

# Data Stewardship at Delft University of Technology

## SciDataCon-IDW 2018



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Slides are available: <https://doi.org/10.5281/zenodo.1477598>

# Where is TU Delft?











CAFE  
RESTAURANT  
*De Passage*

HEINEKEN  
PREMIUM QUALITY

FASTFOOD  
GRILL

F

B  
D

BURGER  
KING

U  
R  
G  
E  
N  
T

McDonald's

McDonald's

McDonald's

McDonald's

Phone House

Get Customised

ChipShop

The Phone House

# TU Delft in numbers:

- Research intensive:
  - 11th top beneficiary of H2020 funding in 2017
- 8 Faculties
  - focus on science, engineering and design
- 5,000 employees
  - including PhD students
- ~20,000 students
  - Bachelor & Master from over 50 countries)





# Strategic support for Data Stewardship

Central funding to kick-start Data Stewardship at TU Delft

- 3 years: start of 2018 - end of 2020

# What is the Data Stewardship Project?

## **Goal:**

Create awareness and good working practices for research data management across TU Delft

-> Cultural change

## **Key to this:**

Solutions need to be discipline-specific

## **Set-up:**

Every faculty has a dedicated Data Steward

# What do the Data Stewards do?

- Discipline specific RDM experts
- First contact points for any data questions
- Bridging researchers with other support services
- Train and inspire – good RDM practices
- Facilitate development of RDM policies
- Act as consultants not police





