

# The Alan Turing Institute

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**Research infrastructure roles:**  
*perspectives, paths and lived  
experiences*

**OSC23: 28 June 2023**

Anne Lee Steele, Arielle Bennett, Emma Karoune,  
Esther Plomp & Malvika Sharan





# Icebreaker

If you could pick a title for your role - what would you be called?

Be as creative as you'd like.





# The Alan Turing Institute

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# Introductions

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**Anne Lee Steele**

Research Community Manager,  
The Alan Turing Institute



**Arielle Bennett**

Programme Manager,  
The Alan Turing Institute



**Emma Karoune**

Research Community Manager,  
The Alan Turing Institute



**Esther Plomp**

Data Steward,  
TU Delft



**Malvika Sharan**

Senior Researcher,  
The Alan Turing Institute

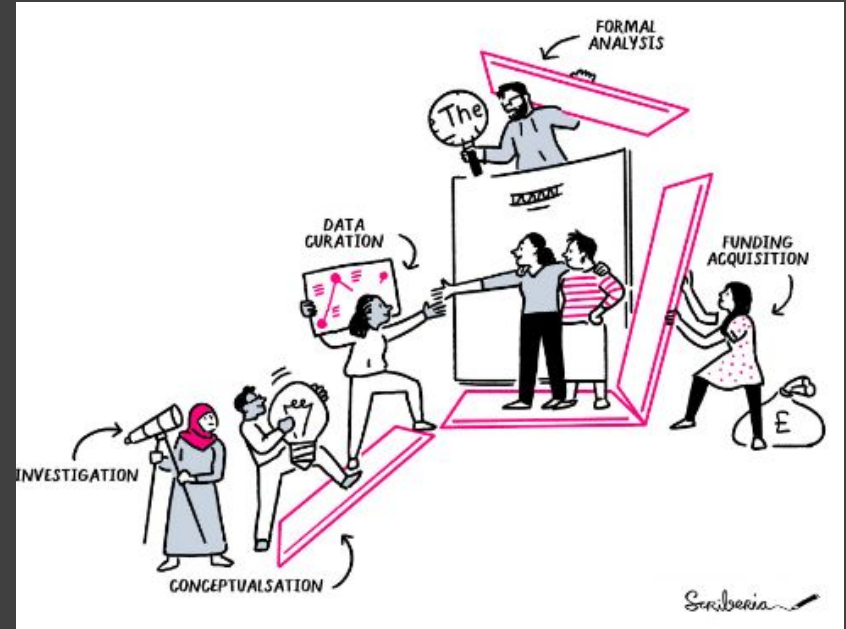


# Activity 1

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**What are some tasks required to carry out a research project?**

Write down your answers in the shared document





Attend / chair meetings  
Manage (cloud) compute resources  
Commercialise a product  
Peer review  
Promote EDI and work-life balance  
Read literature  
Deliver trainings  
Archive data & code  
Bring in funding  
Write papers  
Give talks  
Collect / access data  
Design experiments  
Share work with the public  
Set strategy  
Maintain ethical & legal principles  
Testing & quality control  
Track impact  
Manage budgets  
Run statistical analyses  
Mentor colleagues  
Promote work to decision makers  
Host events  
Scope user requirements  
Generalise code to software  
Visualisation  
Report on progress  
Manage a team  
Interpret results

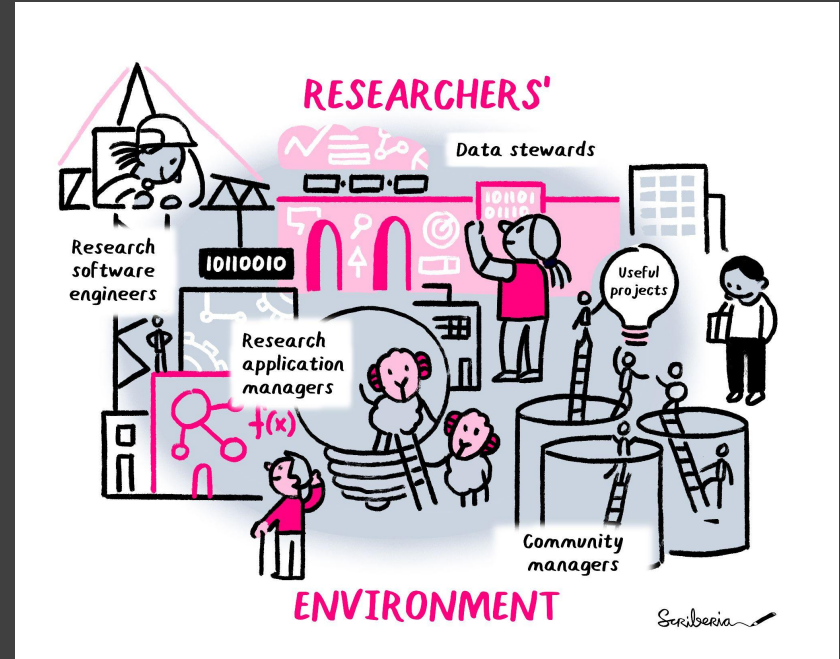
**What does a quantitative researcher do?**

@TuringWay @kirstie\_j  
<https://doi.org/10.5281/zenodo.7749650>



# Research Infrastructure

Physical or digital facilities, resources, expert workforces and specialised services **available for research and for the use of research communities.**



@turingway, CC-BY 4.0 image by *The Turing Way* and Scriberia, Zenodo: <https://zenodo.org/record/7849391>

Reference Presentation on 'Investing in Research Infrastructure Roles for culture change' <https://zenodo.org/record/7620215>

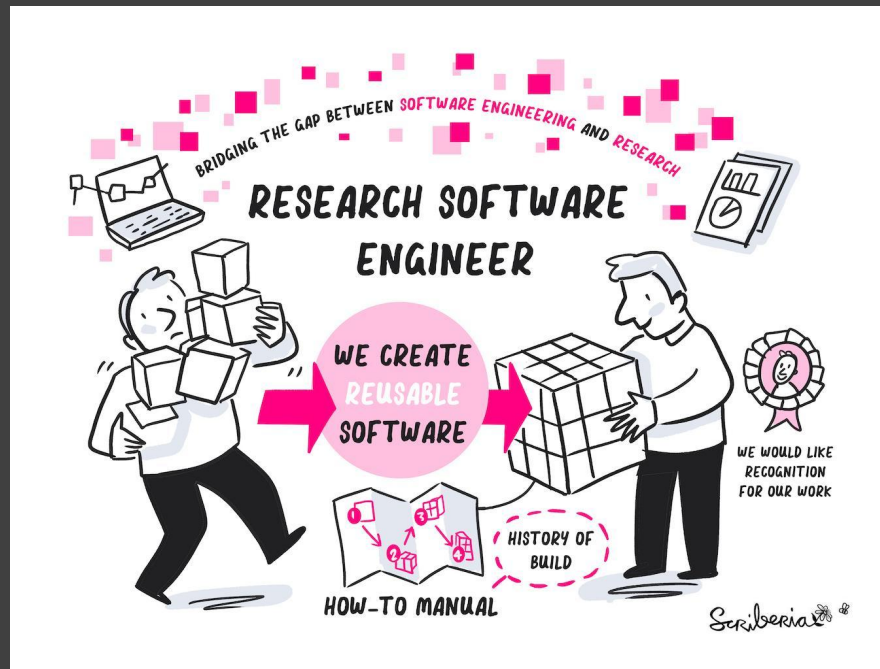
References: [Science Europe](#) and [National Institute of Health and Care Research](#)



