



Delft University of Technology

TU Delft Open Science Programme 2020-2024 Research and Education in the Open Era Evaluation 2023

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Research and Education in the Open Era

TU Delft Open Science Programme 2020-2024 Evaluation 2023

Frank van der Hoeven

Anke Versteeg

Tanya Yankelevich

Version 02-02-2024



Colophon

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Executive Secretary Anke Versteeg;

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1. Introduction

The Open Science Programme 2020-2024, Research and Education in the Open Era, (OSP in short) addresses key areas of scholarly engagement where restrictions limit the flow of academic knowledge. It proposes innovative approaches to the process of research, education, and innovation, with a strong focus on academic rewarding and recognition, collaboration with third parties, and the development of skills.

The programme started in January 2020 with five interrelated projects: Open Education, Open Access, Open Publishing Platform, FAIR Data, and FAIR Software. The projects aim at creating and disseminating distinct types of resources for the benefit of TU Delft researchers, teachers, and students, as well as the broader public. They range from educational materials and software to a publishing platform. The outputs of the programme will be as open and FAIR as possible: findable, accessible, interoperable, and reusable. In 2021 two more projects were officially adopted by the Open Science Programme after a successful exploration phase: Citizen Science and Open Hardware. Each project addresses the following three preconditions for successful implementation: ensuring appropriate rewards and recognition, facilitating fruitful collaboration with third parties, and identifying the necessary skills. These are therefore incorporated in the programme as cross-cutting themes for all projects.

Portfolio holder of the TU Delft Open Science programme is VRM Rob Mudde. The programme is coordinated by a steering committee and is managed by a programme team. Chair of the steering committee is Irene Haslinger, director of TU Delft Library. The other steering committee members are Jan Dirk Jansen, Dean of the Faculty of Civil Engineering and Geosciences (representing all faculties); Sacha Kroonenberg, director of Education and Student Affairs (ESA; representing all university services) and Frank van der Hoeven, who also chairs the programme team. The core team, also called the office, that assisted Frank van der Hoeven directly to manage all projects and themes, consisted of Anke Versteeg (executive secretary), Tanya Yankelevich (engagement manager), Ymke Bresser (communication manager) and Martha Otte (secretary).

This report is a reflection on the question whether the goals/deliverables of 2023, the last year of the Programme, were achieved, overall and for the several projects.

The year 2023 was also used to create a follow up programme for the next four years. This programme and a year plan for 2024 will be published separately.

Portfolio Holder



Prof.dr. Rob Mudde
Vice Rector Magnificus

Steering Committee



Chair
Dr. Irene Haslinger
Director Library



Programme Manager
Dr. ir. F. D. (Franklin) van der Hoeven



Drs. A. (Sacha) Kroonenberg



Prof.dr.ir. Jan Dirk Jansen

Programme Office



Executive Secretary
Anke Versteeg



Communication Manager
Ymke Bresser



Secretary
Martha Otte



Community Manager
Tanya Yankelevich

2. Evaluation 2023

Project: Open Education

Overall goals achieved within the project in 2023

- Structural embedding of open education within all education processes of one of the faculties**

The faculty of A&BE agreed to do a pilot with an open education advisor in the faculty, who would advise and assist teaching and support staff with embedding open education within their education processes. This approach has yielded insights into the educational processes of the faculty. The faculty in turn has gained new insights into how open education can improve their educational processes.
- Research and development of infrastructure for publishing open textbooks and open educational resources**

There is a lot of interest in publishing open textbooks and open educational resources across campus. We see the potential value of SURF Sharekit/Edusources infrastructure that SURF offers and Jupyter Books as textbook publishing software. The pilot with Jupyter Books shows promising results. The pilot with SURF Sharekit/Edusources shows that the platform needs further development if it is to be adopted by TU Delft. The results of these pilots are used in our strategy and vision for open infrastructure in the new Open Science Programme.
- Establishing a collaboration and workflow for open education with the various education-related services of TU Delft, with the goal of incorporating the aspects of open education into the (already existing) skills development programs for TU Delft education staff.**

We are currently setting up a joint strategy for Open Education advisors together with TLS (ESA). We have developed a training on teaching with open educational resources that was given to an international project group in May and that will be available to all staff from Delft, Leiden and Erasmus universities (LDE collaboration) to enrol starting November 2023.

Overview of activities/deliverables

Teacher Training (Open Education in UTQ)

A 1-day training program on teaching with open educational resources was developed in collaboration with Classroom, an international group that involves the faculty of CEG.

- The Classroom training materials and a booklet based on the Classroom training materials are published on Zenodo.
- The training was developed in consultation with the UTQ team of ESA.
- The training was given in May 2023, with positive reception from Classroom.
- The training has been developed into a TU Delft training and is being piloted at the Continuous Professional Development (CPD) program of TLS and has been [published](#) for international use.
- If the pilot is successful, the training will be hosted in TU Delft several times per year.

Updated strategy and vision for Open Education beyond the OSP

With the end of the OSP in sight, we reassessed our strategy and vision for open education for the future. During the year it became clear that a follow-up programme to the OSP was going to be formulated, with Open Education taking up an important part. With our ambition to have Open Education become the norm at TU Delft by 2030, we formulated three pillars for open education:

- Open Educational Resources
- Open Systems
- Open Pedagogy

Central to our strategy for developing these three pillars is representation within the faculties through open education advisors. In 2023 we piloted this approach at the A&BE faculty.

Open Textbooks Innovation

We have successfully initiated the Jupyter Books project together with the AS faculty.

- The project team has created a community of over 20 active authors of interactive open textbooks.
- Together with TU Delft Open Publishing we have started the publishing platform for [Open Interactive Textbooks](#) (OIT). Five Open Interactive Textbooks were published in 2023, with an expected 10 more in the first 6 months of 2024.
- The organization of OIT is set to be transferred to TU Delft Open Publishing by the end of the project term, March 2024.

Curation of Brightspace course content

We have initiated a project together with the A&BE faculty to analyse the entire collection of the BSc programme's Brightspace course pages, using the copyright tool. The project results:

- An inventory of the kind of teacher generated educational content that is stored in Brightspace and the status of this content with regards to copyright and potential to reuse.
- Advice on strategic direction to faculty management for making their educational content open.
- Insights for the OE team in how to organize this process with other faculties.

Open Education Stimulation Fund

We have successfully launched a call for proposals for grassroots projects led within the TU Delft faculties. The figures:

- 25 applications, of which 11 were eligible for funding.
- A total of 181k was awarded, of which 75k has been spent by October 2023.
- Two projects are finished by October 2023, the rest will be finished by February 2024.
- A symposium will be organized in March 2024 to showcase results of the project.

A new call was initiated in September 2023, the new cohort is scheduled to start in February 2024.

OCW 2.0 Pilot

After concluding our stakeholder analysis in 2022, we decided to focus on researching the potential of implementing SURF Sharekit/Edusources as platform for sharing OER and OCW.

- We have started a project with the A&BE faculty and Studio Vi to implement this platform for TOIpedia.

- The project started in November 2023 and will run until May 2024.
- The projected result is an interactive platform with OER, that is connected to Sharekit for content storage.
- If the project is a success, we will upscale this throughout the university for other faculties.

