FWO DMP Template

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.

1. General Information	
Name applicant	**Maikel Timmermans**
FWO Project Number & Title	1S35422N , SpineVib - Development of a vibro-acoustic method to assess the intraoperative fixation of pedicle screws
Affiliation	☒ KU Leuven ☐ Universiteit Antwerpen ☐ Universiteit Gent ☐ Universiteit Hasselt ☐ Vrije Universiteit Brussel ☐ Other:
2. Data description	
Will you generate/collect new data and/or make use of existing data?	☒ Generate new data ☐ Reuse existing data

Describe the origin, type and format of the data (per dataset) and its (estimated) volume

*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	Format	Origin	Volume
WP2 – Raw experimental modal data (e.g. Frequency Response Functions or FRF's)	**.csv**	**Vibration Analysis on screws in artificial blocks**	**100-500MB**
WP2 – Processed modal data	**.csv (.lms)**	**Processed raw data with Matlab code (& LMS Testlab post process.)**	**100MB-1GB**
WP2 – Raw mechanical test data	**.csv**	**Mechanical 'golden standard' tests (pull-out, toggle load…) on blocks**	**100-500MB**
WP2 – Processed mechanical test data	**.csv**	**Processed raw data with Excel, Matlab code.**	**<50MB**
WP2 – Simulations vibration properties	**.csv**	**Siemens NX simulations on modal analysis**	**100-500MB**
WP2 - Metadata	**.txt**	**Description of experiments, simulations and results.**	**<1MB**
WP3 – CT scans of bone models	**.IMA**	**Somatom Force CT scans, hospital**	**5-50GB**
WP3 – Segmented bone models	**.mcs**	**Materialise Mimics segmentation**	**1-10GB**
WP3 – Simulations modal parameters	**.csv & .op2**	**Siemens NX simulations on modal analysis**	**10-200GB**
WP3 – Experimental modal parameters bone models	**.csv & .lms**	**LMS Testlab modal analysis on bone models.**	**100MB-1GB**
WP3 - Metadata	**.txt**	**Description of experiments simulations and results**	**<1MB**
WP4 – Raw modal data	**.csv**	**Vibration analysis on blocks and bone models**	**100MB-1GB**
WP4 – Processed modal data	**.csv**	**Processed raw data with Matlab code**	**100MB-1GB**
WP4 – Raw mechanical test data	**.csv**	**Micromotion measurements & Mechanical 'golden standard' tests (pull-out, toggle load…) on blocks and bone models**	**1-100GB**

	WP4 – Processed mechanical test data	**.csv**	**Processed raw data with Excel, Matlab code.**	**<50MB**
	WP4 - Metadata	**.txt**	**Description of experiments and results**	**<1MB**
	WP5 – Raw modal data	**.csv**	**Vibration analysis on animal cadaver vertebrae**	**100-500MB**
	WP5 – Processed modal data	**.csv (.lms)**	**Processed raw data with Matlab code**	**100MB-1GB**
	WP5 – Raw mechanical test data	**.csv**	**Micromotion measurements & Mechanical 'golden standard' tests (pull-out, toggle load…) on animal cadaver vertebrae**	**1-100GB**
	WP5 – Processed mechanical test data	**.csv**	**Processed raw data with Excel, Matlab code.**	**<50MB**
	WP5 – Metadata	**.txt**	**Description of experiments and results**	**<1MB**
	WP6 – Design & prototype clinical vibration measurement device	**.prt, .pdf**	**Siemens NX part files and technical drawings**	**<10MB**
	All WP's	**.txt**	**Matlab code used for processing in various workpackages**	**<10MB**
	All WP's	**.pdf**	**Reports, publications…**	**200MB-1GB**

3. Ethical and legal issues

Will you use personal data? If so, shortly describe the kind of personal data you will use AND add the reference to your file in your host institution's privacy register. *In case your host institution does not (yet) have a privacy register, a reference is not yet required of course; please add the reference once the privacy register is in place in your host institution.*	☐ Yes ☒ No If yes: - Privacy Registry Reference: - Short description of the kind of personal data that will be used:
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).	☐ Yes ☒ No If yes: - Reference to ethical committee approval:
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 ☐ No **Yes, the technical drawings and part-files of a vibration measurement device for pedicle screws can be used for patent application.**
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?	☐ Yes ☒ No If yes, please comment:

4. Documentation and metadata

What documentation will be provided to enable understanding and reuse of the data collected/generated in this project?	**A global metadata file (Excel sheet) will be provided that contains a list of all experiments with corresponding date, type of data and in which folder to find that data.** **-) Metadata will be provided for experimental data in the form of txt-files. The file will contain all information on date of experiment, used equipment, experiment methodology and how to process the data or use/display/interpret the results.** **-) Metadata will be provided for simulations in the form of txt-files. The file will contain all input parameters for the simulation, all properties of the mesh and how to process/interpret results.**
Will a metadata standard be used? If so, describe in detail which standard will be used. If not, state in detail which metadata will be created to make the data easy/easier to find and reuse.	☐ Yes ☒ No If yes, please specify: **Folder organization: the folders will have a hierarchical structure with general superfolders dividing different categories (Simulations&Segmentation, Vibration Analysis…). Each superfolder will contain several levels of subfolders with logical names, each level becoming more specific up to the single experiment level. Folder names will be clear and descriptive. The most specific level will have a folder name containing: experiment name (or acronym) corresponding to the name in the global metadata file, date, type of data, researcher name (or initials).** **In each experiment folder, a ReadMe file will be provided that specifies the experiment methodology, used equipment and how to process the data or use/display/interpret the results. All code will contain sufficient commentary for ease of use by non-authors.**

5. Data storage & backup during the FWO project	
Where will the data be stored?	**KUL Onedrive and copy on personal KUL hard drive.**
How will the data be backed up?	**The general ICT back-up policy that KUL uses for Onedrive is applied.**
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 **Every researcher at KUL is granted 2TB of storage on Onedrive which can be extended to 5TB for long time storage without costs. 5TB should suffice.**

What are the expected costs for data storage and backup during the project? How will these costs be covered? *Although FWO has no earmarked budget at its disposal to support correct research data management, FWO allows for part of **the allocated project budget** to be used to cover the cost incurred.*	**2 TB (and by extension 5TB) of data storage capacity is freely available for KUL staff via Onedrive.**
Data security: how will you ensure that the data are securely stored and not accessed or modified by unauthorized persons?	**Access to the shared drive is only granted to authorized researchers from the research group.**

6. Data preservation after the end of the FWO project FWO expects that data generated during the project are retained for a period of minimally 5 years after the end of the project, in as far as legal and contractual agreements allow.	
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 data mentioned in the table of section 2 except for CT-scans of bone models.**
Where will these data be archived (= stored for the long term)?	**The data will be stored on the KUL Archive (K-drive)**

What are the expected costs for data preservation during these 5 years? How will the costs be covered? *Although FWO has no earmarked budget at its disposal to support correct research data management, FWO allows for part of **the allocated project budget** to be used to cover the cost incurred.*	**120EUR / TB each year: this will be payed from the finance reserve from the department.**

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)?	☐ Yes ☒ No If yes, please specify:
Which data will be made available after the end of the project?	**All data of experiments and simulations that were published. It is possible that some data related to economical valorization will not be made available at the end of the project. Depending on the results of the project, some data can be a strategic asset that needs to be protected.**
Where/how will the data be made available for reuse?	☐ In an Open Access repository ☒ In a restricted access repository ☐ Upon request by mail ☐ Other (specify):
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 PI can access the data for research purposes.**

What are the expected costs for data sharing? How will these costs be covered? *Although FWO has no earmarked budget at its disposal to support correct research data management, FWO allows for part of **the allocated project budget** to be used to cover the cost incurred.*	**Data can be shared for free using KUL RDR (Radar).**

8. Responsibilities	
Who will be responsible for the data documentation & metadata?	**I, Maikel Timmermans, as the grant holder, will be responsible for all aspects of the data management in the project.**
Who will be responsible for data storage & back up during the project?	**I, Maikel Timmermans, as the grant holder, will be responsible for all aspects of the data management in the project.**
Who will be responsible for ensuring data preservation and sharing?	**The PI bears the overall responsibility for updating & implementing this DMP**
Who bears the end responsibility for updating & implementing this DMP? *Default response: The PI bears the overall responsibility for updating & implementing this DMP*	**The PI bears the overall responsibility for updating & implementing this DMP**