# Research Software Engineering



*Learning from 10 Years of the  
RSE movement*

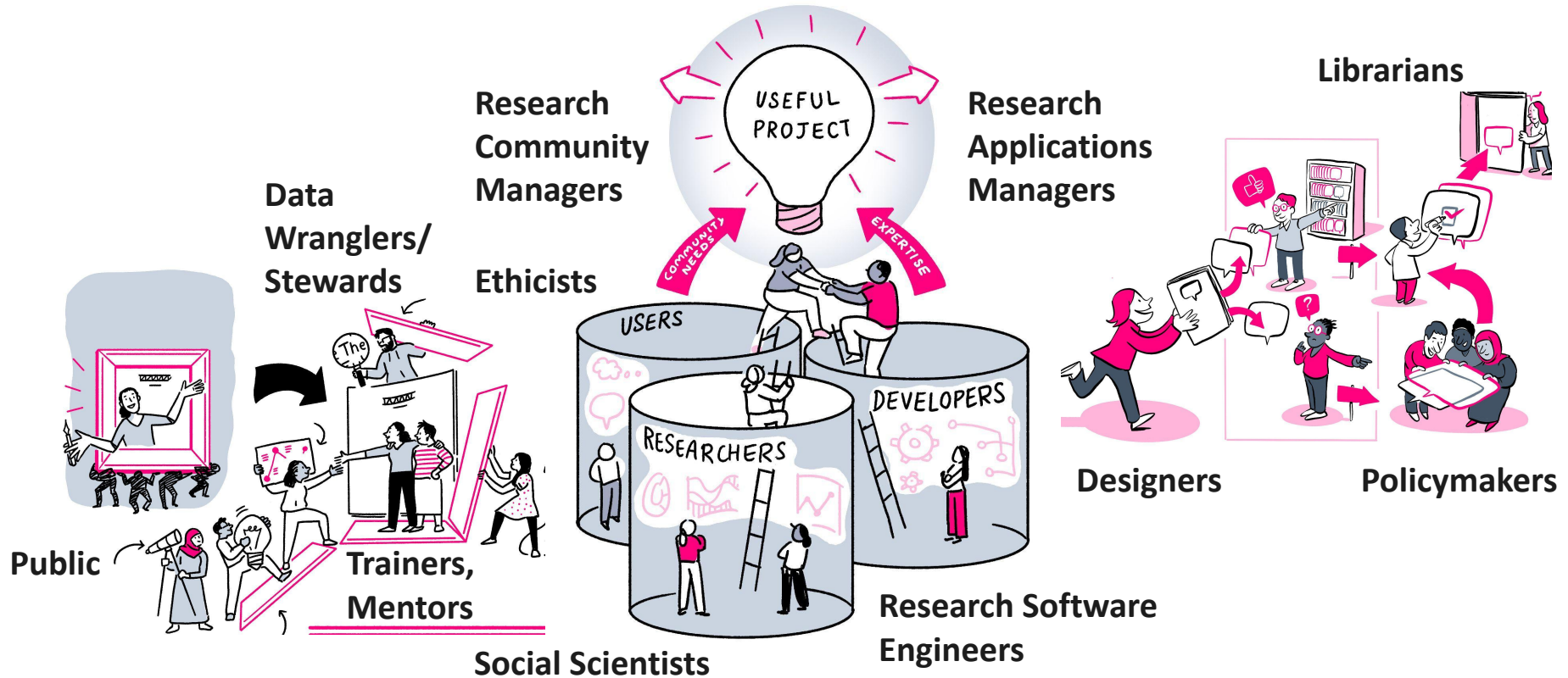


Baxter, R, Chue Hong, N, Gorissen, D,  
Hetherington, J & Todorov, I 2012, 'The Research  
Software Engineer', Digital Research 2012

@malvikasharan @turingway, CC-BY 4.0, CC-BY image by *The Turing Way* and Scriberia, Zenodo:  
<https://doi.org/10.5281/zenodo.3332807>. Presentation DOI: 10.5281/zenodo.7848675



# Diversifying Research Roles





# Research Infrastructure & Associated Roles

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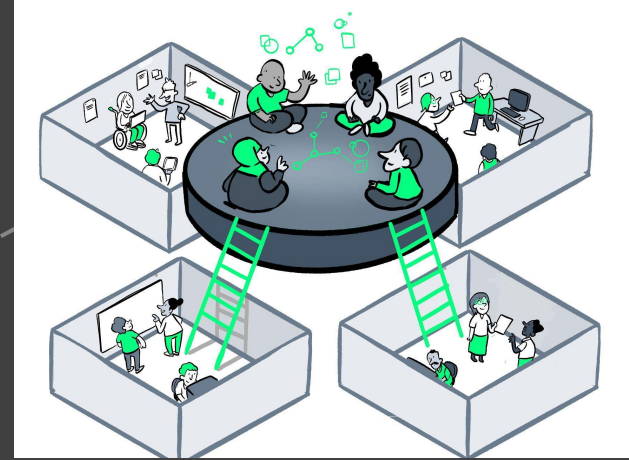
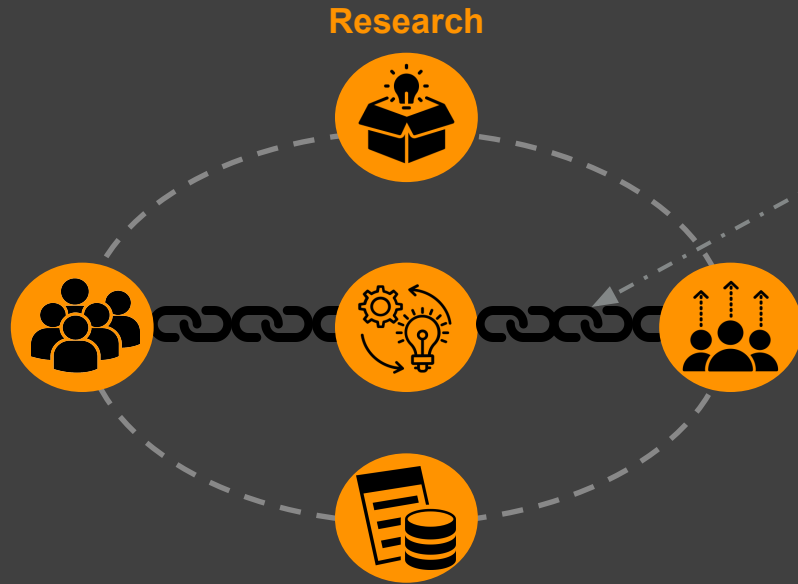


Successful **research** projects require specialised skills to ensure collaboration among **contributors** and **users** so they create and use **data** and **tools** that are useful for them.



# Research Community Management

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*Research Community Managers empower **diverse stakeholders** to **co-create, maintain and sustain** research processes and outputs that they can equitably benefit from.*



# Research Community Manager (RCM)

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Through *open, inclusive and reproducible* practices, RCMs build a *shared understanding* of research goals, roadmap and processes.

We combine a range of *socio-technical skills* including scientific communications, stakeholder engagement and domain expertise.

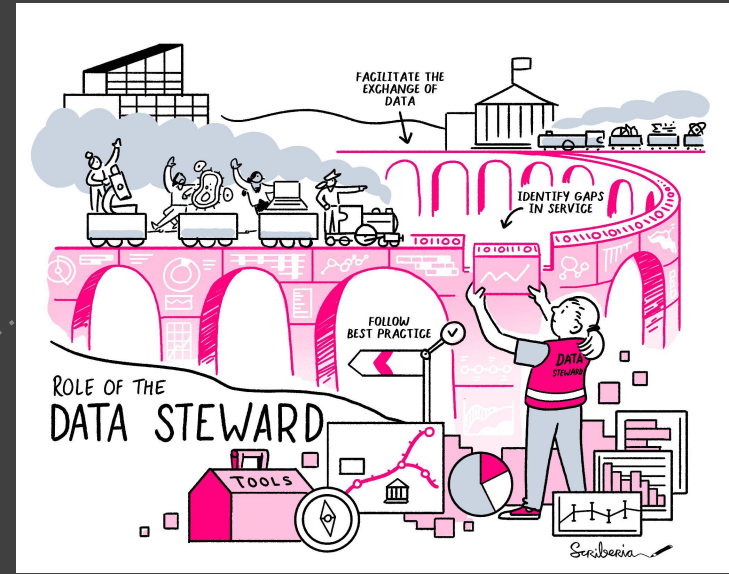
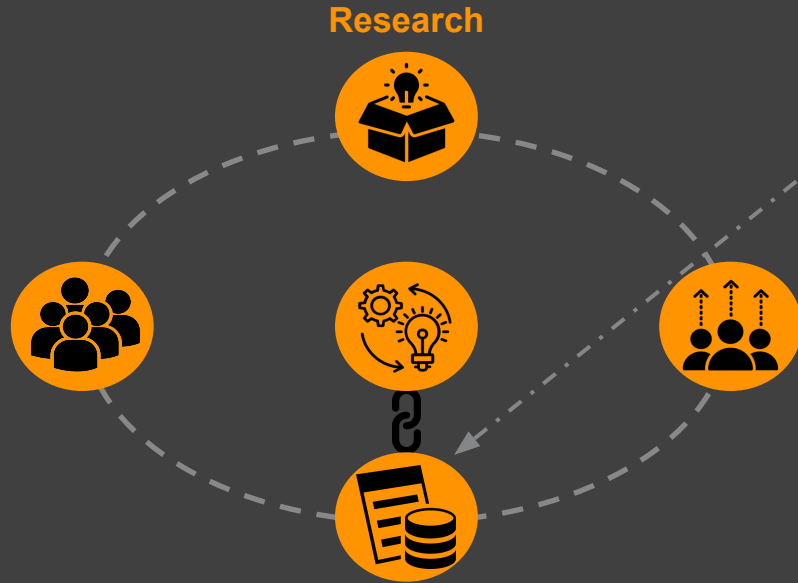
We *facilitate, amplify and champion* collaborative, community-based research processes and outcomes.



