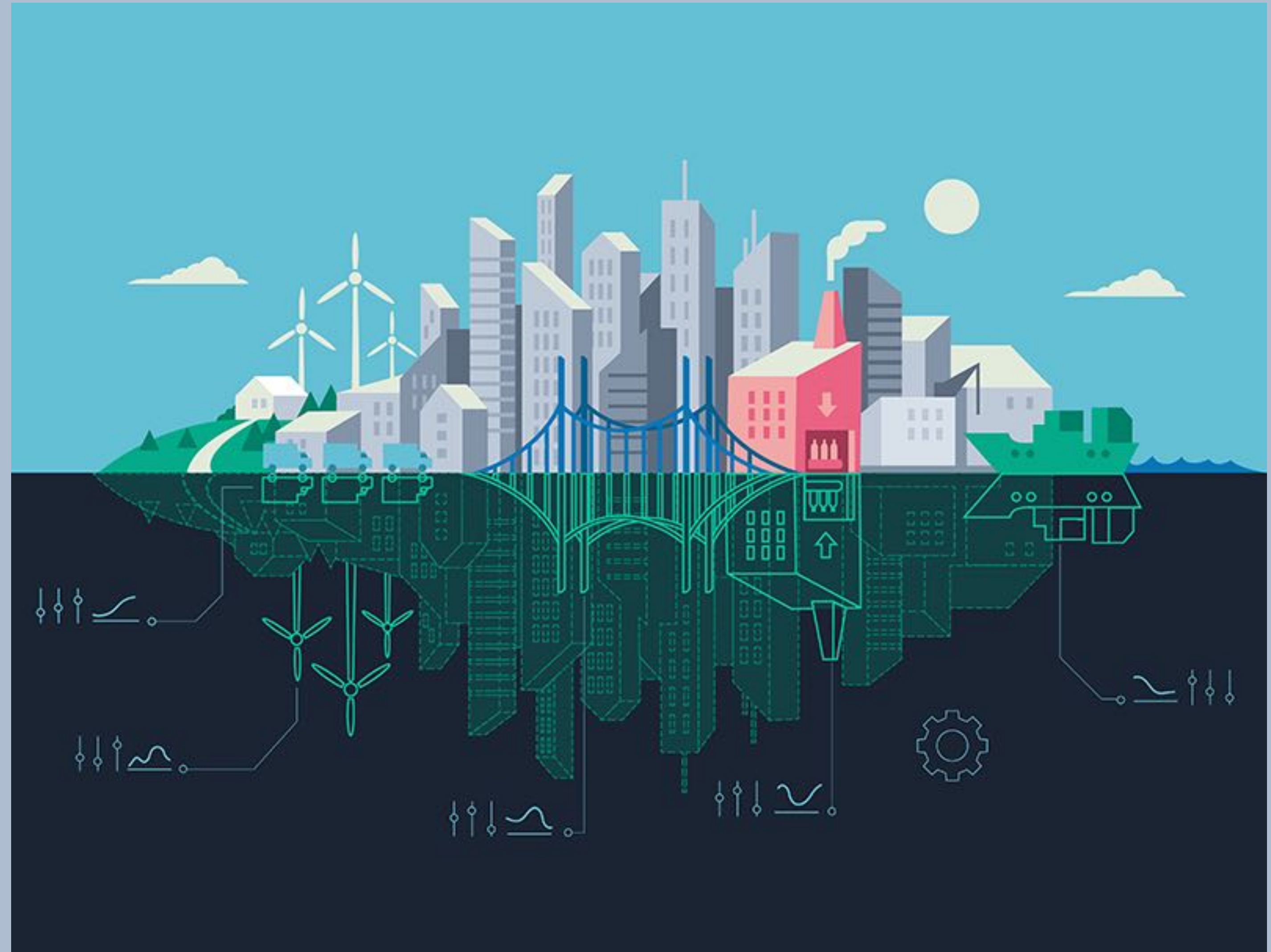


# Community Pulse Check: Assurance of Digital Twin Systems

