



Marion Samler
DAFNI Partnership Manager
Scientific Computing, Science and Technology Facilities Council

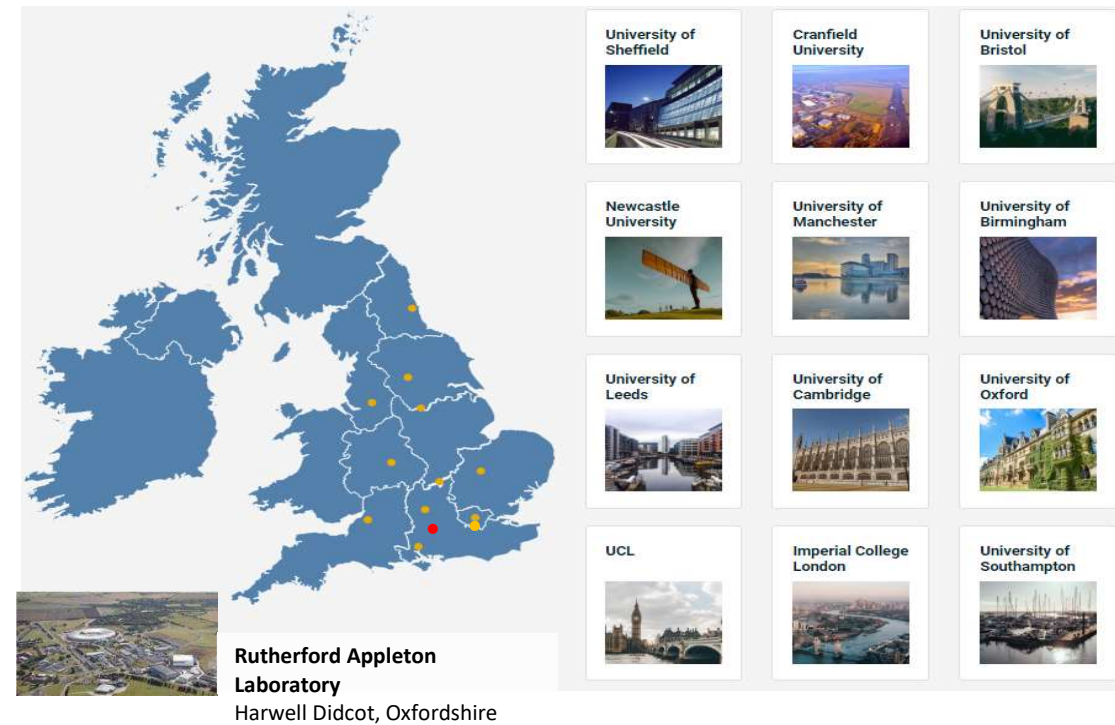


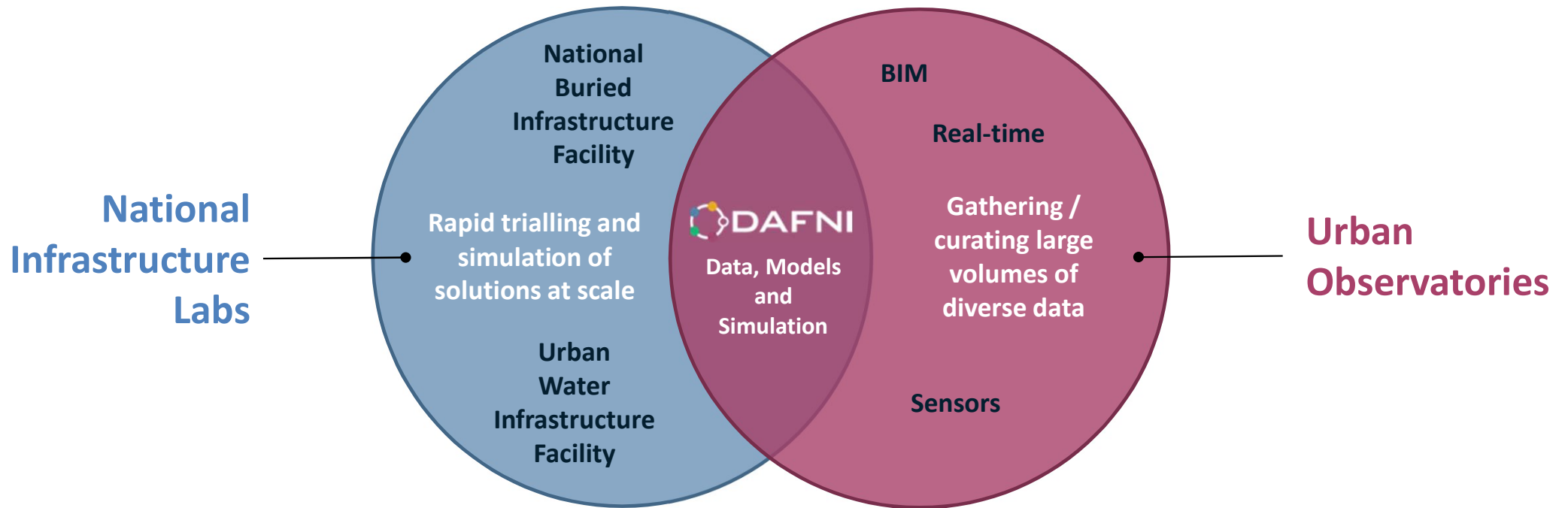
Providing a computing platform to improve decision making for national infrastructure

UK's next generation platform to support research into infrastructure decisions: planning, investment, design and operation.

