From Passive to Active
The Future of 4TU.Centre for Research Data

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TU Delft Library / 4TU.Centre for Research
Max Planck Digital Library - Open Science Days 2017
175 years of TU Delft

- Delft University of Technology (TU Delft) currently celebrates its 175th year of existence

- Comprehensive focus on engineering and technical subjects, high research intensity
TU Delft Library

- The modern university library unites library-services with research and education support services
Research Data Services

• Part of the Research Services

• Provides support and advice on data management during the research

• Offers training for PhD students and above, and staff
4TU.Centre for Research Data

- Certified and trusted long term archive for research data
- Central Data archive for the 4 Technological Universities of the Netherlands
- Front offices in University of Twente and University of Technology Eindhoven
4TU.Centre for Research Data

- Specialised on technical and science research data
- Assigns DOI’s and applies Dublin Core metadata
- Curates deposited data before publishing online
- Guarantees at least 15 years of data findability and re-use
- Complies to FAIR data demands
2017

The Year of Change

Photo by Petar Petkovski on Unsplash
Three New Streams

• New funding requirements for projects starting 2017
  • FAIR Data
  • Data Management Plan
• New Data Stewardship programme at the TU Delft
  • 8 new research data supporter across campus
FAIR Data Principles

• Making research data
  • FINDABLE
  • ACCESSIBLE
  • INTEROPERABLE
  • REUSABLE

• Evaluation of the ‘FAIRness’ of 37 Dutch data repositories and data archives done in November 2016
FAIR Data Follow Up Work @ TU Delft

- Focus on community standards and best practices
- Improve the ‘Interoperability’ and ‘Reusability’ characteristics of datasets in the archive
- That includes better documentation and metadata
Sandmotor Data

• The Sand Motor on the Delfland Coast was created in 2011 as a peninsula covering 128 hectares
Dataset: Field measurements on aeolian sediment transport at the Sand Motor mega nourishment during the MegaPeX field campaign

Data URL: http://opendap.tudelft.nl

Global Attributes:
- Conventions: CF
- Metadata_Conventions: grid
- cm_data_type: g
- standard_name: YO

Variables:
- timeSeries:
  - long_name: Unique
  - cf_role: timeseries
- time:
  - long_name: time
  - standard_name: time
  - units: seconds since calendar: julian exis: T

Data obtained by cooperation with Delft University of Technology for the MegaPeX field campaign in the Netherlands. The data is available in a format that can be used for further analysis and planning.
Ingøya Gaping

- Average gaping activity per month of 16 specimens of Arctic islandic + environmental factors of Ingøya, northern Norway
Environmental factors regulating gaping activity of the bivalve Arctica islandica in Northern Norway

The gaping activity of Arctica islandica specimens was calculated as the proportion of gape at each station. This index was calculated using the number of gapes per individual from Table 1 in the study's data. The nearest tidal station to each sampling site was identified using maps and satellite imagery.

Data source:
https://data.4tu.nl/repository/uuid:eb5bdbd9-10ee-4280-a4d7-65595f86bc5
Data Stewardship Programme

• A Data Steward with expert knowledge about the research in the faculty

• Improved knowledge about data management

• Eight faculties at TU Delft, one data steward each
Data Stewardship Programme

• Purpose and tasks
  • Understand and facilitate data management needs
  • Establish and implement best practices
  • Change research culture towards Open Science
Find your Data Stewards

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From **Passive** to Active

Driver to improve services and infrastructure

- Current data archive is strong with **F & A** and handles ‘passive’ research data
- Future data archive needs to amplify **I & R**
From Passive to Active

Driver to improve services and infrastructure

- The demand on support for during the project tenfold due to DMP demands
- **Data Stewards** built network to facilitate research and help with ‘active’ research data management
Active Data Management

Enable and support data management during the project

- Automatic metadata generation
- Automatic tracking of versions and changes
- Synchronized and real-time editing of data
- ‘One Click’ export and packaging for archival purposes
Active Data Archive

- Able to satisfy needs of several research subjects
  - Subject-based metadata + standardized documentation
  - Special features for special data types
  - API layer to enable data visualisation and data querying
  - Open / Linked / Semantic Data
Discussion: Open Research Data

- Currently all Data in 4TU.Centre for Research Data is openly available

Open Data vs. FAIR data

- Currently at stage of building critical mass of qualitative FAIR data

REUSE of data not reality
Discussion: Motivation for Open Data / Science

• Availability of open data prevents waste of valuable resources

Only if trust is established
Discussion: Motivation for Open Data / Science

- Published data enables new research

Gradual steps: faculty < university < world
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