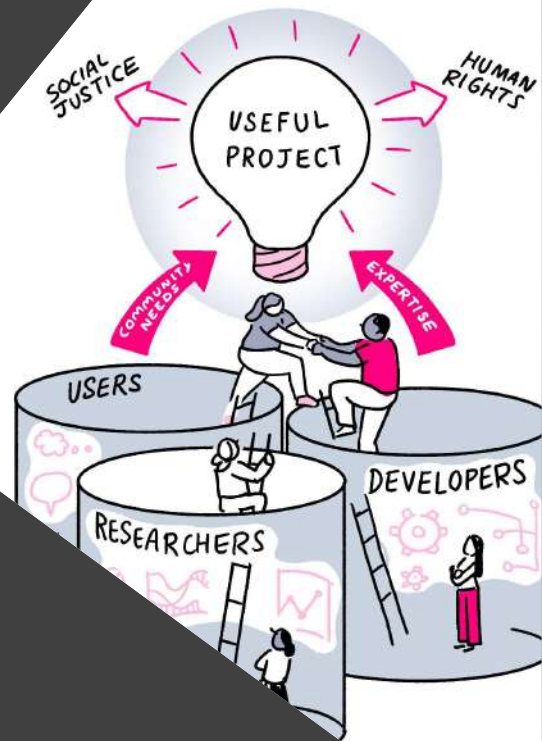


The Alan Turing Institute

Reproducible & Open Research: Overview of Tools, Practices and Systems Programme, 2022

Malvika Sharan, Aida Mehonic

Pronouns: she/her



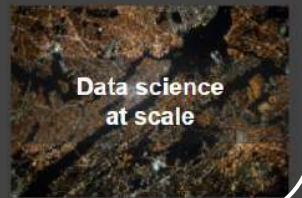
The Alan Turing Institute

The national institute
for data science and
artificial intelligence



Research Programmes

Sector specific research



Integration of best practices



Tools, practices and systems

Building open source infrastructure to empower a global, decentralised network of people who connect data with domain experts

- Trustworthy systems
- Transparent reporting
- Inclusive interoperable design
- Ethical integrity
- Respectful co-creation
- Leadership in open research



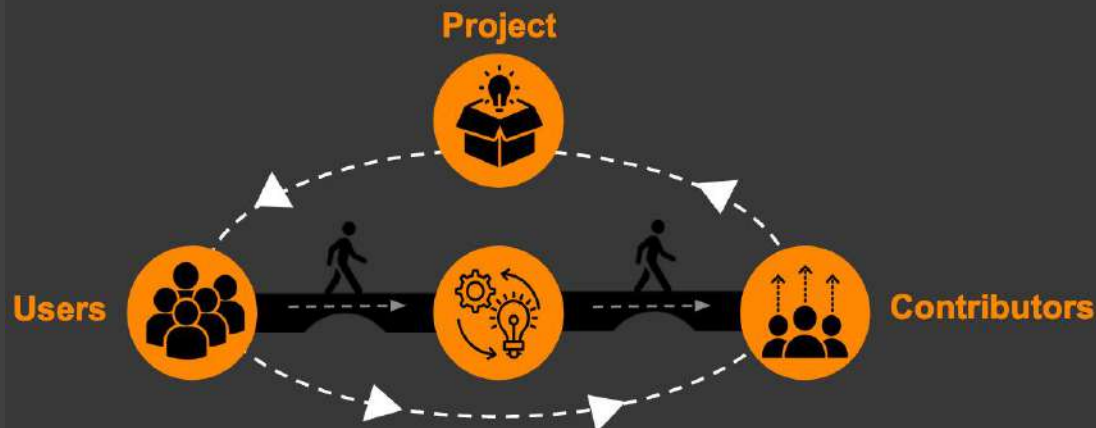
Kirstie Whitaker

Director of the programme



Tools, practices and systems

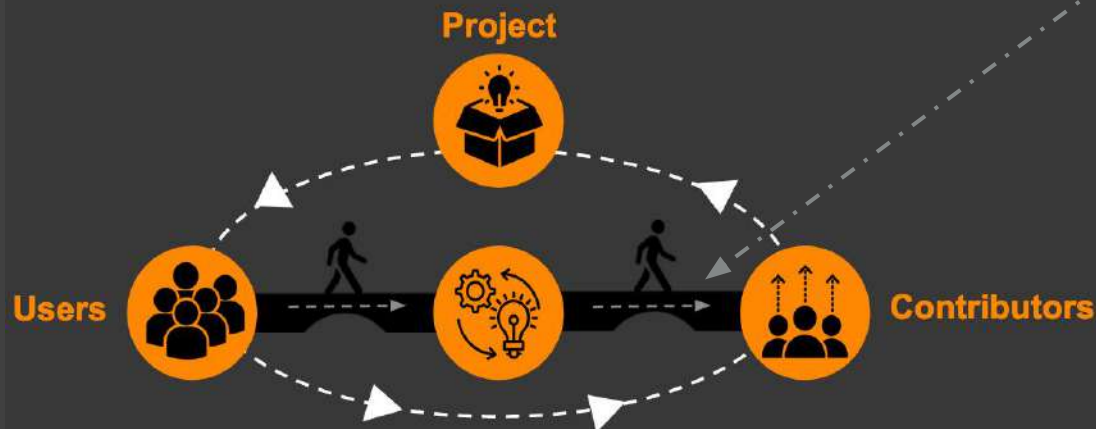
Building open source infrastructure to empower a global, decentralised network of people who connect data with domain experts



Strategic and technical support for Stakeholder
Engagement and Participation

Tools, practices and systems

Building open source infrastructure to empower a global, decentralised network of people who connect data with domain experts