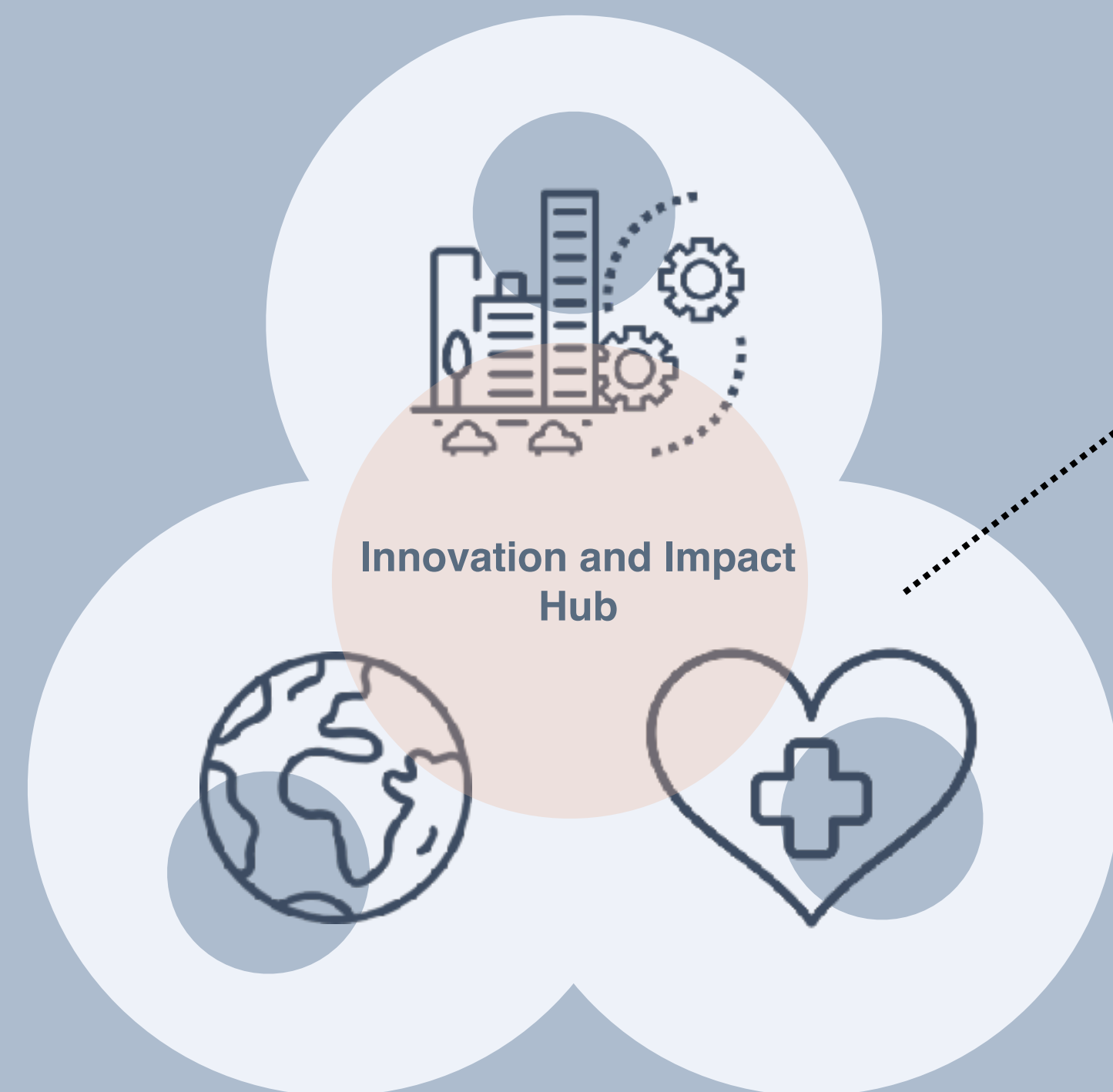
Turing research and innovation  
cluster in digital twins (TRIC-DT)

