LEAPS Data Management Plan

Project Name: Integrating Multi-Disciplinary Expertise in a Learning and Adaptive

European Pandemic Preparedness System (LEAPS)

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This document reuses the structures used by DMPonline (http://dmponline.dcc.ac.uk)

Description

The 2014 Ebola epidemic and ongoing COVID-19 pandemic have exposed a global need for accelerating research and efficiently developing countermeasures (CM) against pathogens with epidemic and pandemic potential. Equitable access to measures is vital for an effective response. The pandemic also highlighted the immense importance of genomics for close pathogen monitoring or 'surveillance'. However, genomic surveillance is slow and challenging to scale-up due to the complexity of building networks able to collect and transport samples, designing novel sequencing protocols, training qualified personnel, building sequencing facilities in low-income settings prone to emerging diseases, and obtaining additional funding from local governments. In similar terms, a Global Genomic Surveillance Strategy for Pathogens with Pandemic and Epidemic Potential has recently been released by WHO. Being at the forefront of COVID-19 genomic surveillance and in collaboration with the Health Emergency Preparedness and Response Authority (HERA), LEAPS aims to demonstrate how genomic surveillance can be optimized within an interconnected system. Therefore, we aim to accelerate diagnostics, vaccine/medicine development and to support decision making for an effective, efficient and guick pandemic response in an EU context.

The goal of LEAPS is to demonstrate the value and feasibility of a pro-active policy supporting the strategy for EU-based genomic health surveillance and emergency preparedness/response, by delivering a system-wide stakeholder-validated proof of concept against pathogen X.

Institutions: University of Leuven (KU Leuven), Institut Pasteur (Paris), Statens Serum Institut, Hellenic Pasteur Institute, Università della Svizzera Italiana

A few important considerations applicable to all work packages

Each individual work package is to document its folder structure in a .txt file describing the purpose of the folders. It is important to have a logical hierarchy. The following post can be a useful reference guide:

https://ukdataservice.ac.uk/learning-hub/research-data-management/format-your-data/organising/

For any programming project, participants are to use an appropriate system for version control, such as Git.

Data that has been finalized should not be stored exclusively on personal devices, and should be accessible on folders shared with the rest of the consortium.

1. Data description

This section addresses the following two questions. See below for the different summary tables generated for each work package.

Will you generate/collect new data and/or make use of existing data? Describe the origin, type and format of the data (per dataset) and its (estimated) volume. This may be easiest in a table (see example) and per WP or objective of the project.

Work package 1

a. Summary table

Task	Data origin(s)	Data format(s)	<u>Volume</u>	New data?
1.1	Task 1.1 - Non-targeted genomic surveillance of infectious threats (SSI-lead, HPI, IPP) (M1-M42)	each laboratory,	to be	yes
3.2	Task 1.2 - Flexibility and adaptability of sequence-based analytic surveillance of infectious threats (SSI-lead, HPI)	each laboratory, results or aggregate	to be	yes
3.3	Task 1.3 Integration and sustainability of non-targeted and sequence-based analytic surveillance	Descriptive text based on questionnaires		yes

b. More info

Raw data are kept at the laboratories conducting the analyses. Results (sequencing data, detection data, aggregate results from questionnaires) are disseminated following FAIR principle, in connection to publications.

a. Summary table:

Task	Data origin(s)	Data format(s)	Volume	New data?
2.1	Immunoassays on anonymized,human/animal samples, no genetic data	<u>Tables</u>	X * samples	<u>yes</u>
2.2	Immunoassays on environment samples, no genetic data	<u>Tables</u>	X * samples	<u>yes</u>
2.3	Infectivity and neutralization assays on anonymized human samples, no genetic data	<u>Tables</u>	X * samples	<u>yes</u>

b. More info

Task 2.1 - Target-specific epidemiological surveillance of human or animal populations (IPP-lead, SSI, LCM, HPI) (M1-M48)

- Antigenic and serologic assays: point-of-care (LFIA), high-throughput (ELISA, FLISA, LuLISA) tests
- Level: individual/populations, humans, animals

Task 2.2 Target-specific pre- and post-analytic surveillance of infectious threats in the environment (IPP-lead, SSI, LCM, HPI) (M1-M48)

• Antigenic assays of environment samples (water and sewage piping, air, surface smears), remote and continuous assay capabilities

