DMP title

Project Name My plan (FWO DMP) - DMP title
Principal Investigator / Researcher Angshuman Kapil
Institution KU Leuven

1. General Information

Name applicant

Angshuman Kapil

FWO Project Number & Title

Project Number: 1250422N
Title: TOWARDS THE NEXT GENERATION FAST AND ENERGY EFFICIENT ARC-RESISTANCE HYBRID ADDITIVE MANUFACTURING (ARHAM).

Affiliation

- KU Leuven

2. Data description

Will you generate/collect new data and/or make use of existing data?

- Generate new data

Describe in detail the origin, type and format of the data (per dataset) and its (estimated) volume. This may be easiest in a table (see example) or as a data flow and per WP or objective of the project. If you reuse existing data, specify the source of these data. Distinguish data types (the kind of content) from data formats (the technical format).

Type of data	Format	Volume	How created
Simulation files (contour plots, graphs, Animations)	.dat, .cas	100-200 GB	By running simulations and post-processing in ANSYS Fluent.
Microscopy images	.tif	5 GB max	Optical and scanning electron microscopy
Numeric data	.xls, .cvs	5 GB max	Data collection during welding and other manufacturing operations
Numeric data	.dat, .mat	10 GB max	Running simulations in MATLAB.
Graphical data	.tif	2 GB max	Post processing in Microsoft excel and Matlab.
Publications	.doc, .pdf	1 GB max	Writing reports, journal and conference publications.

3. Legal and ethical issues

Will you use personal data? If so, shortly describe the kind of personal data you will use. Add the reference to your file in KU Leuven's Register of Data Processing for Research and Public Service Purposes (PRET application). Be aware that registering

the fact that you process personal data is a legal obligation.

- No

Are there any ethical issues concerning the creation and/or use of the data (e.g. experiments on humans or animals, dual use)? If so, add the reference to the formal approval by the relevant ethical review committee(s)

- No

Does your work possibly result in research data with potential for tech transfer and valorisation? Will IP restrictions be claimed for the data you created? If so, for what data and which restrictions will be asserted?

- Yes

Yes, the work shall possibly result in research data with potential for patent filing and commercial valorisation. The data required for commercialisation can be shared under the "Creative Commons Attribution-ShareAlike (CC-BY-SA)'' licence.

Yes, IP restrcitions might be claimed for a part of the data created during the project.

As a part of the project a new hybrid additive mnaufacturing process is planned to be developed. The data of the final design of the process, the processing parameters, the numercial simulation data for process optimization will have IP restrictions.

Do existing 3rd party agreements restrict dissemination or exploitation of the data you (re)use? If so, to what data do they relate and what restrictions are in place?

- No

4. Documentation and metadata

What documentation will be provided to enable reuse of the data collected/generated in this project?

1. For all the simulation data, a common folder will be maintained for storage. The folder will contain subfolders sorting the data generated month wise. A .txt file will accompany each set of raw data that makes the data easily understandable. The .txt file will contain information including but not limited to date of acquisition, parameter conditions, software used for simulation, description of the data and how it was generated. The folders and subfolders will also be named according to the data generated (e.g., velocity contours, temperature maps), and .txt files will be maintained to clearly describe the nomenclature.
2. For storing all microscopy images, a common folder will be created. Optical microscopy and Scanning electron microscopy images will be then stored in separate sub-folders. For the optical microscopy images information like microscope settings (magnification, lens type, etc.) will be noted in .txt files, for scanning electron microscopy images, information like microscope settings (beam voltage, current, magnification, microscope type), collection technique (secondary electrons, backscattered electron, EDS, EBSD, etc.,) will be noted in .txt files.
3. Numeric data (.xls, .cvs, .dat, .mat) and graphical data (.png, .tif) will be stored in separate folders. A .txt file will clearly identify the folder nomenclature as well the source file/simulation/experiment from which the numeric and graphical data is generated.
4. For all the written data in form of word and pdf files, a folder will be maintained. Reports will be sorted as quaterly/yearly. Publications resulting from this project (all raw files and final version of the publication) will be stored in a subfolder.

Will a metadata standard be used? If so, describe in detail which standard will be used. If no, state in detail which metadata will be created to make the data easy/easier to find and reuse.

- No

5. Data storage and backup during the FWO project

Where will the data be stored?

All the data generated during the project duration will be stored in OneDrive (storage provided by KU Leuven). This is to ensure active use of the data during the project.

How is backup of the data provided?

The data will be stored on the university's central servers with weekly back-up procedures. In addition the data will be regularly backedup in an external hard drive specific to the project.

Is there currently sufficient storage & backup capacity during the project? If yes, specify concisely. If no or insufficient storage or backup capacities are available then explain how this will be taken care of.

- Yes

Free OneDrive storage upto 2 TB provided by KU Leueven.
External hard drive of 1TB capacity.

What are the expected costs for data storage and back up during the project? How will these costs be covered?

The applicant does not foresee any costs for data storage and backup during the project.

Data security: how will you ensure that the data are securely stored and not accessed or modified by unauthorized persons?

SInce the universitys secure environement will be used for data storage and backup, the data securtity is ensured.

6. Data preservation after the FWO project

Which data will be retained for the expected 5 year period after the end of the project? In case only a selection of the data can/will be preserved, clearly state the reasons for this (legal or contractual restrictions, physical preservation issues, ...).

All the generated data from the project will be retained for the expected 5 year period after the end of the project.

Where will the data be archived (= stored for the longer term)?

The data will be stored on the university's central servers for at least 5 years after the end of the project, and conform the KU Leuven RDM policy.
In addition at the end of the proejct the entire data will also be backed up in hard drives.

What are the expected costs for data preservation during the retention period of 5 years? How will the costs be covered?

Since the size of the database expected to be generated is < 2 TB, it can thus be freely stored on univerisity servers and also on supervisors OneDrive account during the retention period of 5 years. Thus, no costs are expected for data preservation.

7. Data sharing and reuse

Are there any factors restricting or preventing the sharing of (some of) the data (e.g. as defined in an agreement with a 3rd party, legal restrictions)?

- No

Which data will be made available after the end of the project?

Datasets can be made available to users upon specific request.

Where/how will the data be made available for reuse?

- Upon request by mail

When will the data be made available?

- Upon publication of the research results

Who will be able to access the data and under what conditions?

The data will be primarily available to the applicant and the supervisor. The data will be made accessible to users upon request by email.

What are the expected costs for data sharing? How will the costs be covered?

There are no expected costs of data sharing.

8. Responsibilities

Who will be responsible for data documentation & metadata?

The applicant will be responsible for data documentation and metadata.

Who will be responsible for data storage & back up during the project?

The applicant will be responsible for data storage and backup during the project.

Who will be responsible for ensuring data preservation and reuse ?

The applicant and the supervisor will be both responsible for data preservation and resuse.

Who bears the end responsibility for updating & implementing this DMP?

The applicant bears the end responsibility of updating & implementing this DMP.