Strategic and technical support for Stakeholder Engagement and Participation

Community Management team



Researchers and collaborators



Achintya Rao
Community Manager



Anne Lee Steele
Community Manager, The Turing Way



Dr Arron Lacey
Senior Community Manager, EDoN



Ayesha Dunk
Training Officer



Dr Emma Karoune
Senior Community Manager for Turing-RSS Health Data, Lab & DECOVID



Dr Sarah Gibson



Vicky Hellon
Community Manager, Turing-Roche Partnership



Sophia Batchelor
Community Manager, AIM RSF

TPS - Open Research Community Building Team



Dr Arron Lacey

Senior Community Manager,
EDoN

Tech/ML-based
teaching, Supervising
D-J Fellows



Dr Emma Karoune

Senior Community Manager
for Turing-RSS Health Data
Lab & DECOVID

Health-programme,
Meta-community



**Dr Bastian
Greshake Tzovaras**
TPS Senior Researcher

Participatory Citizen
Science, Platform Dev



Anne Lee Steele

Community Manager, The
Turing Way

Ethnography, UX
design, Governance



Claudia Fischer

Research Assistant, Data
Justice and Global Ethical
Futures

Turing Commons
Collaboration

More Roles
upcoming



Vicky Hellon

Community Manager, Turing-
Roche Partnership

Process Documentation,
Partnership alignment



Dr Eirini Zormpa

Community Manager, AIM
RSF Open Collaboration

Skills & Training,
Collaborative events



Sophia Batchelor

Community Manager, AIM
RSF PPIE

User-centered
interface, glossary



Ayesha Magill

Training Officer

AI/DS Educators
Program Collab



Bridget Nea

Training Officer

Collab for Skills
communications



**Dr Sarah
Gibson**

JupyterHub &
2i2c Collab

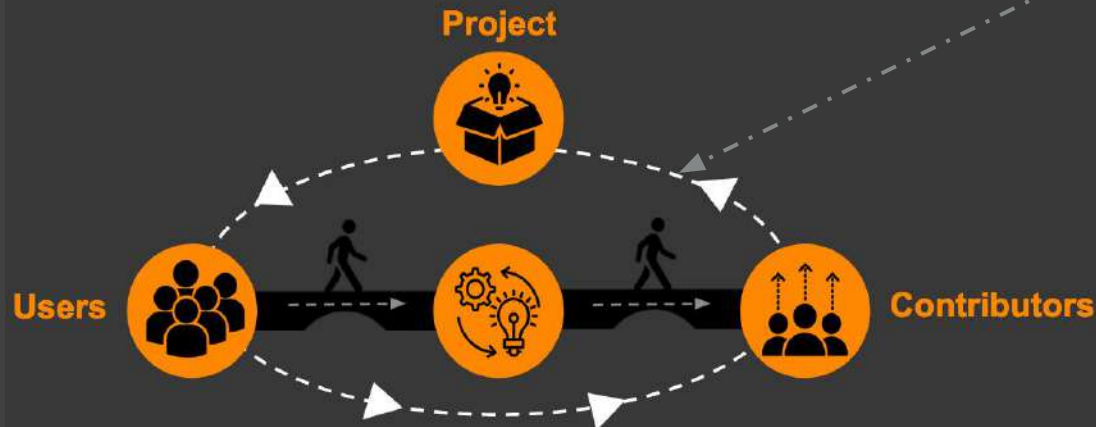
Turing's Health Programme

Skills at Turing

Areas of work indicated for the TPS **Community Managers** and **TPS Researchers/Collaborators**

Tools, practices and systems

Building open source infrastructure to empower a global, decentralised network of people who connect data with domain experts



Strategic and technical support for Stakeholder Engagement and Participation

Research Applications Managers



Organisers



Dr Aida Mehonic
TPS Senior Researcher -
Research Applications

Researchers and collaborators



Dr Alden Conner



Jennifer Ding



Hari Sood

Tools, practices and systems

Building open source infrastructure to empower a global, decentralised network of people who connect data with domain experts



Kirstie Whitaker

Director of the programme

Staff members

- Arielle Bennett, programme manager
- Aida Mehonic, TPS Senior Researcher
- Malvika Sharan, TPS Senior Researcher

Volunteer Leadership Team

- Evelina Gabasova, The Turing Institute
- Ana Basiri, University of Glasgow
- Mishka Nemes, The Turing Institute
- Eirini Malliaraki, Deep Science Ventures Graphic
- Niall McCarroll, University of Reading
- Steven Gray, University College London
- Mark Kelson, University of Exeter
- Hushpreet Dhaliwal, The Turing Institute





The
Alan Turing
Institute

Partners and
collaborating
projects



**Tools,
Practices and
Systems**



Research
communities
at national &
global scale



Bidirectional flow of knowledge, resources & evidence

Research outputs

Strategic and
technical support

Open
Infrastructure



The Turing' flagship project.