Emma Karoune



# Data Stewardship



*‘Data Steward’ is an umbrella term for numerous **infrastructure** support roles that involve the **creation**, **management** and **usage** of research data.*



# Data Steward

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*We advise researchers on how to **manage data and other research objects** including which storage locations to use and what are best practices to share them.*

*We deliver **Research Data Management and Open Science** courses for PhD researchers and check **Data Management Plans** for wide range of research projects.*



Esther Plomp



# Now we'd like to learn about your experience!

## 2 x 20 min breakout discussions

**In groups (about four people), you will discuss questions about your experience of research infrastructure roles**

- Begin with intros!
  - What title did you want to be called?
  - What is your title now?
- Assign a **chair/facilitator** and a **note taker that documents the discussion**
- Afterwards: Open Discussion/report out



## Breakout Discussion 1

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20 mins

### Question 1: Types of roles in a project

In your project teams, what types of specialised or research (infrastructure) roles do your team members take?

### Question 2: Journey to research infrastructure role

How have these roles been formalised - Can you share examples? Or, if not yet formalised, how do you hope for these roles to be formalised?



## Breakout Discussion 2

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20 mins

### Question 3: Career progression

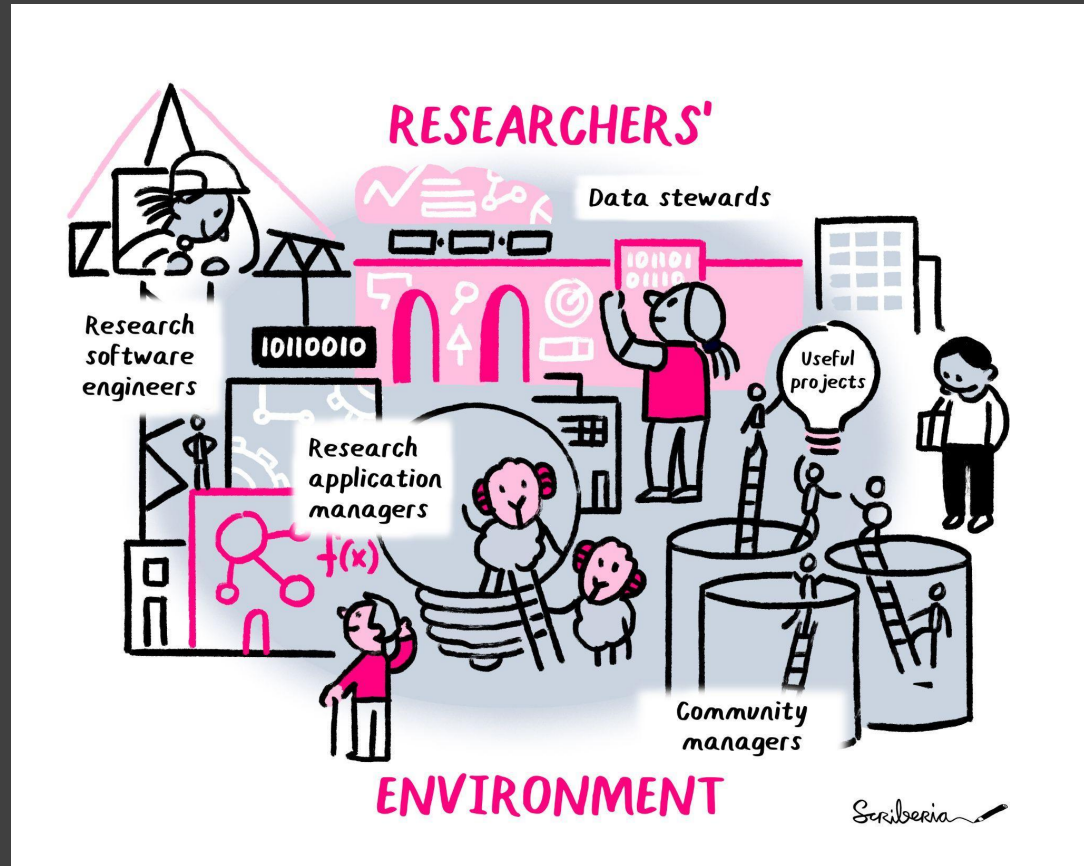
What career pathways for progress look like for research infrastructure roles in your organisation?

### Question 4: Wider recognition

How do you feel research infrastructure roles are recognised within your institute/in the research landscape?

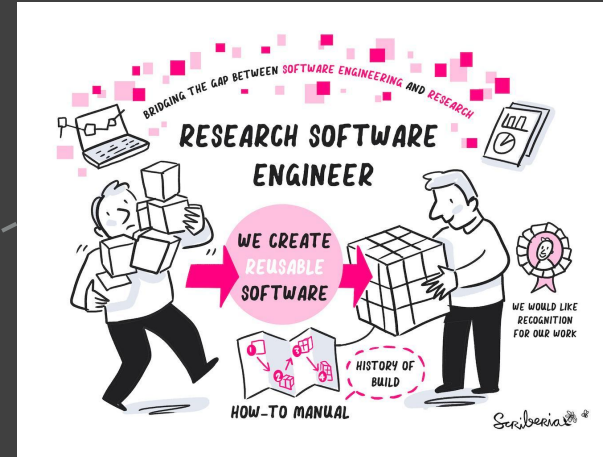


More examples of  
research infrastructure  
roles for your reference





# Research Data & Engineering Roles



*The Research Engineering is a professional field that includes Research Data Scientists and Research Software Engineers. They are **expert collaborators** who bring their **technical knowledge and data skills** to research projects.*



# Research Data Scientist (RDS)

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We are *generalists with broad skills* working with data and specialist researchers across domains.

RDS creates *open and reusable tools* to ask questions and draw insights from data.

As expert collaborators, we apply *reproducible research best practices* to research directly through collaboration.



Lydia France



# Research Software Engineer (RSE)

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RSEs promote *software-development best practices* in research software through practices such as version control, testing, documentation and reusability.

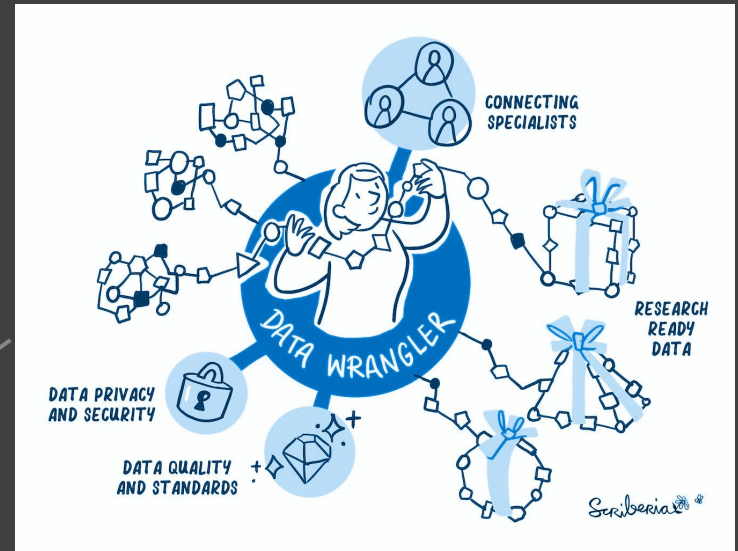
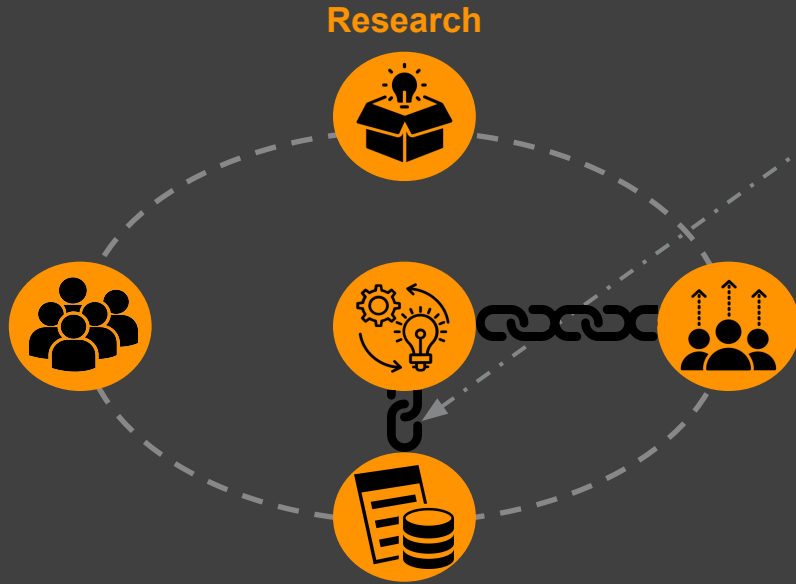
We apply and teach *broad set of technical skills* and expertise by being embedded on research projects.



