

Schedule

- Introduction to Data Stewardship
- Break
- FAIR data
- Data Management Planning
- Break
- Writing a Data Management Plan session
- Final questions & remarks

Data Stewardship and Research Data Management



Dr. Santosh Ilamparuthi
S.Ilamparuthi@tudelft.nl

What is Data Stewardship?

Lots of Definitions...

The [Data Management Body of Knowledge \(DMBOK\)](#) defines Data Stewardship as:

“The most common label to describe accountability and responsibility for data and processes that ensure effective control and use of data assets. Stewardship can be formalized through job titles and descriptions, or it can be a less formal function driven by people trying to help an organization get value from its data.”

The [Data Governance Institute](#):

“Data Stewardship is concerned with taking care of data assets that do not belong to the stewards themselves. Data Stewards represent the concerns of others. Some may represent the needs of the entire organization. Others may be tasked with representing a smaller constituency: a business unit, department, or even a set of data themselves.”

Lots of Definitions...

The [Data Management Body of Knowledge \(DMBOK\)](#) defines Data Stewardship as:

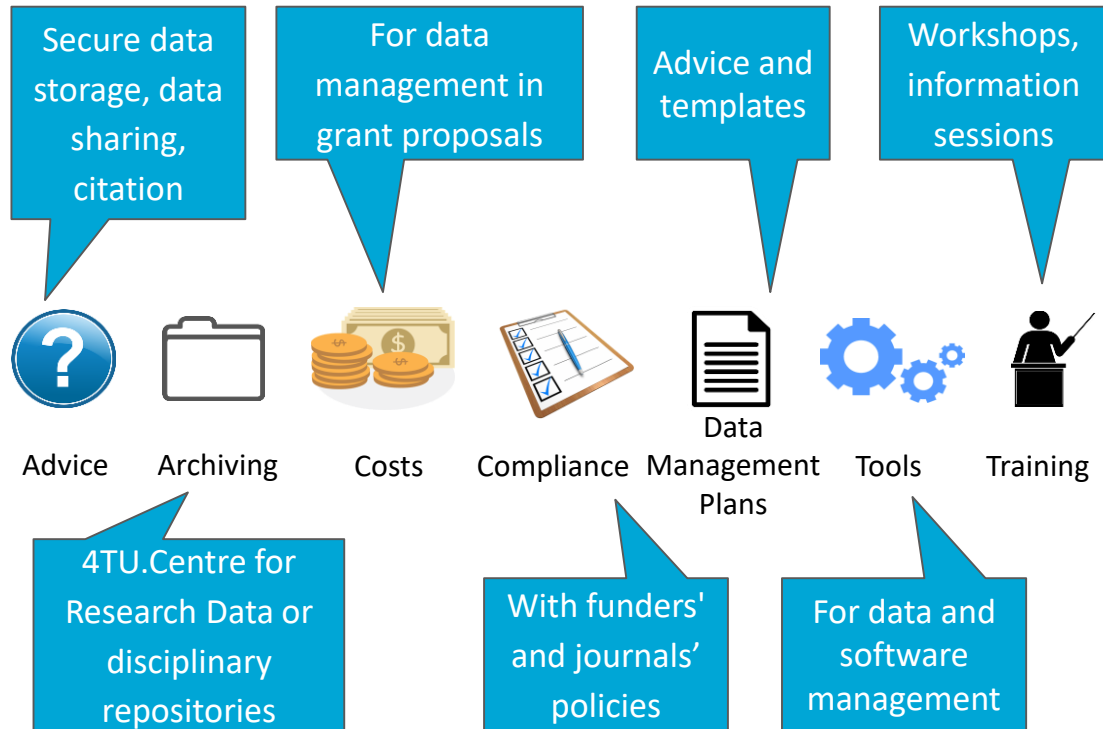
“The most common label to describe accountability and responsibility for data and processes that ensure effective control and use of data assets. Stewardship can be formalized through job titles and descriptions, or it can be a less formal function driven by people trying to help an organization get value from its data.”

And many more!

The [Data Governance Institute](#):

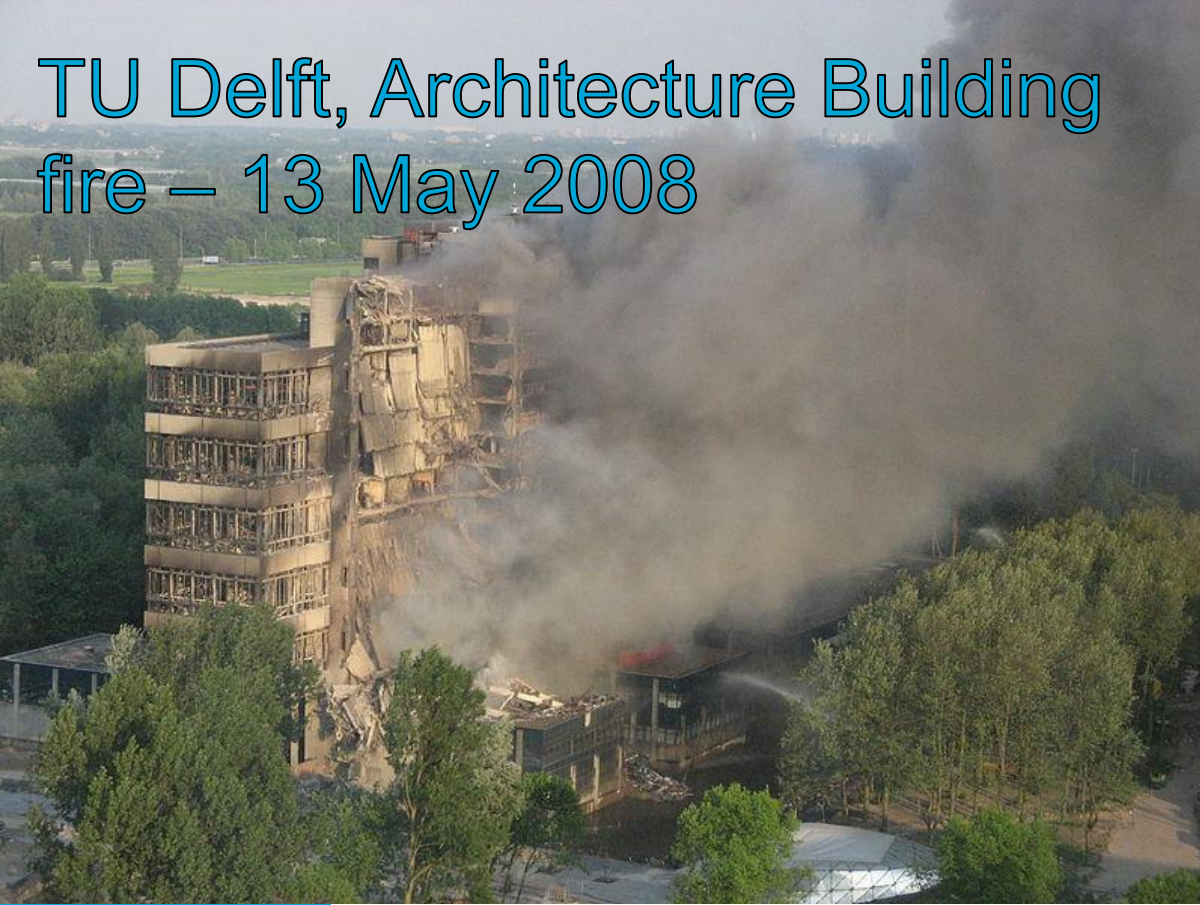
“Data Stewardship is concerned with taking care of data assets that do not belong to the stewards themselves. Data Stewards represent the concerns of others. Some may represent the needs of the entire organization. Others may be tasked with representing a smaller constituency: a business unit, department, or even a set of data themselves.”

