

BIM Update UK Geography

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Hong Kong, 14th November 2019

Building Information Modelling

Helping support the Government Strategy

Collaborative 3D BIM with all project and **asset information**, documentation and data being electronic

Supporting the delivery of the Government Construction Strategy and the requirement to strengthen the public sector's capability in BIM implementation with the aim that all central government departments will be adopting, as a minimum, collaborative **Level 2 BIM by 2016.**



By

2016 Assets last longer
and perform better

Refreshed Government Soft Landings published

UK BIM
FRAMEWORK

Government Soft Landings

Revised guidance for the public sector
on applying BS8536 parts 1 and 2

Updated for ISO 19650

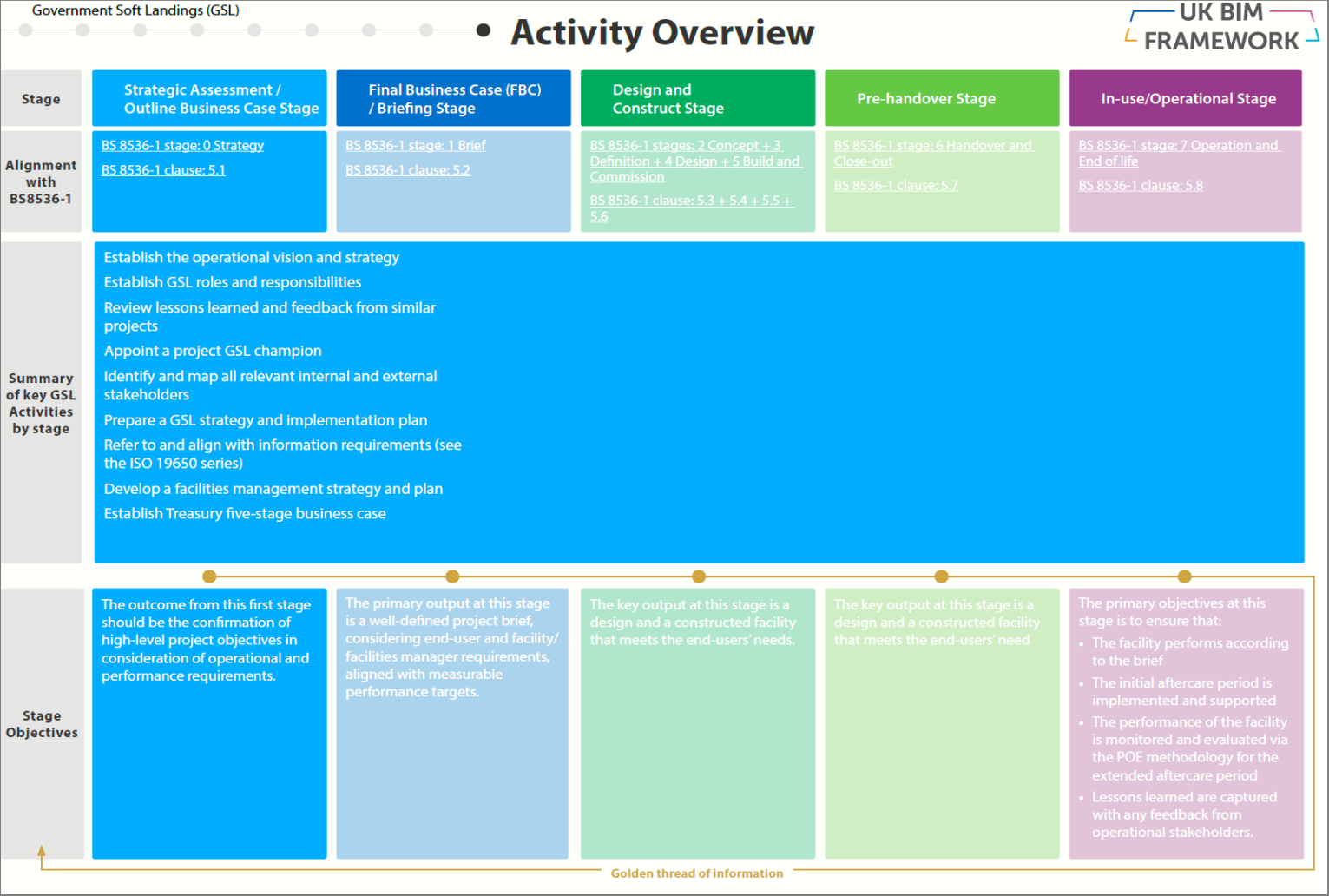
Published by

UK BIM
FRAMEWORK

bsi.

