



FLASH-COMP

D9.2– Second Data Management Plan

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1	08/09/2026	First draft of second data management plan	Janusz Poplawski (Lortek)
2	30/09/2026	Final version after collecting all data from partners	Janusz Poplawski (Lortek)

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Executive summary

This deliverable presents the final update of the Data Management Plan (DMP) for the FLASH-COMP project. It reports the data management activities implemented throughout the project, including updates to data responsibilities, dataset inventories, data security measures, and the publication of open-access datasets. The document confirms the application of FAIR (Findable, Accessible, Interoperable and Reusable) principles while ensuring compliance with ethical, GDPR, confidentiality, and intellectual property requirements.

Key Achievements:

Defined Objectives	Achievements
Ensure FAIR management of project data	FAIR principles successfully applied across project datasets, with clear procedures for data storage, accessibility and reuse.
Maximise exploitation of project results while protecting sensitive information	Open datasets published through Zenodo and Wikimedia Commons, while confidential and commercially sensitive data remained protected under project governance rules.

Challenges Faced:

- Balancing open-access requirements with IPR protection and commercial confidentiality.
- Managing GDPR requirements for datasets involving human-related information and training activities.

Conclusion:

The project successfully established and maintained a robust data management framework that supported both Open Science objectives and the protection of sensitive information. The adopted measures ensure long-term accessibility, preservation, and reusability of public project results beyond the project lifetime.



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List of abbreviations

Abbreviation	Explanation
CC 0	Creative Commons Public Domain Dedication
CC BY	Creative Commons Attribution International Public License
DMP	Data Management Plan
DSR	Dataset Responsible
ENV	Environmental (data)
EXP	Experimental (data)
FAIR	Findable, Accessible, Interoperable and Reusable
GDPR	General Data Protection Regulation
N/A	Not applicable
NUM	Numerical (data)
LRI	Liquid Resin Infusion
OEI	Other Ethics Issue
OpenAIRE	Open Access Infrastructure for Research in Europe
ORD	Open Research Data
PDC	Project Data Contact
SOC	Social (data)



1. Changes since D9.2 First Data Management Plan

The main changes to data management set out in this document reflect the process of continuously updating the policy throughout the project and the gradual collection of the planned datasets. This essentially boils down to the following changes:

1. Due to a change in the project coordinator, the Project Data Contact (PDC) details have been updated.
2. The dataset summary presented in Table 2 now shows main datasets collected during the project, including confidential ones.
3. The Data Security Policy (Chapter 4) has been updated to fully reflect extra measures taken.
4. Descriptions (dataset sheets) of open access data published within the project are now presented in Annex I.

Furthermore, in the case of the training materials that have been developed, in order to ensure better usability and easier open access, it was decided to publish them on the Wikimedia Commons platform instead of Zenodo.

All other rules and guidelines (including the consortium's policy or the FAIR data policy) remained essentially unchanged, as they constituted the original guidelines that were effectively followed during the project lifetime.

2. Data management and responsibility

2.1. Consortium policy

According to Open Research Data (ORD) requirements, the FLASH-COMP Data Management Plan (DMP) was ruled by FAIR (Findable, Accessible, Interoperable and Reusable) Data Management Protocols. The ORD pilot applies primarily to the data needed to validate the results presented in scientific publications. Open-access to other data was encouraged on a voluntary basis, however such consent typically was not granted due to the sensitive nature of most of the data collected.

Publishable data was and will be made accessible within 6 months of publishing the data in peer reviewed scientific articles or similar, unless beneficiaries have outlined justifiable reasons for maintaining data confidentiality.

Each beneficiary is responsible for their records and documentation in relation to data generated, which must be in line with the accepted standards in the respective field (if do exist). To avoid losses, beneficiaries must take measures to ensure that data is backed-up.

The General Assembly ruled the IPR and met at each face-to face meeting as well as every time (via teleconference) any WP leader proposes open access of generated data.

2.2. Data management responsible

The Project Data Contact is the Project Coordinator, who is the direct contact with the European Commission. He ensures that the DMP is respected with the support of the WP leaders. He is in charge of:

- Ensuring the data is correctly uploaded into repositories through periodical checks
- Completing the DMP with the links related to the data and its regular update



- Ensuring the data availability
- Ensuring that information related to accessible data is in accordance with the produced data

Table 1. Project Data Contact details

Project Data Contact (PDC)	Janusz Poplawski
PDC Affiliation	LORTEK
PDC mail	jpoplawski@lortek.es
PDC telephone number	+34 747 455 804

2.3. Data summary

Table 2 provides a general overview of the type of data that was generated within the FLASH-COMP project. Each open access dataset is described in detail according to the template showed in Table 3.