Team



Michiel de Jong (Library Education Support): Open Education Project Lead and Library Open Education Coordinator



Marcell Varkonyi: Open Education Specialist
(Funded by OSP)



Wouter Gerritsen (Morgens bv): Project Support for the Open Education Project
(Funded by OSP)



Timon Idema (Faculty of Applied Sciences): Initiator and Orderer Open Interactive Textbooks



Carola van der Muren (Faculty of Applied Sciences): Project Manger Open Interactive Textbooks



Michiel Munnik (Library Education Support): Project Manager Technical Infrastructure



Jacqueline Michielen
(Library Education Support):
Administrative Coordinator
Open Textbook Publishing and
Copyright Expert



Paschalis Kontanas (Library
Education Support):
Copyright and Contract Expert

Other activities

Representation

We have presented the results of the open education project at the following events and conferences:

- IFLA 2023
- Open Education Global
- Open Science Festival
- Open Science Community Twente event
- SURF themabijeenkomst platformen en systemen
- SURF themabijeenkomst visie en verder

Activity 2

Timon Idema won a SURF Onderwijsaward for his work on Open Interactive Textbooks: <https://www.surf.nl/winnaars-surf-onderwijsawards-2023>

Project Open Access

Overall goals achieved within the project in 2023

Deliverable: Implementation Taverne as part of TU Delft Policy

- All short scientific work with a starting date of 01-01-2022 are made open access, except for publications whose authors have chosen for the opt-out possibility.
- Delft Executive Board decided on 8 November 2022 to institute the TU Delft Short Scientific Work Scheme as a policy as part of the terms of employment. The scheme started 01-02-2023.
- A [webpage](#) with context and an opt-out form was designed and communicated towards the TU Delft researchers.

Goal: Co-Creation of open access publications

TU Delft OPEN Publishing has been working closely with several publishers to publish the books of authors affiliated with Delft in open access modus. This is done on the basis of mutual interests and based on affordable financial principles.

Deliverable: aim of 3 books published in 2023 as part of co-creation. In reality [6 books](#) are published this way.

Goal: Manage APC's in the wild

Deliverable: smaller publishers as OSA, SPIE and EDP-sciences are [now licenced for the open access output on an institutional level](#) by the Library. There will be no individual invoices coming from these publishers

Goal and deliverable: Update TU Delft open access policy

- The TU Delft open access policy, dated 2016, was outdated and the information of the open access instruments were scattered.
- A new policy entitled TU Delft policy and guidelines of open access publishing was conducted and reviewed by the open science community in the period June-August 2023.
- The final version of the policy was brought to the Executive Board (CvB) September 2023 and confirmed by a 'mandaatbesluit' which was signed on 14-11-2023.
- The revised TU Delft open access policy starts officially on 01-02-2024.

Team



Just de Leeuwe
Project Lead Open Access
and Publishing Consultant



**Michiel de Jong (Library
Education Support):**
Head of Open Textbooks
and Open Interactive
Textbooks



**Jacqueline Michielen
(Library Education
Support):** Administrative
Coordinator Open
Textbook Publishing and
Copyright Expert



**Paschalis Kontanas
(Library Education
Support):** Copyright and
Contract Expert

Other activities

Goal: availability of textbooks through TU Delft OPEN

- VSSD decided in the Fall of 2022 to cease publishing activities by its publishing arm Delft Academic Press (DAP).
- TU Delft OPEN Publishing have successfully concluded the contract negotiations with DAP to take over 18 titles of their portfolio of textbooks.
- We have published 6 of them as open textbooks in collaboration with open publishing, the next 12 will be published throughout 2023 and 2024.
- We have published 3 other regular textbooks and 2nd editions.
- DAP was financially compensated for this buyout with a one-time donation from the collection budget of TU Delft Library.
- The [complete story](#) of the DAP-acquisition text books.

Connecting FAIR data with open access publications

OA publishing and Open Data are good practices that have been well recognized and adopted by TUD researchers. At the [TU Delft](#), 82% of peer-reviewed articles and 71% of conference papers are published OA in 2021, but there is no record nor traceability process to assess how well TUD researchers have incorporated the Open/FAIR Data and OA publishing activities in their work.

This pilot project, started in March 2023, is led by 2 student assistants. They examine a chosen set of OA publications from TUD researchers and explore the practices people use when it comes to mentioning, sharing, and citing their data in the publications. An assessment framework has been developed and a community session has been carried out at the Open Science Festival, 31-08-2023. At the moment, a blog on the Open Science Festival SF session and a report on the findings of the project is close to completion.

Project: Open Publishing

Overall goals achieved within the project in 2023

We organised two events the codecheck hackathon as part of the peer-review of data and software pilot, and a panel discussion on peer review. We started piloting the use of ChatGPT to assist the journal of Aviation Science in the copy editing stage. To increase the visibility of our authors and editor, we have introduced the Authors/Editors spotlights that are publishing on our blog. We integrated Publons (Reviewer Locator & Reviewers Recognition) with our Open Journals System (OJS) in order to monitor journal engagement with reviewers, and as the pilot concludes, we are conducting UX interviews with editors, authors, and reviewers to evaluate both tools', impact on the publishing process and peer-review practices

Overview of activities/deliverables

Peer Review innovations: peer-review of data and software pilot

The pilot project on peer reviewing datasets and software, a collaboration between TU Delft OPEN Publishing and Research Data and Software teams, is experimenting with innovative open peer review processes that consider data and software as independent research outputs. It aims to make the methodology of data and software production more open and transparent, optimising reuse of data, enhancing reproducibility and promoting principles of Open Science.

The pilot has 3 phases. Phase one of the pilot focused on a) engaging people and communities interested in data, software, open publishing and open science, b) seeking collaborations through events, c) writing a guideline and idea for implementation, and d) testing the peer review guidelines.

Note: points c and d from phase 1 will be carried out in Q1 of 2024. Phases 2 and 3, which will focus on sustainable integration of data/software reviews into publication workflows and additional policy documentation of the project recommendations, will be deployed after 2024 Q1.

Communication and Engagement with researchers and teachers

Our communication and engagement efforts with researchers and teachers centred on a comprehensive strategy. We organized a panel discussion on peer-review to get collaborative feedback, and we initiated Authors/Editors Spotlights, recognizing academic contributions to promote a sense of community. Exploring the integration of open scholarly publishing advocacy in faculties, we aim to offer guidance on open-access publishing, funding and policies. We are looking into expanding our outreach beyond academia through public engagement initiatives, including plain language summaries for publications and blog posts.

Editorial Support

In response to some of our researchers' preferences, we enlisted a student proficient in Latex to assist with transforming publications/templates. Another student focused on creating a generic book template, streamlining the book creation process, and ensuring consistency, and professionalism. Additionally, we are exploring the integration of AI for copyediting, and enhancing language and grammar checks to maintain high-quality outputs in our publications.

Reviewer Recognition

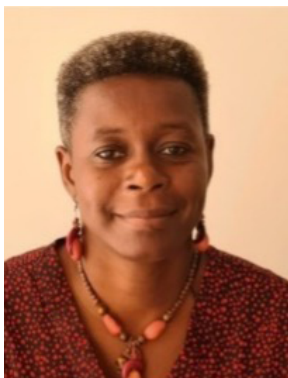
We succeeded to make one step forward for the recognition of the reviewer work by the

publication of our first open identity open reviews reports in our journal The Evolving Scholar. The reviews are available immediately after submission, linked to the reviewed paper. A publication workflow for open peer-reviews was made from scratch with technical development and editorial services put in place for plagiarism check and DOIs assignment for traceability of the reviews and visibility of the reviewers.

At the request of researchers, organisers of conferences, we implemented the publication of reviews with anonymous reviewers. These review reports are open for the transparency of the review process but the recognition for these reports falls entirely under the control of the reviewers to mention or not their review activity on a peer-review platform. This initiative aligns with our commitment to fostering a transparent and streamlined peer review system within our academic publishing framework.

One of the platforms for the reviewers' recognition allowing researchers to showcase and prove their peer review and editorial engagements is the former Publons – now Clarivate Reviewer Recognition platform. To be able to follow the activities of peer-review of TU Delft researchers, as a pilot initiative we introduced Clarivate services of Reviewers Recognition to six of our open-access journals. The access to the monitoring with the Reviewer Recognition tool is firstly, a tool for the journal editors to encourage the reviewers invited to their journal to showcase their peer-review activities by establishing a documented record that can contribute to their career development; and secondly, it gives us access to data that can be used by our analytics services to proactively showcase and increase the visibility of peer-reviewers.

