

Professionalising data stewardship: Competences, training & education

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Outline



- Our challenges
- My hats for today
- About data stewardship competences
- The data stewardship landscape
- The NPOS/ELIXIR competency framework
- National effort in NL: the NPOS-F project
- Europe (and beyond): ELIXIR & Data Stewardship
- Next step - implementation

Our challenges

- Data stewardship is essential in research
- There is no consensus on the responsibilities and tasks of data stewards, and on formal profiles (including knowledge, skills and abilities (KSAs)) are lacking
- This hampers the adequate capacity building and complicates efficient data management which are necessary for open science implementation.
- National alignment and coordination are needed to achieve coherent training and education, accompanied with consistent job profiles

My hats for today

- NL

- DTL/ELIXIR-NL
- Health-RI
- NPOS - National Programme Open Science



- EU & beyond

- ELIXIR Training Platform
- EOSC Working Group Training & Skills
- [GOBLET](#), Global Organisation for Bioinformatics Learning, Education and Training
- [CoP](#) - Community of Practice of training coordinators (OpenAire)
- GO-FAIR VODAN Implementation Network Training Cluster

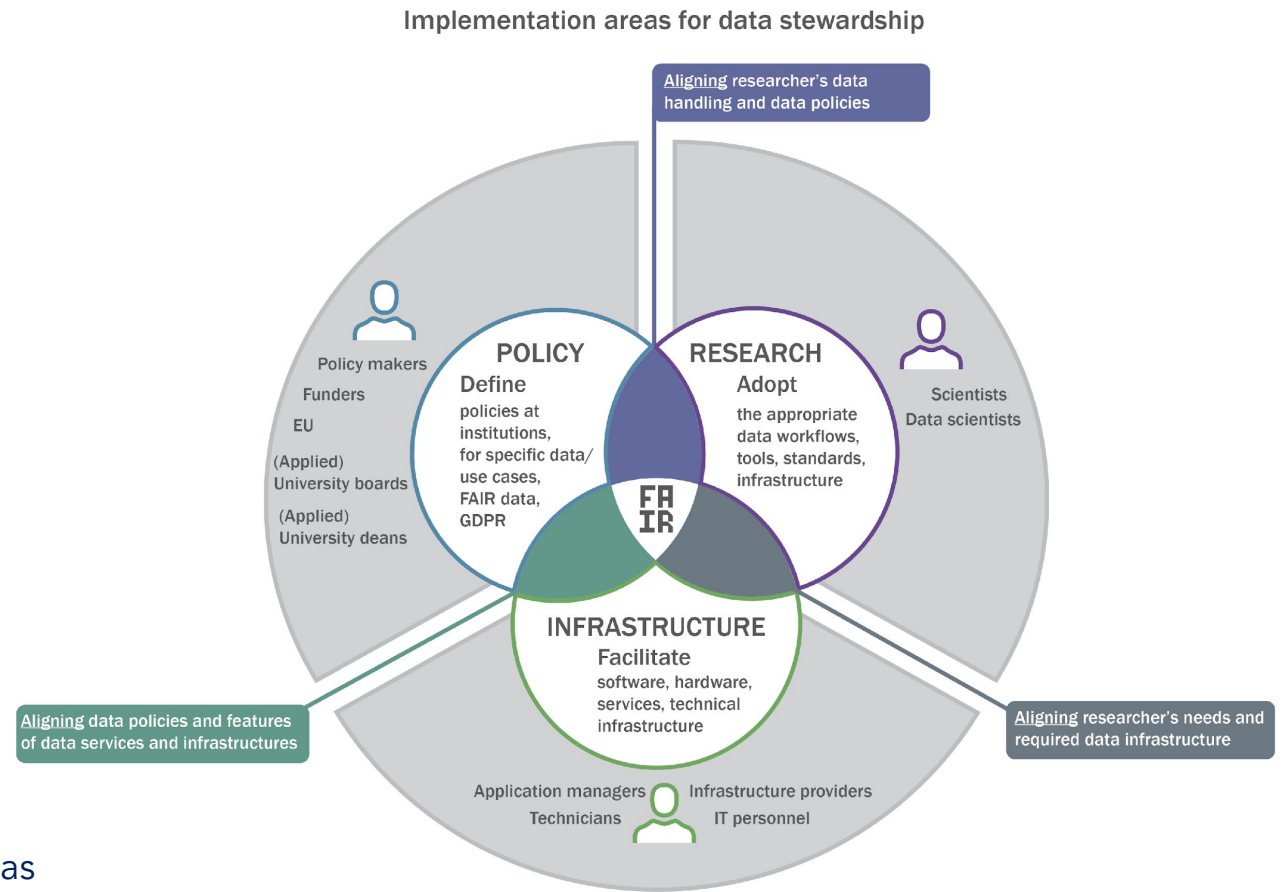


About competencies, skills, training and education in data stewardship

- Training versus Education
 - Formal school curriculum (university, UMC, UAS) versus point of need teaching
 - We need both and many people are involved in both – cross-fertilization
 - Lifelong learning
- Generic/domain-agnostic versus domain-specific training
 - We need both
- Soft skills are particularly important to be able to bridge the gap
- A community-endorsed terminology and competency framework for data stewards is needed
 - Training:
 - Design of training and curricula
 - Findability of training courses
 - Capacity building:
 - Job adverts
 - Career paths & recognition

Data Steward Roles in the Data Steward Landscape

- Data Steward Policy
institute and policy focused
- Data steward Research
project and research focused
- Data Steward Infrastructure
data and e-infrastructure focussed



10.5281/zenodo.3460552

- ZonMw/ELIXIR-NL funded project "Towards FAIR Data Steward as profession for the Life Sciences"
- All project output: <https://zenodo.org/communities/nl-ds-pd-ls/>
- Final report (2019): <https://doi.org/10.5281/zenodo.3471707>

8 Competence Areas

Table 3. Overview of the eight defined competence areas for all data steward roles

Competence area	This concerns
Policy/strategy	Development, implementation and monitoring of research data management policy and strategy for the research institute
Compliance	Compliance to the Netherlands Code of Conduct for Academic Practice, the Netherlands Code of Conduct for Research Integrity, the General Data Protection Regulation (GDPR), and other relevant legal and ethical standards
Alignment with FAIR data principles	Alignment to the FAIR data principles and the principles of Open Science
Services	Availability of adequate support on research data management, in staff or services
Infrastructure	Availability of adequate data infrastructure for research data management
Knowledge management	Adequate level of knowledge and skills on research data management within the institute, department or project
Network	Obtaining and maintaining a network of aligned expertise areas and relevant departments and organisations inside and outside the institute, department or project
Data archiving	Adequate support and data infrastructure for FAIR and long-term archiving of data of the institute, department or project