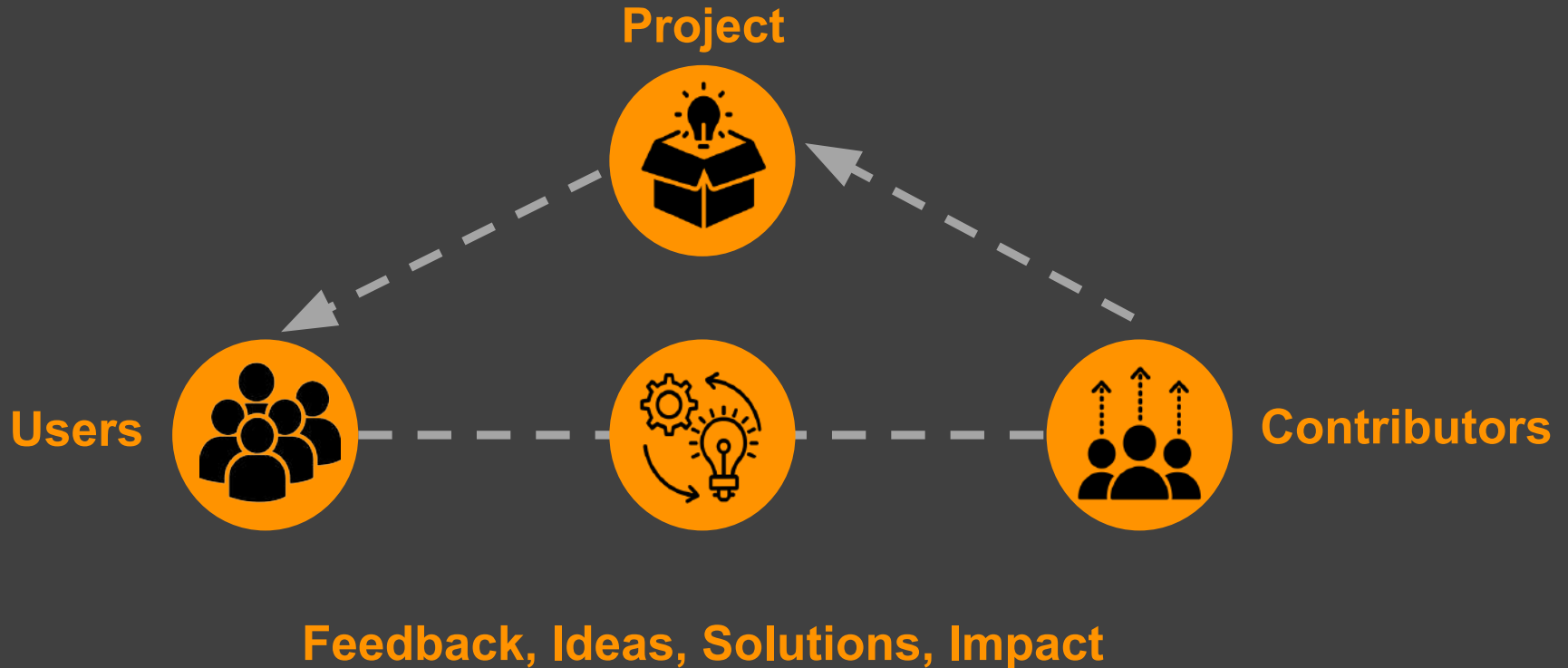
*Open source, open collaboration
and community-driven handbook
to reproducible, ethical and
collaborative data science.*

The Alan Turing Institute

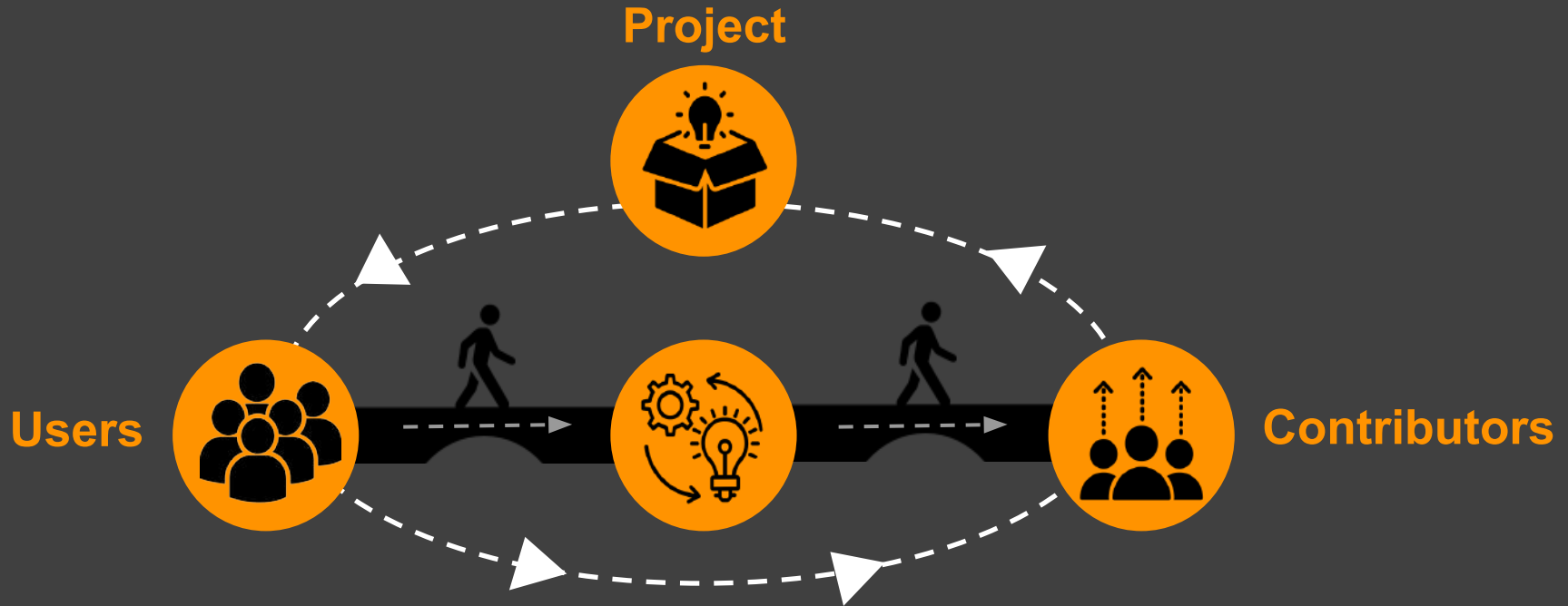
Roles of Community Managers & Research Application Managers



Stakeholders in Research Projects



Stakeholder Engagement and Participation



Pathways to exchange feedback, propose solutions and address them in the project

Community Managers (CM) build, support and enhance **socio-technical framework** in projects for collaboration, peer production and sustainability.



