The Turing Way for responsible research

What happened?

The Turing Way was established in 2019, by AI for science and government (ASG) funded researchers, as an openly available guidebook on how to carry out reproducible, ethical, collaborative data science. As a community-led resource, it is authored by hundreds of global contributors and updated in response to changes in the rapidly shifting data science landscape. It is emerging as a world-leading community of practice for responsible research.

What are the real-world impacts?

- A collection of guides on responsible research for data scientists, which can be freely read and distributed, and is accessed by an average of 3,000 users every month.
- Over 350 community contributors involved to date in writing and editing the handbooks, with many also engaged through regular online co-working sessions.
- Provides guidance for government best practice processes in software engineering, as recommended by the Goldacre review on health data for research and analysis.
- Directly informing NASA's Transform to Open Science (TOPS) initiative. *The Turing Way* Project Co-investigator, Malvika Sharan, sits on the TOPS community panel, feeding into its plans and activities. *The Turing Way* is also considered invaluable in the development of NASA's OpenCore curriculum targeting NASA scientists.
- Through provision of advice and resources, *The Turing Way* supported the Health Foundation, which uses data analytics to tackle real-world health and social care issues, to achieve key milestones in progress towards its goal of open analytics.
- A resource for stakeholders involved in the ARPHAI project, which evaluates how data science and AI are used in policymaking for pandemics/epidemics in Argentina.
- Provided inspiration for other knowledge sharing projects including an Office for National Statistics guide for government analysts who use coding in their work and FAIR Cookbook, a hands-on guide to reproducible research in the life sciences.

Why was the Turing's ASG programme uniquely placed to do this?

- In its role as the national institute for data science, The Alan Turing Institute has an ethical responsibility to set standards for responsible data science, and funding for *The Turing Way* through the ASG programme supports this aim.
- *The Turing Way's* dynamic interlinks with ASG and the thriving Turing community give it a credibility beyond the programme, enabling it inspire other organisations to follow its lead in developing and adopting best practice in responsible research.

How did the Turing network convening capability add to the work?

- Tools, practices and systems team members, Research Application Managers and Community Managers actively sought to transfer practices developed via *The Turing Way* to other research projects inside and outside of ASG and the Turing.
- The initial project funding supported researchers at Turing partner universities (Manchester and Birmingham), whilst numerous other partner institutions across the UK and internationally contributed to subsequent development events.

> **"As we go and talk to NASA scientists, they ask us for resources. I point them to The Turing Way. I think what makes it so valuable is the detailed information that guides scientists on how to not just make their science reproducible, but how to create inclusive science so that the best ideas can grow and flourish."**
> Chelle Gentemann, NASA HQ Program Scientist, Transform to Open Science