Bytes and Mortar: the potential for digital to transform the construction and infrastructure sectors

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Set up in August 2017 by Government at the University of Cambridge to support the digital transformation of the built environment. It does this through:

- building academic capacity
- informing policy
- supporting industry change

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How CDBB supports the Digital Transformation of the Built Environment

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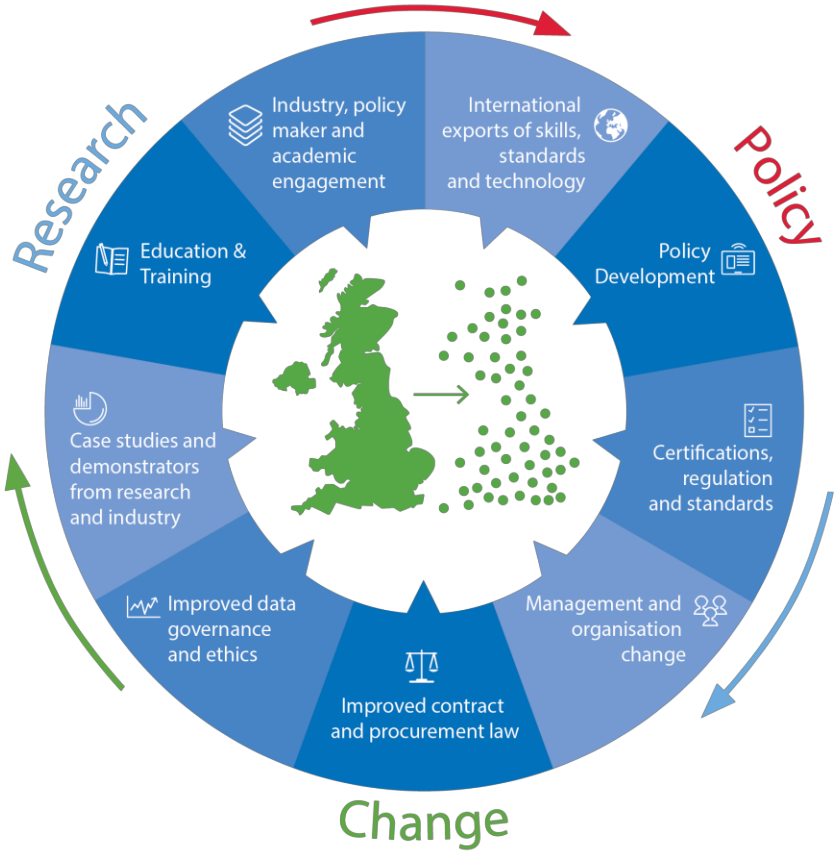
Department for Business, Energy & Industrial Strategy



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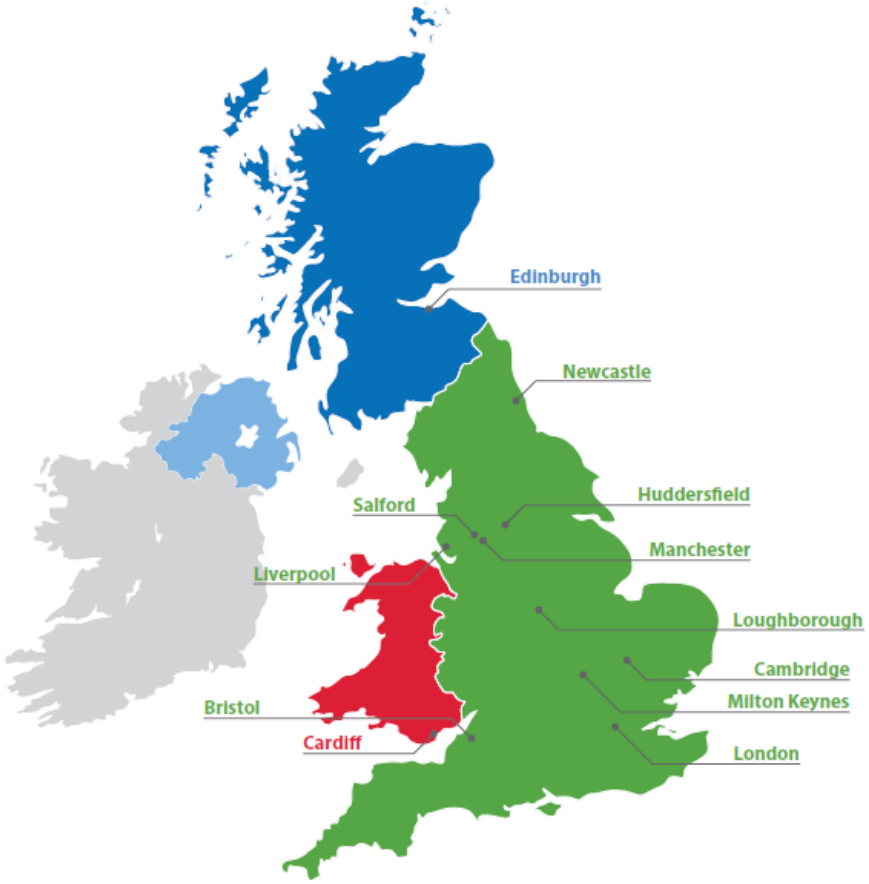
Building research capacity