30/04/2023

Dr Sophie Arana



# Turing Research and Innovation Cluster for digital twins



Advance the **science** and  
**implementation** of digital twinning

Produce **open and reproducible  
computational tools** for DT design,  
development, and deployment

Build a **multidisciplinary community  
of practice** in digital twinning






Project Goals and Objectives

# Trustworthy and Ethical Assurance of Digital Twins

- ① Scoping Research
- ② Co-creation of open tools and practices
- ③ Build a multidisciplinary community of practice





**Assurance is the process of measuring,  
evaluating and communicating something  
about a system or product**



**Assurance is the process of measuring,  
evaluating and communicating something  
about **the trustworthiness** of a system or  
product**



**Assurance is the process of measuring,  
evaluating and communicating something  
about **the trustworthiness** of a **digital twin****



GOV.UK

Home > Business and industry > Science and innovation > What a digital twin is and how you can contribute

Department for Business & Trade

Guidance

National Digital Twin Programme (NDTP) principles

Pathway towards an Information Management Framework

Summary of Consultation Responses

GEMINI

TRUST, PURPOSE, CONNECTED

DNV

Publications

Document on sharing

Rules and Standards Explorer

digital twin

Assurance of digital twins

DNV RP A204

Assurance of digital twin

Editors: Oct 2023

Document code: DNV RP A204

Download PDF and associated documents after your 14-day free trial, your organization needs an subscription

Subscription rules

NATIONAL DIGITAL TWIN PROGRAMME

Pathway towards an Information Management Framework

Summary of Consultation Responses

digital twin CONSORTIUM

Digital Twin System Interoperability Framework

National Oceanography Centre

An Information Management Framework for Environmental Digital Twins (IMFe)

bsi

IOT/1 N 131

IOT/1 "Internet of Things and Digital Twin"

National secretary: Erskine Sophie Ms

BS ISO/IEC 21823-3:2021 - Internet of Things (IoT). Interoperability for IoT systems. Semantic interoperability