Data Stewardship at TU Delft



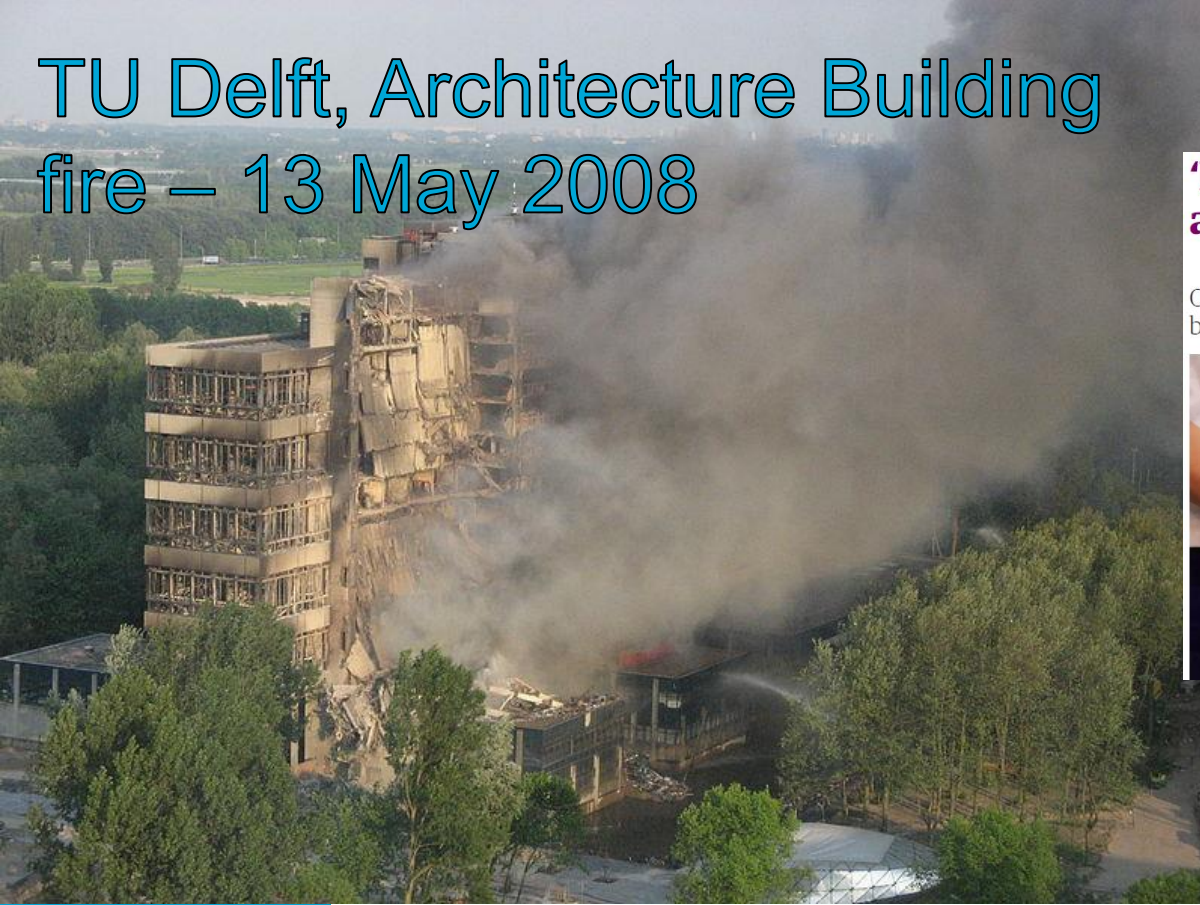
What can Data Stewardship do
for you – the Researcher?

TU Delft, Architecture Building fire – 13 May 2008



https://commons.wikimedia.org/wiki/File:Brand_bouwkunde_-_TU_Delft_-_13_Mei_2008.jpg

TU Delft, Architecture Building fire – 13 May 2008



'My £1,000 Macbook Air was stolen at airport security and no one cares'

One traveller found that some airports can identify thieves - but do nothing to chase them or return your goods



<https://www.theguardian.com/money/2018/may/04/my-1000-macbook-air-was-stolen-at-airport-security-and-no-one-cares>

https://commons.wikimedia.org/wiki/File:Brand_bouwkunde_-_TU_Delft_-_13_Mei_2008.jpg

How much of your data would you lose if... and how would you react?