The NPOS/ELIXIR Data Stewardship Competency Framework



- For 3 Data Steward roles and 8 competence areas
- Matrices contain
 - Responsibilities & tasks
 - Knowledge, skills and abilities (KSAs)
 - Learning objectives (including Bloom's levels)
- Matrices well received, both nationally and internationally, and in different domains

Data steward – policy			
Keywords: Institutional, coordinating, policy Focus on policy makers, managers, board of directors, financial and legal experts			
Responsibilities*	Activities and tasks	Knowledge, Skills and Abilities	Learning Objectives (after successful completing training you will be able to)
1) Policy/strategy. Responsible for advice on and development, implementation and monitoring of a RDM policy and strategy for the research institute, which includes the complete research data life cycle and supports FAIR data and Open Science, in alignment with the relevant stakeholders and within financial and legal constraints, within the institute and in the context of the institute. The policy is the basis for (project) DMPs.	- Develops, implements and monitors the institute's RDM policy. - Advises the institute's management on short- and long-term actions to advance RDM in the institute. - Assesses and monitors the institute's time and financial investments in relation to the institute's needs for RDM. - Explores new needs, opportunities and trends in RDM.	- Knowledge about the most important elements of a successful RDM policy. - Knowledge about internal policies and financial and legal constraints within the institute, relevant for RDM policy. - Knowledge about relevant internal and external (funder, publishers, government) stakeholders. - Knowledge about the general research process and all aspects of RDM and the research data life cycle. - Develop, implement, monitor and evaluate policies regarding research data that are endorsed by researchers and aligned with internal and external stakeholders and effectuate change management. - Identify RDM related issues in the research data life cycle at the level of the institute and engage the right persons to solve the issues. - Act as a spokesperson for the institute on research data. - Give advice on RDM and formats for RDM plans to a broad audience. - Communicate about the RDM policy, explain implications and create awareness.	- Explain the most important elements of a successful RDM policy (understanding). - Outline and compare existing internal policies, legal constraints and financial and operational implications with regard to the RDM policy (understanding & applying). - List relevant internal and external stakeholders (remembering). - Explain important aspects of the general research process and all aspects of RDM and the research data life cycle (understanding). - Develop and implement RDM policies within the institutes and align with other internal policies, legal constraints and financial and operational implications (creating). - Monitor the implementation of RDM policies among researchers and other stakeholders and effectuate change management (evaluating). - Identify RDM related issues relevant for the institute (creating). - Support the evolution of DMP templates and monitor that captured features are synchronised with aspects of the policies (creating). - Act as a spokesperson for the institute on research data (applying). - Establish an apprehension of the researchers towards the need for and benefit from RDM (creating). - Communicate about the RDM policy and its implications for the institute and for the individual researcher (applying).