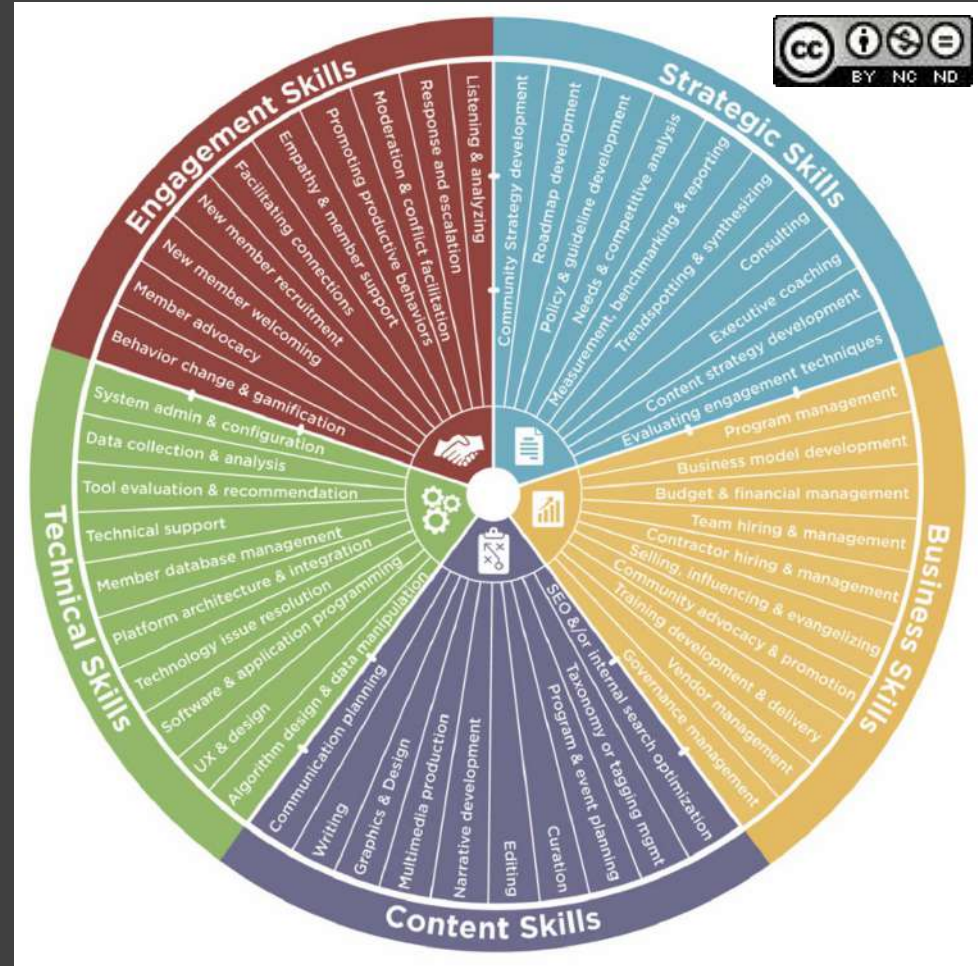
Overview of CM Roles

- Enable support for **technical infrastructure** (code, skills etc.)
- Ensure a **shared understanding** of project goals, objectives & roles
- **Establish** cultural **norms** that are equitable and inclusive



Skills & Responsibilities

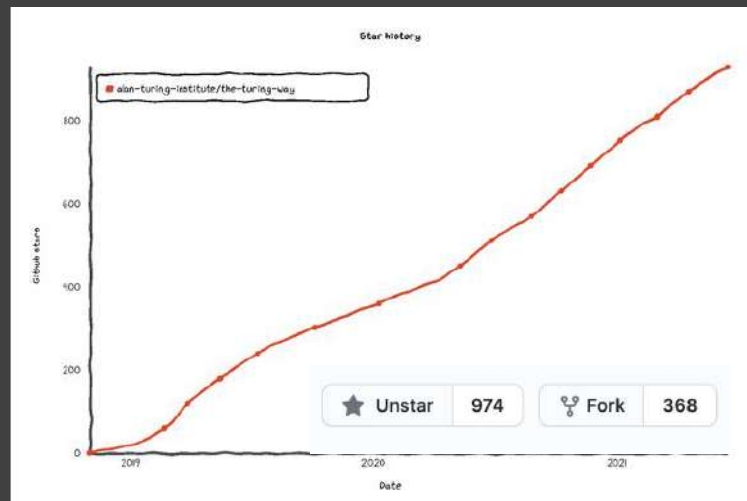
- **Engagement** (core skills)
- **Development** (strategy)
- **Integration** (management)
- **Communication** (content)
- **Domain** knowledge (tech)



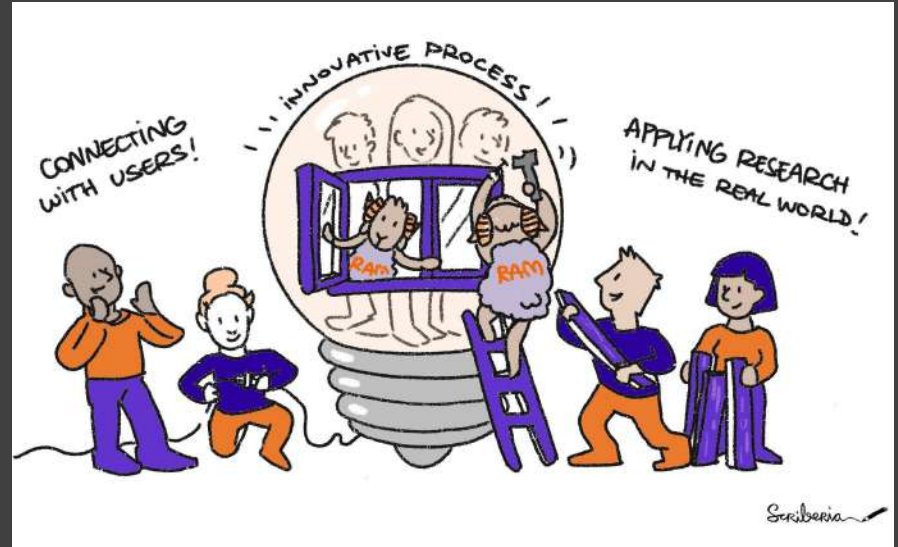
The Turing Way as a 'Community'

The Turing Way is an open source community resource for data science.