- £8M investment 2017-2021 under the UKCRIC programme
- A Partnership of 12 partner universities + STFC as development and hosting partner

Leading to Partnerships between Academia, Government, Industry





- **A hybrid high-performance computing platform**
- **A secure repository for heterogeneous national infrastructure data and models.**
- **A collaborative platform to research and develop *multi-system models* of infrastructure assets and systems in *a managed environment***
- **A place to make data and models available for long-term accessibility - Place as a legacy**

Example of Industry Use Case



CReDo (Climate Resilience Demonstrator)

‘The National Digital Twin programme’s Climate Resilience Demonstrator (CReDo) is a pioneering climate change adaptation digital twin project that provides a practical example of how connected data can improve climate adaptation and resilience across a system of systems.’

<https://digitaltwinhub.co.uk/credo/credo/>

The screenshot shows the top navigation bar of the Digital Twin Hub website. It includes the 'DIGITAL TWIN HUB' logo on the left, followed by navigation links: 'About Us', 'Explore', 'Projects', 'Discussions', and 'Activity'. There are also 'Sign In' and 'Sign Up' buttons. Below the navigation bar, a purple banner reads 'Climate Resilience Demonstrator' with sub-links for 'What is CReDo?', 'News', 'Technical Reports', 'Recommendations and Resources', and 'Acknowledgements'.

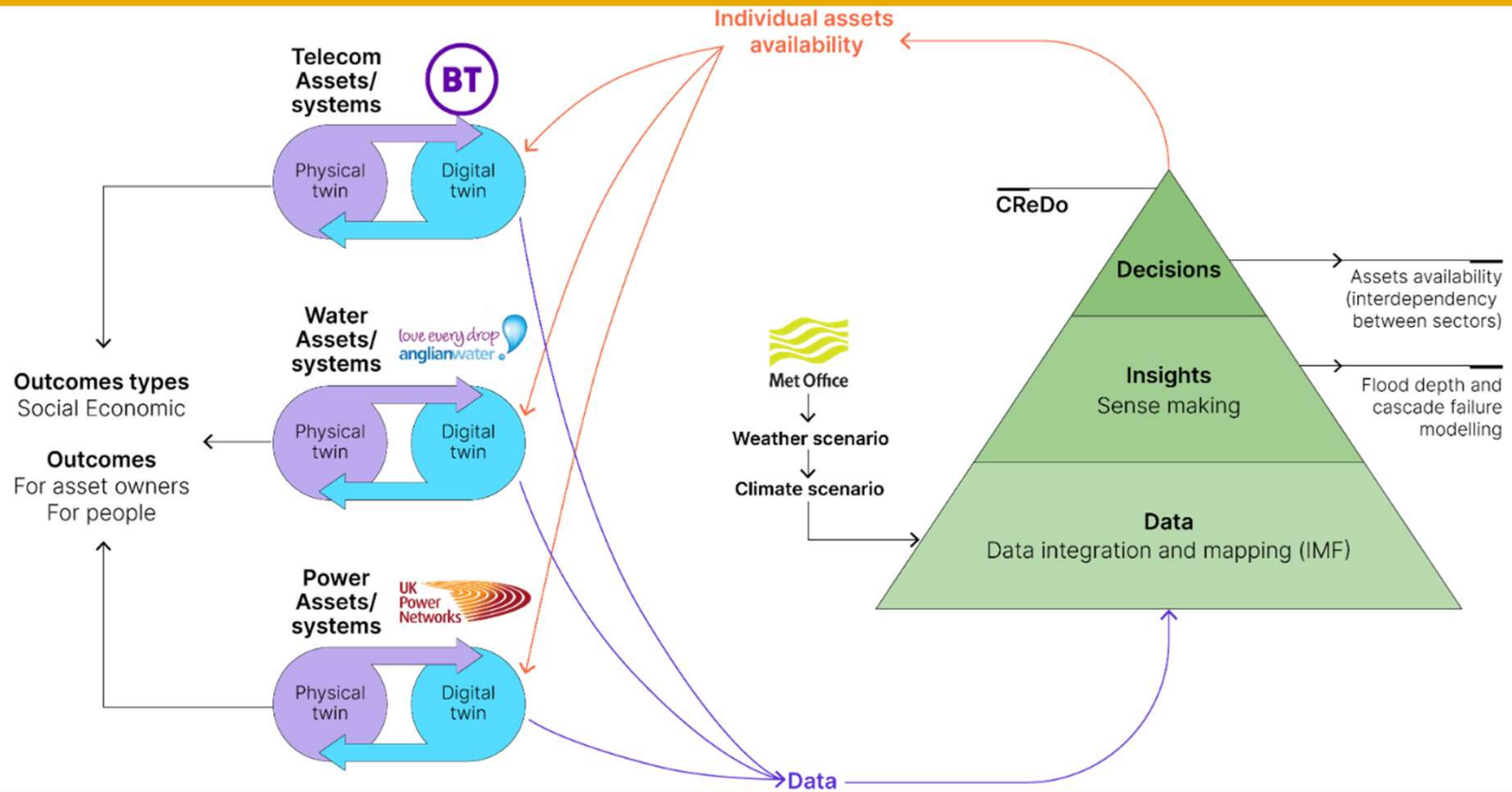
Tomorrow Today - a CReDo film, and Interactive App