- Delivery: UK | Centre: Cambridge
- Multidisciplinary research community to join up dbB's social / economic / tech ambitions
- Coordinates long-term research agenda ("capabilities portfolio") to deliver an ambitious dbB
- Close industry links: to embed innovative research in professional practice

44 cross-disciplinary research projects and networks were awarded to institutions in these locations:

17	7	10	6
Mini-projects	General research projects	Early-career researchers	Research networks



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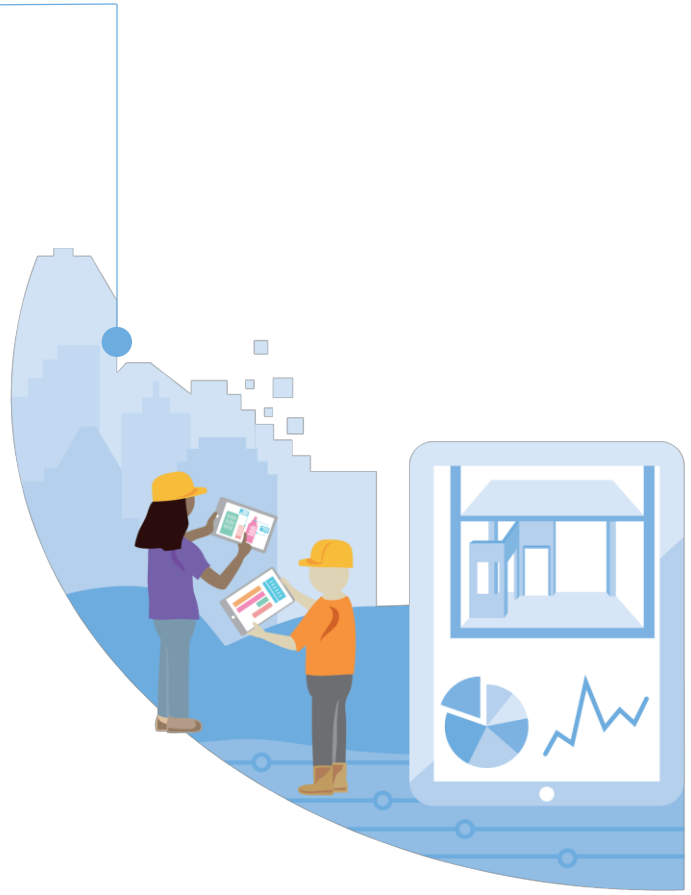
What is a digital built Britain?

Design

- Deploy digital techniques to design better performing buildings, homes and infrastructure
- Use good practice, secure by default, information management to get data right from the start