Jim Madge



# Data Wrangling



*Data Wranglers are specialised type of data scientists, primarily working with data in the space between data generators & data analysts.*



# Data Wrangler

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*Data Wranglers are involved in projects with many datasets, or **complex data needs**.*

*We understand the intended use of the data and **conduct preliminary analysis** in the context of research questions.*

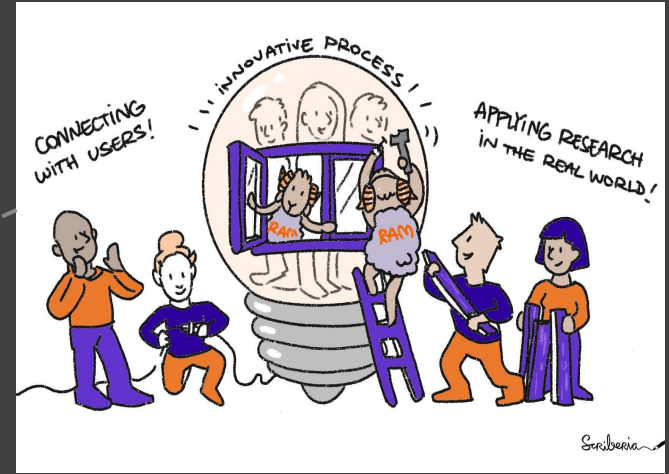
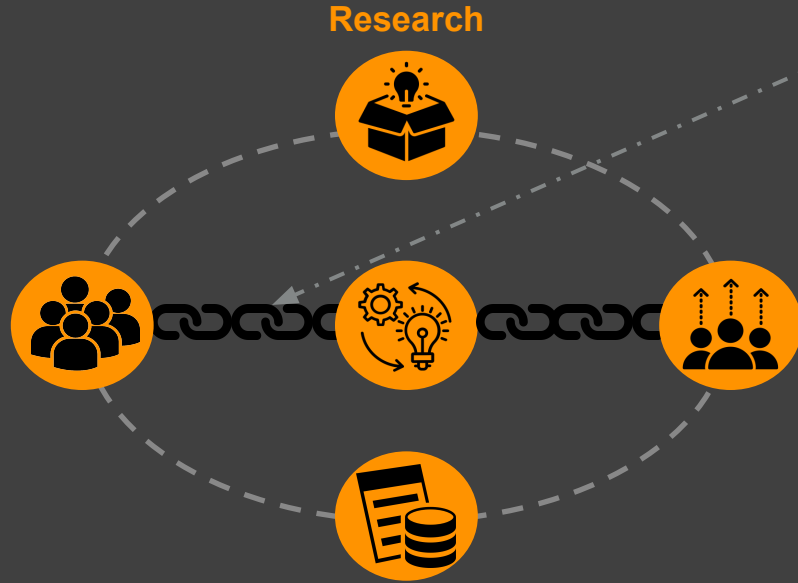
*We collaborate with multiple specialists to **provide 'research-ready data'** whilst upholding domain-specific standards and data privacy regulations.*



Mahwish Mohammad



# Research Applications Manager



A Research Applications Manager  
engages external stakeholders to adapt  
research outputs for real-world use.

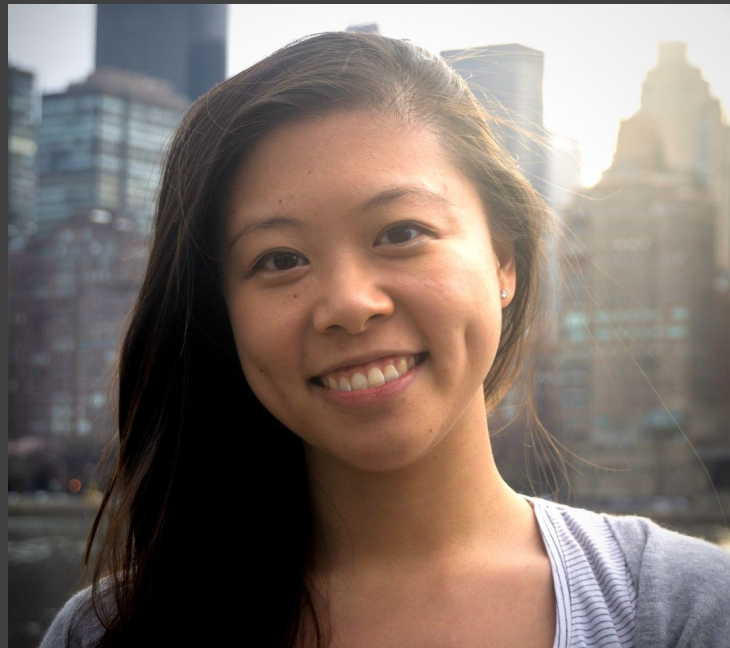


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## Research Applications Management (RAM)

*RAMs make research outputs to be more **usable and support their adoption** by people outside of academia.*

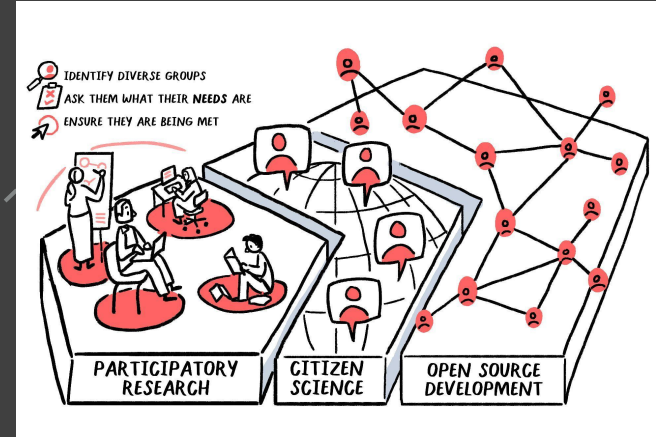
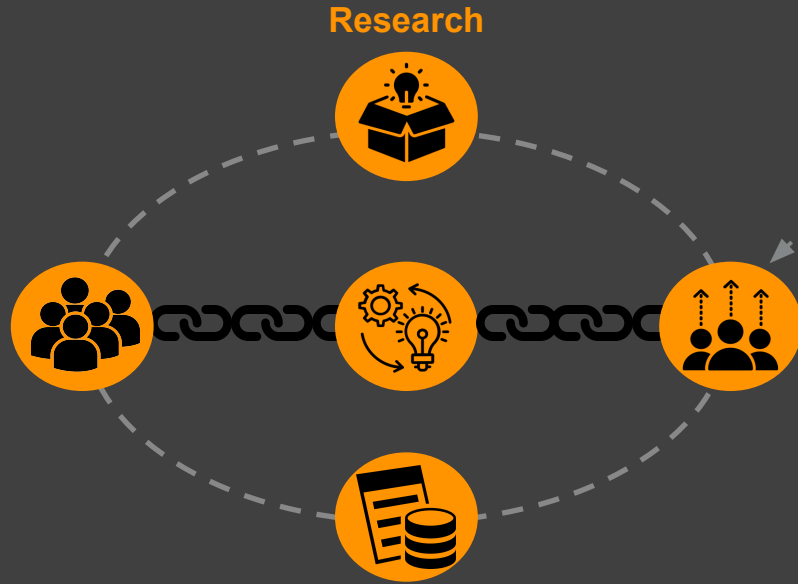
*Working with research teams, we **embed user needs and real-world impact potential** in the design of research outputs.*



Jennifer Ding



# Participatory Citizen Science



Citizen Scientists **engage the public** in **doing research**. They bring a diverse set of practices ranging from **crowdsourcing over co-creation to co-leadership**.