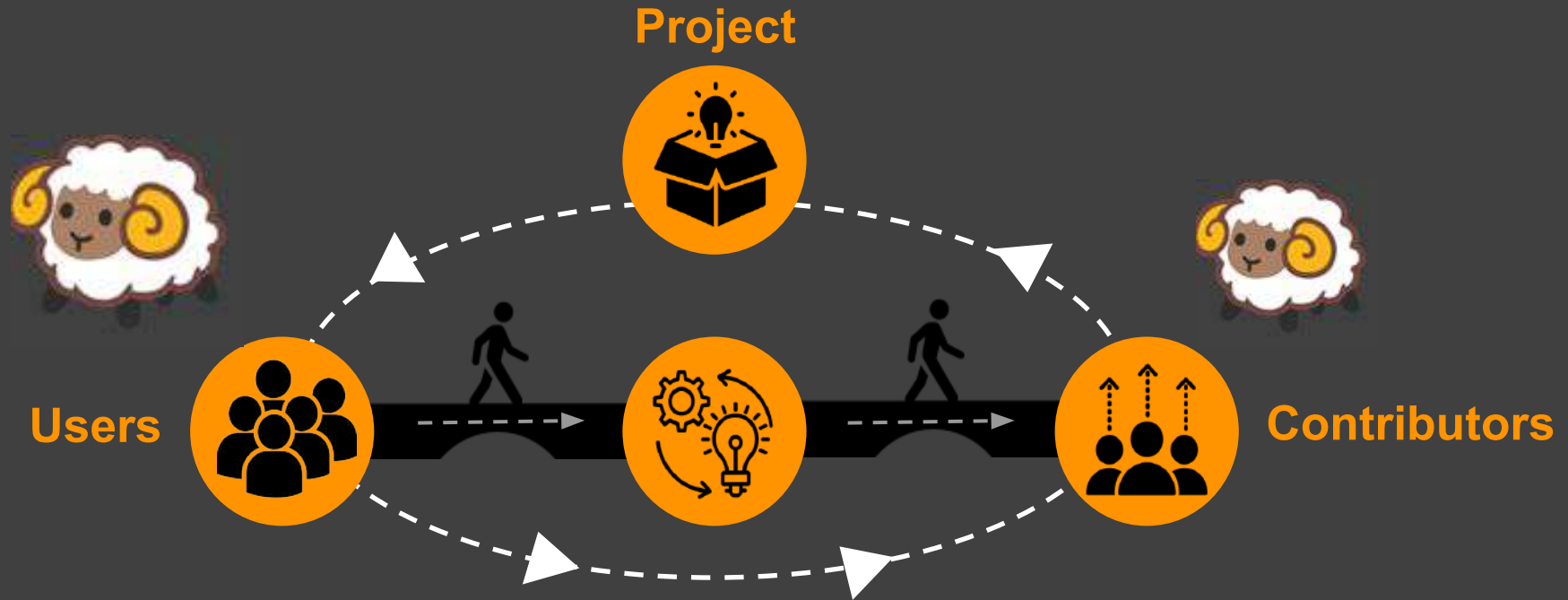
- 2.5 years, 5 guides, >180 pages, **3000 visitors per month**
- Community resources, events, guidance, templates, workshops
- Cited by 25+ peer reviewed articles, data projects, reports



Research Application Managers (RAM) **enhance the real-world impact** of the research output by focussing on the user perspective (similar to Product Managers in the tech industry).