Design

Build

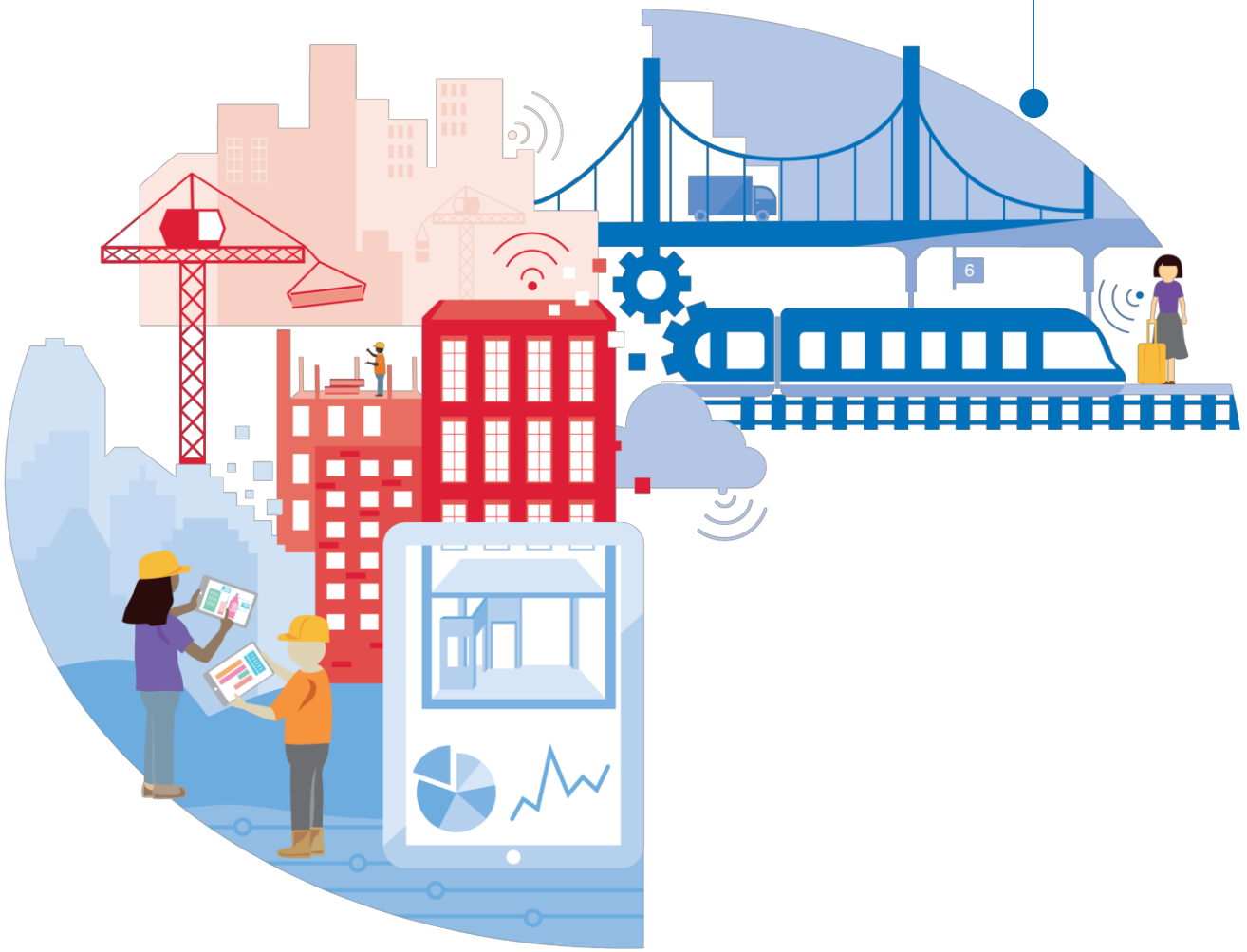
- Exploit new and emerging digital construction and manufacturing technologies and techniques
- Secure, shared information, enabling clients, design teams, construction teams and the supply chain to work more closely together to improve safety, quality and productivity during construction

Design

Build

Operate

- Use real time information to transform the performance of the built environment and its social and economic infrastructure
- Smart asset management to predict and avoid disruption of services
- Digitising existing assets



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Design

Build

Operate

Integrate

- understand how spaces and services can improve citizen quality of life
- feed that information in to the design and build of our economic and social infrastructure and the operation and integration of services they deliver

