# Professionalising the Research Software Engineer and Data Steward roles - towards models for collaboration and good practice

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FAIRsFAIR Roadshow Finland - 2 June 2021

Overview

- Background: FAIRsFAIR Policy and Practice
- Why are roles being professionalised and why does collaboration matter?
- What is FAIRsFAIR doing about it?
- Professionalising Research Software Engineers
- Professionalising Data Stewards
- Common themes, routes towards good collaboration
- Next steps for FAIRsFAIR
- Discussion
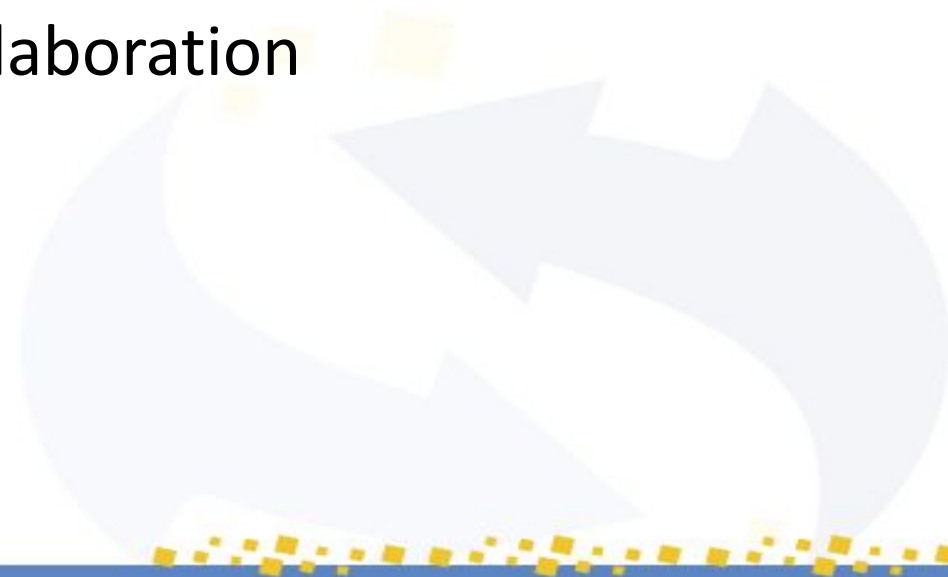
FAIRsFAIR www.fairsfair.eu

To supply practical solutions for the use of the FAIR data principles throughout the research data life cycle. Emphasis is on fostering FAIR data culture and the uptake of good practices in making data FAIR.

T3.3 will develop and implement standards for FAIR data management and support uptake. We will identify areas of practice … where changes would have greatest effect in furthering the FAIR principles…

European Commission

Final Report and Action Plan
from the European
Commission Expert Group
on FAIR Data

**TURNING
FAIR INTO
REALITY**

Research and
Innovation

2018

Policy and practice recommendations

FAIRSFAIR

Project Title	Fostering FAIR Data Practices in Europe
Project Acronym	FAIRsFAIR
Grant Agreement No	831558
Instrument	H2020-INFRAEOSC-2018-4
Topic	INFRAEOSC-05-2018-2019 Support to the EOSC Governance
Start Date of Project	1st March 2019
Duration of Project	36 months
Project Website	www.fairsfair.eu

D3.4 Recommendations on practice to support FAIR data principles

Work Package	WP3, FAIR Data Policy and Practice
Lead Author (Org)	Laura Molloy (CODATA)
Contributing Author(s) (Org)	Josefine Nordling (CSC), Marjan Grootveld, René van Horik (DANS), Angus Whyte, Joy Davidson, Patricia Herterich (DCC), Ivan Martin , Eva Méndez (UC3M), Pedro Principe, André Vieira (MINHO), Ari Asmi (UH)
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Version	1.0, DRAFT NOT YET APPROVED BY THE EUROPEAN COMMISSION
DOI	https://doi.org/10.5281/zenodo.3924132

❏ Defining the policy environment

❏ Developing sustainable business models

❏ Professionalising RDM training and engagement

❏ Supporting data management planning

❏ Defining interoperability frameworks

❏ Guiding the choice of data and services

❏ Ensuring trusted curation

Why are roles being professionalised?

European Commission

Final Report and Action Plan from the European Commission Expert Group on FAIR Data

TURNING FAIR INTO REALITY

Research and Innovation

2018

Priority Recommendation

Rec. 10: "Professionalise data science and data stewardship roles and train researchers":

Steps need to be taken to develop two cohorts of professionals to support FAIR data: data scientists embedded in research projects, and data stewards who will ensure the management and curation of FAIR data. All researchers also need a foundational level of data skills.

Why are roles being professionalised?