Document type: Related content: Document date: expected action

Publication: Standard: 2023-03-21

Description

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The Gemini Principles

Purpose:  
Must have clear purpose

Public good  
Must be used to deliver genuine public benefit in perpetuity

Value creation  
Must enable value creation and performance improvement

Insight  
Must provide determinable insight into the built environment

Trust:  
Must be trustworthy

Security  
Must enable security and be secure itself

Openness  
Must be as open as possible

Quality  
Must be built on data of an appropriate quality

Function:  
Must function effectively

Federation  
Must be based on a standard connected environment

Curation  
Must have clear ownership, governance and regulation

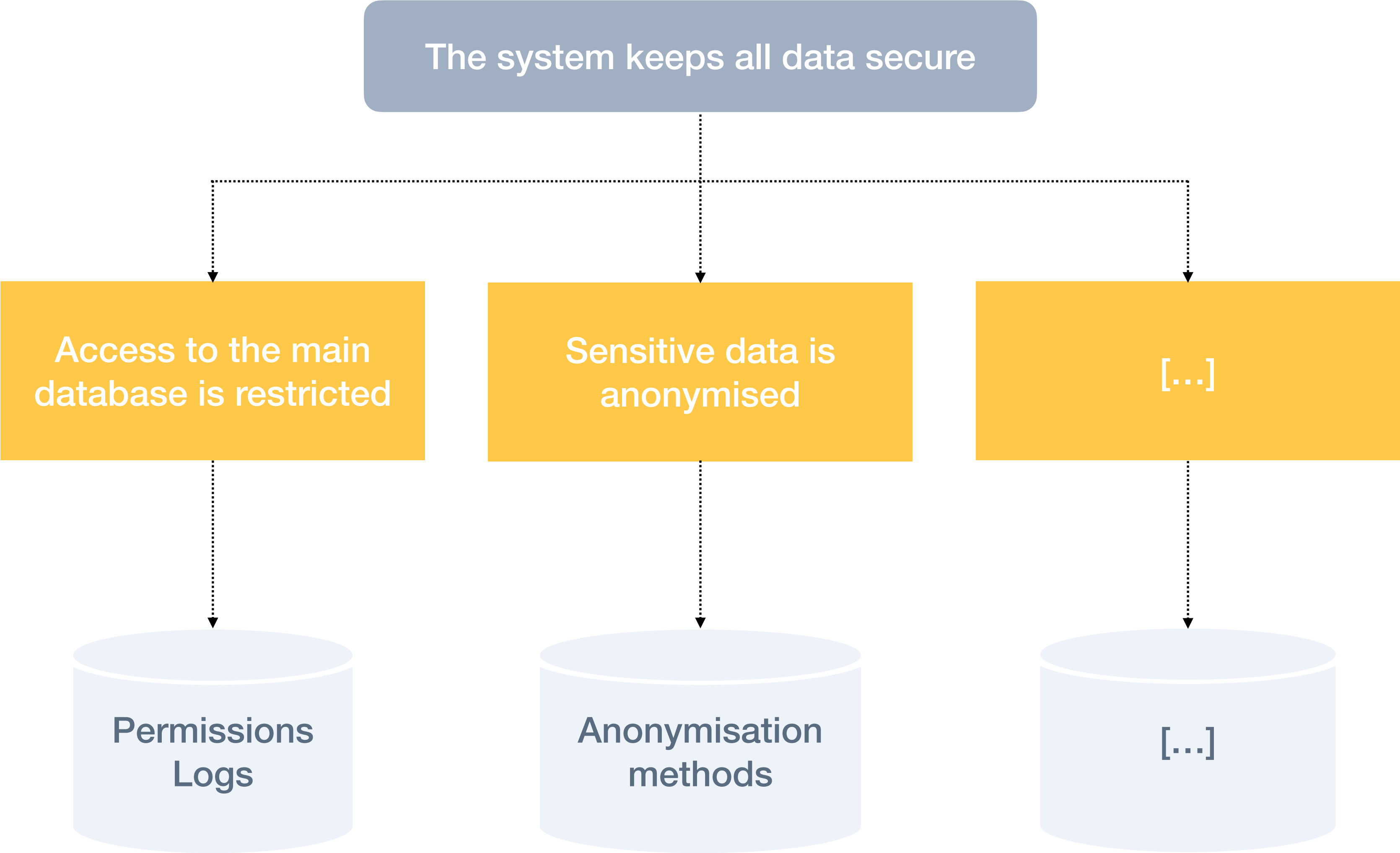
Evolution  
Must be able to adapt as technology and society evolve

The Alan Turing Institute

Towards ecosystems of connected digital twins to address global challenges

Successes and recommendations from The Alan Turing Institute's AI for science and government programme