Table 2. Summary of the data collected and generated during the project

Data Nature	Type	Format (s)	Use	Origin (Partner)	Size of data set	Open Access
Matrix and linear camera front flow data	EXP	.tif, .hdev, .bmp, .csv, .json, .dat	Development of Inspection and monitoring tools	INEGI	Linear - 58 files, 3 folders, 6,21 GB Matrix – 1509 files, 31 folders, 34.3GB	No
LIDAR experimental data	EXP	.csv, .img, .npz, .txt		CSEM	548 files, 5.5GB	No
Pyzoflex experimental data	EXP	.csv		INEGI, JOA	86 files, 7 folders, 160 MB	No
FOS experimental data	EXP	.txt, .png, .h5, .csv, .bin		AIMEN	6300 files, 30 folders, 343GB	Partially
Profiler experimental data	EXP	.bmp, .csv		INEGI, AIMEN	8 files, 2 folders, 536MB	No
HSI experimental data	EXP	.raw, .png		Lortek	17304 files, 34 folders, 772 GB	Partially
Pressure sensors experimental data	EXP	.txt, .csv, .json		INEGI	1101 files, 10 folders, 1.1GB	No
Front flow detection algorithm and simulation data	NUM	.json, .png	Development of DSET and DSS solutions	INEGI	26622 files, 164 folders, 4.47GB	No
FOS algorithms data	NUM	.json		Lortek	56 files, 25 MB	No
Dry spot detection algorithm data	NUM	.json		Lortek	17 files, 1MB	No
Sensor's data pre-processed transferred to Digital Platform	NUM	InfluxDB, MongoDB, PostgreSQL		MSI	2GB	No
Synthetic data	NUM	InfluxDB, MongoDB, PostgreSQL		MSI	35MB	No
Matrix camera industrial validation data	EXP	.png, .json, .csv, .log, .xml	Industrial validation of FLASH-COMP solutions	INEGI	7642 files, 27 folders, 8.55GB	No
LIDAR industrial validation data	EXP	.csv, .img, .npz, .txt		INEGI, CSEM	99 files, 62 folders, 2.36GB	No
Profiler industrial validation data	EXP	.bmp, .csv		INEGI, AIMEN	7 files, 248 MB	No



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Data Nature	Type	Format (s)	Use	Origin (Partner)	Size of data set	Open Access
FOS industrial validation data	EXP	.txt, .png, .h5, .csv, .bin	Industrial validation of FLASH-COMP solutions	AIMEN	30000 files, 8 folders, 60GB	No
Pressure sensors industrial validation data	EXP	.h5, .json, .txt		INEGI	3052 files, 60 folders, 6MB	No
HSI industrial validation data	EXP	.raw, .png		Lortek	85 files, 3.5 GB	No
Digital platform processed data aggregated during industrial validations	NUM	InfluxDB, MongoDB, PostgreSQL		MSI	150 MB	No
Resource monitoring reference data	ENV	.xlsx .docx	Sustainability assessment	INEGI	2 initial baselines + 3 extras for Azimut	No
Resource monitoring validation data	ENV	.xlsx .docx		INEGI	2 validation questionnaires	No
Socio data	SOC	.docx, .pdf	Training material	ESTIA	3 documents for Azimut, 3 for IAI and 16 for the students, for a total of 100 MB	Yes

* NUM: numerical, EXP: experimental, SOC: social, ENV: environmental

** Datasets information that can create competitive advantage in their respective businesses to the partners remain confidential.