OECD *publishing*

**BUILDING DIGITAL WORKFORCE CAPACITY AND SKILLS FOR DATA-INTENSIVE SCIENCE**

OECD SCIENCE, TECHNOLOGY AND INNOVATION **POLICY PAPERS**
July 2020 **No. 90**

OECD
BETTER POLICIES FOR BETTER LIVES

Key recommendations for universities and libraries

Support the development of professional communities in emerging roles such as data stewards and RSEs, and for trainers and leaders of digital skills initiatives.

Why are roles being professionalised?
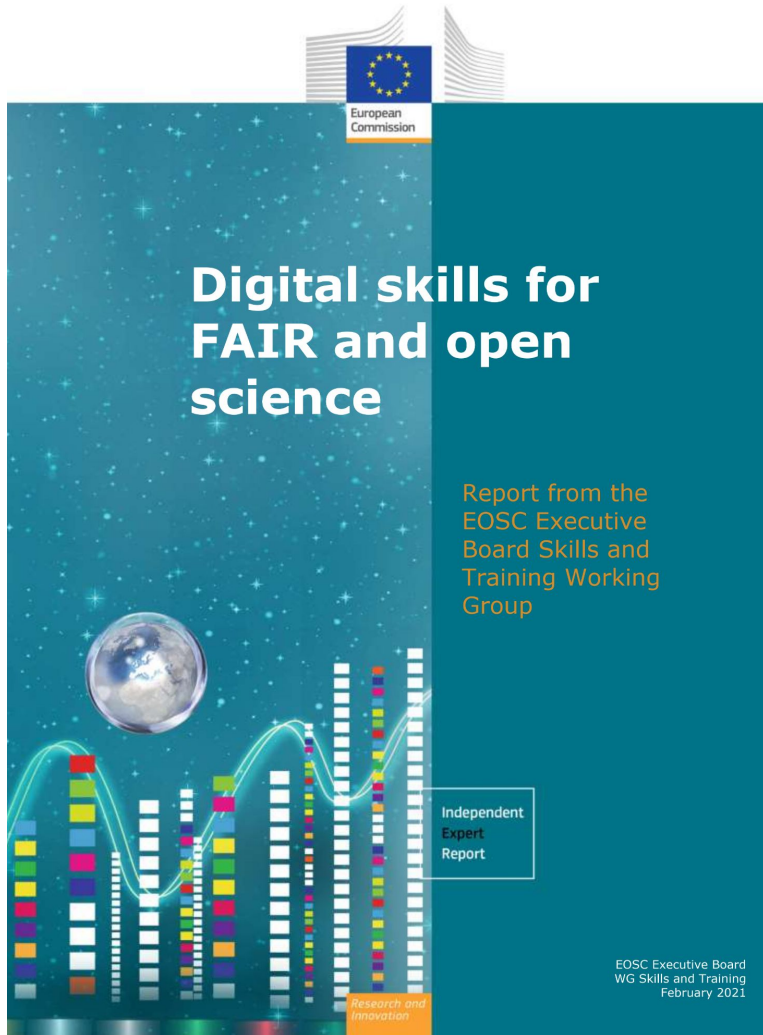
Research Software Engineers and Data stewards/Data librarians are identified as actors in the EOSC ecosystem

"What is clearly missing is a set of guidelines or similar support measures to help policy makers develop and formalise clear career pathways that are custom designed to target new research staff profiles aligned with open science." (p. 56)

What is FAIRsFAIR doing to support these?

- Working with others- e.g. RDA Professionalising Data Stewardship IG forthcoming survey on models of data stewardship provision
- Gathering examples - Implementation stories e.g. of how institutions coordinate the support capabilities to enable FAIR
- Framework for RDM services to self-assess levels of maturity of their capabilities, including support for professionalisation of roles
- FAIR Data Stewardship Professional Competence Framework (link)

What is a Research Software Engineer?