# In more specific terms

Secure data  
storage, data  
sharing,  
citation



Advice

# In more specific terms

Secure data storage, data sharing, citation



Advice



Archiving

4TU.Centre for Research Data or disciplinary repositories

# In more specific terms

Secure data storage, data sharing, citation

For data management in grant proposals



Advice

Archiving

Costs

4TU.Centre for Research Data or disciplinary repositories



# In more specific terms

Secure data storage, data sharing, citation

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Advice

Archiving

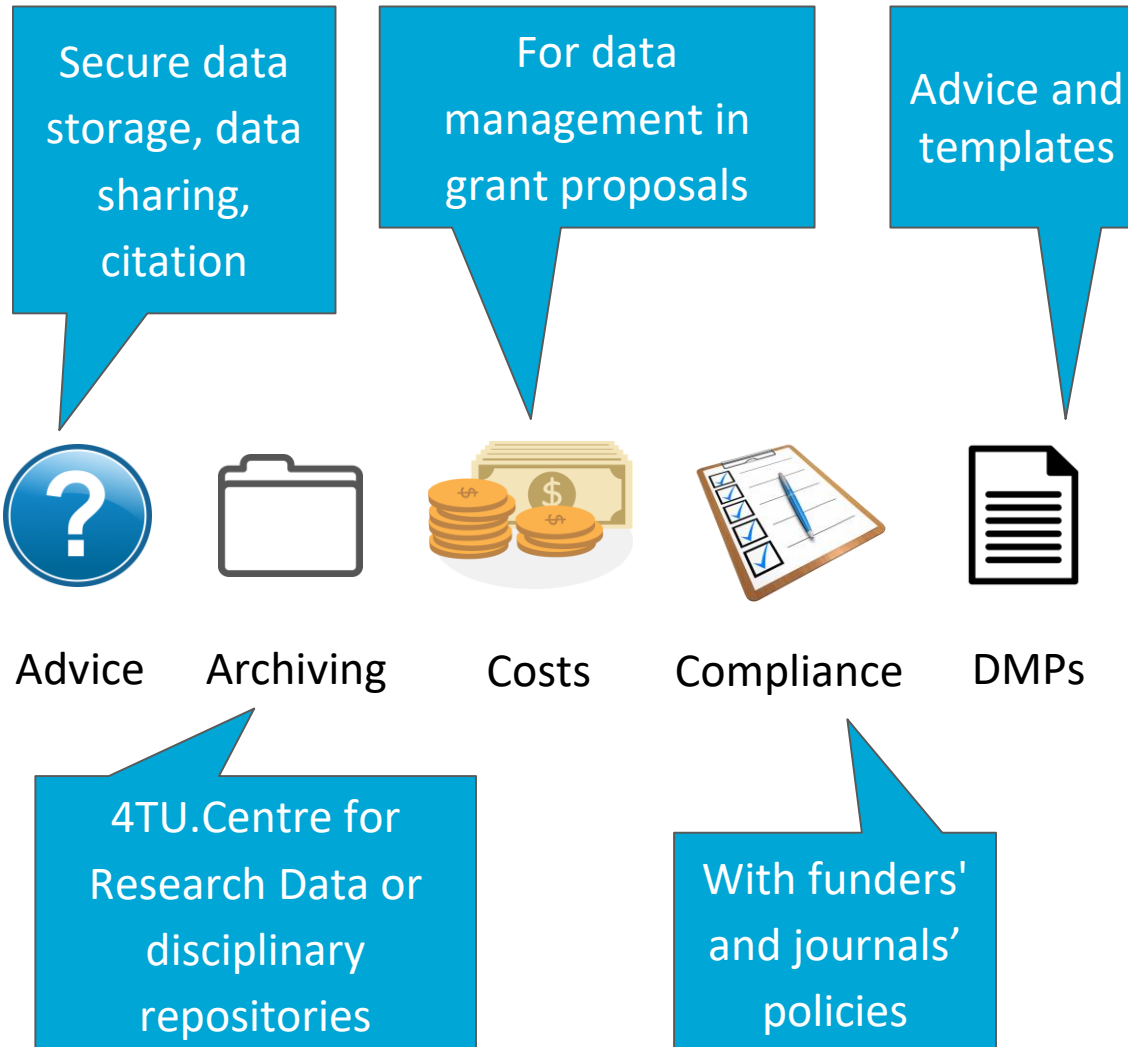
Costs

Compliance

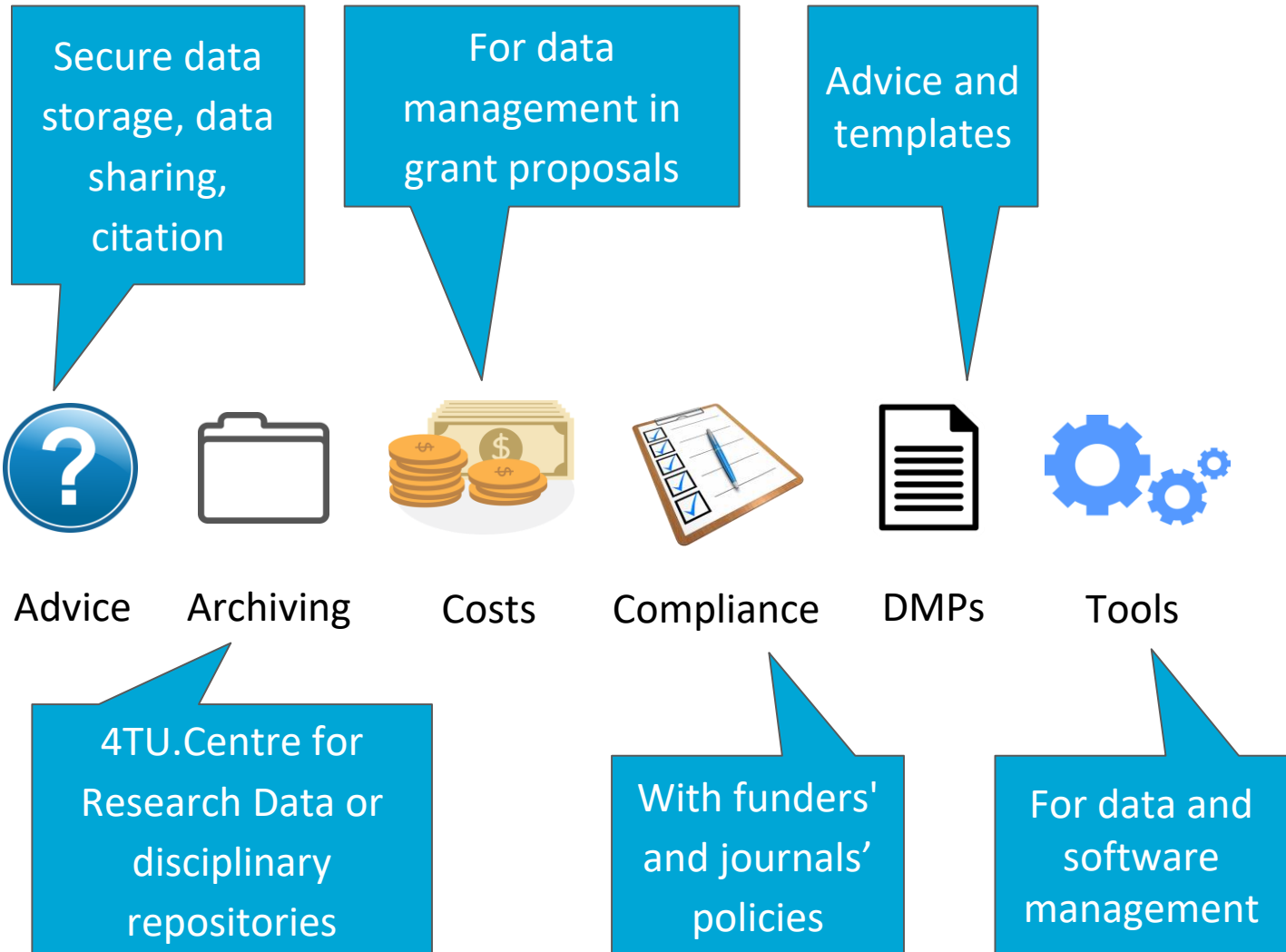
4TU.Centre for Research Data or disciplinary repositories