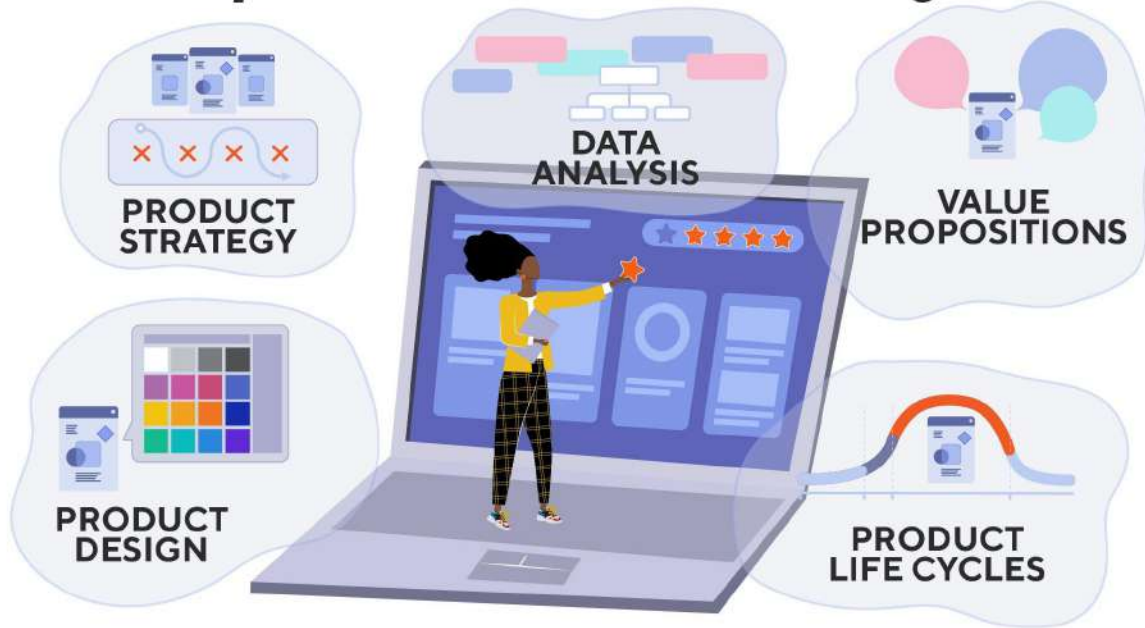


Stakeholder Engagement and Participation



RAMs are a hands-on 'user representative' to the research team - from the early stages (scoping) to handover (documentation and training materials).

Top Skills for Product Managers



Top RAM skills

- understanding the potential 'market' for the research product
- domain knowledge
- technical expertise (coding, testing)

Example: Data Safe Haven as a 'Product'

A RAM will:

- Work with the DSH team (REG) to co-create a **product roadmap**
- Clarify and prioritise **milestones** such as public release, cyber security certifications, strategy & ToR for partnering with commercial orgs (with Partnerships), promotion strategy, soliciting contributions back into DSH codebase
- Identify **optimal pathways to impact**: e.g. to partner with commercial orgs or to host a DSH at Turing for VIP stakeholders (eg govt).

RAMs & CMs across the Turing projects facilitate

- Trustworthy systems (DSH)
- Transparent reporting
- Inclusive interoperable design (TW)
- Ethical integrity
- Respectful co-creation
- Leadership in open research



The Alan Turing Institute

Reproducibility & *The Turing Way*



The Turing Way



An Open Source community-led handbook on Data Science.

We involve and support a **diverse community** to make research **open, reproducible, collaborative and ethical** for everyone.



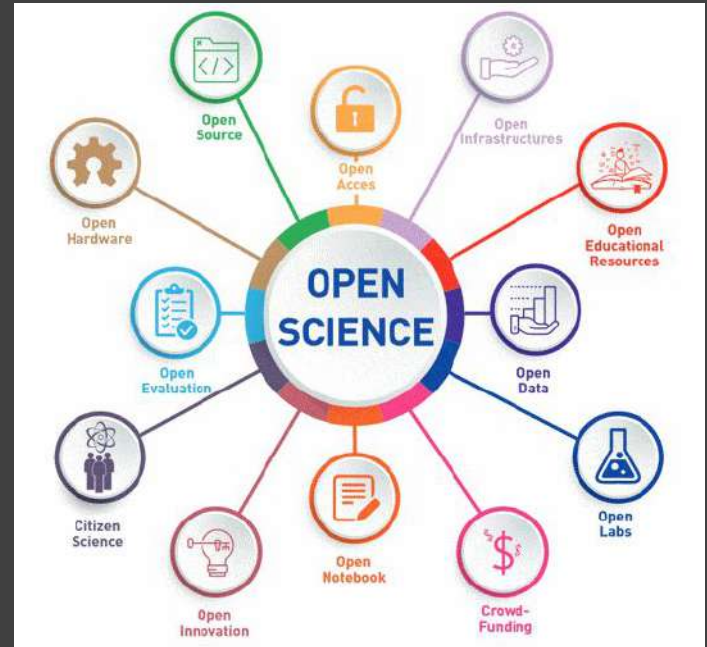
Kirstie Whitaker

Director: Tools, Practices & Systems Programme (TPS)