- your laptop got stolen
- your lab burnt
- you lost your USB stick
- your portable hard drive got damaged
- Your stuff on Dropbox / Googledrive disappeared



NOOOO Sf***!!!**

**It hurts, But I can
manage with some work**

**Easy peasy,
I have it covered**

Original Slide by
Marta Teperek

How much of your data would you lose if... and how would you react?

- your laptop got stolen
- your lab burnt
- you lost your USB stick
- your phone disappeared
- You

I have earned my stripes the hard way – My horror story ☹️



NOOOO Sf***!!!**

It hurts, But I can manage with some work

Easy peasy, I have it covered

Original Slide by
Marta Teperek

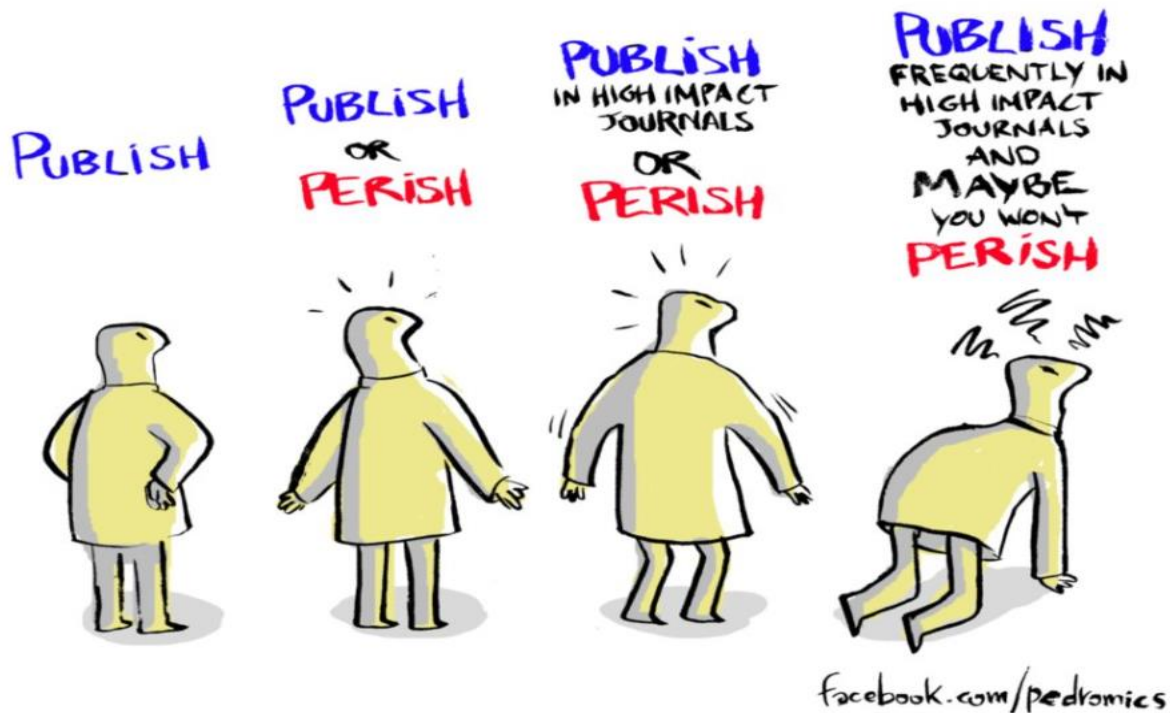
Research Data Lifecycle



The only thing that counts in academia is publication of novel results in high impact journals

<https://www.repository.cam.ac.uk/handle/1810/276106>

THE EVOLUTION OF ACADEMIA



Fraud!!

Report finds massive fraud at Dutch universities

Investigation claims dozens of social-psychology papers contain faked data.

Ewen Callaway

When colleagues called the work of Dutch psychologist Diederik Stapel too good to be true, they meant it as a compliment. But a preliminary investigative report (go.nature.com/tqmp5c) released on 31 October gives literal meaning to the phrase, detailing years of data manipulation and blatant fabrication by the prominent Tilburg University researcher.



Fraud!!

Report finds massive fraud at Dutch universities

Investigation claims dozens of
contain faked data.

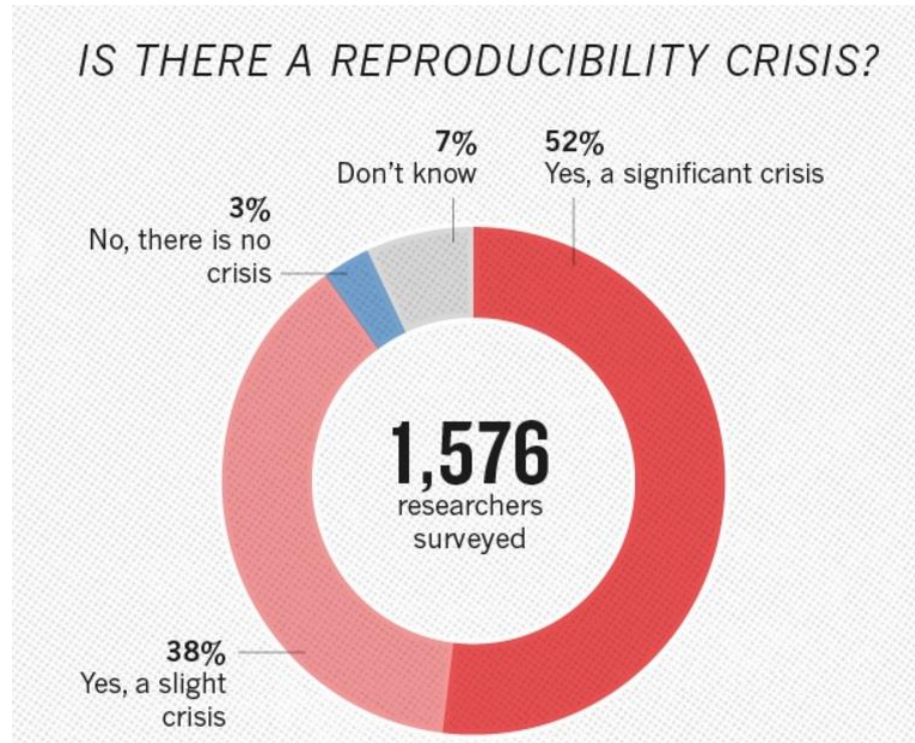
Schön Scandal!!