With funders' and journals' policies

# In more specific terms

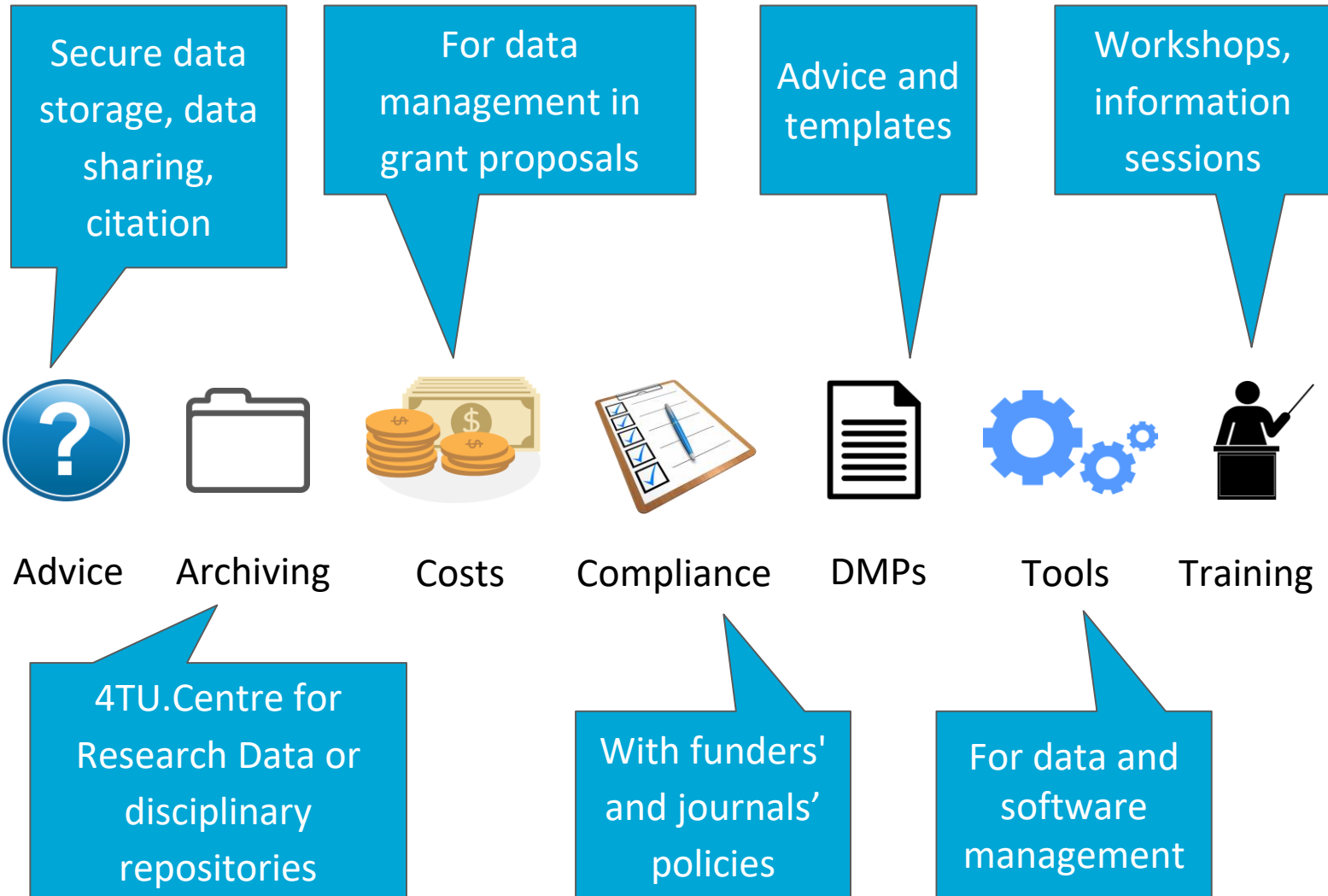


# In more specific terms





# In more specific terms



# Events organized by us



MAR  
15

**Digital Notebooks -  
productivity tools for  
researchers**

by Research Data Services, TU Delft  
Library

DOI:10.5281/zenodo.1247390

Free



AUG  
31

**GDPR?... What does it mean for  
my research and what do I have  
to do?...**

by Research Data Netherlands (RDNL)

DOI:10.5281/zenodo.1408579

Free



NOV  
29

**First Software Carpentry @TU  
Delft: Python with Jupyter  
notebooks, Git and...**

by 4TU.Centre for Research Data

Free

# Do as you preach



## Open Working

An Experiment in Open Working from 4TU.Centre for Research Data & TU Delft Research Data Services (Note! This is a test site, so URLs may change!)

[HOME](#)[ABOUT OPEN WORKING AT TU DELFT](#)[DRAFT DATA MANAGEMENT PLAN CATALOGUE](#)[DATA STEWARD SHIP](#)[CONTACT](#)

OCTOBER 27, 2018

## Workshop Report: Software Reproducibility – The Nuts and Bolts

Authors (in alphabetical order): Maria Cruz (VU), Marc Galland (UvA), Carlos Martinez (NL eScience Center), Raúl Ortiz (TU Delft), Esther Plomp (VU), Anita Schürch (UMCU), Yasemin Türkyilmaz-van der Velden (TU Delft)



Open Working from

4TU. CENTRE FOR  
RESEARCH DATA

and

 TU Delft



# Do as you preach

Data Stewards at TU Delft - collection of outputs and resources

September 14, 2018

Conference paper Open Access

## The Role of Data Stewardship in Software Sustainability and Reproducibility

Cruz, Maria J.; Kurapati, Shalini; Turkyilmaz-van der Velden, Yasemin

407 views 185 downloads

Tweeted by 16

See more details...