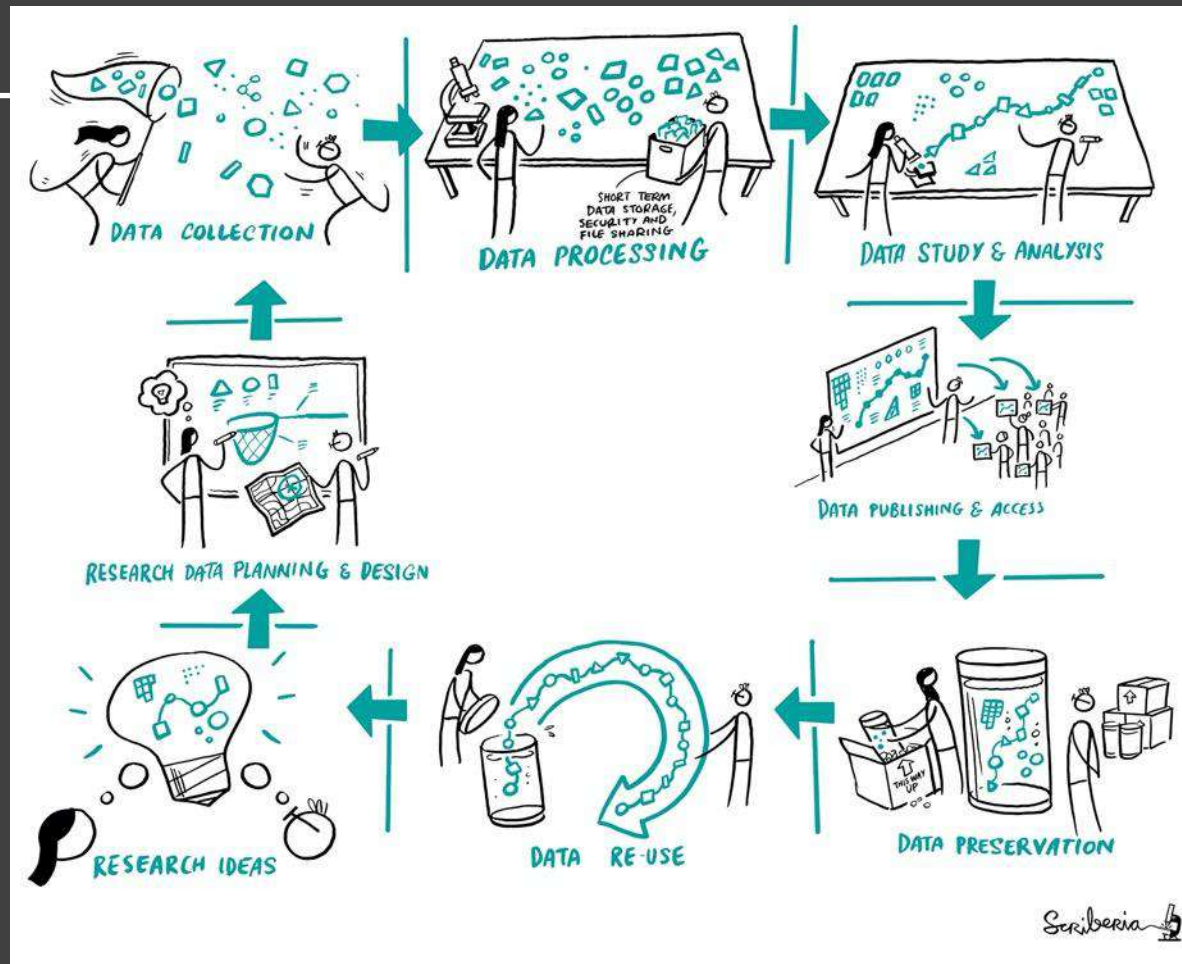


Open Research & Reproducibility

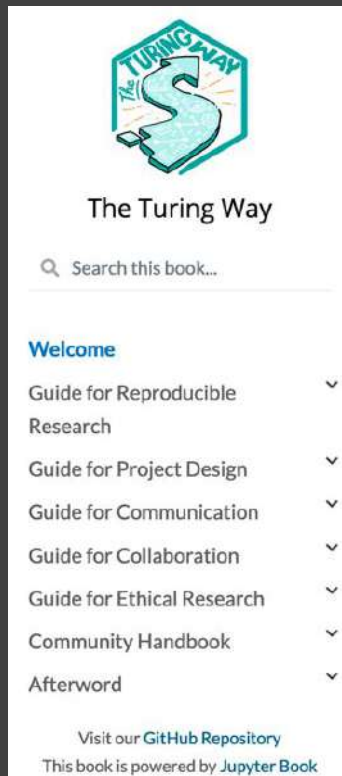
		Data	
		Same	Different
Analysis	Same	Reproducible	Replicable
	Different	Robust	Generalisable



Open Research & Reproducibility



A book: “Work in Progress”





Book:
the-turing-way.netlify.app

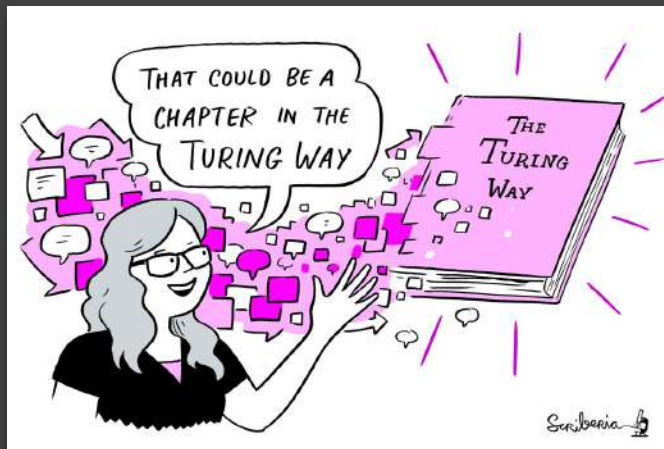
GitHub:
github.com/alan-turing-institute/the-turing-way

Twitter:
twitter.com/turingway

Email:
theturingway@gmail.com

CC-BY 4.0, The Turing Way

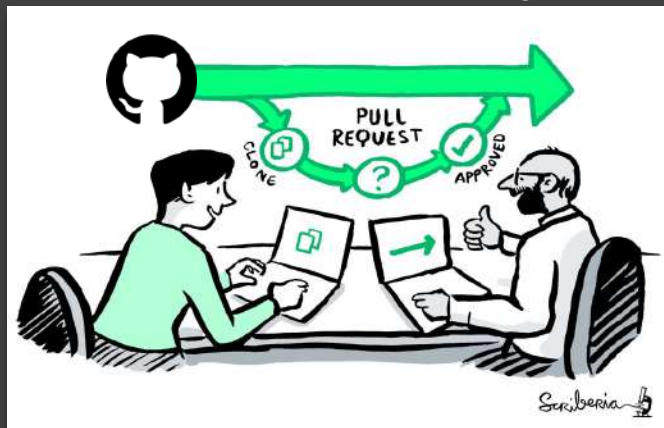
A Book



A Community



An Open Source Project



A Culture of Collaboration



An open source project

- Everyone can freely read, reuse, distribute, modify and help develop.
- The project belongs to *The Turing Way* community.
- Built on open source infrastructure:
 - Git, Jupyter Book, Binder, project bots etc.
 - Netlify: the-turing-way.netlify.app/welcome

The screenshot shows the Zenodo website interface. At the top, there's a navigation bar with the Zenodo logo, a search bar, and links for 'Upload', 'Communities', 'Log in', and 'Sign up'. The main content area is titled 'The Turing Way' and shows 'Recent uploads'. The first upload is a paper titled 'Challenges in Assessing Contributions to Reproducible Research and Open Science' by Sharon, Malvika, dated September 5, 2020. The second upload is 'FSC2020 Lightning Talk: The Turing Way' by Esther Ploner and Kirstie Whitaker, dated August 11, 2020. Below these, there's a section for 'The Turing Way workshop on Boost your reproducibility with Binder' dated August 6, 2020. To the right of the workshop section, there's a list of repository files and their commit dates, including 'CONDUCT.md', 'CONTRIBUTING.md', 'README.md', 'book_skeleton.md', 'binder_buttons.md', 'clicks_survey.md', and 'types_of_working.md'.