Task 2.3 Target-specific analysis of infections and immune responses at the individual level (IPP-lead) (M1-M48)

 Rapid assays to measure viral infectivity and neutralizing activity of sera and monoclonal antibodies

a. Summary table:

Task	Data origin(s)	Data format(s)	Volume	New data?
3.1	Published research, input from other WP's	Text files (various extensions)	1	No
3.2	Published research, input from other WP's	Text files (various extensions)	/	No
3.3	1	1	1	1

b. More info

Task 3.1: /

Task 3.2: Existing genomic data sets - sequence alignments in NEXUS or FASTA format-will be collected from published articles or through national and international collaborations; no new data will be generated in this project. These data sets contain nucleotide sequences of pathogens of interest, along with their sampling times and sampling locations when such data are available. For example, the currently available genomes for the SARS-CoV-2 pandemic are stored on GISAID (https://www.gisaid.org/) and are free to use with proper acknowledgements of the labs that generated these data. Such repositories then typically also contain metadata such as the sampling time and sampling location of each sequence. These data sets will subsequently be converted into XML files that can serve as input for the BEAST (Bayesian Evolutionary Analysis by Sampling Trees) software package. These analyses will produce '.trees' and '.log' files of sampled posterior trees.

Task 3.3: This task is the creation and execution of the data management plan.

1. Summary table:

Task	Data origin(s)	Data format(s)	Volume	New data?
4.1	Published research & government documents	Text	1	1
4.2	Published research, government documents, and inputs from WP2, WP3, WP5 & WP6	Text, values,	1	Yes (from other WPs
4.3	Government documents	Text	1	1

2. More info

Task 4.1 - Development of a conceptual causal loop diagram (CLD)

Capturing interconnected nature of factors required to assess the dynamic health emergency threat at EU and national levels.

Task 4.2 - Development of a formal system dynamics (SD) simulation model

· Assessing the dynamics of health emergency threats at EU/national levels. T

Task 4.3 - Providing a comparative analysis of proposed governance approach Assessing the quality of the EU-level cross-border and of national governance mechanisms.

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<u>Task</u>	Data origin(s)	Data format(s)	<u>Volume</u>	New data?
Task 5.1	Collection of clinical samples positive for SARS-CoV-2, Influenza A, Influenza B and West Nile Virus / Development of a BioBank. - For SARS-CoV-2: nasopharyngeal swabs - For Influenza: nasopharyngeal swabs For West Nile Virus: whole blood, urine and Cerebrospinal Fluid (CSF), depending on the viral load.	Tables, Reports	To be discussed	Yes
Task 5.2	VLPs and RT-qPCR - VSV-pseudotyped viruses for all 3 pathogens - Pseudocapsids for at least SARS-CoV-2 and pilot studies on the production of Influenza and WNV pseudocapsids RT-qPCR assays on panels of viruses	Tables, Reports	Can be scaled up depending on test needs	Yes
			n/a	Existing assays will be used, new ones may be developed if necessary
D5.3	- CM pilot & assessment Neutralisation assays for all pathogens	Tables, Reports	n/a	Yes
D5.4	CM impact model	Flow charts and diagrams	Scenarios depending on co- infection	Yes

	patterns of pathogens	
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Task	Data origin(s)	Data format(s)	<u>Volume</u>	New data?
D6.1	Interviews with Leaps participants, public reports, scientific papers and grey literature	Text and Recorded Videos of interviews	TBD	Interviews will be new data. Conceptual model with accompanyi ng report
D6.2	Data from other models in LEAPS, especially WP 3, 4 and 5. Publicly available data on pandemic responses.	Time series data	TBD	New data generated for model files, with accompanyi ng report
D6.3	Official governmental reports, reports from other WP's and grey literature	Graphs, text and time series data	TBD	New data for policy testing and evaluation with report
D6.4	Official governmental reports, reports from other WP's and grey literature	Graphs, text and time series data	TBD	New data for policy analysis and evaluation with report