Table 3. Dataset description

Dataset [name dataset]

Data Storage	ZENODO
Link to repository	https://zenodo.org/XXX
Dataset Identifier	DOI number
Relevant Keywords	
Data Licence	CC BY 4.0
Date for Data Publication	
Date of data collection	
Data Version	Zenodo DOI versioning
Data Preservation time	5 year
Name of the Dataset Responsible (DSR)	(owner of the data)
DSR e-mail	
DSR Telephone	
Partner organisations involved in this dataset	
Funding body(ies)	European Union's Horizon Europe Programme
Grant number	101058458
Project duration	Start: 2022/10/01 End: 2026/03/31
Date DMP created	2023/03/31
Date last update	
DMP Version	
Name of the DMPR	Janusz Poplawski (LORTEK)
DMPR e-mail	jpoplawski@lortek.es
DMPR Telephone	+34 747 455 804



Description of the research	Briefly summarise the research question to help others understand the purposes for which the data are being collected or created
Data Collection	Give a short description of the data, including amount (if known) and content.
Existence of similar data	N/A
Nature of the Data	There are three main types of research data: • Experimental data • Numerical data • Statistical data • Environmental data • Social data Please select your type
Data Type	There several type of data, such as • text, • numbers, • images, • 3D models, • software, • audio files, • video files, • reports, • etc. Please select your type
Data Format	Depending of the nature of the data, there are different type of format associated. Please specify the format of our data • .txt • Ascii, .xlsx, • Jpg,.tif, .ps, .png • . .DWG, .DXF, .DGN, .STL ,.3DS, ... • .f, .c, • .WAV, .AIF, .MP3, .MID • .MPG, .MOV, .WMV, .RM • .doc, .eps, .ps, .pdf Please select your type
Data Size	300 K
Number of files	X



Descriptive file	<i>Read_me.txt</i>
Data File	<i>Input.txt</i>
Quality/Accuracy	<i>Depending of the nature of the data</i>
Unit measurement system	<i>SI</i>
Potential Users	<i>Universities, Research Centers, composite manufacturers,...</i>
Ethical Issue	<i>NA/OEI requirement</i>

3. FAIR data

FLASH-COMP ensured the generation of FAIR data, so it was checked on an ongoing basis that data is Findable, Accessible, Interoperable, and Reusable.

3.1. Making data findable, including provisions for metadata

FLASH-COMP deposit generated and collected data in an open online research repository under Creative Commons Attribution International Public License (**CC BY**) or Creative Commons Public Domain Dedication (**CC 0**). The primary repository selected in FLASH-COMP is ZENODO, which was developed by CERN as part of the OpenAIRE (Open Access Infrastructure for Research in Europe) project. ZENODO allows researchers to deposit both publications and data, providing tools to linking them to these through persistent identifiers and data citations. It facilitates the finding, assessing, re-using and interoperating of datasets which are the basic principles for FAIR data that projects must comply with. Data sets alongside with scientific publications were deployed directly in ZENODO EU Open Research Repository community with clear FLASH-COMP affiliation, facilitating its search for all external users (<https://zenodo.org/communities/eu/records?q=%22FLASH-COMP%22&l=list&p=1&s=10&sort=bestmatch>).

The guidelines provided by ZENODO were used by FLASH-COMP to comply with FAIR principles.

In order to store and make findable any FLASH-COMP openly accessible data, the chosen online repository needs to facilitate identification of data and refer to standard identification mechanisms (ideally persistent and unique identifiers such as Digital Object Identifiers), which should be outlined.

The dataset naming should be according to this scheme:

[Name of the project]-[Type of Data]-[Name of dataset]-[Date]
being :

- Name of the project: "FLASH-COMP"
- Type of data: "NUM", "EXP", "ENV", "SOC"
- Name of the dataset
- Date: YYYY/MM/DD



Metadata of deposited data must be open under a Creative Common Public Domain Dedication (**CC 0**) or equivalent (to the extent legitimate interests or constraints are safeguarded), in line with the FAIR principles and provide information at least about the following:

- datasets (description, date of deposit, author(s), and embargo);
- Horizon Europe funding;
- project name, acronym and number;
- licensing terms;
- persistent identifiers for the dataset,
- the organisations involved in the action.
- Where applicable, the metadata must include persistent identifiers for related publications and other research outputs.

3.2. Making data openly accessible

In order to maximize the impact of FLASH-COMP data, the project facilitated sharing of results and data within and outside the consortium. Selected data and results were 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. There is an open access policy applied to these following the rules outlined in the Grant Agreement.

The General Assembly reviewed and approved all data that was identified as appropriate for open access. This process was carried out on an ongoing basis to facilitate the publication of appropriate data as soon as possible. The General Assembly is responsible for the IPR issues within FLASH-COMP and their approval to avoid any possible conflicts between open access and IPR issues.