@turingway, <https://zenodo.org/communities/the-turing-way>, <https://github.com/alan-turing-institute/the-turing-way>

Book: <https://the-turing-way.netlify.app/welcome>, @turingway, CC-BY 4.0, DOI: 10.5281/zenodo.6878124

Project Growth & Recognitions

- 4 years, **>260 Chapters**, community resources
- **415+ contributors**, 3000+ monthly users - supported by project leads, community manager, 20+ core members (governance)
- **Replication/extension by 3 Turing & 6+ external projects** (e.g. ONS, UCL, Uni Oxford, LIBER: Association of European Research Libraries)



17,771

views

15,330

downloads



Notable Activities & Impact

Resources used by organisations, research teams, educators, community builders, policy makers and researchers globally

- NASA - Transform to Open Science - 5 years Mission for capacity building
- Recommended in Goldacre Review for modern open working into health data
- NASA OpenCore, CodeRefinery, Library Carpentries training materials
- Reproducibility of scientific results in the EU 2020 report
- An Emerging Technology Charter by Mayor of London (2021 policy)
- Innovation Scholars: UKRI grant 2020 (funding call)
- Outreach & community activities: >60 presentations and workshops per year, regular Collaboration Cafes, Book Dashes, Fireside Chats, Team meetings (working groups, governance, translation, consulting, partnership network)

Notable Activities & Impact

The hidden REF Retweeted

Dr Emma Karoune @ekaroune · Oct 7, 2021

Here's @turingway's one from @HiddenRef - thanks so much, its lovely.



hidden
REF

OpenUK
@openuk_uk

🎉 Congratulations to @TuringWay winner of the @OpenUK_UK 2022 Awards Belonging Category sponsored by @Avanade #openukawards #opensource #DEI



7:21 PM · Nov 30,

Open:UK Awards

Integrating Best Practices

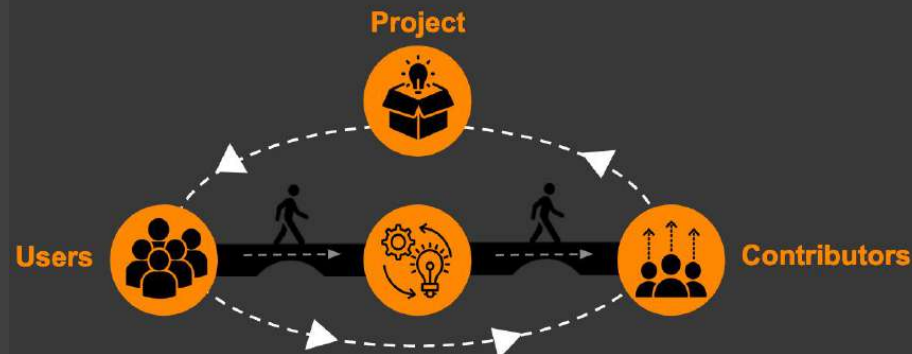
Open source, reproducibility, ethics and collaborative **practices apply differently in different contexts.**

ASG has enabled **expert-led integration of best practices** through TPS Senior Researchers, Research Application Managers (3), alongside TPS' Programme Manager, Community Managers (7) and project partners

Home + Research + Research programmes + Tools, practices and systems

Open Research Community Building

Establishing cross-community collaborations and promoting open research in data science



Research Application Management

Adapting research outputs for real-world problem solving while ensuring openness and reproducibility

What's Next?

- >£1 million investment to establish **The Turing Way Practitioners Hub**
- **New positions:** 1 Researcher, 1 Project Manager, 0.5 FTE RAM, close collaboration with 5 UK orgs (govt, industry, academia)
- **Embed practices in Turing 2.0** through new CMs and RAMs – consulting other organisations on community management roles



The
Alan Turing
Institute

CATAPULT
Digital

The Turing Way Events & Opportunities



Anne Lee Steele

Community Manager,
The Turing Way

bit.ly/turingway

- *Collaboration Cafes*
 - 1st & 3rd Wednesdays (14:00 UTC)
- *Coworking Calls*
 - Mondays (10:00 UTC)
- *Fireside Chats*
 - Monthly on last Fridays
- *More opportunities:*
 - Community, data skills, governance, translation, collaboration & more!

Acknowledgements & Links

The
Alan Turing
Institute

The Turing Way Community of contributors and partners

- **Kirstie Whitaker**, Director of Tools, Practices and Systems & Project co-lead
- **Anne Lee Steele**, Community Manager, **Arielle Bennett**, Programme Manager
- **CM team**: Emma Karoune, Arron Lacey, Vicky Hellon, Eirini Zormpa, Sophia Batchelor, Achintya Rao. Collaborators from Skills Team, Research Engineering Group
- **RAM team**: Aida Mehonic, Jennifer Ding, Alden Connor, Hari Sood

Useful links, events & opportunities: <https://bit.ly/turingway>

- **Book:** the-turing-way.netlify.com, **Twitter:** twitter.com/turingway
- **GitHub:** github.com/alan-turing-institute/the-turing-way



Community Building and Impact



Design

Collaborative
framework



Document

Workflow &
processes



Involve

Shared Ownership
& culture



Reward

Build values &
inspire change