Work package 7

a. Summary table

Task	Data origin(s)	Data format(s)	Volume	New
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				data?
7.1	Content prioritization - Published research, grey literature, interviews with ASP	Text, datasets, value, recordings	To be discusse d	Yes
7.2	Development of communication and teaching material NA	NA	1	/
7.3	Design of governance and policy recommendation -Data from other work packages	Text	To be discusse d	No
7.4	Work out and follow up of a dissemination, exploitation and communication - Published research, interviews	Text	To be discusse d	Yes

b. More info

*On Task 7.2: WP7 will engage with professional communication teams within and beyond the consortium (ex: https://openu-project.eu/, an EU funded initiative to support blended learning, mobility and networking in higher education) to develop the adequate format and ensure an efficient visual identity. This communication material will be designed to encompass extensive education programs, with the aim to strengthen and stimulate One Health approach in the European education ecosystem. WP7 will actively advocate and support the creation of a One Health bachelor program within a consortium of European Universities (UNA Europa). Teaching material could include (but will not be limited to) 'T-MOOCS' (Targeted Massive Open Online Courses, being a variant to MOOCS, Massive Open Online Courses).

Work package 8

<u>Tasks</u>	Data origin(s)	Data format(s)	<u>Volume</u>	<u>New</u>

				Data?
Task 8.1 - Consortium Management	Meetings (online and in person) Reports Deliverables Communications Summaries of progress Reporting	Written and oral communications Shared documents Shared Lists Shared Budgets Recordings Flow charts Diagrams Tables Values	Volume will vary according to communications , exchanges and content	Yes
Task 8.2 - Consortium Reporting	Deliverables Milestones Written reports Activities Communications Results Budgets	Shared documents Shared Lists Shared tables Recordings Flow charts Diagrams Tables Values	Will contain data from all work packages – volume will vary according to content	Yes

2. 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 Record of Processing Activities. Be aware that registering the fact that you process personal data is a legal obligation.

WP	Personal Data?	Type + Reference
1	no	The sample materials planned do not include individual samples from human beings.
2	yes	Anonymized samples keeping only age, sex, location and sampling date
3	No	1
4	Yes	Video and word transcripts from interviews with different WPs
5	Yes	Anonymized samples – epidemiological information on age, sex, location and sampling date
6	Yes	Video and word transcripts from interviews with different WPs
7	No	1
8	Yes	New + Personal information on all project participants, Video and word transcripts from interviews with different WPs, and anonymized samples – epidemiological information on age, sex, location and sampling date.

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)

WP	Ethical concerns?	Type + Reference	
1	No		
2	Yes	Analysis of human samples should be authorized by an ethical committee.	
3	No	1	
4	Yes	Only if data from personal interviews would become public	
5	Yes	Analysis of human samples should be authorized by an ethical committee.	
6	Yes	Only if the data would fall into the public domain	
7	No	1	
8	Yes	Yes but only if personal data would fall into the public domain.	

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?

WP	Potential for tech transfer?	Nature of transfer	
1	TBD	Method development is planned.	
2	TBD	New assay reagents, methods or technologies should be protected, but not the results of assays	
3	No	I	
4	No	1	
5	TBD	New assay reagents, methods or technologies should be protected, but not the results of assays	
6	No	1	
7	No	1	
8	Yes	Yes, because the results would potentially serve as new references/guidelines to improve genomic surveillance for pandemic preparedness. There will be no IP restrictions according to the free open access use of all non-private data results.	

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?

WP	Restrictions?	Nature of restrictions
1	No	1
2	No	1
3	No	1
4	Unsure	1
5	No	
6	Unsure	Data still needs to be gathered for the modelling of the different parts in the system. Some of this data could have restrictions. All received data will be classified based on their restriction level.
7	No	1
8	NA	1

3. Documentation and metadata

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

Work package 1: Description of the materials and methods or reference to earlier description.

<u>Work package 2:</u> Description of the method, controls, dynamic scale, reagents specifications (ref, lot), sample tracing, samples conditioning from collection to assay, date of collection, date of assay.

<u>Work package 3:</u> To accompany newly developed methods, we typically write a tutorial on how this method can/should be applied using existing data sets. A link to the specific tutorial is then included into the publications for easy retrieval; the tutorial itself then also contains a link to download the data set. We also have experience writing tutorials and dedicated webpages for software packages that are developed as part of our research (see e.g. http://beast.community/).

<u>Work package 4:</u> The causal loop diagrams will include explanations of interconnections and possible dynamic (i.e., vicious and virtuous) behaviors. The system dynamics simulation model will include a documentation with comments/explanations on each individual equation, notes on and sources of data for the choice of initial parameter values, and specific data sources providing information on specific formulations or parameter values. A model validation report discusses different checks associated with model formulation and validity.