'Tomorrow Today' Film

CReDo Interactive App

A YouTube video player showing a short film titled 'Tomorrow Today - 2021 Short Film from NDTp's Climate Resilience Demonstrator (CReDo) project - Full'. The video features a young man with a concerned expression. The player includes a play button, a 'Watch later' button, and a 'Share' button. At the bottom left, it says 'Watch on YouTube'.

The screenshot shows the website for the Centre for Digital Built Britain, part of the University of Cambridge. The header includes the university logo and navigation links: 'Study at Cambridge', 'About the University', and 'Research at Cambridge'. A search bar is also present. The main content area features a red banner with the text: 'The National Digital Twin programme produces a film and interactive app for COP26 showcasing the role of connected digital twins in tackling the climate emergency'. Below the banner is a video player showing a woman in a control room. To the left is a navigation menu with links for 'News', 'Who we are', 'What we do', 'Research', 'Resources', 'Events', 'Blog', and 'Connect'. To the right is a 'Related links' section with a link to 'CReDo: watch the film, try the app, follow the project.' and a 'Tweets' section showing a tweet from @CambridgeCDBB about the project's announcement for COP26.





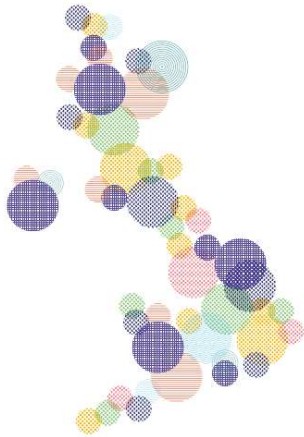
CRoDo needs to securely combine datasets from multiple “Asset Owners”
Some of these datasets are very sensitive as they could be used by Bad People™ to attack our infrastructure

What were the benefits that DAFNI provided to CReDo?

- Secure Data Repository;
- Neutral Collaboration area;
- Advanced Tooling to support interlinking and scaling models;
- High end compute – run several simulations to look and compare with different scenarios;
- Bespoke visualisations presented the results to provide insights for the simulations;
- Legacy platform.

**CReDo Technical Paper 1:
Building a cross-sector digital twin**

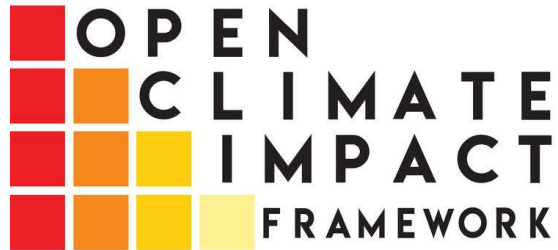
March 2022



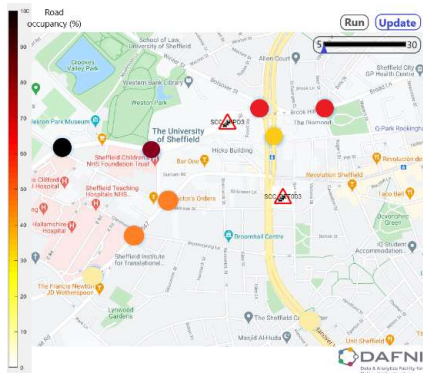
[CReDo technical report 2: Generating Flood Data - Public Resources - DT Hub Community \(digitaltwinhub.co.uk\)](https://digitaltwinhub.co.uk)



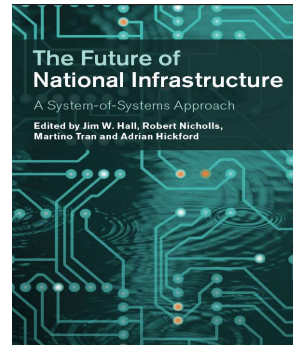
Projects DAFNI is involved in



Traffic Digital Twin in Sheffield



NISMOD has migrated to DAFNI



Digital Twin Urban Analytics - Towards A Flexible, Sustainable Urban Energy System



Green Finance: DAFNI part of a new £10M UK centre for climate and environmental risk for the financial industry.





DAFNI

Thank You for listening

info@dafni.ac.uk

Marion Samler (marion.samler@stfc.ac.uk)



Science and
Technology
Facilities Council



Engineering and
Physical Sciences
Research Council



UKCRIC