Team



Frederique Belliard,
Project Lead Open
Publishing



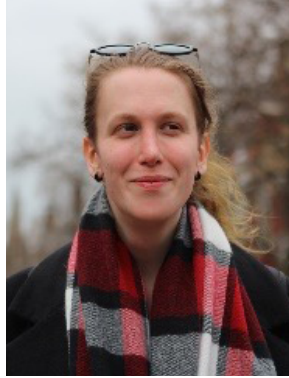
Saba Sharma,
Project Lead Peer-review
of Data and Software Pilot
(Funded by OSP)



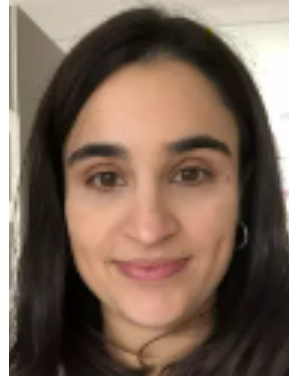
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Ashley Hemerik, UX
Designer



Juliana Pitanguy,
Publishing Operations
Officer



Junzi Sun, Assistant
Professor, Editor in Chief
of the Journal of Open
Aviation Science



Afra Knaap, Msc Student
at BK

Other activities

Peer-review innovation: TU Delft CODECHECK hackathon

On September 18, 2023, codecheckers Daniel Nüst, Stephen Eglén, and Jeremy Cohen collaborated with TU Delft participants to discuss and demonstrate codechecking—an open, collaborative code review process focused on enhancing research project reproducibility. The workshop began with an introduction to codecheck principles and a live demo of a successful codecheck on a TU Delft project. Breakout groups engaged in hands-on codechecking of projects submitted by researchers, providing valuable feedback. The workshop concluded with a reflection session on integrating codechecking into research workflows and addressing challenges such as recognition, widespread adoption, and sustainability.

Communication & Engagement:

Peer Review under Pressure – how do we ensure research publications are of high quality?

The panel was composed of two editors-in-chief of a diamond open access journal and one guest from Utrecht University. The event started with an introduction of the status quo and new approaches to peer review by Bianca Kramer. This was followed by a lively panel discussion.

Here are the takeaway messages:

- Peer-reviewing and Kintsugi (the Japanese art of repairing pieces) Analogy: In both, constructive feedback and revisions strengthen a manuscript, transforming the review process into a valuable aspect of scholarly communication.
- Publishing Review Report:
 - ◊ Anonymity: To foster constructive feedback and prevent retaliation.
 - ◊ Two Tiers of reports - one for journal/book editors (classic report) and another for the reader/general public (non-technical report).
- Traditional or Open Peer-Review: Both approaches in diamond open-access journals work towards the same goal of openness, quality and disrupting the current publishing process.
- Journal Ranking: In diamond open access, journal ranking is very important as it ensures the quality of the journal, removing doubts.
- Paying Reviewers: It may be very expensive and requires much administration, therefore, alternative approaches such as recognition at the institutional level and incorporation into the job description of researchers and teachers could be an option to acknowledge their efforts.

Authors/Editors Spotlight

We hired the services of a native English freelance writer and copy editor, Heather Montague. She interviews researchers and teachers who publish with us or act as editors. They have the opportunity to showcase their activities, passion and advocacy for open science and open publishing. Check our blog [here](#).

Open Scholarly Publishing Advocacy

We are running a pilot on Open Scholarly Publishing. We have a student from the BK faculty helping us to understand researchers' and teachers' publishing needs. She does this through one on one discussions with a set of questions. Three interviews have been performed and the reception has been good, with a disposition to collaborate in the pilot project and in the future. The interviewed scholars have shed some light on the common use of Open Data Publishing, the hiccups in the process, and their opinions on the possibilities it offers. Going forward, a varied pool of scholars with different positions at the Faculty, will be gathered in order to understand the current state of affairs in terms of publishing at a faculty and propose an adapted version of the services the department offers, according to their needs.

Plan Language Summaries (PLS)

We are exploring natural language processing tools to generate plain text summaries. We decided to explore PLS to increase the impact of publications. The summaries can be an instrument for bringing research closer to the public and sparking interest in a particular topic. Recently, we tested the tool with Cactus Communications to create plain-language summaries for five selected publications (textbook, book, conference and journal article).

Our prompt was:

Write 2 to 5 bullet points that 1) say in a non-technical language why the readers would be interested in the work, 2) describe the important findings and/or the aim/novelty of the article

We are currently sharing the outcomes with authors to gather feedback and evaluate the tool's effectiveness. We received one positive feedback, and the editor will be happy to have the PLS published alongside the publication. We will also be testing with readers at different levels of

familiarity with the field to see if the summaries are effective.

Editorial Support

AI to assist in publishing quality

We are currently exploring two routes:

- Copy editing
The [Journal of Open Aviation Science](#) relies on ChatGPT for the copy editing of accepted papers. We make use of ChatGPT to detect and correct language errors, such as grammar and spelling mistakes. It can also help the copy editors correct errors in the LaTeX files submitted by the authors.
- Language & grammar checks
The publishing team uses Grammarly or Paperpal to check the final version of a publication for quality assurance. Grammarly is limited to Word documents and 2MB, while Paperpal can also handle PDF to a maximum of 10MB.

LaTeX format

We hired a student expert in LaTeX to respond to the needs of our communities, especially for conference organisers. This pilot will run for a year after which we will evaluate.

Rewards and Recognition

The questions we wanted to answer:

- If the Reviewer Locator is speeding up the publication process for the editors and respectively, for the authors of our journals and
- if the Reviewer Recognition tool can be a solution to the deeper problem of the reviewer recognition in the context of Open Science.

The Clarivate tools were integrated with our main publishing platform, Open Journals System (OJS). As service providers, we used both tools to monitor the engagement of our journals with the reviewers. At the end of the pilot, both tools need to be evaluated. For this, we prepared a series of UX interviews, combined with a discussion on the publishing process and the peer-review practices in general.

From the active journals, a list of editors, authors and reviewers are selected for discussion on the peer-review process and the added value of the tool to their publishing process. The interviews with the editors are ongoing at this moment.

Project: FAIR Data and FAIR Software

Overall goals achieved within the project in 2023

The Digital Competence Centre (DCC) is an initiative of the Open Science Programme at TU Delft designed to benefit researchers at all levels to make research data and software FAIR, improve research reproducibility, and apply computing practices to increase the efficiency of the research process. Modern research increasingly relies on digital tools for collecting, processing, and storing data, as well as writing reusable code, (co-)developing software, and sharing results with the research community. To ensure effective utilization of these tools, it is essential for researchers to have the necessary digital skills, without which they will fall behind in their work.

The main goals for 2023 were improving FAIR Data and FAIR Software practices by developing training materials, discipline-specific guidelines and piloting a tool for active data management.

Overview of activities/deliverables

DCC (Data Managers and RSEs)

In 2023, the positions of original DCC members (4RSEs and 2 DM) were to be consolidated and expanded to 6 RSEs and 4 DMs. Although new RSEs and DMs were hired, 2 DMs left the DCC and one RSE vacancy remained open. We expect to be at full strength beginning of 2024.

In 2023, 7 support projects were taken on and finished

The DCC issued two new calls for support in 2023:

- January: **NEW** FAIR4RS program (see below in the section 'Other activities')
15 participants (PhD candidates and post-docs) enrolled in the 10-week programme. In the end, 7 participants presented their achievements. 5 participants filled out the evaluation questionnaire. The program was well received.
- September: Call for long-term support (3 to 10 months)
The DCC received 23 applications. Two of these were out of scope and were referred to the innovation department for support or consultation.