cdbb

UKBIM
ALLIANCE



Scottish Procurement

Scottish Procurement Policy Note

SPPN 01/2017

9 March 2017



Implementation of Building Information Modelling within Construction Projects

Purpose

1. The purpose of this policy note is to advise that guidance on the provisions for adopting Building Information Modelling (BIM) has been published.

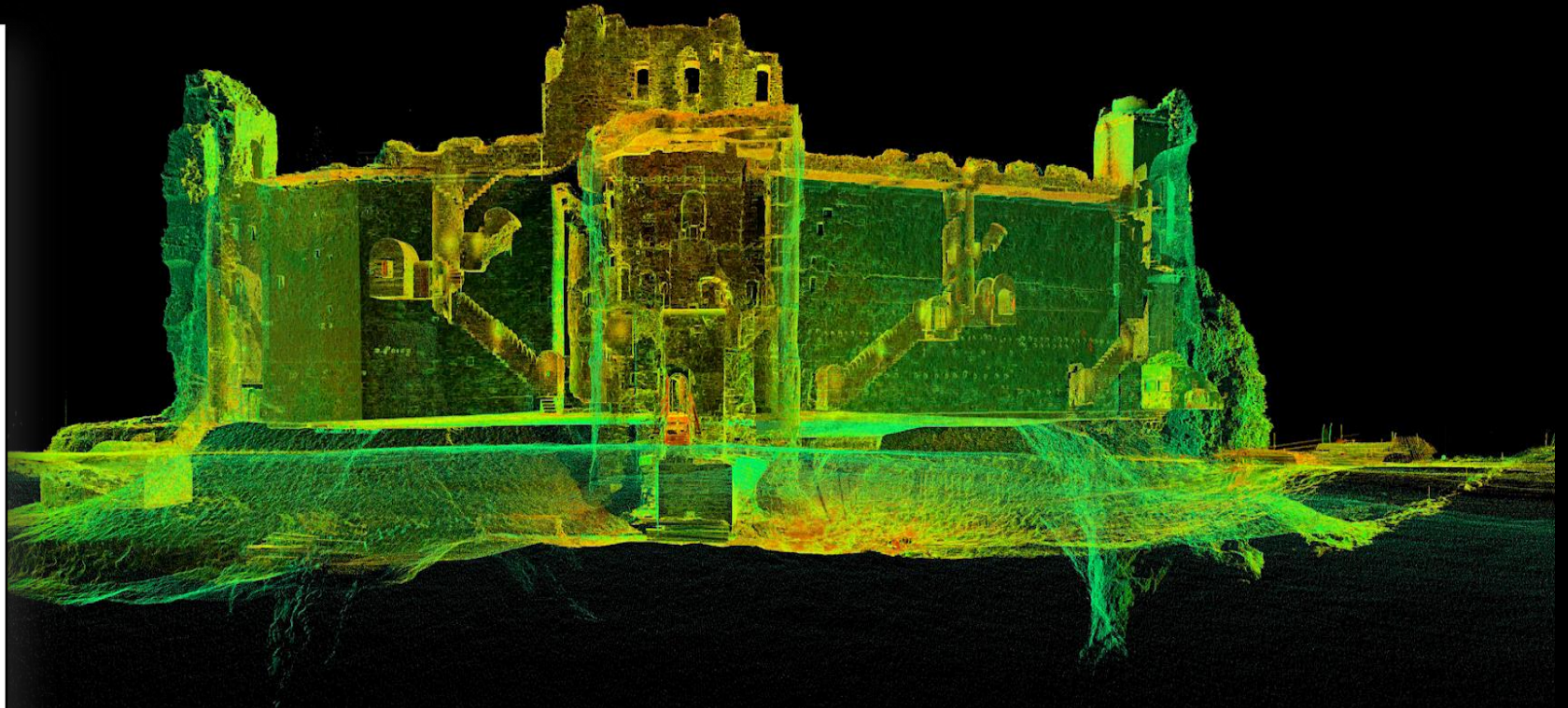
Key Messages

- Scottish Government and relevant bodies in scope of the Scottish Public Finance Manual¹ must assess their projects for BIM via the BIM Grading Tool² for projects above £2,000,000. The public body will then comply with the results of the BIM Grading Tool and should adopt the BIM Guidance for public works contracts commencing procurement procedures³ from 6th April 2017.