Ewen Callaway

When colleagues called the work of Dutch psychologist Diederik Stapel too good to be true, they meant it as a compliment. But a preliminary investigative report (go.nature.com/tqmp5c) released on 31 October gives literal meaning to the phrase, detailing years of data manipulation and blatant fabrication by the prominent Tilburg University researcher.



Reproducibility Crisis



<https://www.nature.com/news/1-500-scientists-lift-the-lid-on-reproducibility-1.19970>

The main reasons for this crisis are



- Selective reporting
- Pressure to publish
- Insufficient supervision and training
- **Supporting data / methods / code not available**

Baker, M. (2016). 1,500 scientists lift the lid on reproducibility. Nature, [online] 533(7604), pp.452-454. Available at: <https://www.nature.com/news/1-500-scientists-lift-the-lid-on-reproducibility-1.19970> [Accessed 26 Apr. 2018].

Funder	BMBF	DFG	EU Horizon 2020	Wellcome Trust
What to archive?	research data	research data, research software, supplemental material	research data, unpublished data, programming code	research data
Where to archive?	data archive/repository	free choice of repository	free choice of repository	no specific stipulation, but must be archived
When to archive?	after project end	within 12 months after project ends	as soon as possible	immediately after publication
General terms and conditions	data need to be longterm-archived/preserved for the scientific community	primary data have to be stored for 10 years in their institution of origin	a data management plan and making data openly available after the project ends is mandatory for all projects with start date after 01/2017	mandatory for all projects whose data can be shared and re-used; re-users have to cite the data source and keep to the re-use license conditions

Table and information, E.Böker
[“https://www.forschungsdaten.info/praxis-kompakt/english-pages/funder-guidelines/”](https://www.forschungsdaten.info/praxis-kompakt/english-pages/funder-guidelines/)

Funder	BMBF	DFG	EU Horizon 2020	Wellcome Trust
--------	------	-----	-----------------	----------------

DFG and the European Commission require in their guidelines that applicants submit a “data management plan” (DMP) along with their application which describes how research data will be managed and shared during and after the research project

When to archive?	BMBF	DFG	EU Horizon 2020	Wellcome Trust
	after project end	within 12 months after project ends	as soon as possible	immediately after publication
General terms and conditions	data need to be longterm-archived/ preserved for the scientific community	primary data have to be stored for 10 years in their institution of origin	a data management plan and making data openly available after the project ends is mandatory for all projects with start date after 01/2017	mandatory for all projects whose data can be shared and re-used; re-users have to cite the data source and keep to the re-use license conditions

Table and information, E.Böcker
[“https://www.forschungsdaten.info/praxis-kompakt/english-pages/funder-guidelines/”](https://www.forschungsdaten.info/praxis-kompakt/english-pages/funder-guidelines/)

Funder	BMBF	DFG	EU Horizon 2020	Wellcome Trust
--------	------	-----	-----------------	----------------

DFG and the European Commission require in their guidelines that applicants submit a “data management plan” (DMP) along with their application which describes how research data will be managed and shared during and after the research project

When to archive?	after project end	within 12	as soon as possible	immediately after pu-
General terms and conditions	data need to be longterm-archived/ preserved for the scientific community	institution of origin	mandatory for all projects with start date after 01/2017	to cite the data source and keep to the re-use license conditions

The DFG “Guidelines on Safeguarding Good Scientific Practice (2019)” specify that data have to be managed according to the F.A.I.R. principles.

Table and information, E.Böker “<https://www.forschungsdaten.info/praxis-kompakt/english-pages/funder-guidelines/>”

Break time!

Welcome

DMPonline helps you to create, review, and share data management plans that meet institutional and funder requirements. It is provided by the Digital Curation Centre (DCC).

Join the growing international community that have adopted DMPonline:



17,622 Users



203 Organisations



23,083 Plans



89 Countries

Some funders mandate the use of DMPonline, while others point to it as a useful option. You can [download funder templates](#) without logging in, but the tool provides tailored guidance and example answers from the DCC and many research organisations. Why not sign up for an account and try it out?

Sign in **Create account**

* **Email**

* **Password**

[Forgot password?](#)

Remember email

Sign in

- or -

Sign in with your institutional credentials

FAIR principles



Esther Plomp
E.Plomp@tudelft.nl
[@PhDToothFAIRy](https://twitter.com/PhDToothFAIRy)



Image

<https://zenodo.org/record/369530/0#.XvoPYnJS-Uk>

Original slides:

<https://doi.org/10.5281/zenodo.3471553>

The FAIR principles are a set of guidelines to increase the re-use of your data

Findable

- Deposit your data in a data repository with metadata and a persistent identifier



Findable



- Deposit your data in a **data repository** with metadata and a persistent identifier

an online archive that curates research datasets and provides long-term access

- Finalised datasets
- ~10-15 years



Findable

- Deposit your data in a data repository with **metadata** and a persistent identifier

Metadata = Information about data

- Contextual information
 - Title, author, keywords
 - When? For what purpose?
 - Size? Standards?



Metadata

Use a README file to put your data into context:



The image shows a screenshot of a Cornell University README template. At the top left is the Cornell logo. To its right is a document icon and the filename 'AUTHOR_DATASET_ReadmeTemplate.txt'. The main content is a text-based template for a README file. It starts with a line: 'This DATSETNAMEREADME.txt file was generated on [YYYYMMDD] by [Name]'. Below this is a section header 'GENERAL INFORMATION' flanked by dashed lines. The template lists two main sections: '1. Title of Dataset' and '2. Author Information'. Under '2. Author Information', there is a sub-section 'Principal Investigator Contact Information' followed by fields for 'Name:', 'Institution:', 'Address:', and 'Email:'. A blue URL is visible at the bottom right of the screenshot: <https://data.research.cornell.edu/content/readme>.