Development of a self-paced course on RDM for supervisors of PhD candidates at TU Delft

In consultation with PhD supervisors, we got feedback early in the project that it is unlikely (and undesirable) for them to take training due to time constraints. Therefore, the scope of the project changed towards creating a PhD supervisors' guide. The activities in 2023 can be summarized as follows:

- Formation of a working group involving TU Delft Library, Data Steward/coordinator, DCC team member.
- Consultation with PhD supervisors' about their needs.
- Creation of the structure of the PhD supervisors' Guide.
- Exploration and decision about the platform to be used (WordPress).
- Creation of a mock-up of the website.
- Consultation with PhD supervisors and working group about the specific content to be included.
- Start adding content to the website.

Due to the sick leave of the project lead, there has been a delay in the delivery date of the project. The guide is expected to be ready in Q1 2024.

Development of disciplinary research data/software management guidelines

The work on the guidelines started in July 2023. The work so far has focused on the development of the project plan, the design of the co-creation sessions and selection of the tool to use to work together with researchers. In Q4 2023, the co-creation session will be piloted with the data stewards and the RDM trainers of the library. The run of the co-creation sessions with research groups are planned for Q1 2024. Drafting of the guidelines and dissemination are planned for Q2 2024.

Pilot a new solution for “active” data management based on an open-source system iRODS.

Technical progress

The project started in May 2023 and is planned to run for 12 months.

The following achievements have been made to date:

- TU Delft iRODS instance has been successfully installed on an Amazon Web Service/Server (AWS) and is accessible via the command line using the username/aws-key certificate.
- An iRODS-based, user-friendly interface called ManGO, developed by KU Leuven, is hosted on the AWS iRODS server, enabling access to iRODS via a web browser from any operating system. At present, ManGO is operational and accessible upon request. It is also undergoing ongoing technical updates, including enhancements to security, login configurations, and the development of new policies.
- A proposal to participate in the SURF iRODS Community Edition (iCE) pilot was submitted to and supported by the SURF iRODS team. This initiative allows the TU Delft iRODS team and a group of TU Delft researchers to explore the potential of using SURF's iRODS infrastructure for storing and managing data uploaded to iRODS. It also facilitates collaboration between the ICT, Library and SURF to develop a seamless and secure data management solution, aligning with the requirements for data integrity and accessibility.

The pilot infrastructure allows test users to securely and conveniently manage, access and share data hosted on the server.

Collaborations and events

Pilot team has actively engaged in a series of face-to-face meetings with professors, research groups, data managers, and data stewards. This proactive outreach led to a fruitful collaboration with a geothermal project known as DAPWell, managed by the CEG Faculty within the TU Delft campus. The DAPWell project encompasses the collection, processing, and utilization of an extensive array of data types, serving a wide spectrum of users including technicians, engineers, data stewards, managers, students, researchers, and professors. Subsequently, we participated in various gatherings and workshops, including Open Science Day, TU Delft's data stewards meeting, and Research Support Day.

Team



Julie Beardsell
Coordinator DCC (NWO funded)



Meta Keijzer-de Ruijter,
Process Manager DCC,
Project Manager FAIR
Software



Yan Wang
Project Manager FAIR Data



Maurits Kok
Research software
engineer DCC
(Funded by OSP)



Yasel Quintero Lares
Research software
engineer DCC
(Funded by OSP)



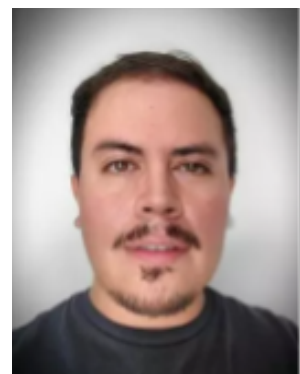
Masha Rudneva
IRODS Project Manager



Niket Agrawal
Research software
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(Funded by OSP)



Selin Kubilay
Data Manager DCC
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Raúl Ortiz Merino
Data Manager DCC
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Manuel Garcia Alvarez
Research software
engineer DCC
(Funded by OSP)



Jose Urra Llanusa
Research software
engineer DCC
(Funded by OSP)



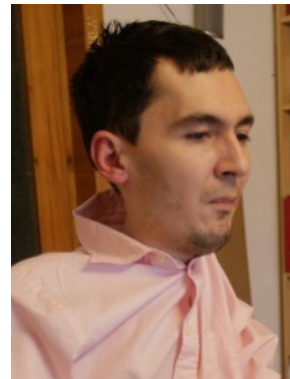
Aleksandra Wilczynska
Data Manager DCC
(Funded by OSP)



Asya Backlund-Kochkurova
Project Lead Disciplinary
Research, Data/Software
Management Guidelines
(Funded by OSP)



Fardad Maghsoudi Moud
Data Manager iRODS
(Funded by OSP)



Iulian Craciun
Software Developer IRODS
(Funded by OSP)



Paula Martinez Lavanchy
RDM Training Coordinator

Other activities

Workshop on Version control & Collaborative development for Research Software

A 4-module workshop on Version control & Collaborative development for Research Software was developed and piloted twice in 2023 as a collaboration between TU Delft Library and the DCC. This workshop provides the skills to researchers for effectively managing source code and introduces them to best practices for successful collaboration and management of research software. This workshop will be embedded in the training year plan of the centrally organised training for PhD candidates and researchers.

Thematic DCC's

Our DCC team is involved in the set up and development of the thematic DCCs that are being created on a national level. Manuel Garcia Alvarez is active in the DCC-Natural and Engineering Science (NES).

FAIR4RS program

The DCC developed a hands-on 10-week mentoring program following up on the CodeRefinery Workshops. During the course of this program, participants implemented the practices from the workshop into their own research project. In the weekly sessions various ICT colleagues also joined the sessions to help the participants and better understand their needs.

Redesign of the Module on FAIR and Open Software (MOOC Open Science)

Maurits Kok and Meta Keijzer-de Ruijter completely redesigned the module FAIR and Open Software, which is part of the Open Science MOOC by TU Delft. They piloted a new format in both storyline and video recording. The MOOC ran for 4 weeks starting October 25, 2023.

Project: Citizen Science

Overall goal(s) achieved within the project in 2023

- **Explored the design for services for ethical, legal and privacy support.**
Throughout the year, the Citizen Science team held several meetings with staff members dealing with ethical, legal and privacy-related issues to support researchers. As a result of these meetings, a representative of the legal team, Derya Ada, has joined the roster of Citizen Science champions, a group of people who can support researchers with various aspects of citizen science projects design and implementation. Derya will be available for one-on-one consultations with researchers, as well as work as part of the citizen science team to deliver guidelines and templates on all three topics: ethics, legal and privacy aspects for citizen science.
- **Provided capacity-building support to researchers who would like to/already use citizen science as their research methodology.**
Monthly lunch lectures were delivered throughout the year to support building a peer-to-peer learning community at TU Delft. During these lectures, TU Delft researchers and invited speakers shared their experience, challenges and ways they resolved problems in their citizen science projects, while the community asked questions and/or explored solutions and other alternatives in an interactive format. Some of the materials used during these lectures can be found on the community page on [Zenodo](#).

Overview of activities/deliverables

Ethical, legal and privacy support

Together with a new representative of the Legal Services, the project team has developed a working structure for dealing with any legal and privacy issues a researcher might face during the citizen science research project. The process includes a details template for consent forms or 'partnership agreements', as well as one-on-one consultations with the legal services representative whenever needed. The template will be developed next year.

Due to the staff changes on the Human Ethics Committee, a roadmap for working with the committee has been postponed to next year.

OPUSH implementation

The project team has grown to include a full-time PostDoc researcher, Phoebus Panigrakis. In the course of the project implementation, three pilots have been identified as focus areas together with the local partners: Delft Municipality, OPEN (Delft public library) and several local grassroots organisations. Short description of pilots is below.