- Scottish Government and relevant bodies in scope of the Scottish Public Finance Manual with projects below £2,000,000, are asked to assess their projects for BIM (via BIM Grading Tool) and where applicable adopt the BIM Guidance into their procedures.
- Other bodies that can award public contracts, and other organisations providing delivery mechanisms for the construction of public buildings and infrastructure, are asked to assess their projects for BIM (via BIM Grading Tool) and where applicable adopt the BIM Guidance into their procedures.

¹ <http://www.gov.scot/Topics/Government/Finance/spfm/Intro> (section 1; and 7 - 11)

² <https://bimportal.scottishfuturetrust.org.uk/page/bim-grading-tool>

³ <http://www.legislation.gov.uk/ssi/2015/446/made> (Reg. 2(1) "commenced")



HISTORIC
ENVIRONMENT
SCOTLAND

ÀRAINNEACHD
EACHDRAIDHEIL
ALBA

Approach to implementation

SFT BIM Portal



When?

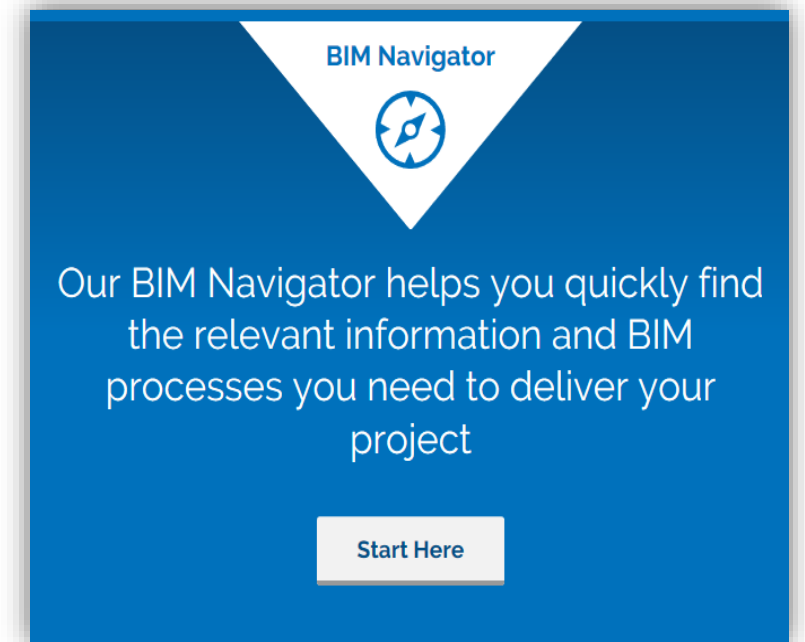
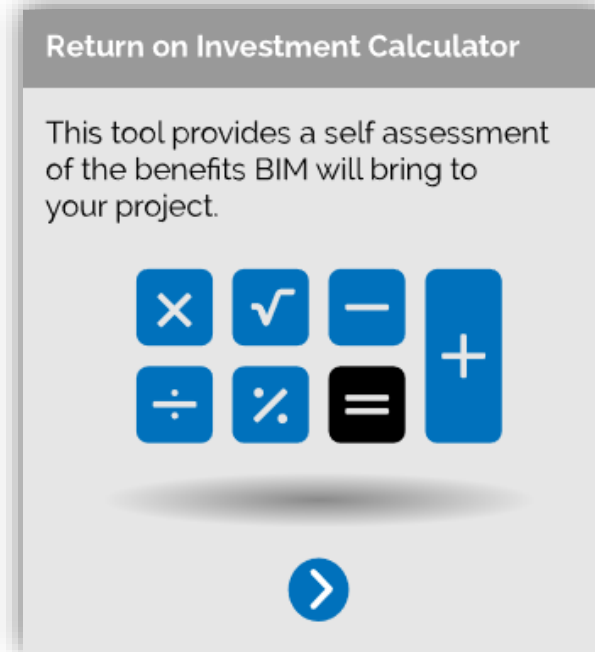
Why?