README files template: <https://cornell.app.box.com/v/ReadmeTemplate>

Evaluation of neodymium isotope analysis of human dental enamel as a provenance indicator using $10^{13} \Omega$ amplifiers (TIMS)

E. Plomp^a, I.C.C. von Holstein^a, J.M. Koornneef^a, R.J. Smeets^a, J.A. Baart^{b, c, 1}, T. Forouzanfar^{b, c}, G.R. Davies^a

Show more

<https://doi.org/10.1016/j.scijus.2019.02.001>

Under a Creative Commons license

Get rights and content

open access

- Deposit your data in a data repository with metadata and a **persistent identifier**

ORCID

A **persistent identifier** (PI or PID) is a long-lasting reference to a file, web page, or other object

Accessible

- Consider what will be shared (metadata)
- Obtain participant consent and perform risk management
- Determine access control



Interoperable

- Use open/common format/languages
- Consistent vocabulary
- Discipline common metadata standards
 - [FAIRsharing.org](https://fairsharing.org)
 - [Research Data Alliance metadata directory](#)
 - [Digital Curation Center](#)



Interoperable

Standard Data Formats

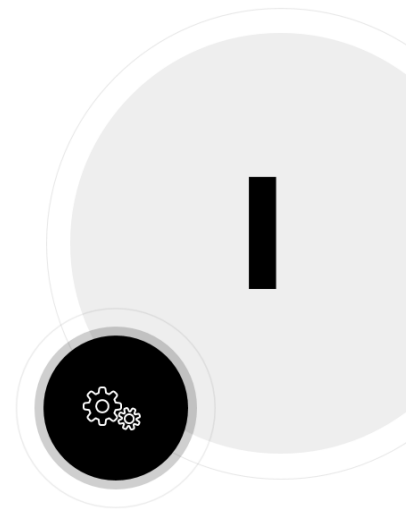
“widely accepted”
e.g., .xls .xlsx

Open Data Formats

Free to use
e.g., .csv .tab

Using standard or open data formats
ensures longer-term usability of data

Convert files into standard open formats for
long term preservation of the data



Data Formats

Preferred (sustainable) file formats that receive full preservation	
Text	Plain text, XML, HTML, PDF (PDF/A-1), JSON, PDB (Protein Data Bank), XYZ <i>(all formats should be encoded in UTF-8)</i>
Spreadsheets	CSV (Comma-separated values), Tab-delimited values, PDF (PDF/A-1)
Images	JPEG, TIFF, PNG, SVG
Geospatial	GML (Geographical Mark-up Language), KML (Keyhole Mark-up Language), ESRI Shapefile, Geo-referenced TIFF
Numerical	NetCDF, CSV, JSON
Video	<i>No sustainable format established</i>
Audio	Waveform Audio File Format (WAVE)
Databases	Delimited Flat File w/DDL
Archives	ZIP, TAR, GZIP, 7Z

Slide adapted
from Christine
Staiger

<https://doi.org/10.5281/zenodo.2585691>

Metadata standard: how to say 'female'

18-day pregnant females	Female (lactating)	Individual female	Worker caste 'female'
2 yr old female	Female (pregnant)	Igb*cc females	Sex female
400 yr. Old female	Female (outbred)	Mare	Female, other
Adult female	Female parent	Female (worker)	Female child
Asexual female	Female plant	Monosex female	Femal
Castrate female	Female with eggs	Ovigerous female	3 female
Cf.female	Female worker	Oviparous sexual females	Female (phenotype)
Cystocarpic female	Female, 6-8 weeks old	Worker bee	Female mice
Dikaryon	Female, virgin	Female enriched	Female, spayed
Dioecious female	Female, worker	Pseudohermaphroditic	Femlale
Diploid female	Female(gynoecious)	female	Metafemale
F	Femele	Remale	Sterile female
Famale	Female, pooled	Semi-engorged female	Normal female
Femal	Femalen	Sexual oviparous female	Sf
Female	Females	Sterile female worker	Vitellogic replate female
Female – worker	Females only	Strictly female	Worker
Female (alate sexual)	Gynoecious	Tetraploid female	Hexaploid female
Female (calf)	Healthy female	Thelytoky	Female (f-o)
Hen	Probably female (morphology)	Female (gynoecious)	

Metadata Standard

Dublin Core Metadata:

Creator (Author):	a person, an organization, or a service
Contributor:	a person, an organization, or a service
Title:	name given to the resource
Date:	e.g., YYYY-MM-DD
Language:	use a controlled vocabulary such as RFC 4646 , e.g. nl-NL
Format:	file format, physical medium, or dimensions of the resource
Subject:	use keywords, key phrases, or classification codes
Description:	may include an abstract, a table of contents, etc.
Identifier/Relation:	formal identification of the resource
Source:	a resource from which the described resource is derived
Rights:	statement about various property rights / license
Publisher:	include a person, an organization, or a service
Type:	nature or genre of the resource
Coverage:	spatial (e.g., geographic coordinates) or temporal (e.g., a named period, date, or date range) topic of the resource

Original slide by
Heather Andrews
Mancilla

Reusable

- Apply a licence to specify how others can reuse your data
- Documentation



Reusable



- Apply a **licence** how others can your data
- Documentation

Licences for data

Public Domain Dedication (CC0)

Attribution (CC BY)

Attribution-NoDerivatives (CC BY-ND)

Attribution-NonCommercial (CC BY-NC)

Attribution-NonCommercial-ShareAlike (CC BY-NC-SA)

Attribution-NonCommercial-NoDerivatives (CC BY-NC-ND)

Licences for software and code

MIT License

Apache Licence 2

GNU General Public Licence 3 (GNU GPLv3)

<https://creativecommons.org/licenses/>

<https://researchdata.4tu.nl/en/use-4turesearchdata/archive-research-data/upload-your-data-in-our-data-archive/licencing/>

Data Repositories & FAIR

Finalised Datasets

Snapshot

Long-term preservation

~10-15 years

Findable

DOI

Metadata

Accessible

Control

Interoperable

Metadata

Vocabulary

Open formats/standards

Reusable

Licence

Repository for code/software



Software:

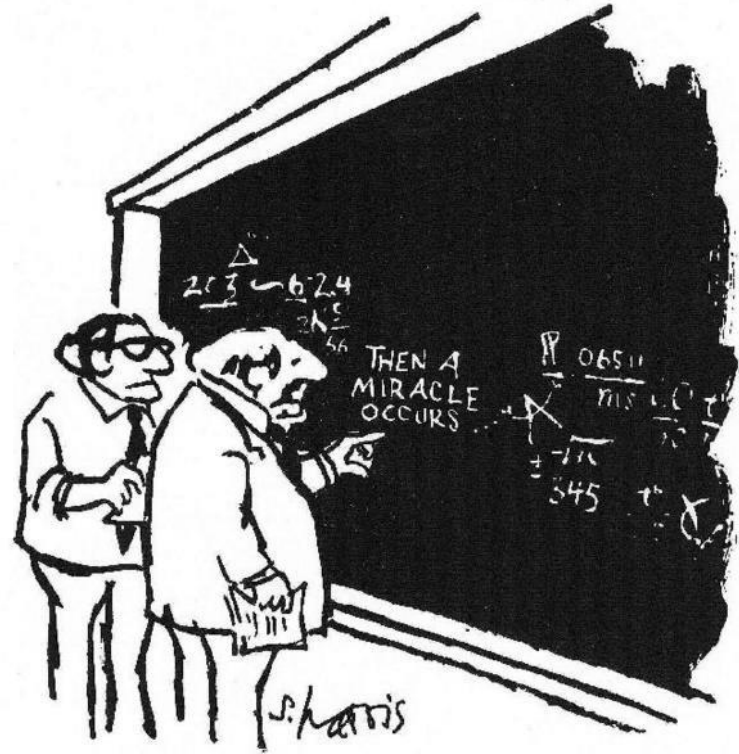
<https://www.youtube.com/watch?v=pjsbBQYOOaE&t=1s>

<https://guides.github.com/activities/citable-code/>


Repository for protocols




protocols.io




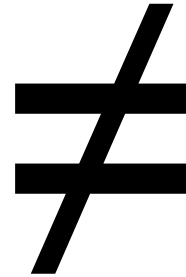
"I think you should be more explicit here in step two."

Findable 

Accessible 

Interoperable 

Reusable 



Standard

Open

Intrinsic
quality

More info?

- [Go FAIR](#)
- [Top 10 FAIR Data/Software Things](#)
- [F1000 FAIR Guide](#)
- [The FAIR Guiding Principles for scientific data management and stewardship \(2016\)](#)



Data Management Planning



What is a Data Management Plan?



Image by [Peggy und Marco Lachmann-Anke](#) from [Pixabay](#)

Data Management Plan

- The Data Management Plan (DMP) is a document where you state how you will **manage the research data/code during research** and **after the research** project is finished.
- A DMP is a **living document**.



Why a Data Management Plan?



Image by [Peggy und Marco Lachmann-Anke](#) from [Pixabay](#)

Awareness!

It helps you to **organize your work** &

It also helps us (support) to have a more **concrete view** of what is missing!

Respondents that **work with DMPs** appear to be more aware of FAIR principles and more aware (and use!) data repositories

Respondents working in projects **WITH DMPs**

Year	Use repos	Use or are aware of repos	Data loss	Aware of FAIR
2017	27%	81%	15%	50%
2019	50%	92%	8%	67%

Respondents working in projects **WITHOUT DMPs**

Year	Use repos	Use or are aware of repos	Data loss	Aware of FAIR
2017	16%	63%	13%	17%
2019	24%	66%	12%	38%

How to prepare a DMP?



Image by [Peggy und Marco Lachmann-Anke](#) from [Pixabay](#)

DMP Preparation – During Research

- **Who is the owner of the data?**
- **Which policies apply?**
- **What type of data/code will be collected and/or generated?**



Data Types

Experiments
Simulations-modelling data
Software (scripts, self-standing)
Interviews, recordings, surveys
Human participants data
Design data (maps, charts)
Etc.

Standard



Sensitive

Personal
Commercial
Dangerous



DMP Preparation – During Research

- Who is the owner of the data?
- Which policies apply?
- What type of data/code will be collected and/or generated?
- **Where will the data be stored?**
- **What will be the backup strategy?**
- **How will you transfer data/code with collaborators?**
- **What software, equipment, facilities do you need?**



DMP Preparation – During Research

- Who is the owner of the data?
- Which policies apply?
- What type of data/code will be collected and/or generated?
- Where will the data be stored?
- What will be the backup strategy?
- How will you transfer data/code with collaborators?
- What software, equipment, facilities do you need?
- **How will you organize the data/code? (e.g., directory structure, file-naming conventions, version control)**
- **How will you document the data/code?**



DMP Preparation – After Research

- **Which data/code will be archived for the long-term?**
 - All research output necessary to **validate results presented in a journal article** and all research output **suitable for reuse**.

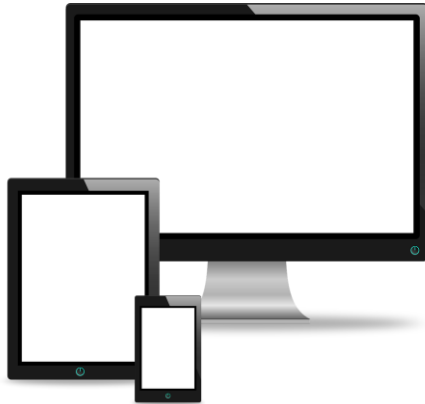


Image by [mmi9](#) from [Pixabay](#)



Image by [OpenClipart-Vectors](#) from [Pixabay](#)

DMP Preparation – After Research

- **Which data/code will be archived for the long-term?**
 - All research output necessary to **validate results presented in a journal article** and all research output **suitable for reuse**.
- **How will the data/code be archived for the long-term?**