- **Energy labelling for monument houses in Delft** (in cooperation with [Duurzaam015](#)):
The project focuses on analysing data collected by the volunteer energy coaches from Duurzaam015 to better understand the concerns of citizens in monument houses in Delft and devise an alternative energy labeling system for such houses.
- **Delft Meet (in cooperation with TU Delft Science Center):**
[Delft Meet](#) has continuously benefitted from support from the citizen science team. Since 2020, the project has grown from using manual rain gauges to weather stations and soil sensors and offered opportunity to 5 bachelor and master students to write their thesis and to be involved in the project for data-analysis and public engagement. The multi-year dataset on rainfall patterns in Delft continues to grow, providing data for both scientific goals and climate adaptive remodeling by the Delft municipality. In 2021, OUSH and Delft Meet joined forces to explore the relationship between Delft Meet's methodology and urban sustainability in the local context of Delft. For a short and

interactive overview see: [Delft Measures Rain \(readymag.com\)](https://readymag.com)

- **[Check je plek \(in cooperation with researchers from Utrecht University\)](#)**
This pilot is in its early stage of development. The focus will be on identifying what makes public spaces interesting and fun for children and proving practical suggestions for improvement for the Delft municipality. The pilot will work directly with children to collect and analyse the data.

Content development and storage

After a careful analysis and discussion with the community, a decision to include a project showroom to give spotlight to TU Delft citizen science projects has been made. Initial project inventorisation has been challenging and will remain an ongoing process in the coming years. The basic structure with several projects will be implemented on the website in December 2023. The structure will resemble that of the [EU-Citizen.Science](#) website to make the interoperability of the websites possible in 2024.

Training and Community

Monthly sessions were organized in different faculties to foster the community growth and facilitate peer-to-peer learning. Most sessions included about 20 people, some successfully attracted over 50. Most sessions focused on the research and lessons learnt from TU Delft, while other included invited guest from other educational institutions and European Space Agency.

The Citizen Science Module of the Open Science MOOC, run annually by TU Delft, was adjusted based on the results of 2023, and ran smoothly as part of the larger course.

With the goal of raising awareness about Citizen Science, growing the community and highlighting the work of its members, Citizen Science stories were published about several such sessions:

- [Storytelling can make a better world](#)
- [Challenges of collecting raindrops and data in Africa](#) (CiTG)
- [Academic change is necessary to fully reap the benefits of citizen science](#) (BK)

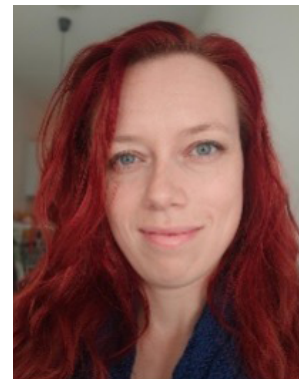
Team



Tanya Yankelevich, Open Science Community Manager, Project lead for Citizen Science
(Funded by OSP)



Nicoleta Nastase
Innovation Advisor



Marit Bogert, Content Coordinator, TU Delft Science Center



Douglas McCarthy
Head Library Learning Centre



Ymke Bresser
Manager Library Communications

Other activities

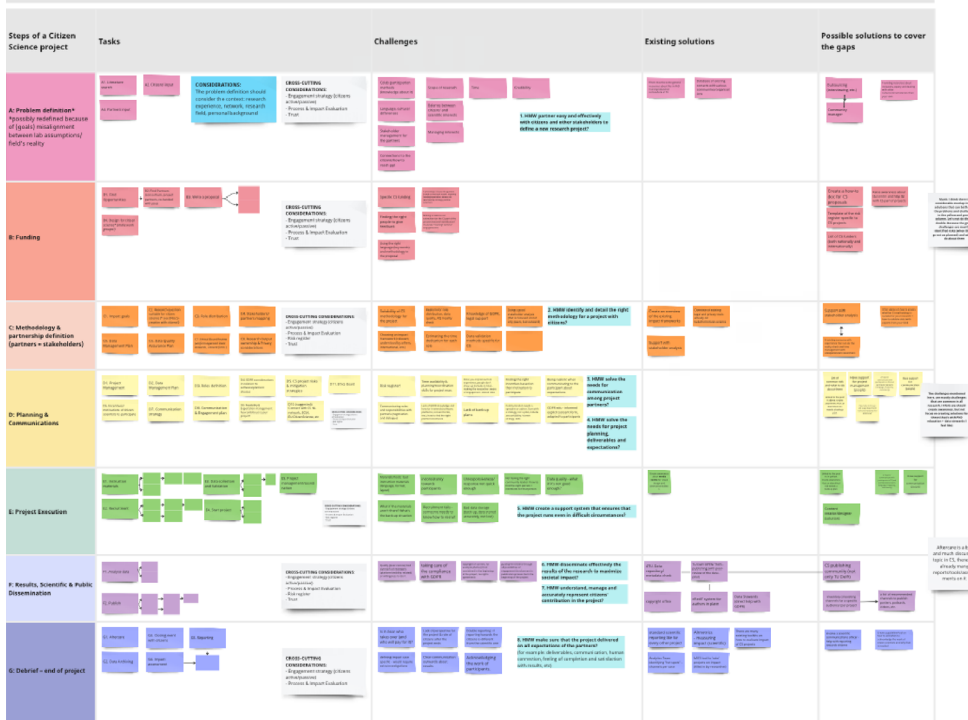
National representation

Tanya Yankelevich, the project lead, represents TU Delft and the Open Science programme at the national CS-NL network. The network had two national meetings in 2023.

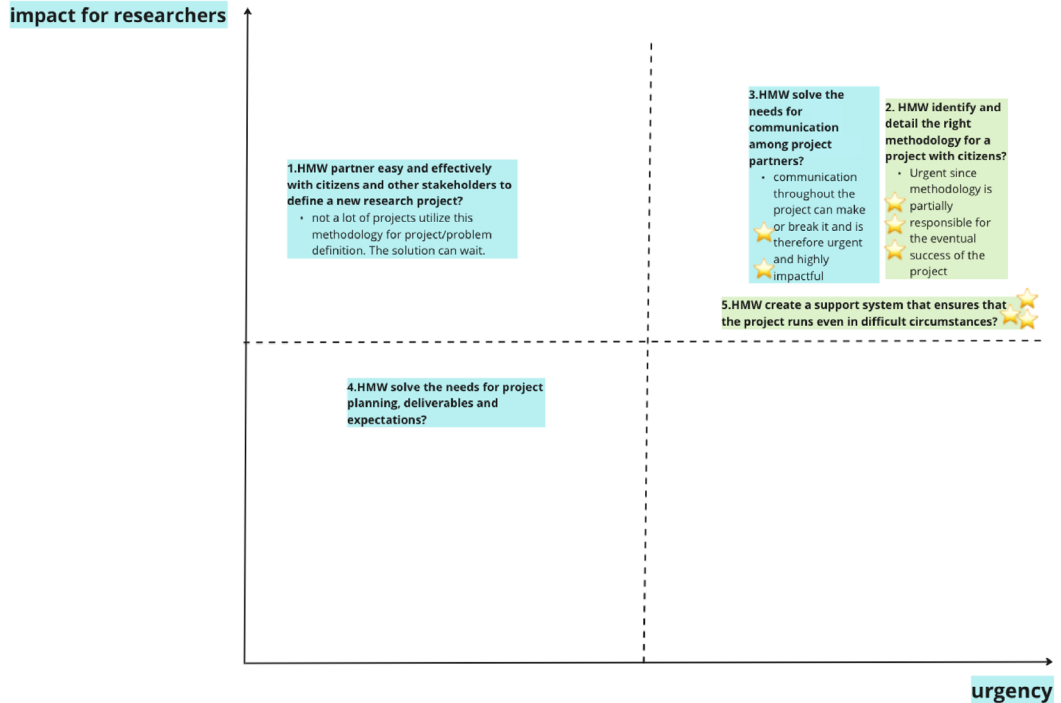
Co-creation of a service map with researchers

From August to November 2023, three consecutive co-creation sessions were held with researchers at TU Delft who utilize Citizen Science methodology in their research. The sessions were focused on identifying separate steps in Citizen Science projects, from the ideation stage to project completion, challenges associated with each step, and potential solutions that require support from the university research support services that could be developed. As a result, two separate services have been mapped out that will be followed by the Citizen Science team in the coming year.