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## Citizen Science Practitioner

*We are a community of **informal or non-professional community researchers** who frame and operationalise research in the real-world contexts.*

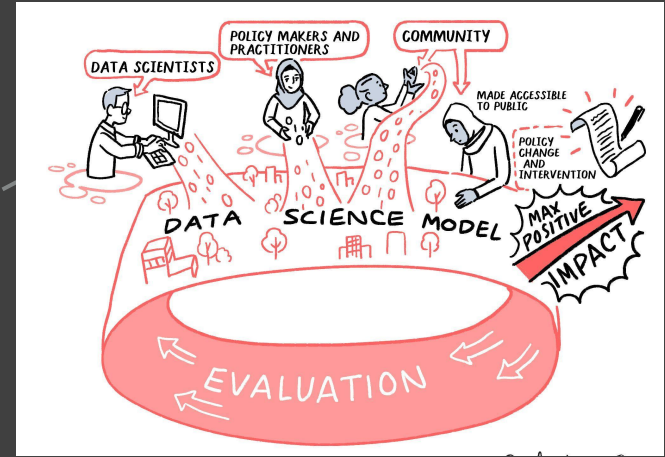
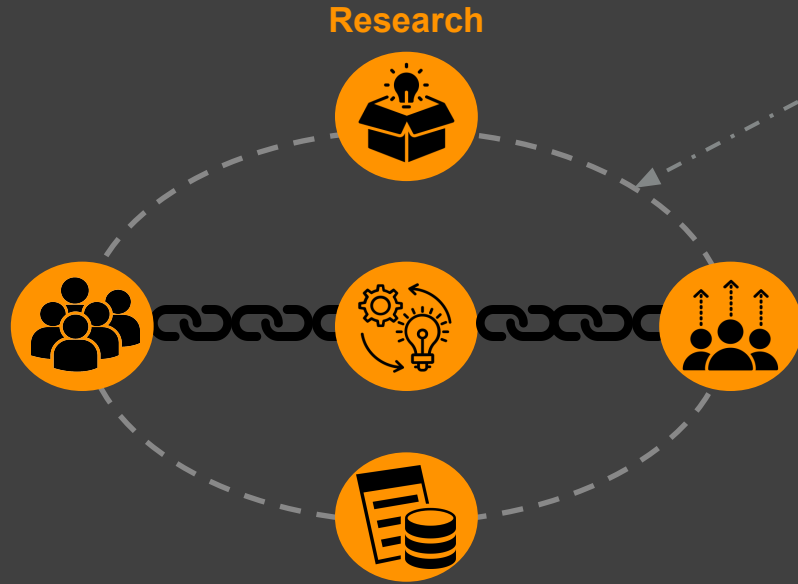
*We **connect academic and informal researchers** to ensure research is done ethically & **supports the real needs of those affected** by the research outputs.*



Bastian Greshake Tzovaras



# Research Ethicist



An ethicist studies the **ethical implications** of research and innovation projects, especially in their **applications in society** and shares practices that **make research responsible**.



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## Research Ethicist

*Research Ethicists conduct research to **understand the ethical implications** of the use of [AI] systems and data-driven **technologies in society**.*

*We explore ways to **enhance public participation** and **deliberate ethical guidelines** for the use of these systems.*

*We **provide training and resources** for ethics and responsible research and innovation.*



Claudia Fischer



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## Research Ethics Manager

*Research Ethics Managers ensure that the **guidances on data and [AI] ethics, and open science are applied** to the Institute's research.*

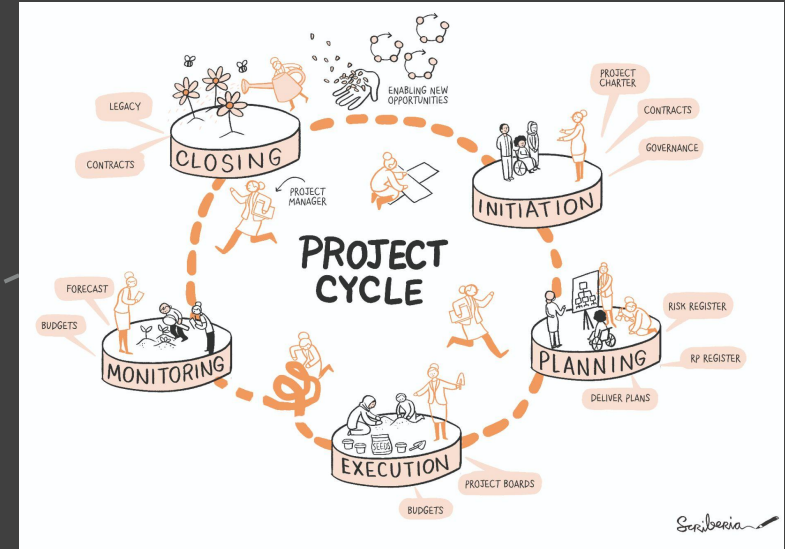
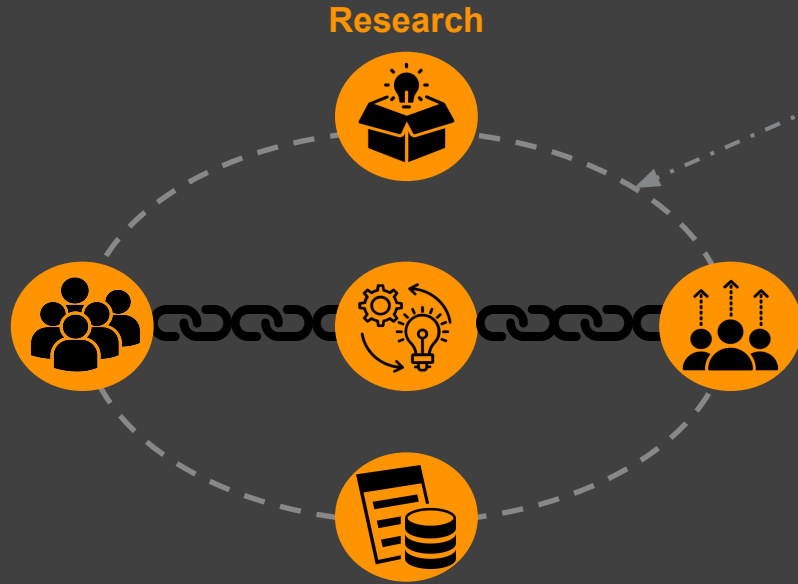
*We identify **potential improvements to the system**, develop trainings on ethics approval and **recruit diverse members on ethics review panel** and decision-making.*

*We **manage each application's journey** from submission to review to approval decision, and provide feedback on ethics applications.*

Victoria Kwan



# Research Project Management



*Research Programme/Project Managers ensure all project cycles are **executed on time**, following the **agreed protocols** and in line with the Institute's **policies**.*



# Research Project Manager

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*Research Project Managers ensure that the **projects are delivered on time and within budget.***

*We ensure that everyone involved in the project **comply** with **The Institute's processes and policies.***

