datasets will use the same standards for data and metadata capture/creation.

As the project progresses and data is identified and collected, further information on making data interoperable will be outlined in subsequent versions of the DMP. In specific, information on data and metadata vocabularies, standards or methodology to follow to facilitate interoperability and whether the project uses standard vocabulary for all data types present to allow interdisciplinary interoperability.

4.4 Increase data re-use (throught clarifying licences)

Creative Common (CC) Licensing with be used to protect the ownership of the datasets. Different types of licenses will be considered.

However, an embargo period (usually 12 months for targeted journals) may be applied if the data (or parts of data) are used in published articles in "Green" open access journals.

For datasets deposited on a public data repository (i.e. Zenodo) the access is unlimited.

Restrictions on re-use policy are applied for all protected data (see Figure 1: Open access to research data and publication decision diagram), whose re-use will be limited within the project partners.

Other restrictions could include:

- the "embargo" period imposed by journals publication policy (Green Open access);
- some or all of the following restrictions may be applied with Creative Commons licensing of the dataset (attribution, non-commercial, share-alike, etc.).

Internal process of Quality evaluation is activated throughout the entire project duration to assess both project data /products and project process (See the D1.1 - Project Handbook). An internal peer review is performed for the main project deliverables to guarantee the deliverable is developed with a high level of quality. Each WP leader has to submit all the produced documents to another partner assigned as internal reviewer to check for the quality of the documents produced.

Longevity

For data published in scientific journals, the underlying data will be made available no later than by journal publication. The data will be linked to the publication. Data associated with public deliverables will be shared once the deliverable has been approved and accepted by the EC. For other public datasets not directly linked to a scientific publication or deliverable, such datasets will be made available upon assessment by the Data Controllers that it is ready for publishing, and in the final month of the project at the latest.

Open data can be reused in accordance with the Creative Commons licences. Data classified as confidential will as default not be reusable due to privacy concerns.

The public data will remain reusable via Zenodo for at least 20 years. This is currently the lifetime stated by the host laboratory CERN. In the event that Zenodo has to close their operations, they have provided a guarantee that they will migrate all content (including metadata) to other suitable repositories.

4.5 DMP review process & data inventory

Internal process of quality evaluation and reporting is activated throughout the entire project duration to assess both project data /products and project process (See the D1.1 - Project Handbook).

Results data will be also analysed and collected throughout the project entire duration. To this purpose the future Dissemination and Communication Report will also be filled in by each partner about every six months: it includes the description of articles, papers and scientific publications too. Thus, all research data generated and publications will be analysed and described by using the Data Inventory Table (Annex I), WP leaders and partners authors of publications are required fill in periodically.

Further updating of the DMP will include the eventually updating of online research data repository where data are collected and shared and the data the description of dataset and research data gradually generated and collected.

5. ALLOCATION OF RESOURCES

Costs related to open-access to research data in Horizon Europe are eligible for reimbursement under the conditions defined in the Horizon Europe GA, but also other articles relevant for the cost category chosen. Project beneficiaries will be responsible for applying for reimbursement for costs related to making data accessible to others beyond the consortium.

The costs for making data FAIR includes:

- Fees associated with the publication of scientific articles containing project's research data in "Gold" Open access journals. The cost sharing, in case of multiple authors, shall be decided among the authors on a case-by-case basis;
- Project Website operation: to be determined;
- Data archiving at Zenodo and on other online data base: free of charge
- Copyright licensing with Creative Commons: free of charge.

The project member of General Assembly are also responsible of the Data Management of NEUROPULS dataset and research data in accordance with each organization internal Data Protection Officer (DPO).

Each partner is responsible for the data they produce. Any fee incurred for Open Access through scientific publication of the data will be the responsibility of the data owner (authors) partner(s).

The overall responsibility for data management lies with the project coordinator, Fabio Pavanello from CNRS.

6. DATA SECURITY

The following guidelines will be followed to ensure the security of the data:

- Store data in at least two separate locations to avoid loss of data;
- Encrypt data if it is deemed necessary by the participating researchers;
- Limit the use of USB flash drives;
- Label files in a systematically structured way to ensure the coherence of the final dataset.