DOI:10.5281/zenodo.1419085

September 4, 2018

Presentation Open Access

## Open science in a nutshell: What's in for me?

Kurapati, Shalini; de Jong, Michiel

1,756 views 312 downloads

Tweeted by 36  
On 1 Facebook pages  
1 readers on Mendeley

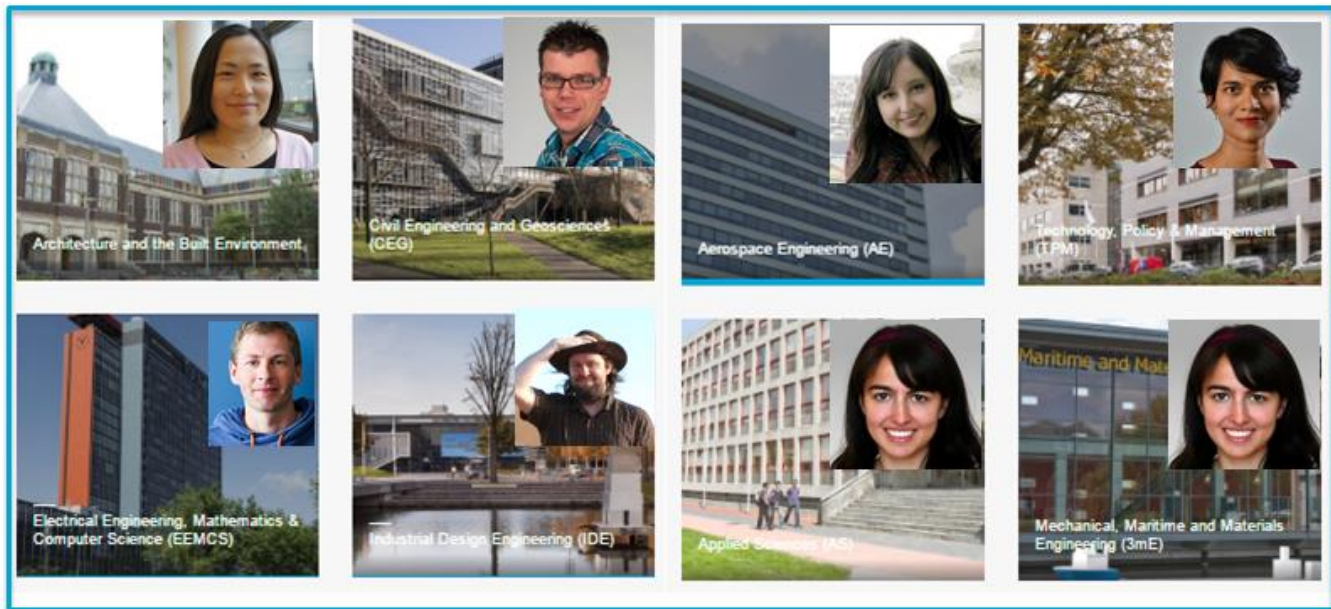
See more details...

DOI:10.5281/zenodo.1409027

# TU Delft Data Stewardship Team



Coordination from the Library  
Data Stewards are embedded in the faculties



- Data Stewards have a PhD (or relevant research experience)
- Experience and understanding about whole research life cycle
- Training in data management is provided:

<https://openworking.wordpress.com/2017/09/18/training-for-data-stewards/>

# Our Data Champions



## Yilin Huang

Assistant Professor  
Faculty of Technology, Policy and Management  
Department: Multi-Actor Systems

**Areas of expertise:**  
Data analysis, modelling, simulation

- + Contact information
- + Motivation



## Anneke Zuiderwijk-van Eijk

Postdoctoral Researcher  
Faculty of Technology, Policy and Management  
Department: Engineering Systems and Services

**Areas of expertise:**  
Open data, research data, data infrastructures,  
design, user service patterns, online education

- + Contact information
- + Motivation



## Anton Akhmerov

Associate Professor  
Faculty of Applied Sciences  
Department: Quantum Nanoscience

**Areas of expertise:**  
Quantum nanoscience, numerical simulations

- + Contact information
- + Motivation



## Victor Koppejan

PhD Student  
Faculty of Applied Sciences

**Areas of expertise:**  
Biochemical engineering; Simulation tools for the  
design and optimization of equipment in purification  
processes; Software version control tools (git,  
easybuild etc); Reproducible workflows using Matlab  
and Python.