How?

BIM Grading Tool

BIM ROI Tool

BIM Navigator





Our BIM Navigator helps you quickly find
the relevant information and BIM
processes you need to deliver your
project

[Start Here](#)

SFT BIM Grading Tool

This grading tool informs to what level of BIM maturity your project should adopt.



Return on Investment Calculator

This tool provides a self assessment of the benefits BIM will bring to your project.



British Standards Institution

bsi.

BSI - Home of the BIM Level 2 Standards



CSIC

CONSTRUCTION
SCOTLAND
INNOVATION
CENTRE

CSIC - Supporting suppliers adopt digital working.



Tweets by @BimSt

SFT_BIM @BimSt

We are filming our BIM stage task videos today across in Fife. @ThePhilpster hoping for an Oscar!

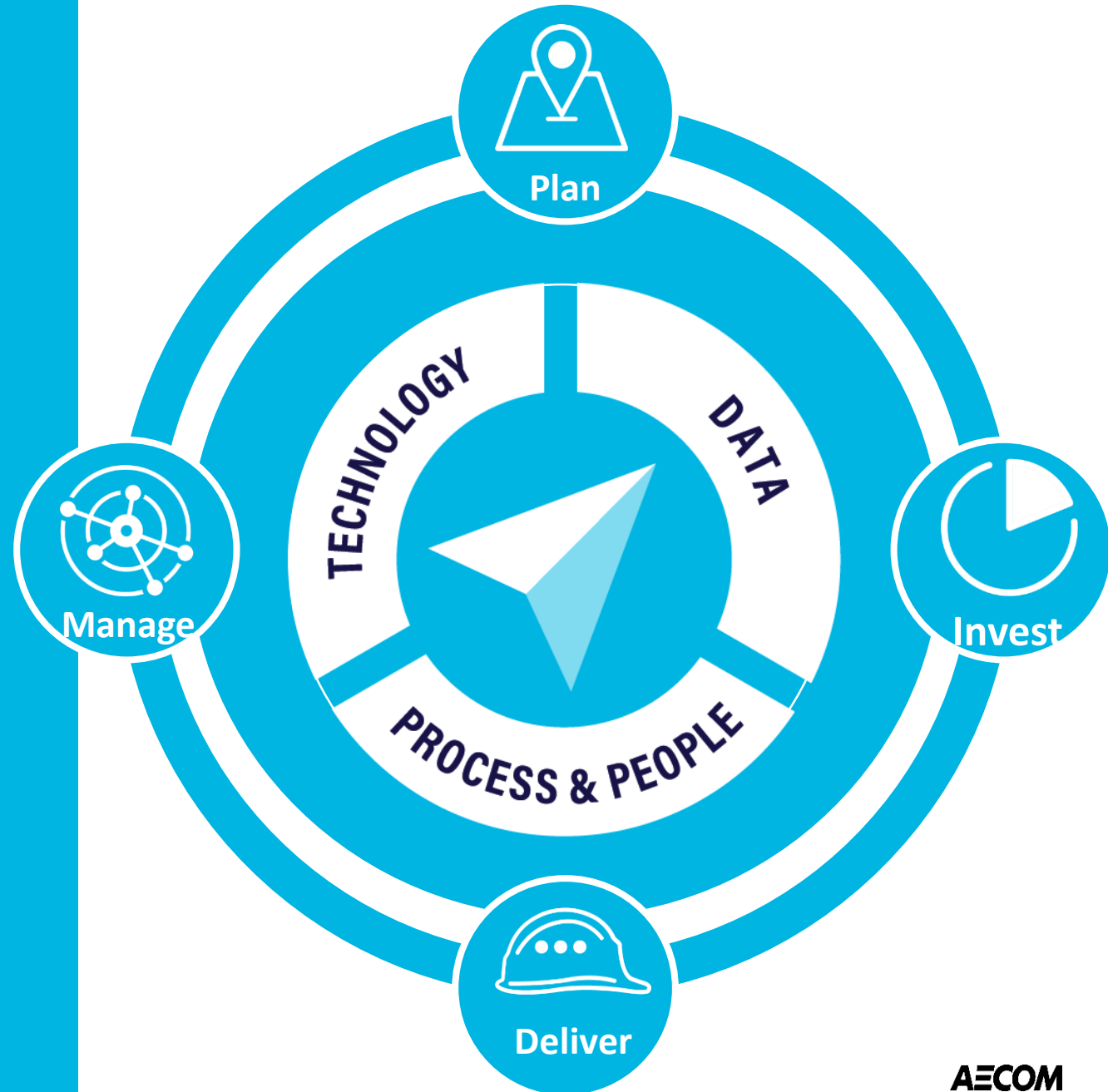


SFT_BIM @BimSt

We enjoyed showing Crossrail our SFT BIM portal - lots of continued knowledge exchanges

Infrastructure Technology

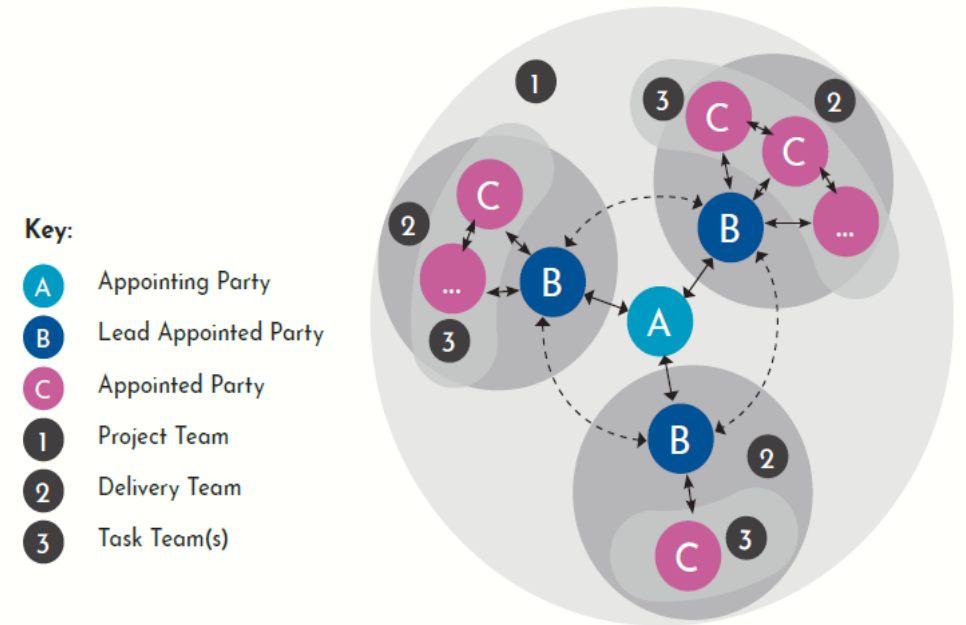
Supporting the public sector realise the benefits of technology and information management to support infrastructure delivery and performance.