2019:

20

presentations



in 7 countries



in the life sciences
and beyond..

Radboudumc



umcg

Radboud University



UMC Utrecht

DTL

DUTCH TECHCENTRE FOR LIFE SCIENCES



NETHERLANDS



NEDERLANDSE FEDERATIE VAN
UNIVERSITAIR MEDISCHE CENTRA



ZonMw

National effort in NL: the NPOS-F project



NPOS-F: professionalising data stewardship: competences, training and education

- Project team:
 - Circa 20 representatives of universities, UMC's and universities of applied sciences, the GO-FAIR Foundation, and NLeSc in so-called [LCRDM task groups](#)
 - Representatives of umbrella organisations: research funder ZonMw, Associations of Universities (VSNU), University Medical Centres (NFU) and Universities of Applied Sciences (VH), PhD candidate network (PNN), and the IT organisation SURF.
 - Coordinated by DTL, ZonMw and LCRDM
- Aim:
 - Implementation of outcomes in the strategic plans of the umbrella organisations
 - National approach on professionalising data stewardship
- Final report:
 - expected in February 2021 (consultation version in December 2020)



<https://www.openscience.nl/en/projects/project-f-professionalising-data-stewardship-competences-training-and-education>



Professionalising data stewardship: competences, training and education

Objectives



National coordination on the competences and learning outcomes



A well-annotated and searchable overview of training

Deliverables



Scoping document: target audience & glossary



Case studies for training and education, incl. certification



Competences of data stewards, incl. human resource (HR) profiles (UFO, FUWAVAZ, Hay)



Inventory of training resources, including pilot annotation with competences



Design for a data steward skills tool, including (self-)assessment & pointers to training resources