"A Research Software Engineer (RSE) combines professional software engineering expertise with an intimate understanding of research."
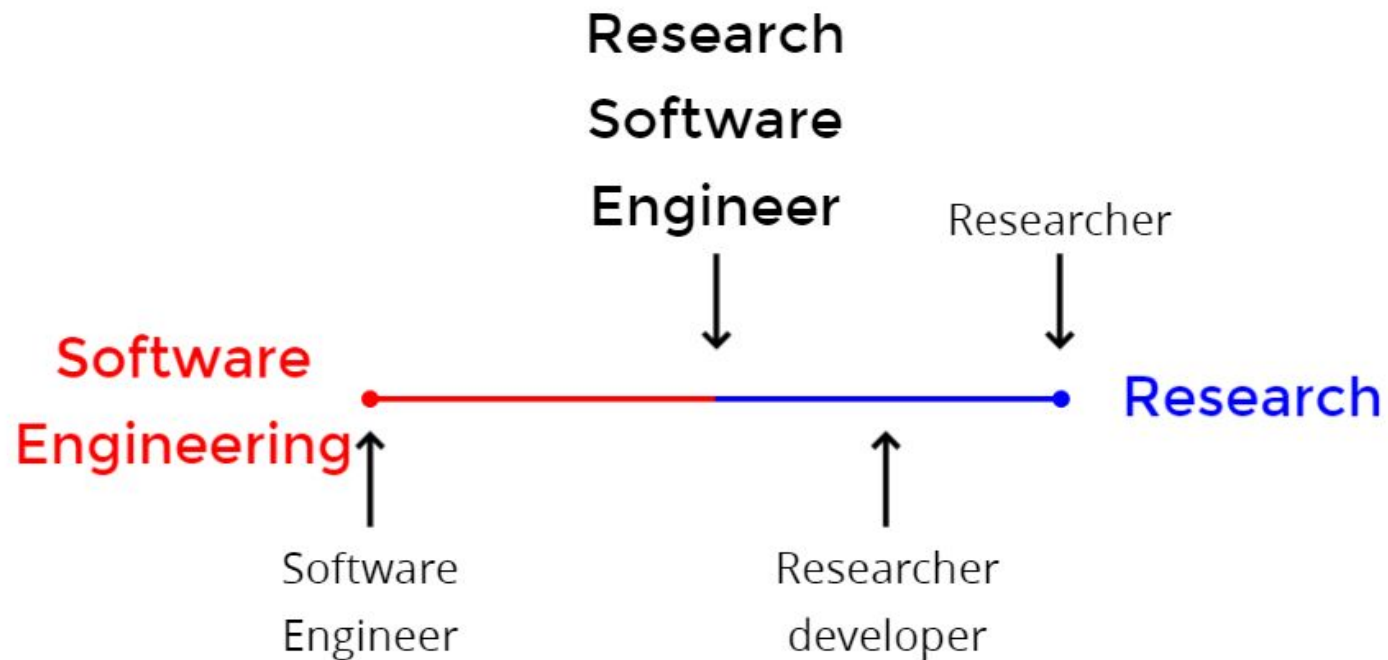
Professionalising Research Software Engineers

- Software is vital to research
- People who develop software must be recognised
- Career paths need to be created

Creating a network

- First workshop for RSEs in 2013
  - discussed organisation and co-ordination and resulted in the creation of the UK Research Software Engineers Association
- In 2015, EPSRC created RSE Fellowships
- RSE Conference, first held in 2016
- Network of RSE groups
- RSE leaders network
- RSE Society - replaced Association in 2019

Internationalisation

- Australia/New Zealand: @rse_aunz
- Belgium: be-rse.org, @rse_be
- Germany: de-rse.org, @RSE_de
- Netherlands: nl-rse.org, @nl_rse
- Nordic: nordic-rse.org, @nordic_rse
- UK: society-rse.org, @ResearchSoftEng
- USA: us-rse.org, @us_rse

Professionalising data stewards

- Professionalising "requires proper recognition of data stewards, career perspectives, suitable training, visibility, a good position in the organisation, focused coordination and an institutional policy" (LCRDM report)

- Partly about embedding data stewardship in university curricula- focus of FAIRsFAIR competence framework informed by increasing consensus about the relevant competences from recent projects (e.g. EDISON, EOSCpilot FAIR4S, ZonMW/ELIXIR, Danish Forum, LCRDM, OECD, NPOS Project F)

- Book sprint (this week) to offer practical material to support HEI staff in integrating FAIR in teaching and curricula, e.g. model courses, learning units, curricula, exercises, supporting material etc. - due December 2021