A shift from the UK BIM Level 2 to a UK BIM Framework



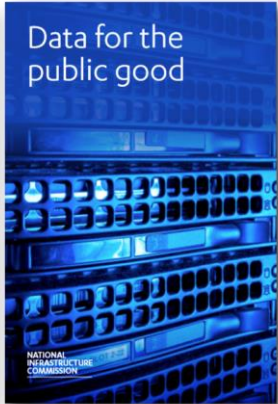
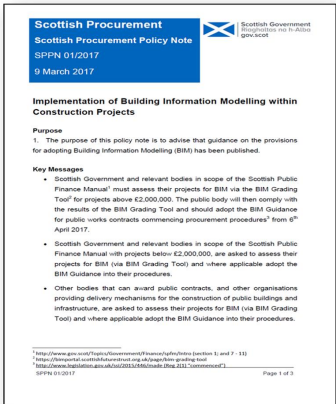
Figure 1: Interfaces between parties and teams



Simplified version of ISO 19650-2 Figure 2
Image reproduced with permission from BSI

Maturity in related policy development





Lower emissions

50%

reduction in greenhouse gas emissions in the built environment

Building Sustainably

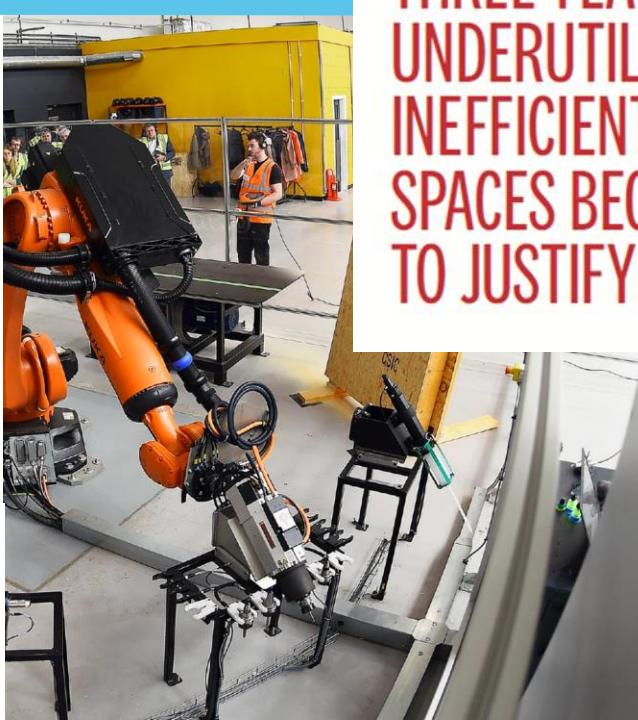
Policy Alignment

Faster delivery

50%

reduction in the overall time, from inception to completion, for newbuild and refurbished assets

Advancing Industrialisation



DEMAND FOR SMART BUILDINGS WILL GROW OVER THE NEXT THREE YEARS AS UNDERUTILIZED AND INEFFICIENT WORK SPACES BECOME HARDER TO JUSTIFY FINANCIALLY

