FWO DMP Template - Flemish Standard Data Management Plan

Project supervisors (from application round 2018 onwards) and fellows (from application round 2020 onwards) will, upon being awarded their project or fellowship, be invited to develop their answers to the data management related questions into a DMP. The FWO expects a **completed DMP no later than 6 months after the official start date** of the project or fellowship. The DMP should not be submitted to FWO but to the research co-ordination office of the host institute; FWO may request the DMP in a random check.

At the end of the project, the **final version of the DMP** has to be added to the final report of the project; this should be submitted to FWO by the supervisor-spokesperson through FWO's e-portal. This DMP may of course have been updated since its first version. The DMP is an element in the final evaluation of the project by the relevant expert panel. Both the DMP submitted within the first 6 months after the start date and the final DMP may use this template.

The DMP template used by the Research Foundation Flanders (FWO) corresponds with the Flemish Standard Data Management Plan. This Flemish Standard DMP was developed by the Flemish Research Data Network (FRDN) Task Force DMP which comprises representatives of all Flemish funders and research institutions. This is a standardized DMP template based on the previous FWO template that contains the core requirements for data management planning. To increase understanding and facilitate completion of the DMP, a standardized **glossary** of definitions and abbreviations is available via the following link.

1. General Project Information	
Name Grant Holder & ORCID	**Jef Peeters, 0000-0003-1356-6508**
Contributor name(s) (+ ORCID) & roles	**Joost Duflou, 0000-0002-7265-9686, role** **Dieter De Marelle, 0000-0002-0164-6909, role** **Alex Bunodiere, 0000-0002-5275-1039, role** **Wouter Sterkens, 0000-0002-1675-0901, role** **Mathijs Piessens, 0000-0002-9826-9088, role**
Project number[1] & title	G0G6121N, Scaling up a circular economy business model by new design, leaner remanufacturing, and automated material recycling technologies (SCANDERE)
Funder(s) GrantID[2]	ERA MIN Scandere
Affiliation(s)	☒ KU Leuven ☐ Universiteit Antwerpen ☐ Universiteit Gent ☐ Universiteit Hasselt ☐ Vrije Universiteit Brussel ☐ Other: Provide ROR[3] identifier when possible: https://ror.org/05f950310

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[1] "Project number" refers to the institutional project number. This question is optional since not every institution has an internal project number different from the GrantID. Applicants can only provide one project number.

[2] Funder(s) GrantID refers to the number of the DMP at the funder(s), here one can specify multiple GrantIDs if multiple funding sources were used.

[3] Research Organization Registry Community. https://ror.org/

Please provide a short project description	Securing the supply of raw materials is one of Europe's biggest challenges. The Commission has identified 30 critical raw materials (CRMs), which are adopted by products in many sectors. Today, most of the products are processed in the "make-sell-use-dispose" paradigm, where original equipment manufacturers (OEMs) intend to sell a higher number of products and lose control of the products after their sales. The product-as-a-service (PaaS) model, which provides OEMs with a reverse incentive, is emerging as a promising concept in several sectors and creating a potential for increasing the CRM efficiency by a factor of two or more. However, to raise and upscale the adoption of CRM-efficient PaaS business models, a major challenge is to holistically address the inter-dependent activities occurring in different points both temporally and geographically: product design, remanufacturing, and recycling. Therefore, front runners in European industry and academia, including the need owners and solution providers, will join forces in this project to tackle this challenge taking consumer electrical and electronic equipment as an example. The objectives are to 1) create three demonstrators with improved product designs, leaner remanufacturing, optimized recycling and adapted regulations in a CRMefficient PaaS business model from the three pillars of sustainability using indicators with the lifecycle perspective and 2) improve knowledge for product design, remanufacturing, and recycling including their interplays among them in a whole CRM-efficient PaaS offering. The major outcomes will showcase three CRM-efficient PaaS offerings with enhanced sustainability as a European model to business leaders and policy makers. The major expected impacts are 1) increasing the CRM efficiency and security from the EU's interest, 2) decoupling economic growth and resource use and 3) improving innovation capacity for further enhancing CRM-efficient PaaS business models.

2. Research Data Summary

List and describe all datasets or research materials that you plan to generate/collect or reuse during your research project. For each dataset or data type (observational, experimental etc.), provide a short name & description (sufficient for yourself to know what data it is about), indicate whether the data are newly generated/collected or reused, digital or physical, also indicate the type of the data (the kind of content), its technical format (file extension), and an estimate of the upper limit of the volume of the data[4].