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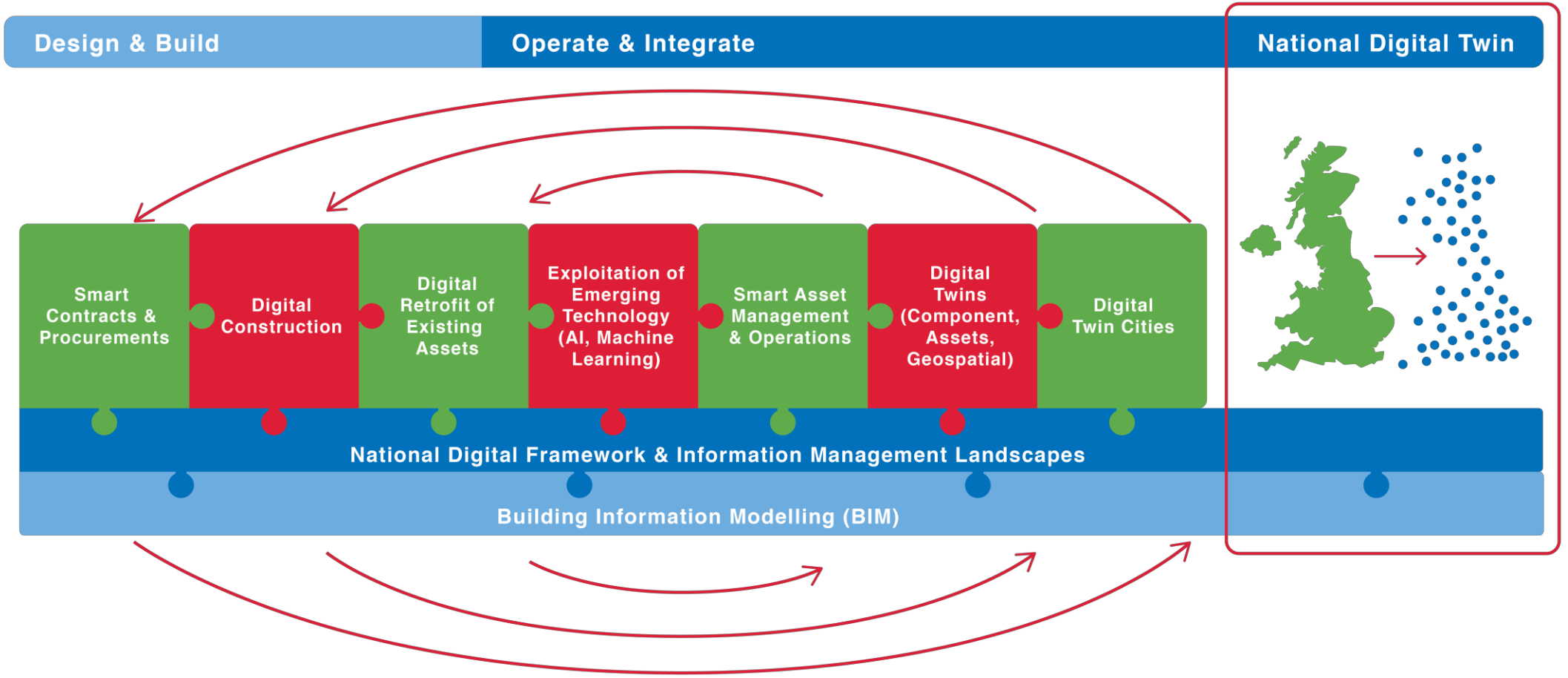
Technical drivers towards a digital built Britain



Technology alone is not enough to deliver change

The journey towards a digital built Britain will be enabled by:

- Education & training
- Industry, policy maker & academic engagement
- International export of skills, standards and technology
- Policy development
- Certifications, regulation and standards
- Case studies and demonstrators from research & industry
- Improved data governance and ethics
- Improved contract and procurement law
- Management and organisational change.

Informing policy

- Research informing evidence-based policy
- Home Nations Working Group
- Public Sector BIM Working Group
- Digital Framework Task Group
- The Gemini Principles
- International and Prosperity programmes to grow the market for the export of UK skills and services

Supporting change

- Coordinated vision and roadmap towards a dbB
- Grow an open and global digital construction market
- Industry engagement programme across the supply chain
- Highlighting current and emerging good practice
- Sharing value cases to encourage the adoption of digital approaches