Citizen Science project breakdown Results



Opportunities - Impact vs Urgency



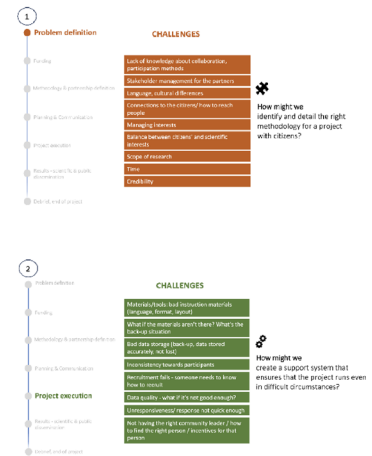
CITIZEN SCIENCE AT TU DELFT - SERVICE DESIGN - Session 2

CO-CREATION SESSION 2 - Citizen Science Ideation
 Date: 26th of October Duration: 1h
 Participants: ...

SUBJECT TO CHANGE:

Ideation (two teams)

- How Might We (HMW)... (solve an opportunity)?
 - Take the first question HMW, and think about possible solutions (± 5 min). Write down as many ideas as you can on post-its.
 - Place them on the A3 sheet and group them (5 min)
 - Change places with the other team and build up on their solutions (5 min)
 - Take 3 stickers and vote on the best idea.
- How Might We (HMW)... (solve an opportunity)?
- Take the missing solutions and put them on a quadrant urgency vs importance (impact) and choose accordingly (15min)



Service Proposal 1. ...

Name of this case Citizens determining the problem statement

What? Which is the service?
 KNOWLEDGE OF / ACCESS TO EXISTING COMM. CHANNELS (DIRECT)
 • BUZZT ALERT
 • WHATSAPP
 • NEIGHBOORHOOD APPS
 • LIBRARY / COMMUNITY CAFE

Why? Which problem do we want to solve?
 IDENTIFY A PROBLEM THAT IS RELEVANT, INTERESTING
 MOTIVATION OF PARTICIPANTS / CITIZENS

For who? Who are the users of this service? What are their characteristics?
 CITIZENS ↔ SCIENTISTS

From who? Who offers the service? Is it provided?
 SCIENTISTS + RESEARCHERS + CITIZENS

Make or break (PAIN) What would make this service fail?
 LANGUAGE BARRIER, LACK OF INTEREST, LACK OF RESULT (PEP), LACK OF TRUST

Make or break (GAIN) What would make this service succeed?
 COLLECTIONS NETWORK, THE PROBLEM, ACTIONABILITY

Uniqueness What makes this service different from existing services?
 FIELD 4002 COMMUNITY

Next? What is the next step? What could be the next steps?
 PENETRATION OF NEIGHBOORHOOD COMM. CHANNELS

STEP 1:
 A PERSON @ TU DELFT

Service Proposal 2. ...

integrate different ways of knowing in the scientific science

What? Which is the service?
 - Journalism / Reporting
 - Help with developing proposal (PEP)
 - The bridge for CS activities with a program
 - help with publishing activities of knowledge
 - translating science from CS making it accessible with public community building for university programs

Why? Which problem do we want to solve?
 Existing issues

For who? Who are the users of this service? What are their characteristics?
 Researchers (not that)

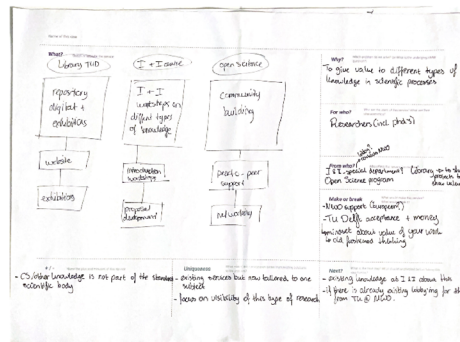
From who? Who offers the service? Is it provided?
 Researchers (not that)

Make or break (PAIN) What would make this service fail?
 - It's a general statement (focus on the Open Science program)
 - Also support (support)
 - TU Delft, safeplace + money
 - research about value of your work
 - old business building

Make or break (GAIN) What would make this service succeed?
 - CS-knowledge is not part of the science
 - science research but now belongs to one subject
 - focus on visibility of this type of research

Uniqueness What makes this service different from existing services?
 - CS-knowledge is not part of the science
 - science research but now belongs to one subject
 - focus on visibility of this type of research

Next? What is the next step? What could be the next steps?
 - existing knowledge on CS is about the
 - it's not taken as seriously/questioned more than projects that are based on more scientifically conventional methods and data.



I think the most important underlying point here is that we felt like "other" knowledge was not appreciated/recognized enough, by funders, but also especially within TU Delft. It's a "cute/nice" thing to do, but it feels like it is always subordinate to "real" data from researchers.

Something else was that people who do value other types of knowledge, don't always know how to convey that to others, especially funders. Therefore the support structure is needed. More funding also gives more opportunity to make yourself visible, which may help in creating more broad acceptance of other types of knowledge in research.

The two researchers on this "team" (Arjan and Geertje) recognized that when they talk on conferences about the project they do with other knowledge. It's not taken as seriously/questioned more than projects that are based on more scientifically conventional methods and data.

Initial steps towards the creation of the Civic Engagement Hub

The rough concept of the Civic Engagement Hub was created, along with the mapping of the potential partners to involve in the Hub's creation and implementation. Most identified partners within TU Delft were contacted and signed up to be part of the Hub. In order to facilitate a more non-hierarchical approach to the co-creation of the Hub, two kick-off meetings with the partners were held in which the overall idea was confirmed, and a schedule and working format for the next year was outlined.

Initial steps towards projects' and researchers' inventorisatation

The need to identify researchers who utilize Citizen Science methodology in their research, as well as the types of projects they implement became apparent early in the year. The inventorisatation process started in February, and will continue on an annual basis. Several approaches have been utilized in the process, including assistance from the library in identifying researchers based on their publications, desk research and community outreach.

Project: Open Hardware

In 2023, TU Delft's Open Hardware Program marked a significant stride in fostering and elevating open-source hardware within the academic realm. This initiative's core mission encompasses supporting, recognizing, and stimulating open-source hardware endeavours, and firmly positioning TU Delft at the forefront of the Open Science movement, especially with regard to Open Hardware. Key undertakings of the program included developing in-house expertise, exemplified by accolades like the distributed design award, and the pioneering Open Hardware Academy program, which has educated a diverse range of participants from students to independent researchers. The program's commitment extends to organizing monthly specialized workshops, providing crucial support in research hardware engineering for projects such as the MIDGE badge and the Schistoscope, and actively shaping policy in collaboration with national and international bodies. Through these multifaceted efforts, the Open Hardware Program at TU Delft has not only enhanced the university's contribution to open science but has also cemented its role as a leader in integrating open-source hardware into education and research.

Overall goal(s) achieved within the project in 2023

- Support, monitor, reward, recognize and stimulate open-source hardware projects and authors at TU Delft.
- Contribute to the positioning of the TU Delft open science program as a front runner of Open Science by showcasing the role of open hardware in academic University Open Science Programs.
- Build resources and services for the community of open science and open-source enthusiasts at TU Delft.
- Institutionalise and professionalise open-source hardware in the context of education and research at TU Delft.
- Attract and develop essential open hardware expertise in our team to be able to properly support our community.
- Collaborate with the national and international communities of open-source hardware.
- Attract and stimulate diversity and inclusion of people with different backgrounds of expertise and roles.

Overview of activities/deliverables

Build in house expertise and professionalization on open hardware

With these activities we ensured that our open hardware team builds professional expertise in the topic of open hardware engineering. For this we have created a role of a Research Software Engineer profiled so that a person with real expertise in open hardware becomes part of our team. Achievements that prove our RHE has built and recognized expertise in open hardware include, (a) Winning the distributed design award, (b) Development of repository important Open Hardware projects from within the the Netherlands and from around the world.