<u>Work package 5:</u> Clinical samples assessment, description and designation, as well as spatiotemporal distribution. Detailed protocols for all new assays generated.

<u>Work package 6:</u> A system dynamics simulation is often accompanied by reports and model documentation which captures the process of model development. In these reports the data sources, locations and restrictions will be explained.

<u>Work package 7:</u> The data from WP7 and the model developed (if developed as a separate model) will be accompanied by written instructions documenting the methodologies and inputs in Word files, a dataset with comprehensive explanations, and a user-friendly tutorial to use the model.

<u>Work package 8:</u> Policy briefs and policy recommendations will be drafted. Project evaluations will be carried out. Continuous and periodic reports will be written and submitted. Teachings and a website will contain the documents and knowledge created.

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.

WP	Metadata standard?	Specify		
1	No	1		
2	No	Tables for data, sample spec., assay spec. Readme file for description of Tables fields		
3	No	We accompany the XML files with a short description (in the form of a README text file) on the pathogen, the sampling locations of the different sequences and the method used to analyse them.		
4	No	1		
5	No	We will accompany our reports with metadata and descriptions to ensure that they will be findable, accessible, interoperable and reusable		
6	No	1		
7	No	/		
8	NA	1		

4. Data storage and backup during the project

Where will the data be stored?

Work package 1: The raw data will be stored the laboratories conducting the work. Sequencing data will be made available and shared actively with WP2._

<u>Work package 2:</u> Local copies will be kept on a secure institutional server with bacup facilities on dual sites. Data will be sent to WP1, WP3 and WP4. WP6 and 7 will status on the level of data sharing and where data will be stored for reuse

<u>Work package 3:</u> Local copies are kept on secure personal devices and on a lab Dropbox or GitHub while the data analysis is ongoing.

<u>Work package 4:</u> Local copies will be kept on a SWITCHdrive account, secured location with drives maintained in Switzerland. Copies will be also stored on secure personal devices and KU Leuven Cloud.

<u>Work package 5:</u> Local copies concerning the description of the clinical samples will be kept on a secure institutional server with backup facilities on dual sites. Clinical samples will be kept in two separate -80 freezer facilities. Data will be sent to WP2, WP3 and WP4. WP6 and 7 will status on the level of data sharing and where data will be stored for reuse. <u>Work package 6:</u> Copies of data will be stored on the KU Leuven provided OneDrive server to ensure that no data is lost in case of device losses. If data is critically secure, the X-Drive from KU Leuven will be utilized.

Work package 7: Local copies will be stored on secure personal devices and KU Leuven Cloud.

Work package 8: In the EU portal, in the secured KU Leuven drive and cloud.

How is backup of the data provided?

Work package 1: Routine back up at the institution level.

Work package 2: Periodical back up at the institution level

Work package 3: After updating the data, the copy on any online repository is updated and personal copies are backed up on a regular basis as well.

<u>Work package 4</u>: A folder system will be implemented on SWITCHdrive account, secured location with drives maintained in Switzerland.

Work package 5: Back up on an institutional level and separate personal devices.

<u>Work package 6:</u> A folder system is implemented where data is classified clearly on the OneDrive server. A separate Data Management file, most likely MS Excel, will be used to manage the data information.

Work package 7: All documentation will be subject to regular updates on personal devices and KU Leuven Cloud.

Work package 8: All documentation will be subject to regular updates on personal devices and KU Leuven Cloud and on the EU funding and tender platform.

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.

WP	Sufficient storage?	Specify	
1	Yes	1	
2	Yes	1	
3	Yes	Our local devices will be sufficient to store the data analysed in the context of the present research project.	
4	Yes	The lead has secured 2 TB of space at his SWITCHdrive account.	
5	Yes	Our institution's level back up capacity is sufficient	
6	Yes	The OneDrive cloud from KU Leuven has 2 TB of space for each researcher and if more space is required, a special request can be launched with KU Leuven ICTs services.	
7	Yes	Our local devices will be sufficient to store the data analysed in the context of the present research project.	
8	Yes	Our local devices will be sufficient to store the data analysed and all other documents.	