Stewardship - overlapping roles and responsibilities

Data steward as intermediary role

first point of contact for researchers to get help from others (?)
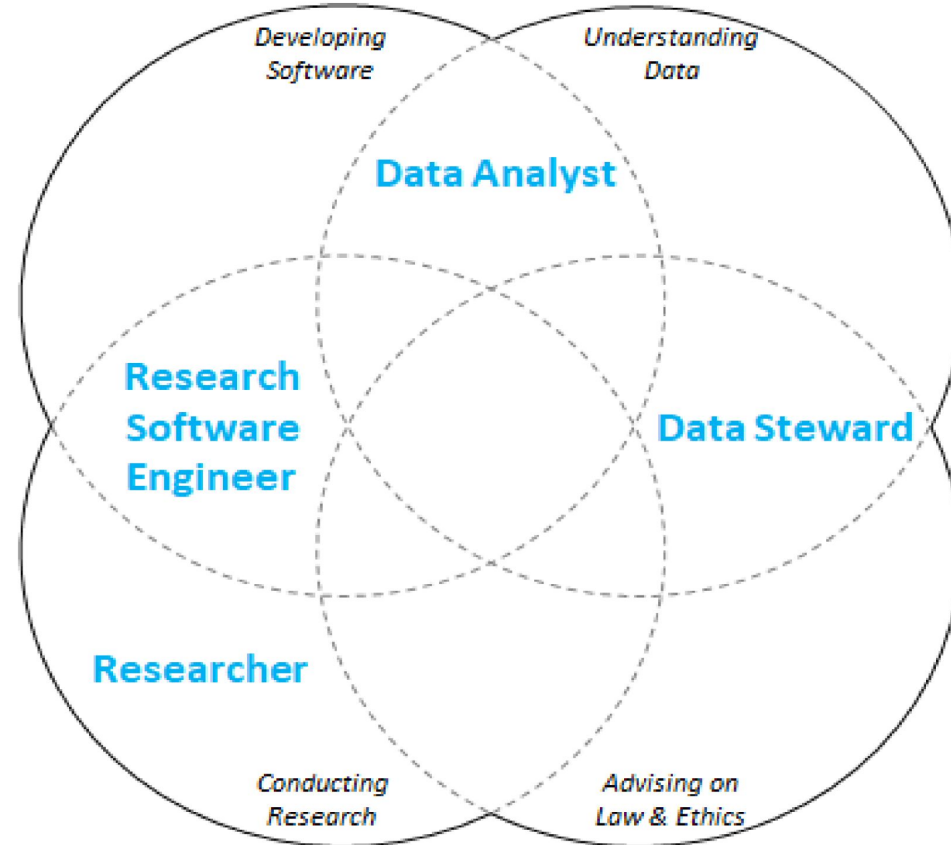

Figure 3 from OECD (2020), "Building digital workforce capacity and skills for data-intensive science", OECD Science, Technology and Industry Policy Papers, No. 90, OECD Publishing, Paris, https://doi.org/10.1787/e08aa3bb-en

Overlapping roles demand collaboration - but how?

"In reality, roles such as, data scientist, RSE, data analyst, data steward, data manager, data librarian, or digital curator, encompass a range of competencies but people with these job titles have different skill sets based on their particular speciality. In small research teams, generalists may be needed, whereas larger teams may have more specialist requirements."

OECD Digital Skills report, p.24

- Less work on models describing what makes these relationships work
- To help institutions and research group build effective teams and career paths for respective roles

Pointers from the Dutch Landscape

No single model for how these roles are situated in institutions

- But some common varieties of Data Steward role

Towards FAIR Data Steward as profession for the Lifesciences

Report of a ZonMw funded collaborati

ZonMw

Data stewardship on the map:

A study of tasks and roles in Dutch research institutes

National Coordination Point Research Data Management

Professionalising data stewardship in the Netherlands: competences, training and education

Dutch roadmap towards national implementation of FAIR data stewardship

nationaal programma **open** science

NPOS 2021, end report of the NPOS-F project team "Professionalising data stewardship", part of the NPOS FAIR data programme line