Research data associated with publication

Data ready to be publicly released

Data under embargo

Data that cannot be publicly released

Available upon request

Can be publicly released

Safety reasons
Commercial reasons
Personal Data

Here 'data' includes code

Research data associated with publication

Data ready to be publicly released

Data under embargo

Data that cannot be publicly released

Available upon request

Can be publicly released

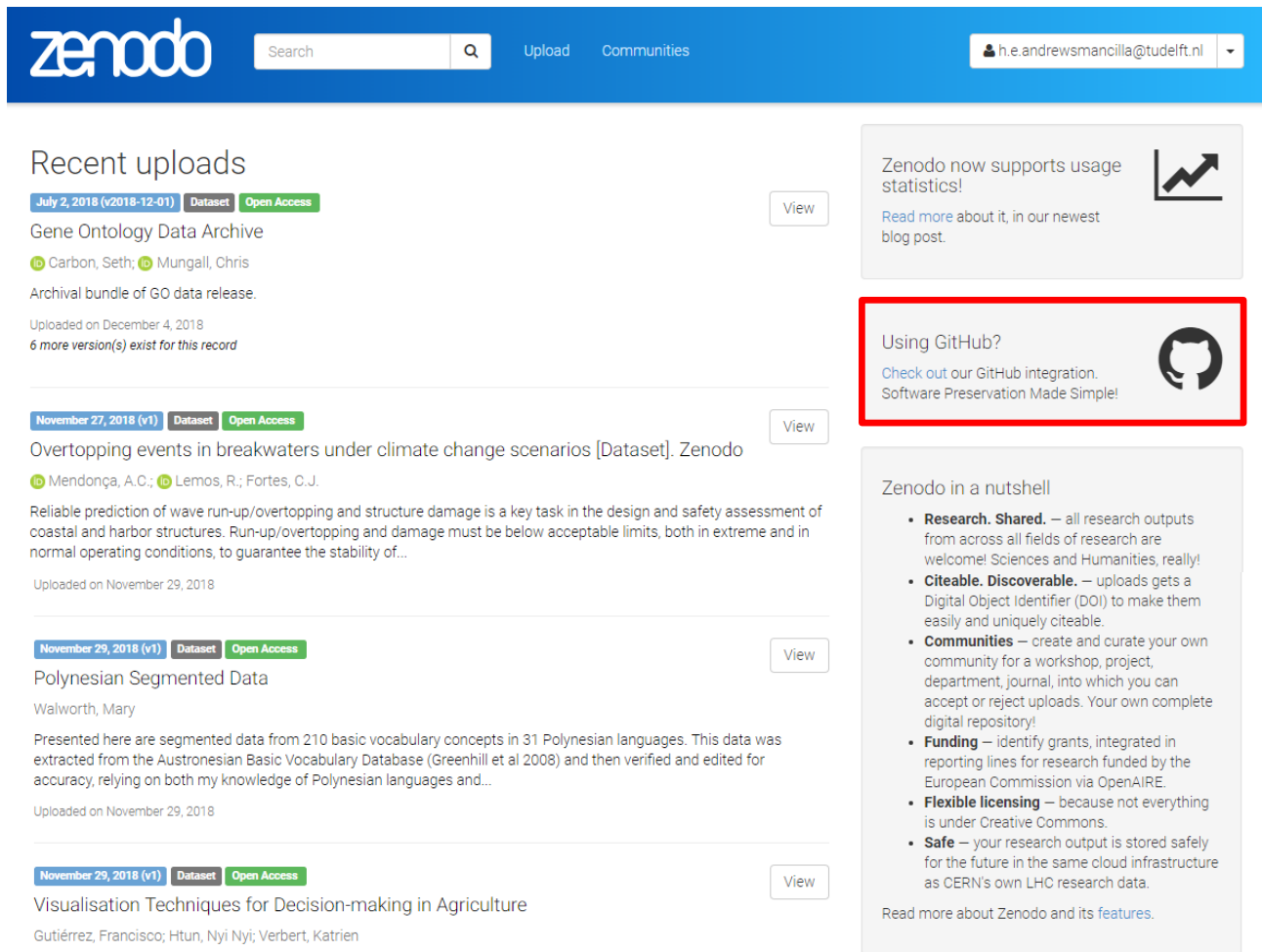
Safety reasons
Commercial reasons
Personal Data

Here 'data' includes code

Suitable for data and code

Github integration

→ Zenodo archives a snapshot of the Github repository



The screenshot shows the Zenodo website interface. At the top, there is a blue header with the Zenodo logo, a search bar, and navigation links for 'Upload' and 'Communities'. The user profile 'h.e.andrewsmancilla@tudelft.nl' is visible in the top right. The main content area is titled 'Recent uploads' and lists three items:

- July 2, 2018 (v2018-12-01)** [Dataset] [Open Access] [View](#)
Gene Ontology Data Archive
Carbon, Seth; Mungall, Chris
Archival bundle of GO data release.
Uploaded on December 4, 2018
6 more version(s) exist for this record
- November 27, 2018 (v1)** [Dataset] [Open Access] [View](#)
Overtopping events in breakwaters under climate change scenarios [Dataset]. Zenodo
Mendonça, A.C.; Lemos, R.; Fortes, C.J.
Reliable prediction of wave run-up/overlapping and structure damage is a key task in the design and safety assessment of coastal and harbor structures. Run-up/overlapping and damage must be below acceptable limits, both in extreme and in normal operating conditions, to guarantee the stability of...
Uploaded on November 29, 2018
- November 29, 2018 (v1)** [Dataset] [Open Access] [View](#)
Polynesian Segmented Data
Walworth, Mary
Presented here are segmented data from 210 basic vocabulary concepts in 31 Polynesian languages. This data was extracted from the Austronesian Basic Vocabulary Database (Greenhill et al 2008) and then verified and edited for accuracy, relying on both my knowledge of Polynesian languages and...
Uploaded on November 29, 2018
- November 29, 2018 (v1)** [Dataset] [Open Access] [View](#)
Visualisation Techniques for Decision-making in Agriculture
Gutiérrez, Francisco; Htun, Nyi Nyi; Verbert, Katrien

On the right side, there are three promotional boxes:

- Zenodo now supports usage statistics!** [Line graph icon] [Read more about it, in our newest blog post.](#)
- Using GitHub?** [GitHub logo icon] [Check out our GitHub integration. Software Preservation Made Simple!](#)
- Zenodo in a nutshell**
 - Research. Shared.** — all research outputs from across all fields of research are welcome! Sciences and Humanities, really!
 - Citeable. Discoverable.** — uploads gets a Digital Object Identifier (DOI) to make them easily and uniquely citeable.
 - Communities** — create and curate your own community for a workshop, project, department, journal, into which you can accept or reject uploads. Your own complete digital repository!
 - Funding** — identify grants, integrated in reporting lines for research funded by the European Commission via OpenAIRE.
 - Flexible licensing** — because not everything is under Creative Commons.
 - Safe** — your research output is stored safely for the future in the same cloud infrastructure as CERN's own LHC research data.[Read more about Zenodo and its features.](#)

May 21, 2017

Software Open Access

VSCL Developmental Flight Test Instrumentation

Joshua Harris; Vinicius Guimaraes Goecks; Han-Hsun Lu; John Valasek

Small Unmanned Aircraft System developmental flight test instrumentation software.