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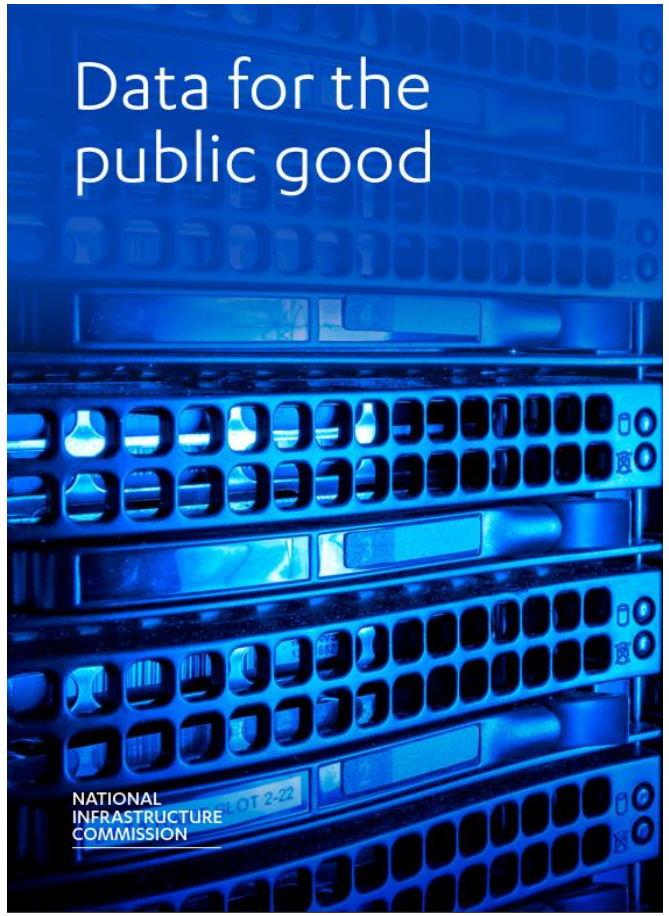
Data for the public good



Recommendations:

1. **A National Digital Twin** – enabling digital twins to come together to help plan, predict and understand our assets

2. **A Digital Framework** – for effective information management; secure interoperability of data

3. **A Digital Framework Task Group** – to provide coordination of key players

Digital Framework Task Group (DFTG): Purpose

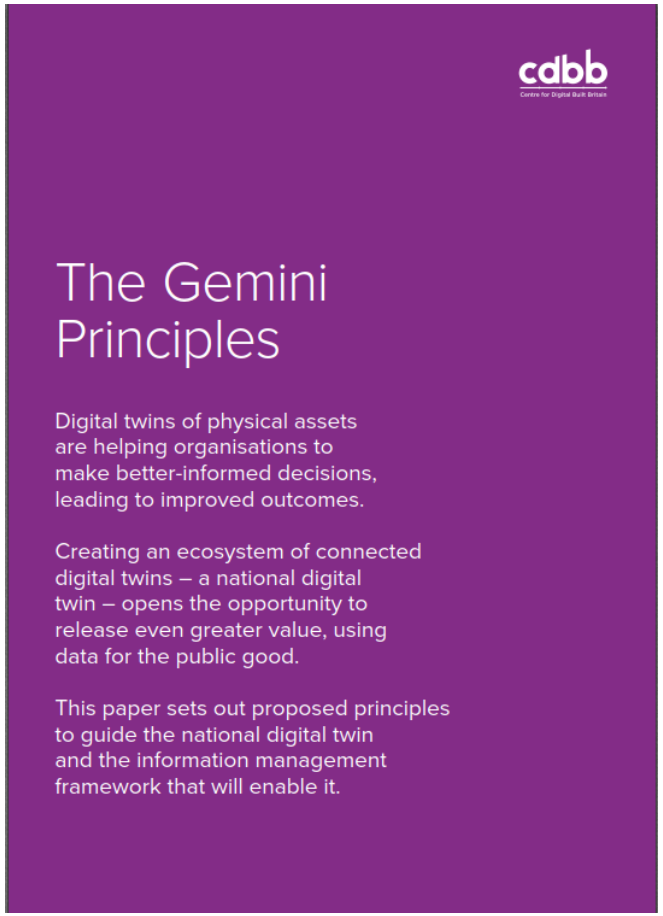
to steer and guide the successful **development** and **adoption** of the '**Information Management Framework for the Built Environment**' (the framework), which is to be set up by the CDBB

The framework

“The Information Management Framework for the built environment”

- provides all the necessary building blocks to enable effective information management across the built environment
- enables secure, resilient data sharing
- is the basis for the National Digital Twin