- Precious plastic pilot Mauritius, Algeria, and Himalyas (Make it fit).

Developed and delivered a full training program on open hardware

We have delivered the Open Hardware Academy program focused on training people in principles of open hardware development twice. This activity allows us to scale the advancement of open hardware in the context of open science at TU Delft and

internationally. It also fosters the creation and opening of research open hardware at the TU Delft and also outside the TU delft. We have supported 2 PhDs, 4 Master students by means of the Open Hardware Academy at TU Delft. We also have supported over 20 external participants including PhDs, undergraduates, independent researchers, and engineers in two years. Furthermore, it adds to Open and Online educational resources.

Delivered monthly seminars and workshops on specific topics

We delivered monthly meetups as seminars or workshops focused on specific topics of open hardware

- Examples: 3D printing workshop, Electronics and PCB workshop, SDR workshop, SONY presense board in collaboration with SONY company, HPC with raspberrypis.
- Delivered documented lessons for some of these workshops to be reusable.

Supported specific projects with Research Hardware Engineering expertise:

Projects that included hardware outputs as part of their research were provided with hands-on support. This could include the core research output where the development of the hardware was the goal of the research or hardware that were constitutive parts of the research that were necessary for the research to take place.

- MIDGE badge at the EWI faculty.
- Schistoscope at the IDE faculty, An automated microscope and system to detect schistomiasis neglected tropical disease.
- Supported Master thesis with open-source expertise, materials Aquisition and visibility.
- Supported Master thesis of two students to make it open source.

Co-created policy advice for the National Open Science Program by means of a position paper on Open Hardware in collaboration with Wageningen and Utrecht Universities.

A position paper on Open Hardware titled [“Creating an Open-source Hardware Ecosystem for Research and Sustainable Development”](#) was collaboratively written and shared widely. The goal of the paper was to increase attention and allocate more resources and support for open hardware projects through providing a consistent narrative on the opportunities available and the capabilities that could be built by embracing open hardware. Both the national and the international perspective on this were provided.

Represented TU Delft Open Science Program at key events

- Open science festival workshop 2023
- Maker faire workshop 2023
- Talks at: Open Hardware summit, SOSHA conference, MIT open metrology
- Collaboration with OSHWA, open hardware international association, SONY, Utrecht University, Wageningen, RDA

Team



Santosh Ilamparuthi,
Data Steward and Project
Lead Open Hardware



Jerry de Vos, Research
Hardware Engineer
(Funded by OSP)



Andjela Tomić, Senior
Technical Developer



Jose Urra Llanusa, Research
Software Engineer

Cross-cutting theme: Rewards and Recognition in the Open Era

Overall goal(s) achieved within the cross-cutting theme in 2023

In the first three years of the Open Science Programme we worked closely together with the project team of Rewarding and Recognition at the TUD. Their specific task ended at the end of 2022 with the report on how to [implement the national report 'Room for everybody's talent' at the TUD](#). The team and the project discontinued in 2023. We learned that in 2024 new colleagues will take up the task again. We'll work together with them again as soon as possible.

Team



Evan van de Leur
Project lead Recognitions &
Rewards

Cross-cutting theme: Fruitful Collaboration with Third Parties

Overall goals achieved within the cross-cutting theme in 2023

- Have a clear view on the desired approach regarding the topic of IP MSc Repository;
- Incorporation of the subject of guidelines for Open Science in the existing project of the Kerngroep Contracten;
- We have provided our input to the advice on the topic “werkgeversauteursrecht”, and we have now a full advice to be presented to SSPG;
- We have made great progress towards a framework on the legal status of data, particularly ownership of data.

Overview of activities/deliverables

Planned deliverables:

1. IP MSc Repository
2. Guidelines for a fruitful collaboration with third parties
3. UNL working group “werkgeversauteursrecht”
4. Data Problems Analysis

IP MSc Repository

In January 2023 Rob Mudde and the Working Group have discussed the approach and procedure to continue with this subject. The outcome is to include a text in the OER and to have an agreement in place with the student regarding the publication of the thesis via the repository. This approach had also been discussed with ESA, O&S of the faculties and the Library.

Guidelines for ‘Open Science’ in Contracting

The Kerngroep Contracten is still working on the policy/guidelines and on contract-clauses for all legal topics. Seeing the increasing (legal) importance of Open Science and to secure a coherent contracting-policy in TU Delft, this deliverable will be incorporated in this policy. For a few topics, e.g. liability and confidentiality, a draft policy is already available. We expect to have a draft policy available for Open Science in 2024.

UNL Working Group “Werkgeversauteursrecht”

On behalf of TU Delft, Derya Ada from Legal Affairs participates in this working group. The working group has been very active in 2023 in answering the question whether harmonisation of the so-called “employer copyright” (in Dutch: werkgeversauteursrecht) is possible within all Dutch universities. Meanwhile, the advisory report is ready, and it has been reviewed after a first round for input at the LJO (het Landelijk Juristen Overleg). The revised advisory report is now ready for submission to the Secretary and Chair of UNL Steering Committee SSPG on November 16, 2023.

Data Problems Analysis

Regarding this topic, external advice was obtained in 2023 to set up guidelines about assessing who owns the data. This question is a frequently asked question and a controversial one. In order to answer this question, a working group was formed, starting from the advice. A draft is now available to be used as a guide for the assessment of this working group. The concept will now be worked out in more detail, with the aim of making it ready for use in 2024.

Team



Derya Ada
Senior Legal Council



Rianne van den Bogerd
Lawyer

Cross-cutting theme: Skills

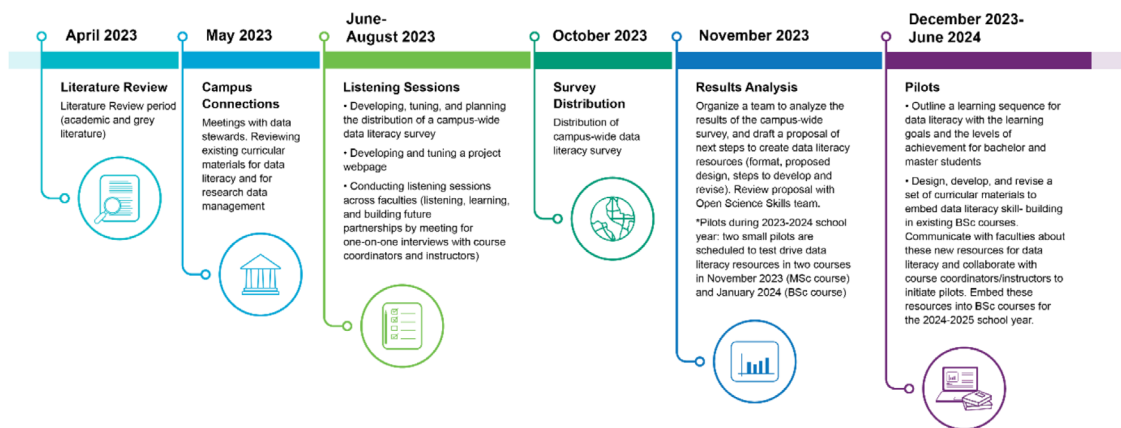
The Data Literacy Project

Overall goals achieved within the cross-cutting theme in 2023

- March 2023: Launch of the Data Literacy Project, a crosscutting skill initiative.
- October 2023: Completion of a campus inventory for data literacy skills (defined as key project objective).
- December 2023: Report on the results of the campus inventory, which will define a framework of data literacy skills at the BSc and MSc levels, and make recommendations for pilots (defined as key project objective).