Pointers from the Dutch Landscape

No single model for how these roles are situated in institutions

- Focus on Policy, Infrastructure, or Research
- Embedded or Generic
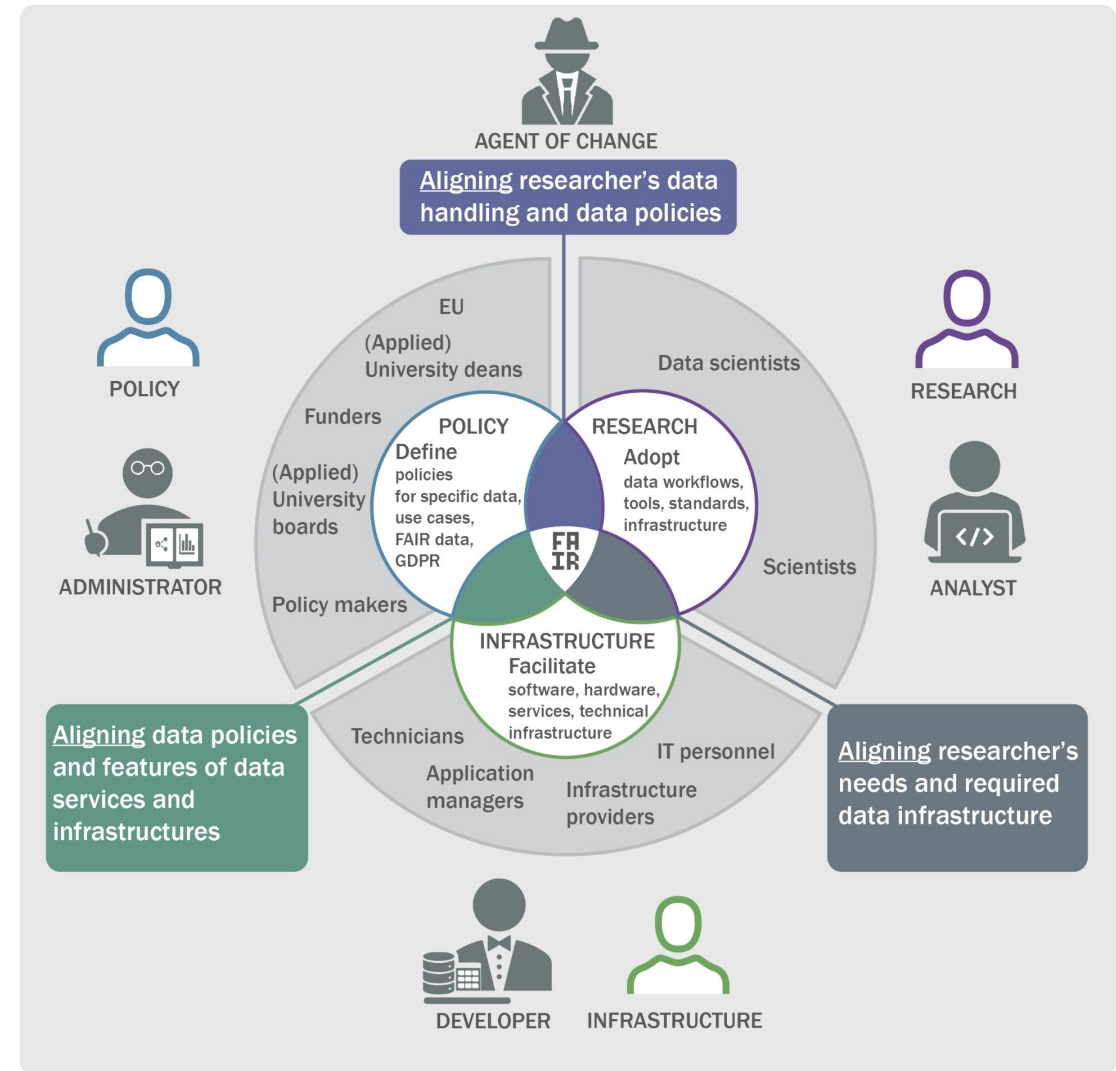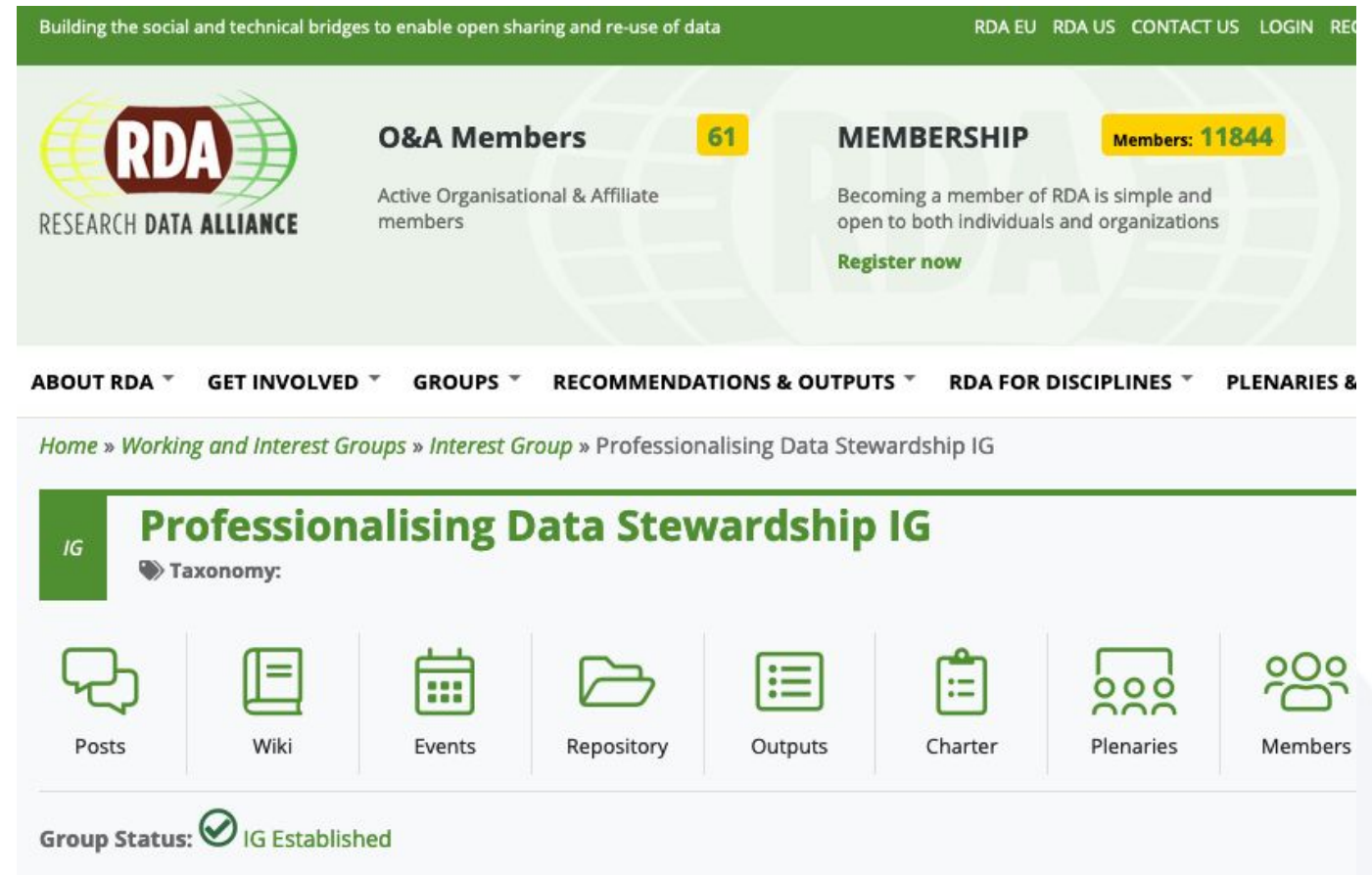
ZonMw/ELIXIR data stewardship roles in the data stewardship landscape