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

Work package 1: No additional costs are expected

Work package 2: No additional costs are expected

<u>Work package 3:</u> Costs will be covered by the project or lab budget whenever needed, but storage is free for the relatively small file sizes of our analyses. Hence, no costs are expected for data storage and back up during this project.

Work package 4: No additional costs for data storage expected at this stage.

Work package 5: No additional costs are expected.

<u>Work package 6:</u> At this stage, no additional costs for data storage is expected as the 2TB provided by KU Leuven is expected to be sufficient. If costs do come about, relatively small, one time, costs can be handled by the project budget.

Work package 7: No costs are expected for data storage and back-up.

Work package 8: No additional costs expected.

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

Work package 1: Data storage follows routine procedures at institute level.

<u>Work package 2:</u> Data storage is in institution servers with only access to identified individuals. This will be not a place for an open reuse of data, that should be elsewhere after decision by WP6/WP7.

<u>Work package 3:</u> The data are in most cases already available online, so that this is not a reason of concern. Popular publicly accessible resources are GitHub and GISAID (https://www.gisaid.org/) for example. Should any modifications to these data be required however, our use of online repositories such as GitHub ensures that only collaborators with the proper authorisation can modify the data, while they can be accessed by anyone interested.

<u>Work package 4:</u> The data is kept on a secure SWITCHdrive account, secured location with drives maintained in Switzerland. Access is controlled and moderated by the work package lead. Collaborators are allowed to access but not modify or erase the data.

<u>Work package 5:</u> Access to our institution's servers is restricted to specified personnel only – to researchers collaborating in this project.

<u>Work package 6:</u> Using the Teams or OneDrive platform, access to data is easily moderated by the creator of the folders where data is found. It is essential to ensure that each folder will be restricted to only the creator or the work package collaborators.

Work package 7: access to data will be restricted to collaborators only in KU Leuven secured platforms.

<u>Work package 8:</u> All the platforms where data is stored are monitored and regulated by those already part of the platforms. There are notifications in case of new access authorisations. Access to outsiders is restricted unless granted access.

5. Data preservation after the 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, ...).

Work package 1: FAIR principle is followed; All data will be kept available for the expected 5 year period after the end of the project.

Work package 2: All data will be kept available for the expected 5 year period after the end of the project.

Work package 3: All data will be kept available for the expected 5 year period after the end of the project.

Work package 4: All data will be kept for the expected 5 year period after the end of the project, neatly packaged for ease of future access.

Work package 5: All data will be kept available for the expected 5 year period after the end of the project.

Work package 6: All data will be kept for the expected 5 year period after the end of the project, neatly packaged for ease of future access.

Work package 7: All data will be kept available for the expected 5 year period after the end of the project.

Work package 8: All data will be retained for the next 5 years.

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

Work package 1: FAIR principle is followed, and as much of the data as possible will be made available as soon as possible and by the end of the project.

<u>Work package 2:</u> All data will be kept after the end of the project in the institution storage facility for the longer term.

<u>Work package 3:</u> The data will be kept at the online GitHub repositories for the longer term. In the case that GitHub would cease to exist or would drastically alter its terms of use, all data will be copied to an alternative online storage (which we have experience with, as we copied all data to GitHub when Google Code ceased to exist).

<u>Work package 4:</u> The data is kept on a secure SWITCHdrive account, secured location with drives maintained in Switzerland.

<u>Work package 5:</u> All data will be kept after the end of the project in the institution storage facility for a longer term use

Work package 6: Archived data will be stored on the KU Leuven ATM Server for longer term use

Work package 7: The data will be kept at KU Leuven ATM Server for the longer term.

Work package 8: The data will be stored in the KU Leuven storage facilities.

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

Work package 1: No additional costs are expected

Work package 2: No additional costs are expected

Work package 3: No such costs are currently foreseen, but will be covered by the lab budget or an ongoing project at the time.

Work package 4: No additional costs expected

Work package 5: No additional costs are expected

Work package 6: No additional costs expected at this stage

Work package 7: No additional costs are expected

Work package 8: No additional costs are expected.

6. 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

WP	Restrictions?	If so, specify
1	No	
2	No	
3	No	
4	No	1
5	No	No restrictions between the WPs
6	No	No restrictions between the WPs
7	No	1
8	No	1

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

Work package 1: Data are made available in connection to scientific publications.