Overview of activities/deliverables

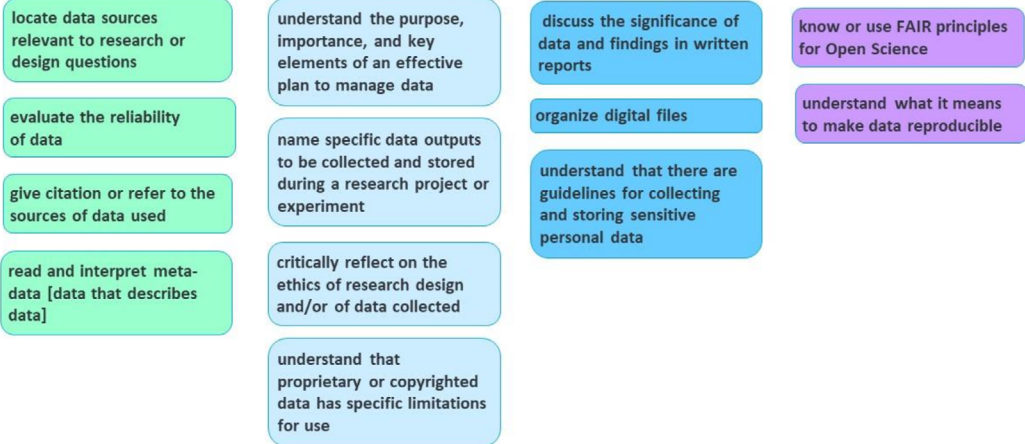
Project Timeline 2023:



Definition of Data Literacy

A first step for the project was to develop a definition of data literacy in general as well as within the context of TU Delft and its faculties. Our definition was grounded first in a literature review. We continued to build a conceptual framework and began to cultivate partners during listening sessions with course coordinators and instructors across faculties at TU Delft. In these conversations, we asked questions such as: what type(s) of data do students need to be able to work with in your field/the level you teach? Where would additional resources be helpful? In what ways can data literacy skills help students better access course content and scaffold research design? We reviewed the transcripts from these listening sessions to identify trends, and to analyse if there were themes specific to design or engineering-oriented programs. This early work informed our research questions for a campus-wide inventory survey, and helped us to identify 13 crosscutting data literacy skill competencies most relevant to BSc and MSc education on campus (see diagram below):

Data Literacy: Crosscutting Competencies



Campus-wide Data Literacy Survey

- Development and tuning of a campus-wide survey, which included adherence to TU Delft privacy guidelines through an Opening Statement for informed consent.
- Distribution and promotion of the survey in the faculties.
- Transfer of the survey data to a secure project storage folder.
- Cleaning, visualization, analysis of survey data.
- Received HREC approval to share anonymized results in publication in the future.
- Visit Data Literacy Survey Dashboard here (*Insert a link to survey when Tableau dashboard is available).

Organization of Pilots

The following Quarter 3 and Quarter 4 pilots are currently in planning:

Data Literacy Project Pilots 2023-2024

Timing	Faculty/ Program	Level	Course Title	Data Literacy Skill Target	# of students
Dec. 2023	TPM, CoSEM	MSc	Multi-Actor Decision making *co-created with Library Academic Skills team.	Skills to access data: locating data in grey literature	50
April 2024	ABE, CEG, AE	MSc	IL3, Module B: The Data Literacy Project has joined the Library Education Support Team's existing work to revise a module of Information Literacy 3 (an academic skills course for master's students). Specifically, we are now co-creating Module B, which focuses on key data literacy skills. This pilot module will be developed in consultation with data stewards and RDS.	Planning for data management, data storage, guidelines for working with human subjects, images and copyright	
March 2024	3ME, Clinical Tech.	BSc	Bachelor's final project *Pilot materials to be designed in partnership with RDS, 3ME data steward.	Planning data into research design: aligning survey and interview questions to research focus, data safety and risk assessment	100
Feb.- June 2024	EEMCS: Computer Science	BSc	Technical Writing Module (led by ITAV instructor) *Pilot materials to be designed in partnership with RDS, EEMCS data stewards.	Skills for data in written communication: storytelling with visualizations, creating effective captions, synthesizing findings in writing, evaluating credibility of data sources	200

Additional Resources:

- Data Literacy Project webpage, developed by the Library Communications Team, summer 2023: <https://www.tudelft.nl/en/open-science/about/themes/data-literacy-project>

Team



Paige Folsom
Data Literacy Project Lead

Other activities

1. Gave a presentation titled “The Data Literacy Program at TU Delft” at the fall assembly of LOOWI (Landelijk overleg orgaan wetenschappelijke instellingen).
2. Participated as a non-credit-bearing student in the spring 2023 Research Data Management course.
3. Participated in spring 2023 Software Carpentry workshop organized by the Digital Competence Centre.

Open Science Community Delft (OSCD)

Overview of activities

Mainstreaming Open Science Fund

Eleven projects funded by the Open Science Programme through the Mainstreaming Open Science Fund were finalized in 2024. The nature of these projects was different from the standard research funding, since they focused on community building and/or advancing Open Science practices across TU Delft. Some projects were able to extend their impact beyond the TU Delft community, receive further financial and human resources support from the faculties to continue their activities. Others encountered difficulties which prevented them from achieving all the results, and instead offered an opportunity for improving some of the Open Science-related services (e.g. 4TU.ResearchData repository) offered at TU Delft. The results of the projects proved significant and will be published on the Open Science Programme website throughout 2024.

Community Growth

The community continued growing, with 5/10 people requesting to join OSCD on a monthly basis. In addition, smaller initiatives, like Open Digital Humanities, Data Champions, Rbanism, R Cafe, Citizen Science, Delft Open Hardware and Linux Users continued growing in numbers and variety of activities that they offered to their members. The total number of members as of December 2023 is about 250, representing a variety of researchers, teachers and support staff.

Establishment of the OSCD Board

In order to facilitate a better representation of the community in decision-making and provide advice in steering the community activities, an OSCD Board was formed in August 2024. The Board currently consists of 16 community members representing 8 faculties and the TU Delft Library, and meets on a monthly basis. In October 2023, the OSCD Board applied for 3-year NWO Impuls Open Science Community funding to finance administrative support and networking and training activities. The funding was confirmed in December 2023.

Strengthening sub-initiatives

The OSCD community manager liaised with the leaders of various sub-initiatives and supported them with strategy development for community growth and enrichment, as well as coordination of several thematic activities, such as the Turing Way book sprint or a Datathon.

Networking

Various thematic events (Citizen Science, R language, FAIR Data/Software, Open Hardware, Open Digital Humanities, Peer Review, etc.) were held throughout the year to support networking and training for the OSCD community members. One annual larger networking event focused more broadly on Open Science was held in September. The event was organized jointly with 4TU.ResearchData, and attracted over 80 OSCD members and other colleagues and friends of the Community from other Dutch universities and NWO.

(Inter)national representation:

Tanya Yankelevich, the OSCD community manager, represents the OSCD, its concerns, ambitions and positions in the INOSC, [International Network of Open Science Communities](#).


INOSC holds regular meetings and represents Open Science communities. Tanya has on occasion acted as a couch for other community managers. Tanya also represents OSCD at the national level through her participation in [OSC-NL network](#). The network advocates for Open Science at the Dutch national level, and holds regular meetings.

Team



Tanya Yankelevich
Open Science Community Manager,
Project lead for Citizen Science
(Funded by OSP)

INTRODUCING THE OPEN SCIENCE COMMUNITY DELFT BOARD

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Open Science Stories

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- [Open Educational Resources help master's students to start off on the right foot](#) (CiTG)
- [Mathematics and Open Science as drivers of urban transport systems](#)
- [Storytelling can make a better world](#)
- [Challenges of collecting raindrops and data in Africa](#) (CiTG)
- [Academic change is necessary to fully reap the benefits of citizen science](#) (BK)
- [Breaking down barriers to open science step by step](#) (TBM)
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- [When frustration leads to inspiration for open science](#) (TNW)
- [The importance of open science for the maritime industry](#) (ME)