**Why a community-based tools for  
trustworthy and ethical assurance?**

# Why a community-based tools for trustworthy and ethical assurance?



**Deliberation &  
Transparent  
Communication**



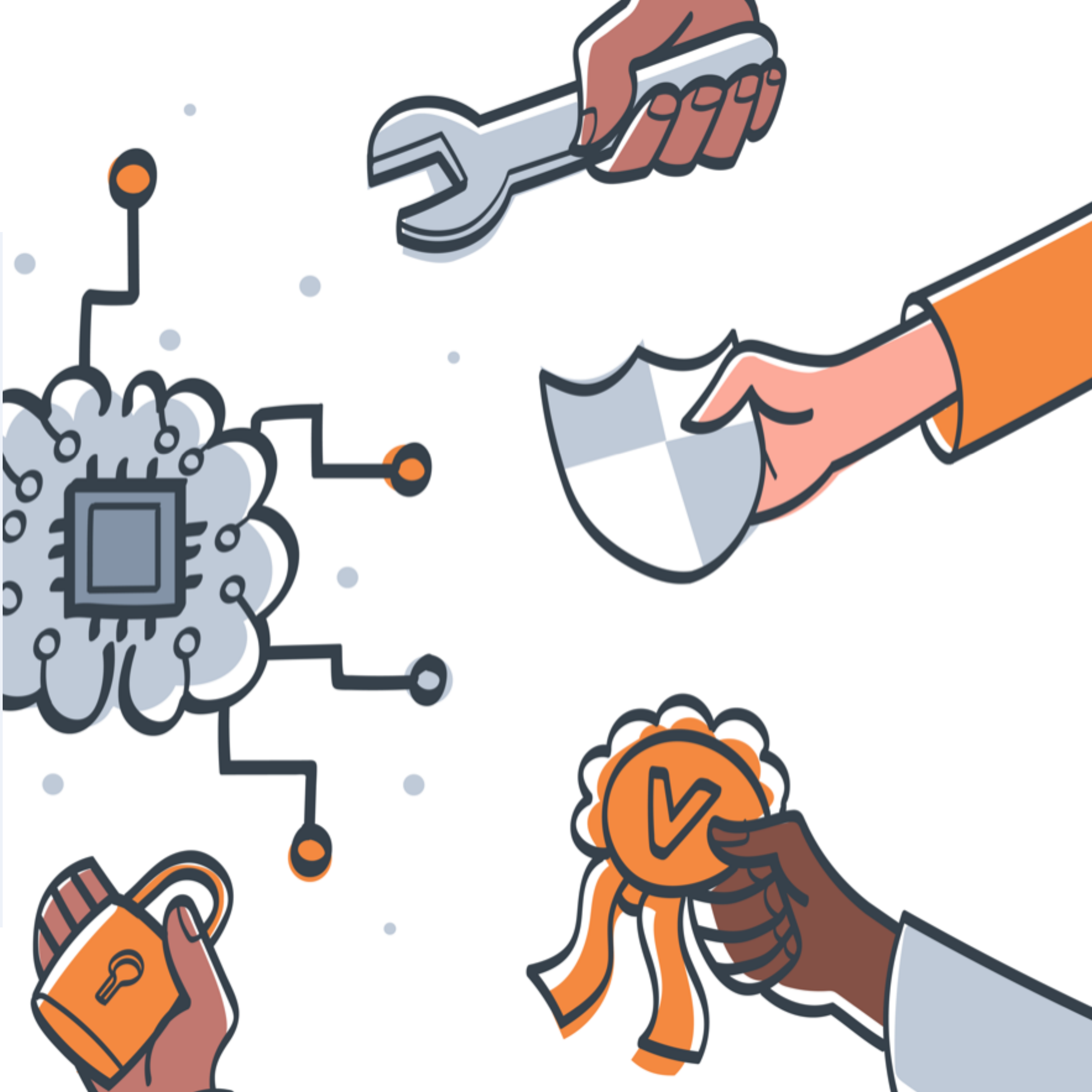
**Foster Market  
Trust**



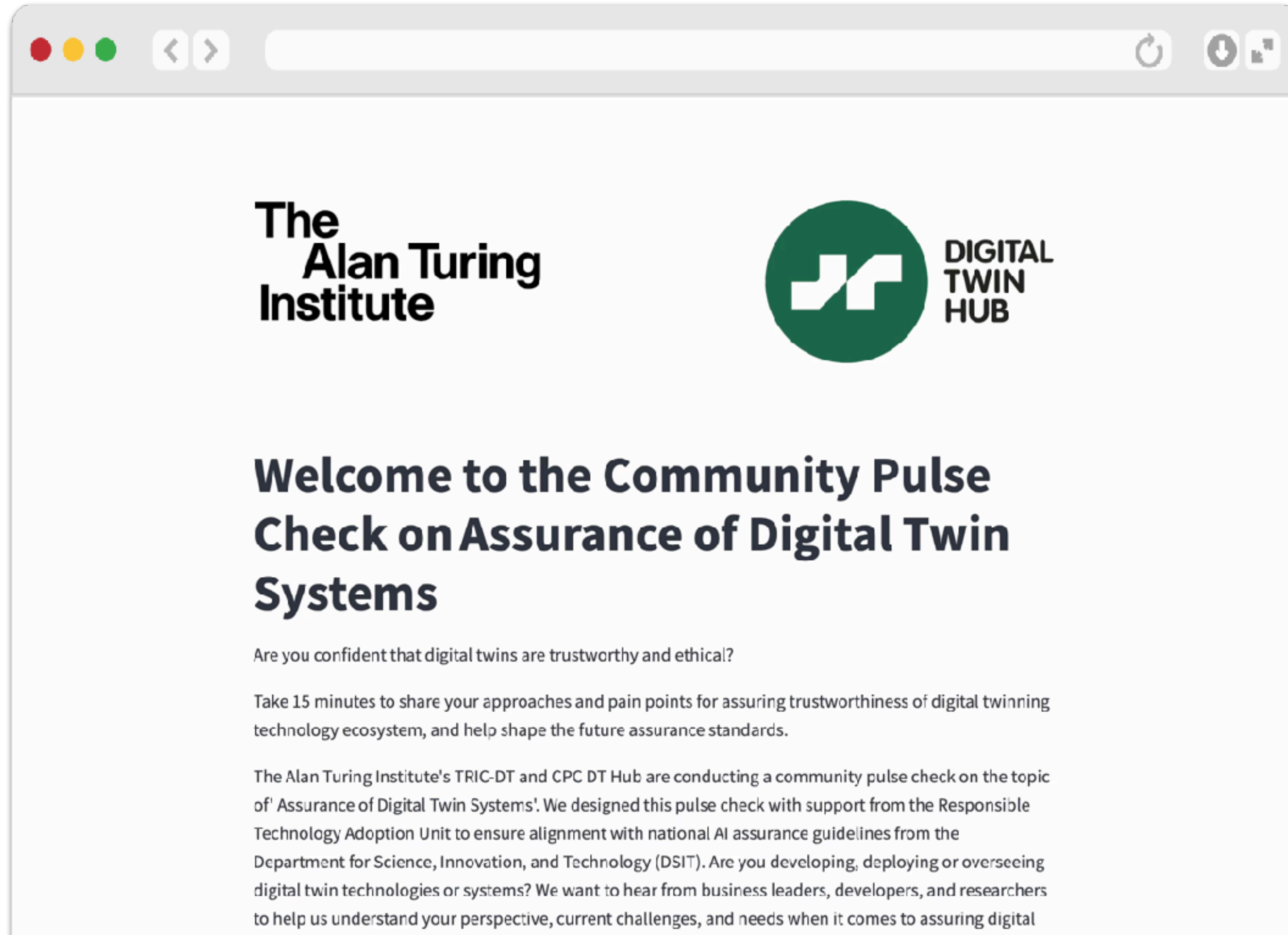
**Enhance  
Compliance  
and  
Reporting**



# Community Pulse Check Digital Twin Assurance







Digital Twin Assurance

# Community Pulse Check

- 1 Promote **trustworthy and ethical** digital twins
- 2 **Share & learn best practices** with the community
- 3 **Voice your needs** and **shape** development of assurance **tools**

**Help us refine our community  
pulse check!**

**subject “assurance”**

**[digitaltwins@turing.ac.uk](mailto:digitaltwins@turing.ac.uk)**