<u>Work package 2:</u> Unpublished data will be available to all collaborators of this project, at all times.

<u>Work package 3:</u> All published data will be made readily available throughout the course of the project. Unpublished data files at the end of the project will not be made available until a publication using them is being submitted.

<u>Work package 4:</u> All published data will be made available throughout the course of the project. Unpublished data files at the end of the project will not be made available until a publication using them is being submitted.

<u>Work package 5:</u> Unpublished data will be available to all collaborators of this project, at all times.

<u>Work package 6:</u> Data that is published is like the simulation results, findings and recommendations. Data that is not published will be stored safely in the Teams and OneDrive locations as mentioned before.

<u>Work package 7:</u> All published data will be made available throughout the course of the project. Unpublished data files at the end of the project will not be made available until a publication using them is being submitted.

<u>Work package 8:</u> Beneficiaries will have access to all data that can be provided among each other. All published data will be made readily available throughout the course of the project. Unpublished data files at the end of the project will not be made available until a publication using them is being submitted. All results will be shared with the funding agency.

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

Work package 1: Following FAIR principle.

Work package 2:

<u>Work package 3:</u> In an openaAccess repository. We always use publicly accessible GitHub repositories.

<u>Work package 4:</u> Data sets that can be made public in OpenAccess Repository. System Dynamics models can be made available at the iSeeSystems Exchange, a system which allows people to simulate the existing model, without the ability to change them. Access to the models for change and reuse can be made available upon request.

<u>Work package 5:</u> particles and reagents could be deposited in the EVAg (European Virus Archive –GLOBAL) depository (HPI is a member) that facilitates availability of virus-related reagents throughout research community. There is a fee for sharing though, will this be a problem for the LEAPS agreement?

<u>Work package 6:</u> Data sets that can be made public, could use the OpenAccess Repository. System Dynamics simulations with an interface, can utilize the iSee Exchange server to distribute the model interface publicly when needed.

Work package 7: OpenAccess Publications will be made available, as well as all dissemination material.

Work package 8: Through open access documents and publications.

When will the data be made available?

Work package 1: As soon as possible, in connection to publications.

Work package 2: After publication of the research results.

<u>Work package 3:</u> Upon publication of the research results. As soon as a publication is submitted, which is typically accompanied by submission to a pre-print server, the data are shared on GitHub.

<u>Work package 4:</u> When publications are accepted or at the end of the project, data for public reproduction will be made available.

Work package 5: After publication of the research results.

<u>Work package 6:</u> When publications are accepted or at the end of the project, data for public reproduction will be made available.

Work package 7: DES data will be available corresponding to WP7 will be made available every 4 months, or according to the DES plan.

<u>Work package 8:</u> Continuous reporting will allow visibility to the funding agency of all progress made. Full results and impact as well as other data will be made available at the end of the project. Publications might be made available during the span of the project which will also be OpenAccess.

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

Work package 1: Limited before publishing, FAIR principle in connection to publication.

Work package 2: Only researchers participating in the project, before publishing.

Work package 3: Only researchers participating in and collaborating on the project will be able to access the data before publishing. Upon publication anyone can access the data. Creative Commons Licenses (CC BY) will be attached to the data deposited to enable researchers to access and use the data.

<u>Work package 4:</u> Only researchers participating in and collaborating on the project will be able to access the data before publishing. Upon publication anyone can access the data. <u>Work package 5:</u> Only researchers participating in the project, before publishing. After publishing, we should consider EVAg depository

<u>Work package 6:</u> Only researchers participating in and collaborating on the project will be able to access the data before publishing. Upon publication anyone can access the data <u>Work package 7:</u> Only researchers participating in and collaborating on the project will be able to access the data before publishing. Upon publication anyone can access the data. <u>Work package 8:</u> Once published, data is accessible to all.

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

Work package 1: No additional costs are expected

Work package 2: No additional costs are expected.

<u>Work package 3:</u> No such costs are expected. Should covering of costs be required, they will be covered by an ongoing project or lab budget.

Work package 4: No additional costs for data sharing are expected

Work package 5: No additional costs are expected.

<u>Work package 6:</u> No additional costs for data sharing is currently expected, yet if additional costs are required, the project funding will be consulted to evaluate what portion of the data costs can be covered.

Work package 7: No additional costs are expected

Work package 8: No additional costs of sharing data are expected.