Dataset Name	Description	New or Reused	Digital or Physical	*ONLY FOR DIGITAL DATA* Digital Data Type	*ONLY FOR DIGITAL DATA* Digital Data Format	*ONLY FOR DIGITAL DATA* Digital Data Volume (MB, GB, TB)	*ONLY FOR PHYSICAL DATA* Physical Volume
Template		☐ Generate new data ☐ Reuse existing data	☐ Digital ☐ Physical	☐ Observational ☐ Experimental ☐ Compiled/ aggregated data ☐ Simulation data ☐ Software ☐ Other ☐ NA	☐ por ☐ .xml ☐ .tab ☐ .csv ☐ .pdf ☐ .txt ☐ .rtf ☐ .dwg ☐ .tab ☐ gml ☐ other: ☐ NA	☐ < 100 MB ☐ < 1 GB ☐ < 100 GB ☐ < 1 TB ☐ < 5 TB ☐ < 10 TB ☐ < 50 TB ☐ > 50 TB ☐ NA	
Disassembly results	Results of manual and robotic disassembly analysis	both	digital	experimental	Word and excel	<100MB	Products for disassembly
Disassembly	Code for	both	digital	software	Python script	<100Mb	Disassembly setup

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[4] Add rows for each dataset you want to describe.

code	performing robotic disassembly tests						

If you reuse existing data, please specify the source, preferably by using a persistent identifier (e.g. DOI, Handle, URL etc.) per dataset or data type.	Data available from prior research on eDIM. Software available from prior research on robotic disassembly.

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[5] These data are generated by combining multiple existing datasets.

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, please describe these issues further and refer to specific datasets or data types when appropriate.	☐ Yes, human subject data ☐ Yes, animal data ☐ Yes, dual use ☒ No If yes, please describe:

Will you process personal data⁶? If so, briefly describe the kind of personal data you will use. Please refer to specific datasets or data types when appropriate. If available, add the reference to your file in your host institution's privacy register.	☐ Yes
	☒ No
	If yes:
	   - Short description of the kind of personal data that will be used:
	   - Privacy Registry Reference:

Does your work have potential for commercial valorization (e.g. tech transfer, for example spin-offs, commercial exploitation, …)? If so, please comment per dataset or data type where appropriate.	☒ Yes ☐ No If yes, please comment: Potential for valorization of robotic disassembly systems and eco-design principles.
Do existing 3rd party agreements restrict exploitation or dissemination of the data you (re)use (e.g. Material/Data transfer agreements, research collaboration agreements)? If so, please explain to what data they relate and what restrictions are in place.	☐ Yes ☒ No If yes, please explain:

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⁶ See Glossary Flemish Standard Data Management Plan

Are there any other legal issues, such as intellectual property rights and ownership, to be managed related to the data you (re)use? If so, please explain to what data they relate and which restrictions will be asserted.	☒ Yes ☐ No If yes, please explain: Confidential company (BSH) data, relating to e.g., design or sales, cannot be shared with uninvolved parties.

3. Documentation and Metadata	
Clearly describe what approach will be followed to capture the accompanying information necessary to keep **data understandable and usable**, for yourself and others, now and in the future (e.g. in terms of documentation levels and types required, procedures used, Electronic Lab Notebooks, README.txt files, Codebook.tsv etc. where this information is recorded).	Publication and uniform format will be set up for collection of data from disassembly experiments. Software results will be developed with appropriate comments and readme files. The generated code will be managed on GitLab (within our research group) and on SharePoint/OneDrive (individual work).
Will a metadata standard be used to make it easier to **find and reuse the data**? If so, please specify which metadata standard will be used. If not, please specify which metadata will be created to make the data easier to find and reuse. *REPOSITORIES COULD ASK TO DELIVER METADATA IN A CERTAIN FORMAT, WITH SPECIFIED ONTOLOGIES AND VOCABULARIES, I.E. STANDARD LISTS WITH UNIQUE IDENTIFIERS.*	☐ Yes ☒ No If yes, please specify (where appropriate per dataset or data type) which metadata standard will be used: If no, please specify (where appropriate per dataset or data type) which metadata will be created: No standard metadata formats are available.

4. Data Storage & Back-up during the Research Project	
Where will the data be stored?	A SharePoint directory, linked to a MS Teams group, accessible to Life Cycle Engineering (LCE) research group staff. The Teams group's files will continue to be accessible to the LCE staff, and the file locations are not linked to any individual staff member.
How will the data be backed up? *What storage and backup procedures will be in place to prevent data loss? Describe the locations, storage media and procedures that will be used for storing and backing up digital and non-digital data during research.[7]* *Refer to institution-specific policies regarding backup procedures when appropriate.*	• Internally managed within the SharePoint service. • Additionally, the SharePoint directory will be periodically backuped to external storage drives, stored in the LCE laboratory or office spaces.
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 ☐ No If yes, please specify concisely: If no, please specify:
How will you ensure that the data are securely stored and not accessed or modified by unauthorized persons? *Clearly describe the measures (in terms of physical security, network security, and security of computer systems and files) that will be taken to ensure that stored and transferred data are safe. [7]*	The SharePoint directory, coupled to the MS Teams group, is only accessible to members of this group (in principle only LCE staff members). If required, a private channer could be setup, only accessible to a specific set of people. Regarding physical backups, they could be stored behind locked cabinet doors.

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[7] Source: Ghent University Generic DMP Evaluation Rubric: https://osf.io/2z5g3/

What are the expected costs for data storage and backup during the research project? How will these costs be covered?	€0 Hosted on SharePoint and is included in general overhead for the university (KUL) Backups can be made on already owned hard drives that can be reformatted and repurposed.