The framework: vision

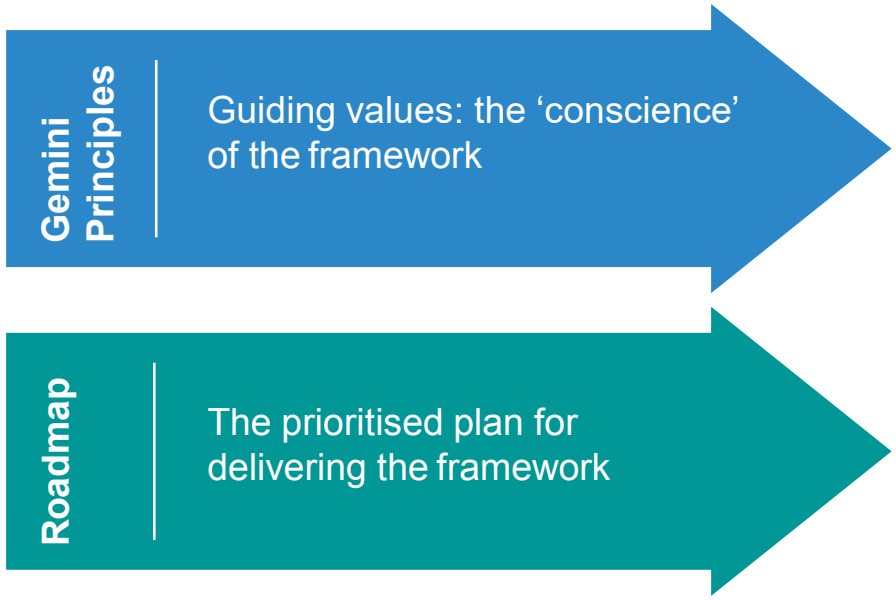


Effective information management will enable better decisions, leading to financial savings, improved performance and service, and better outcomes for business and society per whole-life pound.

To make this possible an **information management framework** is necessary in order to enable effective management of information that is fundamental for the creation of the national digital twin.

Simply put, it is about having the **right information** (and information that is right) for the **right people** at the **right time.**

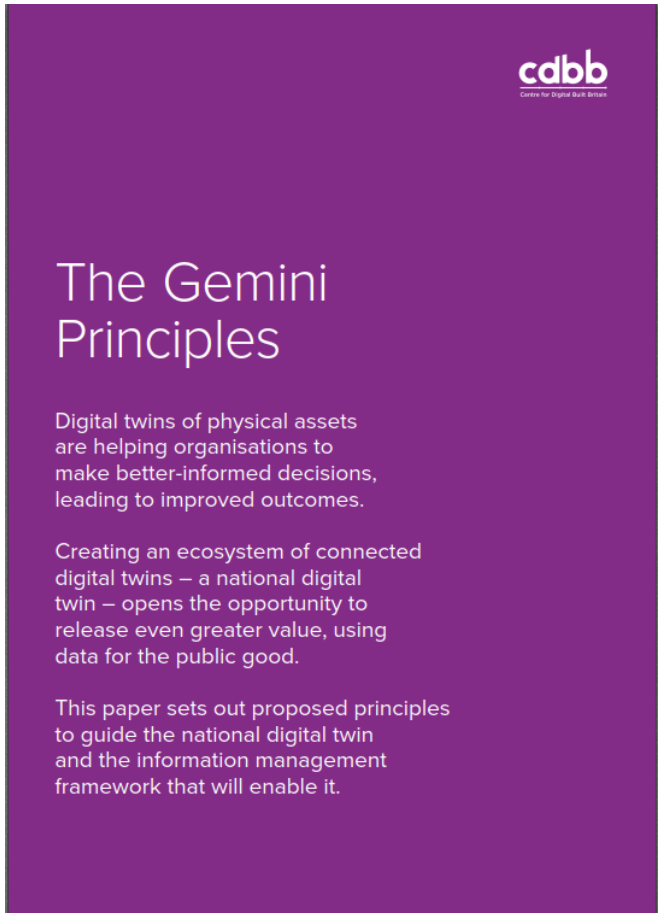
National Digital Twin: Enablers



Information management framework

Effective information management across the built environment, including secure data sharing

Values: the Gemini Principles



Purpose: Must have clear purpose

Trust: Must be trustworthy

Function: Must function effectively

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
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
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

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