- + Contact information



## Frans van der Meer

Assistant Professor  
Faculty of Civil Engineering and Geosciences  
Department: Materials, Mechanics, Management &  
Design

**Areas of expertise:**  
Computational mechanics, coding, simulations

- + Contact information
- + Motivation



## Thomas Abeel

Assistant Professor  
Faculty of Electrical Engineering, Mathematics and  
Computer Science  
Department: Intelligent Systems

**Areas of expertise:**  
Bioinformatics, genomics, high performance  
computing, data integration

- + Contact information
- + Motivation



## Scott Cunningham

Associate Professor  
Faculty of Technology, Policy and Management  
Department: Multi-Actor Systems

**Areas of expertise:**  
Statistics, Bayesian networks, image processing,  
geographic information systems, open source  
computing, text mining, consumer and microdata,  
science and technology information, urban science,  
municipal policy making

- + Contact information
- + Motivation



## Sian Jones

PostDoc Researcher  
Faculty of Civil Engineering and Geosciences

**Areas of expertise:**  
Electronic Lab Notebooks (ELNs), Experimental

- Researchers with good RDM practices
- Local advocates at departmental level
- Increased visibility & travel funds
- Bottom-up community formation
- 20 Data Champions already!
- At least one per faculty
- Researchers at all levels



# Front Runners: Data Champions

## Anton Akhmerov

*Associate Professor*  
Faculty of Applied Sciences  
Department: Quantum Nanoscience

**Areas of expertise:**  
Quantum nanoscience, numerical simulations

“Good data management and sharing improves research quality and speed, and increases research reliability and reproducibility.”

## Zoltán Perkó

*Assistant Professor*  
Faculty of Applied Sciences, Department of Radiation  
Science and Technology

**Areas of expertise:**  
Computational physics, coding (Python, Matlab, C),  
version control (Gitlab, smartgit), patient data  
management, project management

“For increasing the clarity and reproducibility of modern research, best practices in data management, software development and collaboration are crucial.”

# Sharing data and code supporting publications





ARTICLE

DOI: [10.1038/s41467-018-06595-2](https://doi.org/10.1038/s41467-018-06595-2)

OPEN

## A ballistic graphene superconducting microwave circuit

Felix E. Schmidt <sup>1</sup>, Mark D. Jenkins<sup>1</sup>, Kenji Watanabe <sup>2</sup>, Takashi Taniguchi<sup>2</sup> & Gary A. Steele<sup>1</sup>

<https://doi.org/10.1038/s41467-018-06595-2>

### Data availability

All raw and processed data as well as supporting code for processing and figure generation is available in Zenodo with the identifiers

<https://doi.org/10.5281/zenodo.1296129><sup>43</sup> and

<https://doi.org/10.5281/zenodo.1408933><sup>44</sup>.



# TU Delft Research Data Framework Policy - Key points:

- Data stewards to facilitate the development & implementation of discipline specific faculty policies.

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- Every research project to have a plan for data management.
- All PhDs from 2019 to attend data management training.
- All researchers to document and share research data, code and any other materials needed to reproduce findings in a research data repository in line with FAIR principles (unless there are valid reasons not to do so).

# How to monitor cultural change?

Results of the first RDM survey – to be repeated yearly:

Is your research data automatically backed up?

	3mE	AE	AS	CEG	EEMCS	TPM
Yes	38%	35%	43%	41%	47%	45%
Not sure	10%	13%	19%	13%	13%	27%
No	52%	52%	38%	45%	40%	28%

<https://openworking.wordpress.com/2018/02/07/do-as-you-preach-results-of-2017-data-management-survey-now-published/>

# Challenges and Future Prospects

- Is one Data Steward per faculty enough?
- Is three years enough for cultural change?



# Challenges and Future Prospects

- Is one Data Steward per faculty enough?
  - Community building together with the Data Champions
- Is three years enough for cultural change?
  - Not an end, just a beginning

# Some more info & Questions?

- Data stewardship:
  - [www.tudelft.nl/library/datastewardship/](http://www.tudelft.nl/library/datastewardship/)
  - <https://openworking.wordpress.com/>
- TU Delft Research Data Framework Policy
  - <https://d1rkab7tlqy5f1.cloudfront.net/Library/Themaportalen/RDM/researchdata-framework-policy.pdf>
- Research Data Management Support:
  - <https://www.tudelft.nl/en/library/current-topics/research-data-management/>
- 4TU. Centre for Research Data:
  - <http://researchdata.4tu.nl/en/home/>

# RDM support at TU Delft