All data was made available for verification and re-use, unless the data owner can justify why data cannot be made openly accessible. The General Assembly assessed such justifications and make the final decision, based on examination of the following elements regarding confidentiality of datasets:

- Commercial sensitivity of datasets
- Data confidentiality for security reasons
- Conflicts between open-access rules and national and European legislation (e.g. data protection regulations).
- Sharing data could jeopardise the objectives of the project
- Other legitimate reasons, to be validated by the General Assembly

Upon deciding that a database should be kept confidential, the reasons for doing so will be included in an updated version of the DMP. The data will be accessible through:

- Publications in scientific journals
- The Project website
- ZENODO repository (or any other repository complying with statements in section 2.1)

To encourage re-use and further application of project results, all FLASH-COMP data that underlies scientific publications was made available via open-access online platforms, unless subject to protection, OR unless release of all or part of the data to open-access platforms could jeopardise the project's main objectives.



3.3. Making data interoperable

Partners observed OpenAIRE guidelines for online interoperability, including as set of guidelines that includes OpenAIRE Guidelines for Literature Repositories, OpenAIRE Guidelines for Data Archives, etc. These guidelines can be found at: <https://guidelines.openaire.eu/en/latest/>.

The project used vocabularies, standards, formats and methodologies as defined in Table 2 to facilitate interoperability.

3.4. Increase data re-use

FLASH-COMP produced a novel data and knowledge through experimental approaches that was presented to the scientific community and industry, through a carefully designed portfolio of dissemination actions. Datasets uploaded in the ZENODO repository will be freely accessible after an embargo period determined per dataset, if required.

4. Data security

FLASH-COMP ensured safety store of data by the following ways:

- Use of ZENODO (or similar repository),
- Each beneficiary keeps a back-up of the own generated data,
- Data considered crucial for FLASH-COMP solutions has also been hosted on the MSI Data Platform server and/or the project's SharePoint instance.

In addition, documents designated for open access (such as scientific publications, public deliverables and training materials) have been hosted and shared on the project's website.

5. Ethical aspects

During the project development a skills development training program was planned and executed which consider social & behavioural aspects, as well as technical skills requirements. Several interviews with end users, as well as observations on the different tasks they perform on a daily basis were identified/collected. The identification of operators' profiles, by individual interviews was done, while Operator's opinion/suggestions about the developed technical solutions were collected.

In order to ensure compliance with GDPR and Ethical issues, an Ethics advisor has been hired, who has prepared a report to guarantee the impartiality of the experts conducting the research and the appropriate terms of data protection.

All this information is collected in Deliverable D10.1 OEI requirement.



ANNEX I. Open access dataset sheets

Dataset [FLASH-COMP training materials]

Data Storage	Wikimedia Commons
Link to repository	https://commons.wikimedia.org/wiki/Category:Flash-Comp
Dataset Identifier	WikiData QID: Q140395372
Relevant Keywords	Composites, professional training, liquid resin infusion
Data Licence	CC BY 4.0
Date for Data Publication	2026/09/12
Date of data collection	N/A
Data Version	Wikimedia file history
Data Preservation time	5 year
Name of the Dataset Responsible (DSR)	Michel Bakni (ESTIA)
DSR e-mail	m.bakni@estia.fr
Partner organisations involved in this dataset	ESTIA, IAI, Azimut
Funding body(ies)	European Union's Horizon Europe Programme
Grant number	101058458
Project duration	Start: 2022/10/01 End: 2026/09/30
Date DMP created	2023/03/31
Date last update	2026/09/30
DMP Version	Second
Name of the DMPR	Janusz Poplawski (LORTEK)
DMPR e-mail	jpoplawski@lortek.es
DMPR Telephone	+ 34 747 455 804
Description of the research	The materials (data) developed are intended for training purposes, to help end-users, industry and students interested in the digitisation of the



	composites manufacturing process to familiarise themselves with the FLASH-COMP technology.
Data Collection	N/A
Existence of similar data	N/A
Nature of the Data	Informative and pedagogical
Data Type	Text files and presentations both stored in pdf files.
Data Format	.pdf
Data Size	<50 MB (in total)
Number of files	18
Descriptive file	N/A
Data File	N/A
Quality/Accuracy	N/A
Unit measurement system	N/A
Potential Users	End users, composites industry, universities and research centres
Ethical Issue	N/A

Dataset [FBGs sensors data acquired from LRI manufacturing process]