All project deliverables and data will be stored and shared in the Project netboard (PNB) folder restricted to the project consortium. As an initial step, only the Consortium Partners will have access to the repository where dataset and metadata are filed. The protection of data will be ensured through procedures and appropriate technologies, on PNB like the use of HTTPS protocol for the encryption of all internet transactions and appropriate European and Internet security standards from ISO, ITU, W3C, IETF and ETSI. If data will be kept in a certified repository, then the security standards of that repository will apply.

Following, scientific publications and articles, the dataset deliverables and the final demonstrator research results will be shared through Zenodo and other database to promote the data making FAIR.

7. ETHICAL ASPECTS

The WP1 aims at ensuring that ethical requirements are met for all research undertaken in the project, including data management aspects, in compliance with Horizon Europe ethical standards.

All partners will assure that the EU standards regarding ethics and data management are fulfilled in compliance with the ethical principles and confidentiality (as set out in the GA).

In addition:

1. In accordance with the GDPR 2016/679, the data controllers and processors are fully accountable for the data processing operations.
2. Templates for informed consent forms and information sheet are also available. More details in relation to Ethics (and Security) in relation to Data Management can be found in Section 5 of the GA.
3. The project data will be exchanged between the partners of the NEUROPULS consortium at all times during the project.

8. CONCLUSION

This document describes the main principles and guidelines for the Data Management for the NEUROPULS project. As a live document, it will be updated throughout the project lifetime. Further updating of the DMP will include the eventually updating of online research data repository where data are collected and shared and the data the description of dataset and research data gradually generated and collected.

9. REFERENCES

European Commission. *Horizon Europe Data Management Plan Template.*

And, as there is not much information about Data Management in Horizon Europe yet:

European Commission. *H2020 Programme. Guidance for the classification of information in research projects*.

European Commission. *H2020 Programme. Guidelines on FAIR Data Management in Horizon 2020*.

European Commission. *Horizon 2020 Programme. Guidelines to the Rules on Open Access to Scientific Publications and Open Access to Research Data in Horizon 2020*.

10. ANNEX I – DATA SETS COLLECTED IN THE PROJECT

Data set reference and name: Project management documentation and security primitives development		
Person in charge: Fabio Pavanello		
Data Type	**Data Standards - Formats**	**Data Generation Software**
Reports, documentation, datasets, scripts (code), photonic models (CAD / Schematics), presentations, pictures, recordings, layouts, experimental data	.docx, .xlsx, .pptx, .pdf, .lsf, .fsp, .py, .m, .mat, .jpeg, .png, .txt, mp4, .tex, .gds, .csv	Microsoft word, excel, powerpoint, adobe acrobat reader, Lumerical, python, matlab, camera software, zoom, latex, Nazca, labview/python
Estimated Data Size	**Data Sharing**	**Data Storage and Preservation**
20 Go	With European Commission, with the consortium, specific deliverables with large public (through project website and zenodo)	Stored in Project Netboard, online management tool used by the consortium – CNRS laboratories servers. Gitlab project repository hosted by University Grenoble Alpes.

Data validation? ☑ Yes ☐No

All data linked to a lab book reference? ☐ Yes ☑ No

Data set reference and name: code repositories		
Person in charge: Mariano Ceccato		
Data Type	**Data Standards - Formats**	**Data Generation Software**
Code for implementation and simulation of security and communication protocols	Java, C, C++	Eclipse, IDEA, Visual Studio Code

Estimated Data Size	Data Sharing	Data Storage and Preservation
1 GB	With European Commission, with the consortium, specific repositories as open source	Stored in Project Netboard, online management tool used by the consortium. Gitlab project repository hosted by University Grenoble Alpes.

Data validation? ☑ Yes ☐No

All data linked to a lab book reference? ☑ Yes ☐ No

Data set reference and name: Protobuf Networks and datasets in ONNX format		
Person in charge: Alessandro Savino		
Data Type	**Data Standards - Formats**	**Data Generation Software**
Protobuf Networks and datasets in ONNX format	.onnx, .pb	AI libraries provided of ONNX interchange support
Estimated Data Size	**Data Sharing**	**Data Storage and Preservation**
2GB	With European Commission, with the consortium, specific deliverables with large public	Stored in Project Netboard, online management tool used by the consortium. Gitlab project repository hosted by University Grenoble Alpes.