RDA Professionalising Data Stewardship IG

'Models' task group developing survey with FAIRsFAIR collaboration

- How do services that provide data stewardship roles vary?
  - Key functions offered
  - Target communities
  - Service maturity
  - Challenges
  - Organisational context

Related FAIRsFAIR activities

- Interviews for 'Implementation Stories' - case studies on how data stewards and/or RSEs are coordinated
    - What has led your organisation to develop these roles, and how do they complement each other?
    - How in practice does this work, e.g. how do people in these roles get allocated to specific research groups or projects, what justifies the costs, and what helps the support roles overcome challenges to work effectively together?
    - In what contexts have the Data Steward or Research Software Engineer roles made most difference, and how has this been recognised?
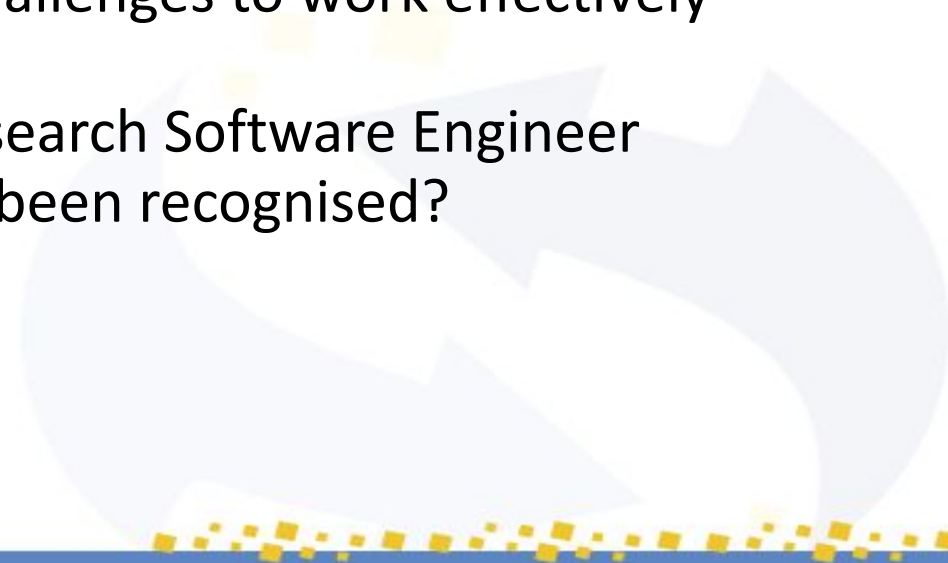
Common themes for DS/RSE Collaboration 'stories'

1. How tools to enable FAIR are being co-designed
2. How training courses are being co-developed
3. How workflows for providing support on policy compliance involve both roles