Ambition



Endorsement of overview of competences by national stakeholders



Towards national framework(s) for competences



Towards national framework(s) for curriculum for data professionals



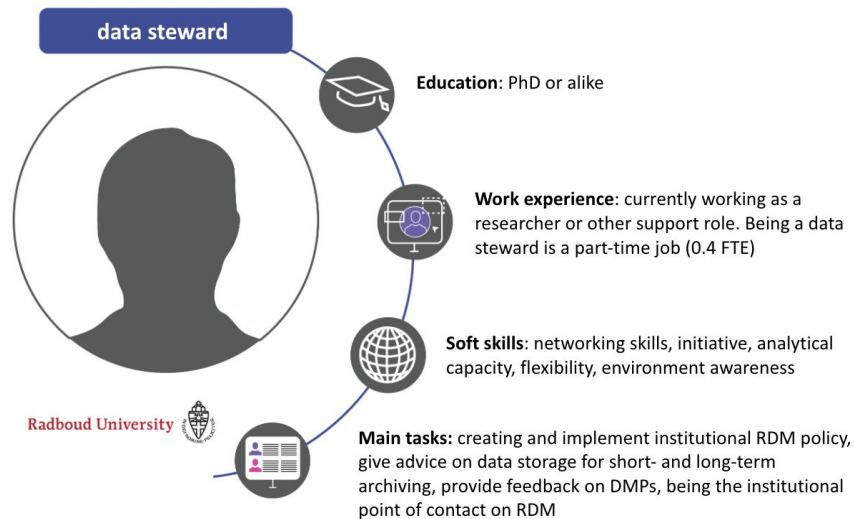
Data steward skills tool development



Strategy for tool dissemination

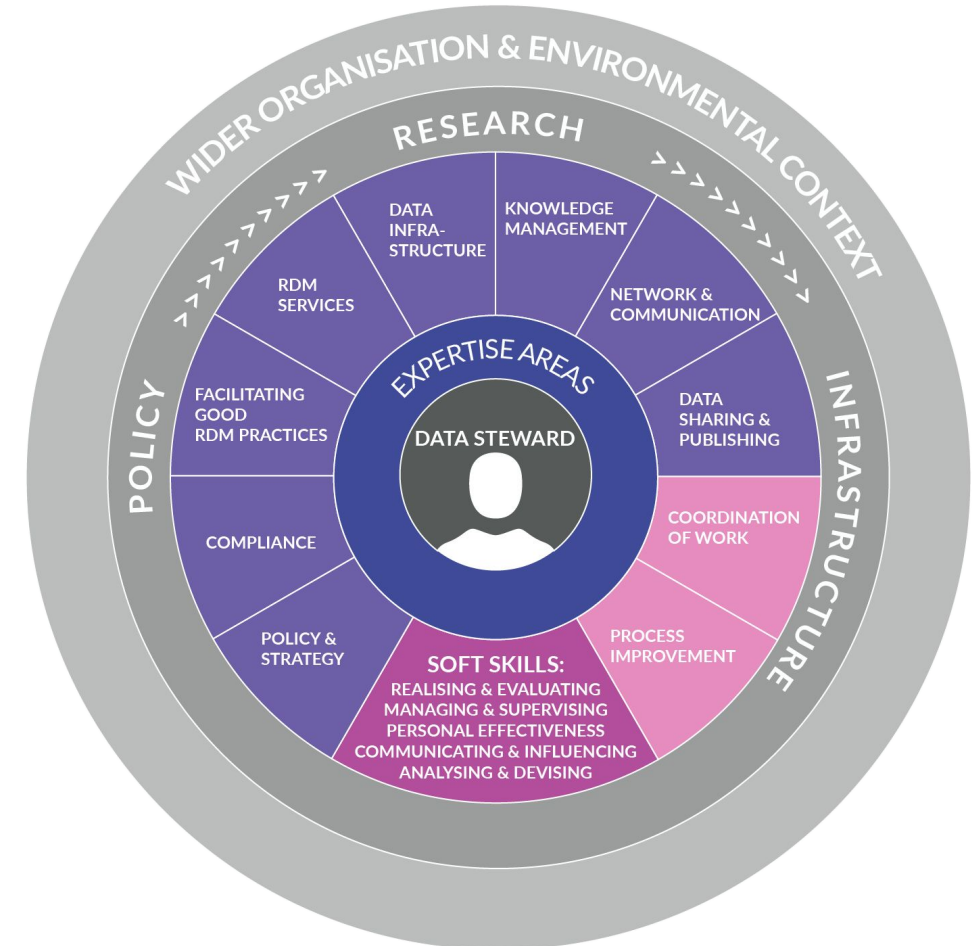
Education & Training:

- 8 Case studies: An overview of the current Dutch training and education landscape for data stewardship for universities, UMCs and universities of applied sciences.
- Inventory of data stewardship training resources for which annotating with data stewardship competences has been piloted.



Job profiles:

- Basic job profile components of a data steward
- Recommendations for the job classification systems of universities, UMC's and universities of applied Sciences