Data validation? ☑ Yes ☐No

All data linked to a lab book reference? ☐ Yes ☑ No

Data set reference and name: Results from the evaluation of the case study		
Person in charge: Axel Brando		
Data Type	**Data Standards - Formats**	**Data Generation Software**

Results from the evaluation of the case study, source code and weights of the neural network for reproducibility and processed data set of trajectory forecasting	.docx, .xlsx, .pdf, .txt, .csv, .c, .py, .hdf5	Software developed, results obtained and processed data set by BSC in the project of the case study

Estimated Data Size	Data Sharing	Data Storage and Preservation
1GB	With European Commission, with the consortium, specific deliverables with large public	BSC internal servers, Stored in Project Netboard, online management tool used by the consortium. Gitlab project repository hosted by University Grenoble Alpes.

Data validation? ☑ Yes ☐ No

All data linked to a lab book reference? ☐ Yes ☑ No

Data set reference and name: Results from the modules of BSC added to the project simulator		
Person in charge: Mikel Fernandez		
Data Type	**Data Standards - Formats**	**Data Generation Software**
Results from the evaluation of the case study	.docx, .xlsx, .pdf, txt, .csv	Software when executed on the project simulator

Estimated Data Size	Data Sharing	Data Storage and Preservation
1MB	With European Commission, with the consortium, specific deliverables with large public	BSC internal servers, Stored in Project Netboard, online management tool used by the consortium. Gitlab project repository hosted by University Grenoble Alpes.

Data validation? ☑ Yes ☐ No

All data linked to a lab book reference? ☐ Yes ☑ No

Data set reference and name: Simulation results for the NEUROPULS system architecture		
Person in charge: Odysseas Chatzopoulos		
Data Type	**Data Standards - Formats**	**Data Generation Software**
Simulation results for the NEUROPULS architecture, including the RISC-V processor, the photonic neuromorphic accelerator, the photonic security components, as well as other accelerators and additional support for enhanced security	.docx, .xlsx, .pdf, .txt, .csv	Software when executed on the project simulator (gem5)
Estimated Data Size	**Data Sharing**	**Data Storage and Preservation**
500MB	With European Commission, with the consortium, specific deliverables with large public	Stored in Project Netboard, online management tool used by the consortium

Data validation? ☑ Yes ☐No

All data linked to a lab book reference? ☐ Yes ☑ No

Data set reference and name: Results from the simulations and experiments on the anomaly detection use-case		
Person in charge: Thomas Van Vaerenbergh		
Data Type	**Data Standards - Formats**	**Data Generation Software**
Results from the evaluation of the anomaly detection case study	.docx, .xlsx, .pdf, .txt, .csv	Simulation software containing the neural network models and hardware models used in the NEUROPULS proposal
Estimated Data Size	**Data Sharing**	**Data Storage and Preservation**
5GB	With European Commission, with the consortium, specific deliverables with large public	HPE internal servers, Stored in Project Netboard, online management tool used by the consortium. Gitlab project repository hosted by University Grenoble Alpes.

Data validation? ☑ Yes ☐No

All data linked to a lab book reference? ☐ Yes ☑ No

Data set reference and name: layout generation of photonic systems and measurements of phase change materials and photonic devices		
Person in charge: Benoit Charbonnier		
Data Type	**Data Standards - Formats**	**Data Generation Software**
VASE data (Ellipsometric measurements), layout of final chips, characterization of photonic devices	. WVASE32, .gds, .csv/.py	WVASE32, multiple layout tools such as ipkiss and nazca, labview/python
Estimated Data Size	**Data Sharing**	**Data Storage and Preservation**
50 GB	With European Commission, with the consortium, specific deliverables with large public	CEA internal servers (as well as CNRS, HPE, and UGent servers for gds files), Stored in Project Netboard, online management tool used by the consortium. Gitlab project repository hosted by University Grenoble Alpes.

Data validation? ☑ Yes ☐No

All data linked to a lab book reference? ☐ Yes ☑ No