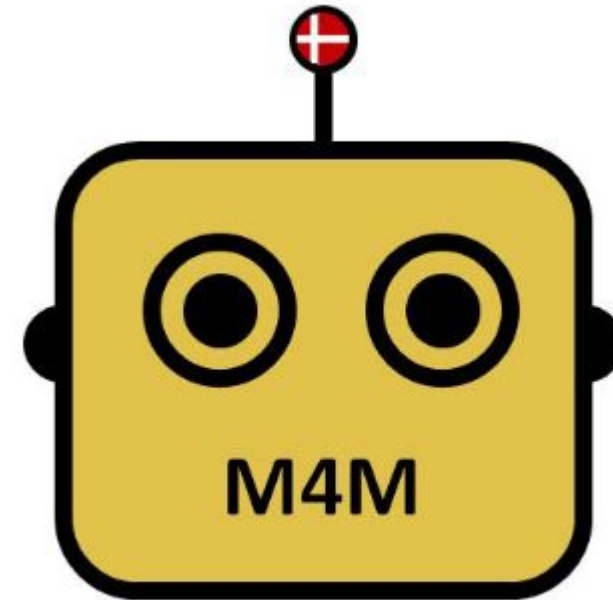FAIR Implementation Stories

Aims

Stakeholders

Steps taken

Challenges

Impacts

How tools to enable FAIR are being co-designed

1. DeiC FAIRification workshops with GO-FAIR to create metadata templates

M4M

![FAIRSFAIR logo - Fostering Fair Data Practices in Europe]

How training courses are being co-developed

1. Netherlands eScience Center and
   TU Delft course for Carpentries
   on FAIR Data for Climate Science

This lesson is still being designed and assembled (Pre-Alpha version)

eScience {academy} Home

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FAIR data for climate sciences

This lesson has been designed for researchers working in climate (related) domains. Its main aims are to provide a more concrete, domain-specific interpretation of the FAIR principles that have originally been formalated in rather abstract terms; and to foster the discussion on how to move forward as a field, for the implementation of the FAIR principles remains an ongoing effort.
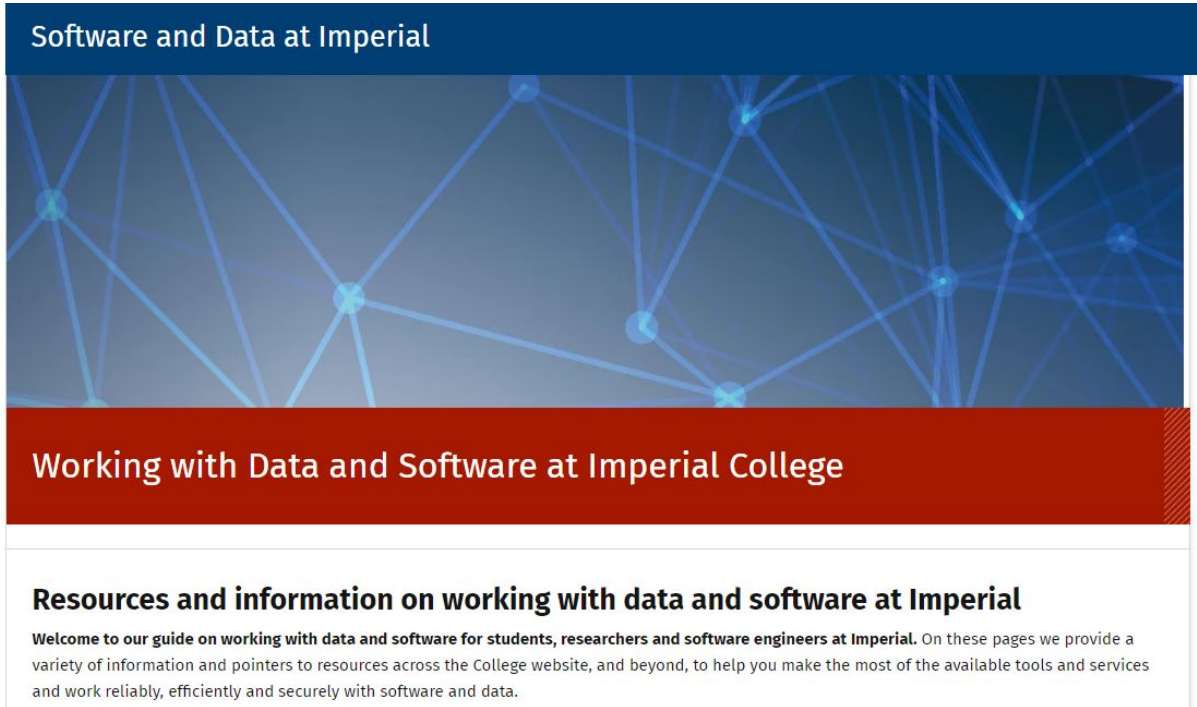
✹ Prerequisites

Some experience in working with climate (-related) data may be useful.

Schedule

	Setup	Download files required for the lesson
00:00	1. Introduction	What are the FAIR principles? Why should I care to be FAIR? How do I get started?
00:15	2. Documentation	What is documentation? Where to document my data? What is the difference between documentation and metadata?
00:35	3. Metadata	What are metadata?