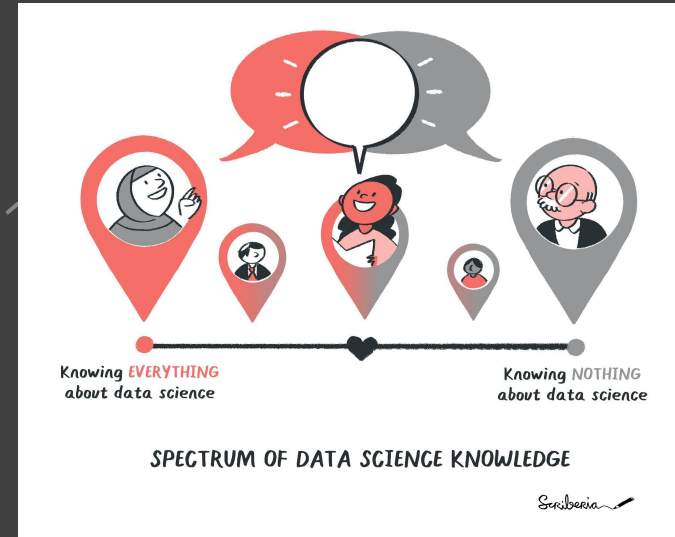
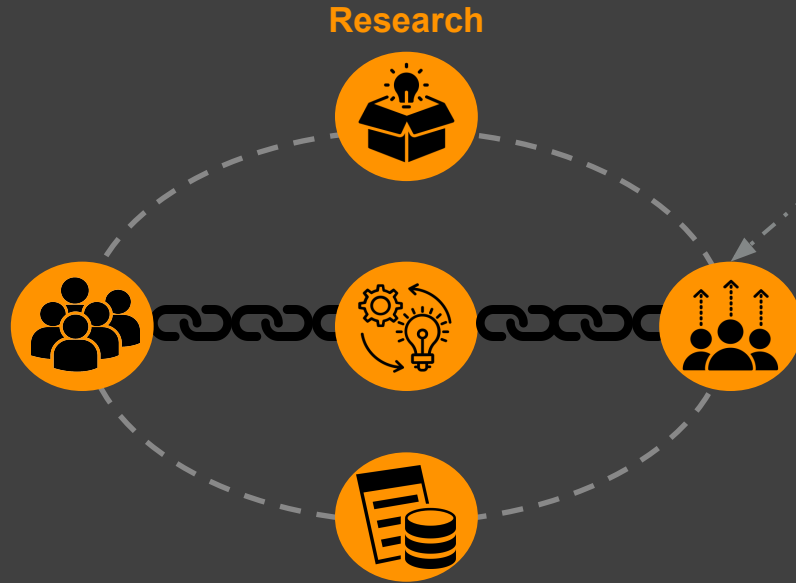
*We manage the project **budget**, and support the **documentation, reports and governance.***



Alexandra Araujo Alvarez



# Skills Officer



A Skills Officer works with subject matter experts to implement **collaborative design, development and delivery** of [data] skills opportunities and learning resources.



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## Skills Officer

*Skills Officers support individuals, teams or organisations in **learning new methodologies** and applying them in their own projects. We **provide training and resources** for the general public.*

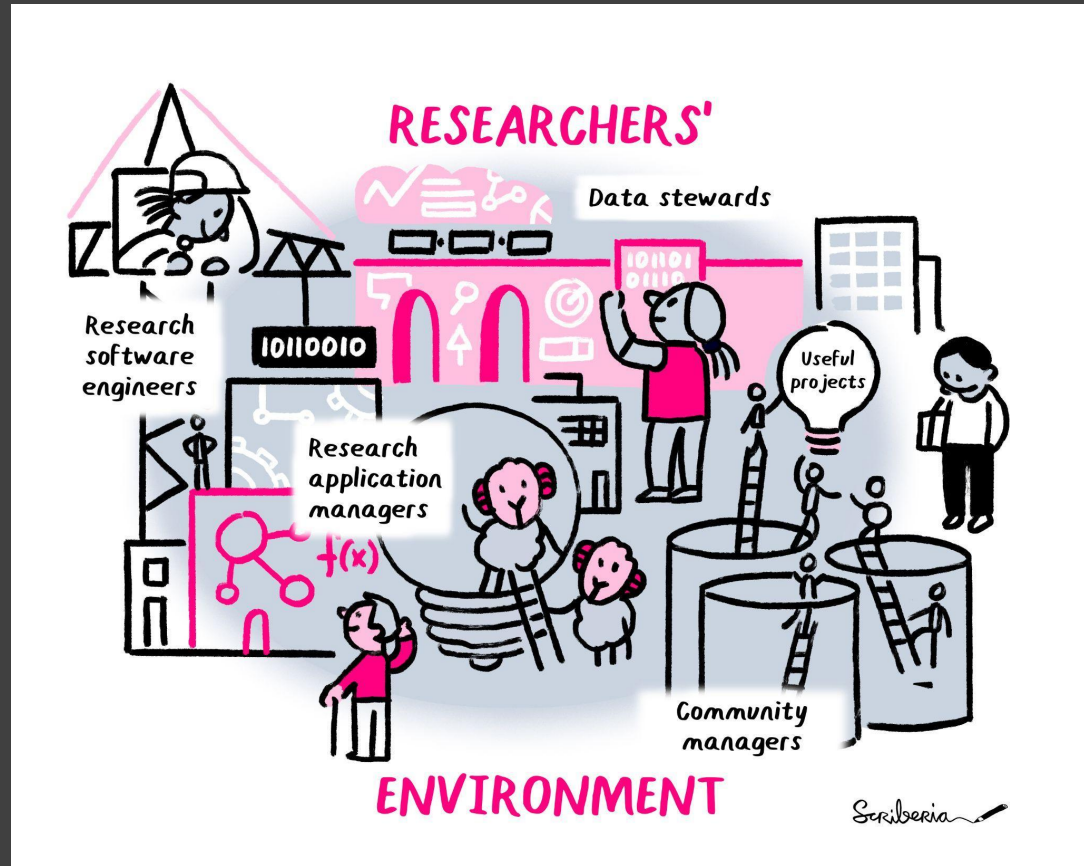
*I lead the Data Science and AI Educators' Programme, which is aimed at **upskilling** HE educators in essential **teaching pedagogy**, both more widely and specific to their role as Data Science and AI educators.*



Ayesha Magill



## End of Examples

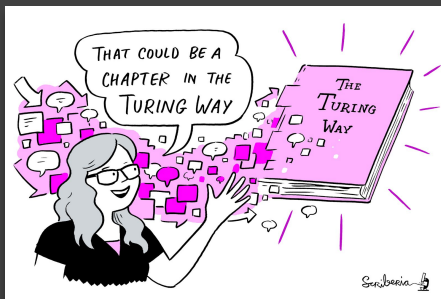




# The Turing Way

## An Open Source guide on Data Science

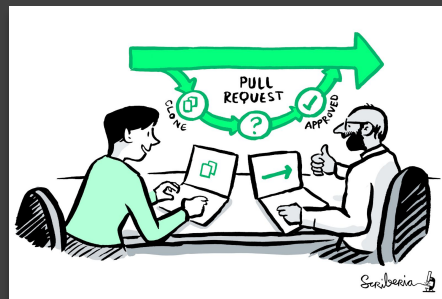
We involve and support a diverse community to make data science reproducible, ethical, collaborative and inclusive for everyone



A book



A global community



An open-source project



A culture of collaboration



# The Turing Way: Guides to Data Science



Kirstie Whitaker

Director: Tools,  
Practices & Systems  
Programme (TPS)



Malvika Sharan

TPS Senior  
Researcher: Open  
Research & Community



Anne Lee Steele

Community Manager,  
The Turing Way



Alexandra  
Araujo Alvarez

Project Manager

4+ years

>260 Chapters

Numerous training  
and community  
resources.



The Turing Way

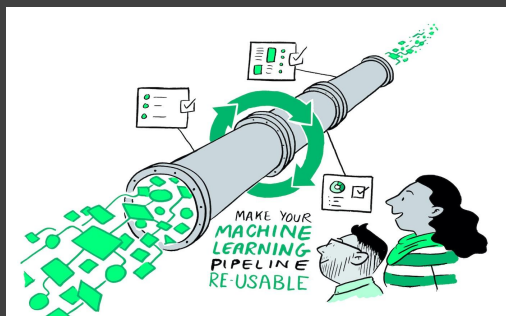
🔍 Search this book...