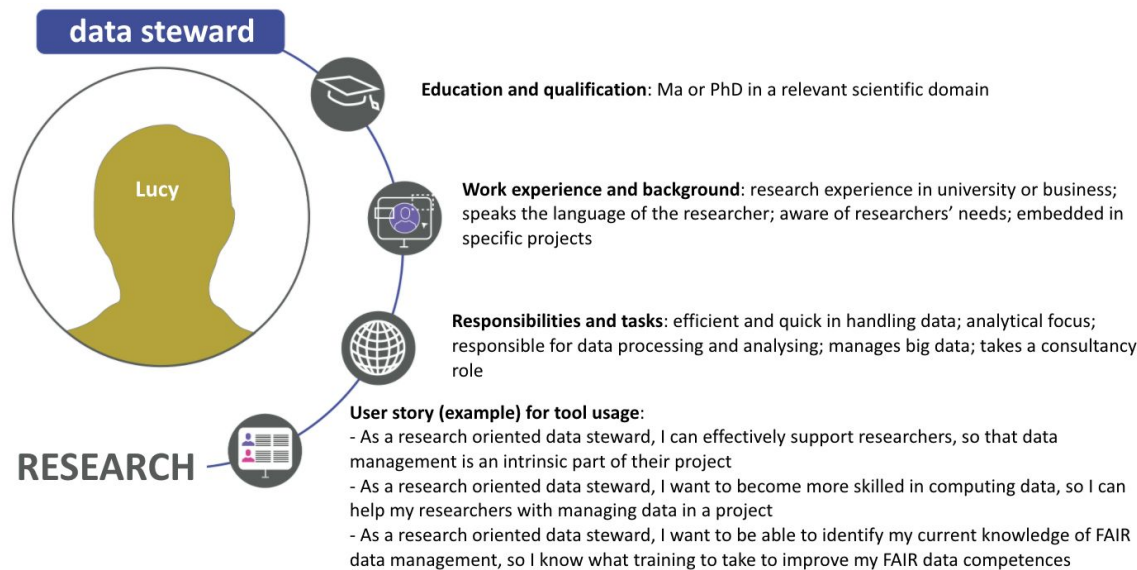


Basic job profile components of a data steward

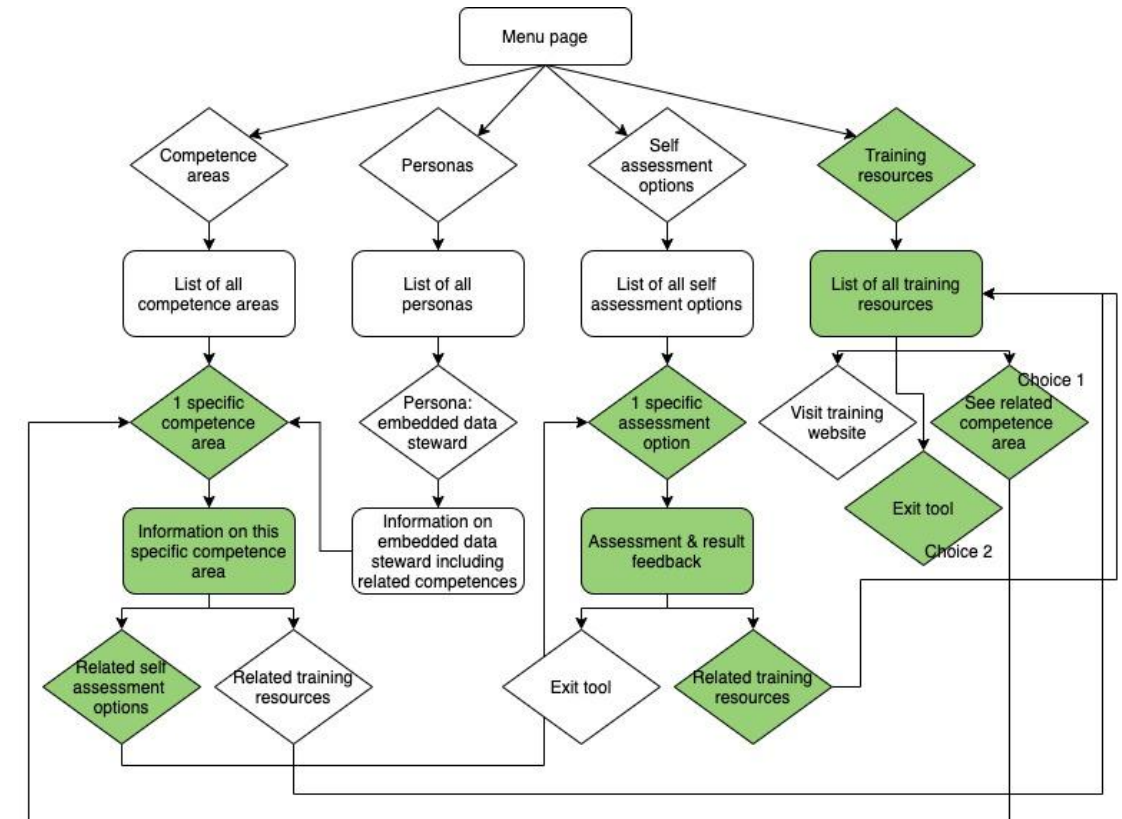
NPOS-F Deliverables (3)