How workflows for providing support on policy compliance involve both roles

1. Support resources at Imperial College London

https://www.imperial.ac.uk/computational-methods/software-data/

Discussion

Help us prioritise effort on sharing guidance and examples

- Please go to **menti.com**

  and enter the code: 6017 2337

- Do you have examples to share? Please get in touch!
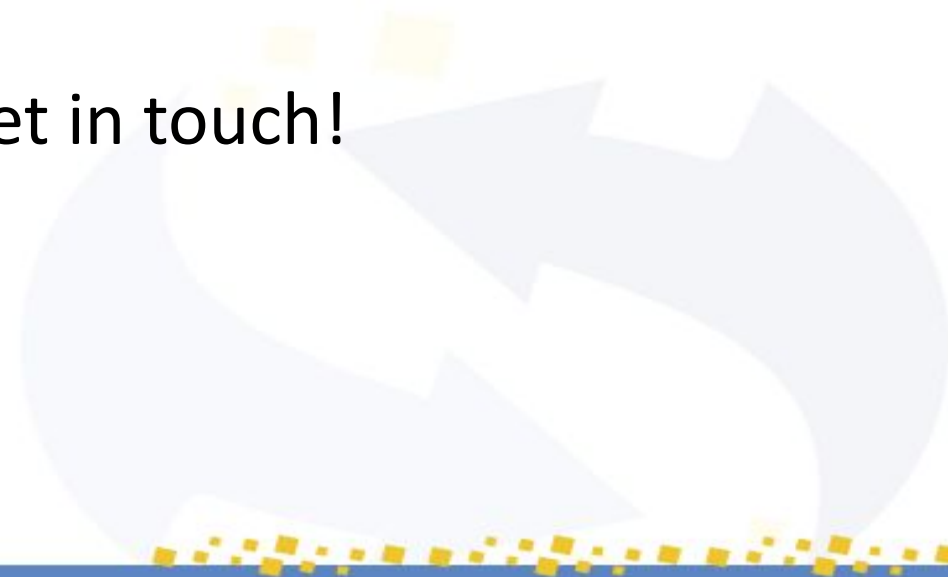
Menti responses

Go to www.menti.com and use the code 6017 2337

What FAIR-enabling examples and guidance would be useful from FAIRsFAIR?

Mentimeter

How tools to enable FAIR have been co-designed — 3.5

How training courses have been co-developed — 3.7

How workflows for supporting policy compliance involve both roles — 3.7

How to assess maturity of RDM service capabilities for FAIR — 2.9

How others are supporting data stewardship - RDA survey analysis — 3.8

Not useful ← → Highly useful

Thanks! Kiitos!

To follow up on anything, please do get in touch at:

- a.whyte@ed.ac.uk
- p.herterich@ed.ac.uk or @pherterich

Resources and further reading

Research Software Engineers:

- Hettrick, Simon (2016). A not-so-brief history of Research Software Engineers:

  https://www.software.ac.uk/blog/2016-08-17-not-so-brief-history-research-software-engineers-0

- Society of Research Software Engineers (n.d). History: https://society-rse.org/about/history/

Reports:

- OECD (2020), "Building digital workforce capacity and skills for data-intensive science", OECD Science, Technology and Industry Policy Papers, No. 90, OECD Publishing, Paris, https://doi.org/10.1787/e08aa3bb-en.
- European Commission. Directorate General for Research and Innovation. & EOSC Executive Board (2021), "Digital skills for FAIR and Open Science: report from the EOSC Executive Board Skills and Training Working Group", Publications Office, https://doi.org/10.2777/59065
- European Commission. Directorate General for Research and Innovation. (2018), "Turning FAIR into reality: final report and action plan from the European Commission expert group on FAIR data", Publications Office, https://doi.org/10.2777/1524

Resources and further reading

EDISON https://edison-project.eu/edison/edison-data-science-framework-edsf/

EOSCpilot (FAIR4S)https://eoscpilot.eu/content/d75-strategy-sustainable-development-skills-and-capabilities

ZonMW/ ELIXIR: Scholtens, S., Jetten, M., Böhmer, J., Staiger, Ch., Slouwerhof, I., Van der Geest, M. & Van Gelder, C.W.G. (2019, October 3). Final report: Towards FAIR data steward as profession for the lifesciences.Report of a ZonMw funded collaborative approach built on existing expertise.http://doi.org/10.5281/zenodo.3474789

Danish Forum/ DeiC:
https://www.deic.dk/sites/default/files/Data%20Steward%20Education%20in%20Denmark_0.pdf

LCRDM: LCRDM Report Data Stewardship on the Map: A Study of Tasks and Roles in Dutch Research Institutes.https://doi.org/10.5281/zenodo.3066366

NPOS Project F:
https://www.openscience.nl/en/projects/project-f-professionalising-data-stewardship-competences-training-and-education