## Welcome

- Guide for Reproducible Research ▼
- Guide for Project Design ▼
- Guide for Communication ▼
- Guide for Collaboration ▼
- Guide for Ethical Research ▼
- Community Handbook ▼
- Afterword ▼



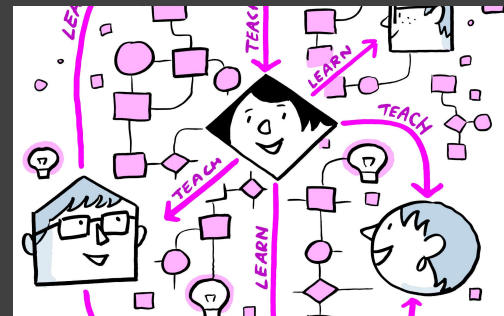
# The Turing Way Guides



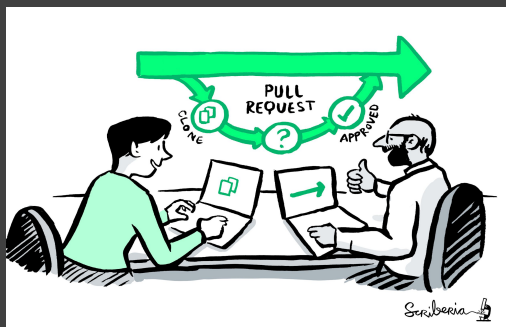
Reproducibility



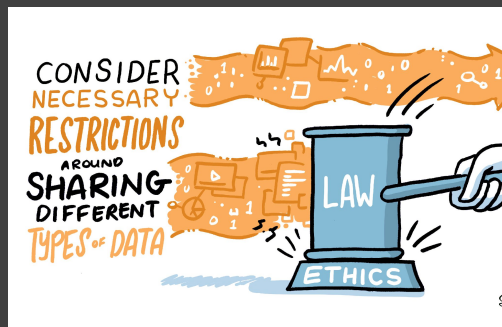
Project design



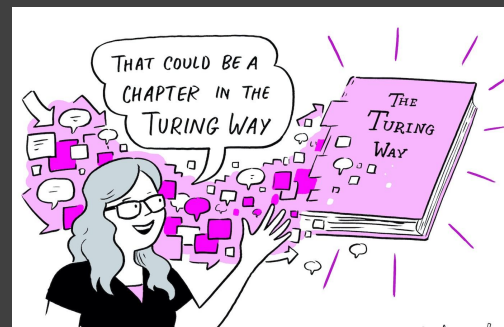
Communication



Collaboration



Ethical research



Community handbook



## Research Infrastructure Roles ^

Community Managers

Overview

Data Stewards Overview

Data Steward Personal Story

Data Wrangler Overview

Research Software Engineers  
Overview

Research Software  
Engineering Personal Story

Research Application  
Manager Overview

Research Infrastructure  
Developer Overview

Remote Collaboration ✓

Shared Ownership in Open  
Source Projects ✓

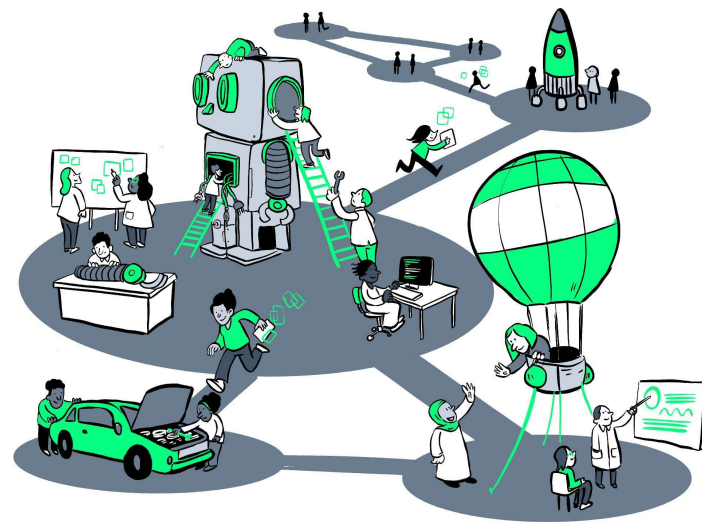
Guide for Ethical Research ✓

Community Handbook ✓

# Examples of Research Infrastructure Roles

This initial list of examples of Research Infrastructure Roles that has been expanded as part of *The Turing Way* Hackathon Workshop at the [Big Team Science conference 2022](#).

- Community manager
- Project manager
- Research software engineer
- Research application manager
- Programme manager
- Data steward
- Data wrangler
- Research infrastructure developer
- Partnerships development manager
- Grant application manager
- Community engagement lead
- Librarian
- Communications manager
- Events manager
- Participatory research manager





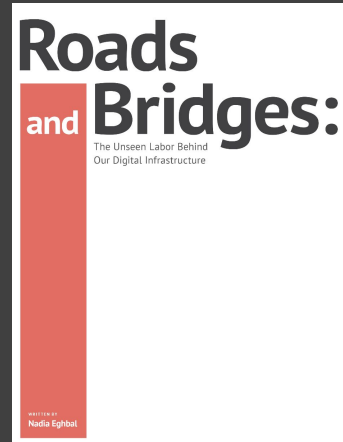
# Formalising Research Infrastructure Roles

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These roles carry out essential “glue work” of translating knowledge effectively by

- involving diverse members through collaboration
- promoting equitable, fair and ethical practices in research
- identifying gaps or challenges as well as ways to fix them

*When formalised and rewarded, people’s skills and contributions in research through traditionally invisible/hidden/undervalued work becomes valuable and recognisable by the system.*



Stengers Isabelle., Another Science is Possible: A Manifesto for Slow Science. Polity Press (2016). | Eghbal.. N., “Roads and Bridges: The Unseen Labor Behind Our Digital Infrastructure. Ford Foundation (2016). | Olson, D., Meyerson, J., Parsons, M., Castro, J., Lassere, M., Wright, D., ... Acker, A.. *Information Maintenance as a Practice of Care*. <https://doi.org/10.5281/zenodo.3236409>. (2019)



# Broader Recognition for Research Infrastructure Roles

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- **The Turing Way Practitioners Hub** in close collaboration with UK orgs (government, industry, public sector)
- **The Turing's Skill Policy Award** for engaging with policy ecosystem - led by **Dr. Emma Karoune**





# Policies / Guidelines for Open Leadership

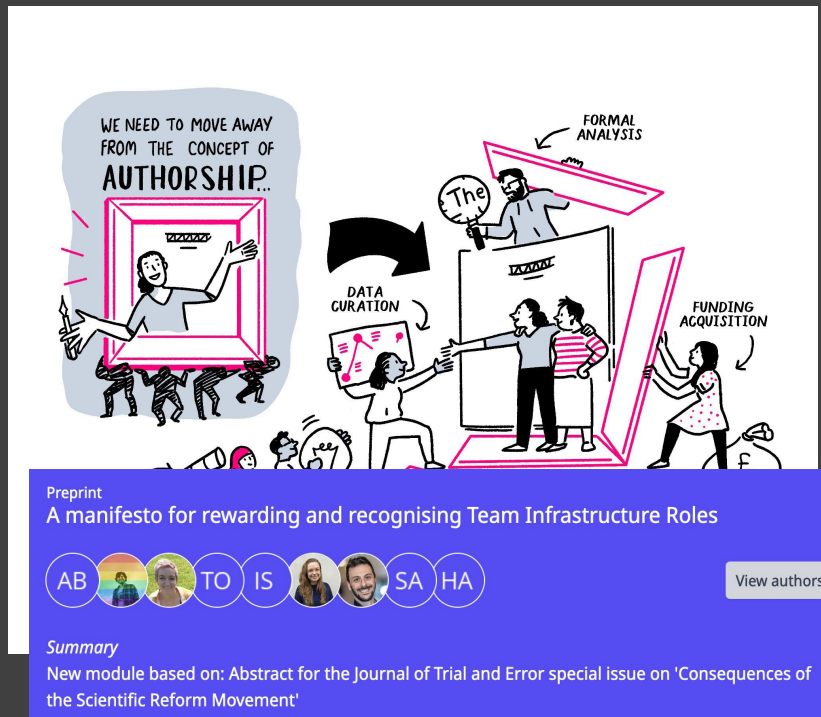
**Recognising all kinds of roles through recommendations & policies.**

## UK Research and Development Roadmap

*Attract, retain, develop the talented, diverse people and teams. Ensure that our science, research, innovation system is responsive to our society*