Supports data logging at 100 Hz of air data, inertial navigation data, and control effector positions for aircraft parameter and system identification flight test

Preview

dfti-v2.2.1.zip

tamu-vscl-dfti-7ef2f3f

o	.gitignore	378 Bytes
o	.gitmodules	103 Bytes
o	.travis.yml	1.1 kB
o	.zenodo.json	1.3 kB
o	CMakeLists.txt	7.1 kB
o	LICENSE.md	1.3 kB
o	README.md	2.2 kB
o	config	
o	armhf.cmake	497 Bytes
o	example.ini	291 Bytes
o	docs	
o	Doxyfile	105.2 kB
o	annotated.html	8.7 kB
o	arrowdown.png	246 Bytes
o	arrowright.png	229 Bytes
o	autopilot_8cc.html	4.8 kB
o	autopilot_8hh.html	6.5 kB

License under which
the code is published

Files (500.2 kb)

Name

Size

tamu-vscl/dfti-v2.2.1.zip

500.2 kB

Preview Download

md5:152833f706f68b6ae7e404cf1917a7fb

Beta

Citations 0

Show only:

 Literature (0)
 Dataset (0)
 Software (0)
 Unknown (0)

 Citations to this version

Search

Q

86

views

12

downloads

How many downloads

Preview of content
In this case, a snapshot
of a Github repository

Available in

GitHub

Indexed in

OpenAIRE

Publication date:

May 21, 2017

DOI:

DOI 10.5281/zenodo.581707

Keyword(s):

 system identification
 parameter identification
 flight test

UAS

Related identifiers:

Supplement to

<https://github.com/tamu-vscl/dfti/tree/v2.2.1>

License (for files):

[BSD 2-Clause "Simplified" License](#)

Persistent identifier
(code becomes citable)

Easy download

Versions

Version v2.2.1

10.5281/zenodo.581707

May 21, 2017

Version 2.1.0

10.5281/zenodo.572272

May 6, 2017

DMP Preparation – After Research

- Which data/code will be archived for the long-term?
 - All research output necessary to **validate results presented in a journal article** and all research output **suitable for reuse**.
- How will the data/code be archived for the long-term?
- **Who will be the contact person?**



How to start writing a DMP?



Image by [Peggy und Marco Lachmann-Anke](#) from [Pixabay](#)

Different funders/institutions

Different DMP templates!



Image by [Andrew Martin](#) from [Pixabay](#)

Horizon 2020 DMP

- Horizon 2020 (H2020) is the current and biggest EU Research and Innovation programme (2014 to 2020) focused on funding **excellent science**, **industrial leadership** and tackling **societal challenges**.
- Great focus on **Open Science**.
- **Open Research Data Pilot**
 - optional in H2020
 - mandatory in next framework Horizon Europe (2021-2027)

Horizon 2020

Horizon Europe

RESEARCH DATA - OPEN BY DEFAULT



HORIZON 2020 GRANTEES ARE REQUIRED

take measures to ensure open access to the data underlying their scientific publications

provide open access to any other research data of their choice

Horizon 2020 grantees are encouraged to also share datasets beyond publication



http://ec.europa.eu/research/press/2016/pdf/opendata-infographic_072016.pdf#view=fit&pagemode=none



Open Science across the programme

Open Science

Better dissemination and exploitation of R&I results and support to active engagement of society

Mandatory Open Access to publications: beneficiaries shall ensure that they or the authors retain sufficient intellectual property rights to comply with open access requirements

Open Access to research data ensured: in line with the principle "as open as possible, as closed as necessary"; Mandatory Data Management Plan for FAIR (Findable, Accessible, Interoperable, Re-usable) and Open Research Data

https://ec.europa.eu/info/sites/info/files/research_and_innovation/strategy_on_research_and_innovation/presentations/horizon_europe_en_investing_to_shape_our_future.pdf

H2020 DMP

Based on **FAIR principles**

Initial DMP

Detailed DMP

Final Review DMP

Not only when
publishing data
but also **during**
the project!

1. Data summary
2. FAIR data
 - 2.1 Making data findable, including provisions for metadata
 - 2.2 Making data openly accessible
 - 2.3 Making data interoperable
 - 2.4 Increase data re-use (through clarifying licenses)
3. Allocation of resources
4. Data security
5. Ethical aspects
6. Other

Next Step: Let's start writing a DMP!



But after the break!



Welcome

DMPonline helps you to create, review, and share data management plans that meet institutional and funder requirements. It is provided by the Digital Curation Centre (DCC).

Join the growing international community that have adopted DMPonline:



17,622 Users



203 Organisations



23,083 Plans



89 Countries

Some funders mandate the use of DMPonline, while others point to it as a useful option. You can [download funder templates](#) without logging in, but the tool provides tailored guidance and example answers from the DCC and many research organisations. Why not sign up for an account and try it out?

Sign in **Create account**

* **Email**

* **Password**

[Forgot password?](#)

Remember email

Sign in

- or -

Sign in with your institutional credentials

Extra links

Data and Code licenses:

- <https://creativecommons.org/licenses/>
- <https://choosealicense.com/>
- <https://www.gnu.org/licenses/license-recommendations.html>

Archiving of data and/or code:

- <https://softwaresaved.github.io/software-deposit-guidance/>

Discipline specific metadata standards:

- <http://rd-alliance.github.io/metadata-directory/subjects/engineering.html>
- <https://link.springer.com/article/10.1057%2Fdam.2010.29>
- <http://www.dcc.ac.uk/resources/metadata-standards>

Repositories:

- <https://www.re3data.org/>
- <https://guides.github.com/activities/citable-code/>