5. Data Preservation after the end of the Research Project	
Which data will be retained for at least five years (or longer, in agreement with other retention policies that are applicable) after the end of the project? In case some data cannot be preserved, clearly state the reasons for this (e.g. legal or contractual restrictions, storage/budget issues, institutional policies...).	In principle, all data will be stored in the SharePoint directory, which will remain accessible and managed by the LCE research group. There is no motivation to reduce the amount of stored data.
Where will these data be archived (stored and curated for the long-term)?	Online, in the SharePoint directory.
What are the expected costs for data preservation during the expected retention period? How will these costs be covered?	€0 Hosted on SharePoint and is included in general overhead for the university (KUL) Backups can be made on already owned hard drives that can be reformatted and repurposed.

6. Data Sharing and Reuse	
Will the data (or part of the data) be made available for reuse after/during the project? Please explain per dataset or data type which data will be made available. *NOTE THAT 'AVAILABLE' DOES NOT NECESSARILY MEAN THAT THE DATA SET BECOMES OPENLY AVAILABLE, CONDITIONS FOR ACCESS AND USE MAY APPLY. AVAILABILITY IN THIS QUESTION THUS ENTAILS BOTH OPEN & RESTRICTED ACCESS. FOR MORE INFORMATION: HTTPS://WIKI.SURFNET.NL/DISPLAY/STANDARDS/INFO-EU-REPO/#INFOEUREPO-ACCESSRIGHTS*	☐ Yes, in an Open Access repository ☐ Yes, in a restricted access repository (after approval, institutional access only, …) ☐ No (closed access) ☒ Other, please specify: In principle: No. Only in case some experimental data is required to be published alongside a conference or journal article would data be (openly) shared. In that case, see the reply on *6. Data Sharing and Reuse > Where will the data be made available? If already known, please provide a repository per dataset or data type.*
If access is restricted, please specify who will be able to access the data and under what conditions.	Not applicable
Are there any factors that restrict or prevent the sharing of (some of) the data (e.g. as defined in an agreement with a 3rd party, legal restrictions)? Please explain per dataset or data type where appropriate.	☐ Yes, privacy aspects ☒ Yes, intellectual property rights ☐ Yes, ethical aspects ☐ Yes, aspects of dual use ☐ Yes, other ☐ No If yes, please specify: All confidential design and sales data acquired from BSH that was required to perform the analyses is to remain confidential and is not to be shared with third parties.
Where will the data be made available? If already known, please provide a repository per dataset or data type.	If required in the context of scientific publications, specific, free accessible SharePoint directories can be setup, which will be included in the articles. This data may not include confidential data.

When will the data be made available? *THIS COULD BE A SPECIFIC DATE (DD/MM/YYYY) OR AN INDICATION SUCH AS 'UPON PUBLICATION OF RESEARCH RESULTS'.*	In the context of publications, when required (time of submitting or publishing). Other: never.
Which data usage licenses are you going to provide? If none, please explain why. *A DATA USAGE LICENSE INDICATES WHETHER THE DATA CAN BE REUSED OR NOT AND UNDER WHAT CONDITIONS. IF NO LICENCE IS GRANTED, THE DATA ARE IN A GREY ZONE AND CANNOT BE LEGALLY REUSED. DO NOTE THAT YOU MAY ONLY RELEASE DATA UNDER A LICENCE CHOSEN BY YOURSELF IF IT DOES NOT ALREADY FALL UNDER ANOTHER LICENCE THAT MIGHT PROHIBIT THAT.* *EXAMPLE ANSWER: E.G. "DATA FROM THE PROJECT THAT CAN BE SHARED WILL BE MADE AVAILABLE UNDER A CREATIVE COMMONS ATTRIBUTION LICENSE (CC-BY 4.0), SO THAT USERS HAVE TO GIVE CREDIT TO THE ORIGINAL DATA CREATORS." [8]*	Results of prior research on ease of disassembly have always been openly published. All software developed for robotic disassembly experiments will be protected under copyrights. The IP strategy of the research group is to openly publish on achieved performances and adopted methodologies and technologies, whereas the software code developed is only shared under license agreements for specific applications, allowing future research and developments on the topic of robotic disassembly for other applications.
Do you intend to add a PID/DOI/accession number to your dataset(s)? If already available, please provide it here. *INDICATE WHETHER YOU INTEND TO ADD A PERSISTENT AND UNIQUE IDENTIFIER IN ORDER TO IDENTIFY AND RETRIEVE THE DATA.*	☐ Yes ☒ No If yes:
What are the expected costs for data sharing? How will these costs be covered?	€0 Hosted on SharePoint and is included in general overhead for the university (KUL) Backups can be made on already owned hard drives that can be reformatted and repurposed.

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[8] Source: Ghent University Generic DMP Evaluation Rubric: https://osf.io/2z5g3/

7. Responsibilities	
Who will manage data documentation and metadata during the research project?	**Jef Peeters**
Who will manage data storage and backup during the research project?	**Jef Peeters**
Who will manage data preservation and sharing?	**Jef Peeters**
Who will update and implement this DMP?	**Jef Peeters**