Design for a data stewardship skills tool

- Design includes (self-)assessment and pointers to training resources, including learning paths
- Short term solution to solve direct data stewardship community needs: incorporation of the framework in the Competency Hub (<https://competency.ebi.ac.uk/>)



Research data steward persona



Path 4, training resources, example learner journey of a research data steward

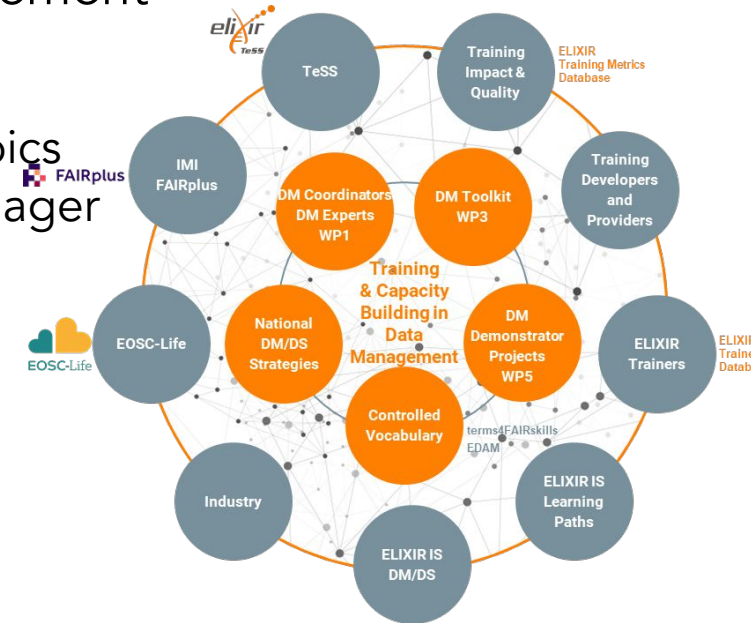
Europe (and beyond): ELIXIR & Data Stewardship

ELIXIR-CONVERGE WP2: Training and Capacity Building in Data Management

- Competency framework will be incorporated in the Competency Hub
- BioHackathon (November 2020): community effort to further define topics KSAs, and learning paths for Data Analyst, Data Steward and Data Manager
- Terms4FAIRskills - ELIXIR Training is use case
- Train-the-trainer!

ELIXIR FAIR Training Working Group

- Training about FAIR data
- Making training resources FAIR
 - [Ten simple rules for making training materials FAIR:](#)
 - Planned: 2021 workshops series with GOBLET and Australian Biocommons



<https://elixir-europe.org/about-us/how-funded/eu-projects/converge>

ELIXIR & EOSC

- ELIXIR participation in EOSC Working Groups: FAIR WG, Architecture WG, Training & Skills WG
- ELIXIR is coordinating EOSC-Life project
 - We need to train EOSC experts and EOSC users; EOSC-Life WP9 is about Training

Next steps - Implementation



Our next steps:

- Put competency framework in the Competency Hub
- Skills terminology
 - Align with Biohackathon2020 team and with terms4FAIRskills
 - Working with EDAM ontology team to include FAIR terms in EDAM
- Use competency framework to annotate training resources
- Design (and deliver) data stewardship courses

Next steps for the other stakeholders:

- Discuss and implement NPOS-F recommendations

Please join our activities if you are interested!

- Email us at celia.van.gelder@dtls.nl or mijke.jetten@dtls.nl
- This week: Poster session tomorrow & contributions to three sessions in the FAIR convergence symposium (in Data Stewardship Track)

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ELIXIR

- ELIXIR-CONVERGE WP2 members
- Biohackathon 2020 team