## Towards better recognition for Research Infrastructure Specialists (Australia)

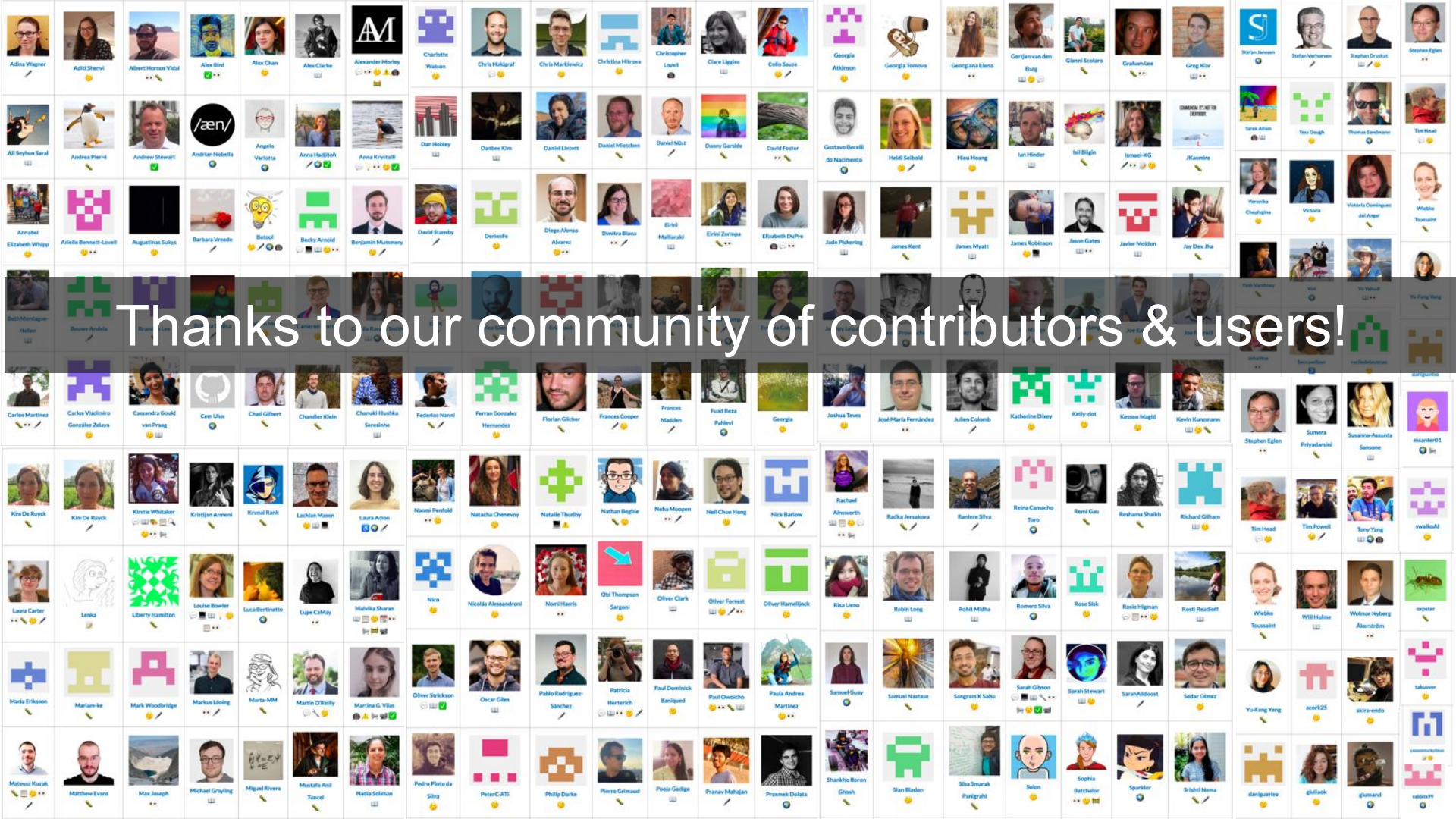
*Professional staff become more valuable with experience and need to be rewarded as such – otherwise they will go elsewhere. Australian universities need to improve how they reward and recognise this important cohort of specialists, and the NCRIS Project Directors are calling for a change in how [Research Infrastructure] specialists are classified.*



*Preprint: A manifesto for rewarding and recognising Team Infrastructure Roles, doi.org/10.53962/knm3-bnvx*

<https://www.gov.uk/government/publications/uk-research-and-development-roadmap> - UK Reference,  
<https://anff.org.au/news/towards-better-recognition-for-research-infrastructure-specialists> - Australia Reference





Thanks to our community of contributors & users!

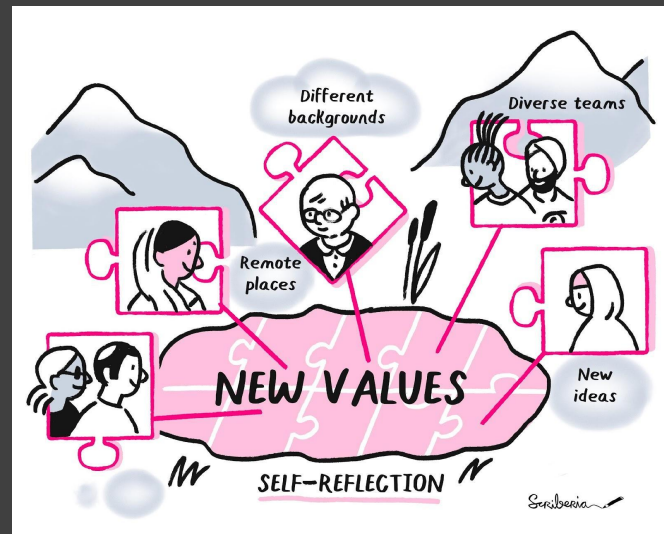


# Connect with *The Turing Way* Community

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- *Translation co-working*: Tuesday (16:00 UTC)
- *Collaboration Cafes*
  - 1<sup>st</sup> & 3<sup>rd</sup> Wednesdays (14:00 UTC)
- *Outreachy* 
- *Book Dash*: May and November yearly

Your contribution is important - *we record and acknowledge* in the README file and in the book.



[the-turing-way.start.page](https://the-turing-way.start.page)



# Fireside Chat

Join us for our June  
Fireside Chat!

29 June

14:00 - 15:30 UTC+1

*Register on Eventbrite:*

[tinyurl.com/ttw-june-fireside](https://tinyurl.com/ttw-june-fireside)

## Between computation, climate and culture: perspectives on sustainability and research

29 June, 14:00 - 15:30 UTC+1 – *Register on Eventbrite*



**Alejandro  
Coca-Castro**

Founder  
Environmental Data Science Book



**Carlos  
Martinez-Ortiz**

Community Manager  
Netherlands eScience Center



**Shannon  
Dosemagen**

Director  
Open Environmental Data  
Project



**Claire Buckley**

Environmental Consultant  
Julie's Bicycle



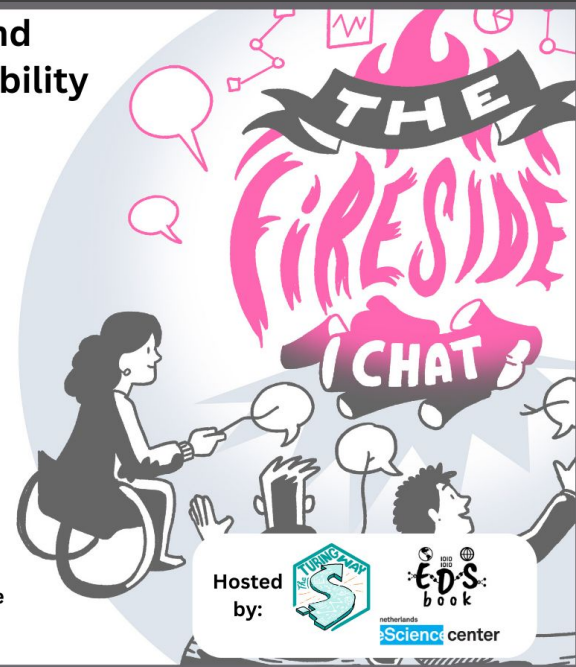
**Anne Pasek**

Convener & Co-Founder  
Low Carbon Research Methods



**Loïc Lannelongue**

Research Associate  
University of Cambridge,  
Green Algorithms initiative





# Feedback

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Help us to improve this workshop!

<https://forms.gle/mKtevPptsp7Wevn87>



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# The Alan Turing Institute

## Acknowledgements:

- The Turing Way team, Kirstie Whitaker, Malvika Sharan, Anne Lee Steele, Alexandra Araujo Alvarez
- *The Turing Way* community, contributors & collaborators
- Book: [the-turing-way.netlify.com](http://the-turing-way.netlify.com)
- Twitter: [twitter.com/turingway](https://twitter.com/turingway) / Mastodon: <https://fosstodon.org/@turingway>
- Newsletter: [tinyletter.com/TuringWay](https://tinyletter.com/TuringWay)
- Slack: [tinyurl.com/jointuringwayslack](https://tinyurl.com/jointuringwayslack)
- GitHub: [github.com/alan-turing-institute/the-turing-way](https://github.com/alan-turing-institute/the-turing-way)
- Original artwork by Scriberia: <https://doi.org/10.5281/zenodo.3332807>