Data Storage	ZENODO
Link to repository	https://zenodo.org/records/15410901
Dataset Identifier	DOI number: 10.5281/zenodo.15410900
Relevant Keywords	FOS; process monitoring; manufacturing
Data Licence	CC BY 4.0
Date for Data Publication	2025/03/07



Date of data collection	2024
Data Version	Zenodo DOI versioning
Data Preservation time	5 year
Name of the Dataset Responsible (DSR)	Cristian Builes Cardenas
DSR e-mail	cristian.builes@aimen.es
Partner organisations involved in this dataset	AIMEN
Funding body(ies)	European Union's Horizon Europe Programme
Grant number	101058458
Project duration	Start: 2022/10/01 End: 2026/09/30
Date DMP created	2023/03/31
Date last update	2026/09/30
DMP Version	Second
Name of the DMPR	Janusz Poplawski (LORTEK)
DMPR e-mail	jpoplawski@lortek.es
DMPR Telephone	+ 34 747 455 804
Description of the research	Dataset contains data from 12 FBGs sensors utilized in LRI to understand how it can help monitor manufacturing process conditions, such as vacuum, resin arrival and artificial defects. Sensors were divided into 4 lines (3 sensors each) embedded in LRI manufactured flat panel. Process was tracked from two separate coupons, manufactured simultaneously with FBG line placed at top and bottom layer of it.
Data Collection	As described above – overall it is one .txt file with ~70MB of data.
Existence of similar data	All FOS data collected during the project is of a similar nature, while remaining confidential.
Nature of the Data	Experimental data
Data Type	Numbers stored in .txt file of .csv nature



Data Format	.txt
Data Size	<70 MB
Number of files	1
Descriptive file	N/A
Data File	Input.txtDataset_FBGs_MDPI_article.txt
Quality/Accuracy	As described in related article
Unit measurement system	SI
Potential Users	Universities, Research Centres
Ethical Issue	N/A

Dataset [Hyperspectral Image acquired on LRI curing process]

Data Storage	ZENODO
Link to repository	https://zenodo.org/records/15087655
Dataset Identifier	DOI number: 10.5281/zenodo.15087654
Relevant Keywords	Near-infrared hyperspectral imaging, Composite manufacturing, Curing state monitoring, Liquid resin infusion, Chemometrics, Machine learning.
Data Licence	CC BY 4.0
Date for Data Publication	2025/03/07
Date of data collection	2024
Data Version	Zenodo DOI versioning
Data Preservation time	5 year
Name of the Dataset Responsible (DSR)	Xabier Zurutuza Lasa
DSR e-mail	xzurutuza@lortek.es
Partner organisations involved in this dataset	Lortek, AIMEN
Funding body(ies)	European Union's Horizon Europe Programme



Grant number	101058458
Project duration	Start: 2022/10/01 End: 2026/09/30
Date DMP created	2023/03/31
Date last update	2026/09/30
DMP Version	Second
Name of the DMPR	Janusz Poplawski (LORTEK)
DMPR e-mail	jpoplawski@lortek.es
DMPR Telephone	+ 34 747 455 804
Description of the research	This dataset contains hyperspectral images acquired during the production of two composite parts manufactured using the Liquid Resin Infusion (LRI) process. The data is intended to support research and development on process monitoring and quality assurance in advanced manufacturing.
Data Collection	Data Structure: sampleA_hsi_reflectance.npy: Contains the raw reflectance hypercubes of all acquisitions (N) during the curing phase of Sample A, saved in .npy format. sampleA_auxiliary_data.zip: Contains reference cure degree values: One vector of N values for each sensor used, saved in .npy format. Sensor positions within the hyperspectral image: Defined using Regions of Interest (ROI) in [x1, y1, x2, y2] format. Each ROI is stored in a .npy file as an [N, 4] matrix, where N is the number of acquisitions. sampleB_hsi_reflectance.zip: Contains the raw reflectance hypercubes of all acquisitions during the curing phase of Sample B, saved in .npy format.
Existence of similar data	N/A
Nature of the Data	Experimental data
Data Type	Numbers stored in .npy files
Data Format	.npy



Data Size	<50 GB
Number of files	~150 inside 3 folders
Descriptive file	N/A
Data File	sampleA_auxiliary_data.zip sampleA_hsi_reflectance.zip sampleB_hsi_reflectance.zip
Quality/Accuracy	As described in related article
Unit measurement system	SI
Potential Users	Universities, Research Centres
Ethical Issue	N/A