Lower costs

33%

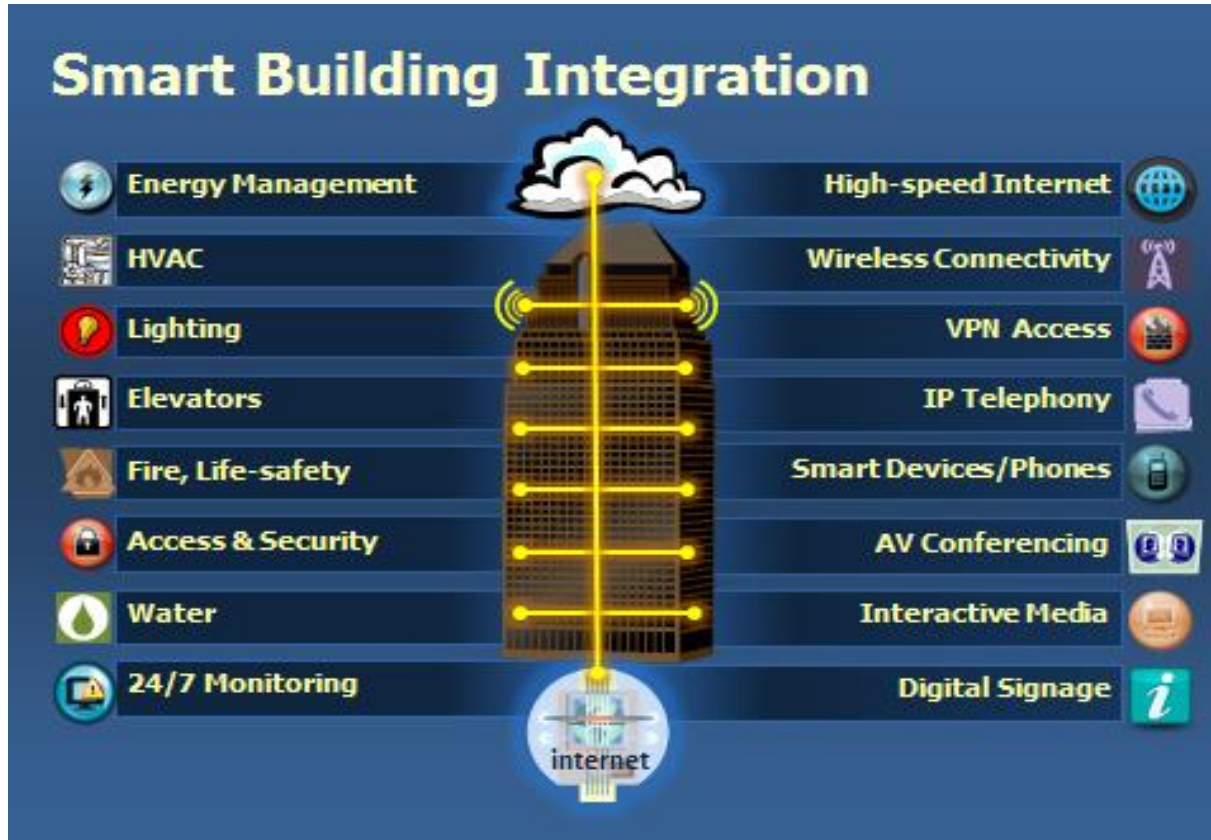
reduction in the initial cost of construction and the whole life cost of built assets

Higher Performing Built Assets



Digital Built Britain

Performance and operations of assets



With level 2 there is limited functionality for delivery of operational data sets and integration of telemetry.

DBB will address these in sector delivery and operational stages, with a focus on enabling total cost and carbon outputs.



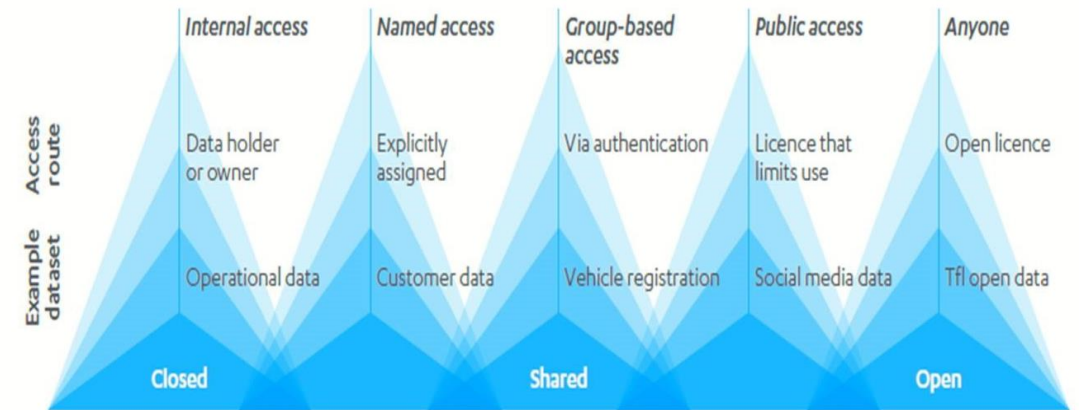
Data for public good

There are unrealised benefits from sharing data within and across sectors (energy, digital, transport, water, waste and flood defence).

Data sharing does not mean all data is open

At present, data is well established across some pockets of infrastructure but now all. It is important to distinguish between data that is freely shared as 'open data', and other data which may be shared with conditions or under licence or contract (which may involve a fee). Some data, such as sensitive and operationally critical data from power plants, may be shared only through secure mechanisms.

The data spectrum in infrastructure



Source: ODI (example datasets adapted by Deloitte)

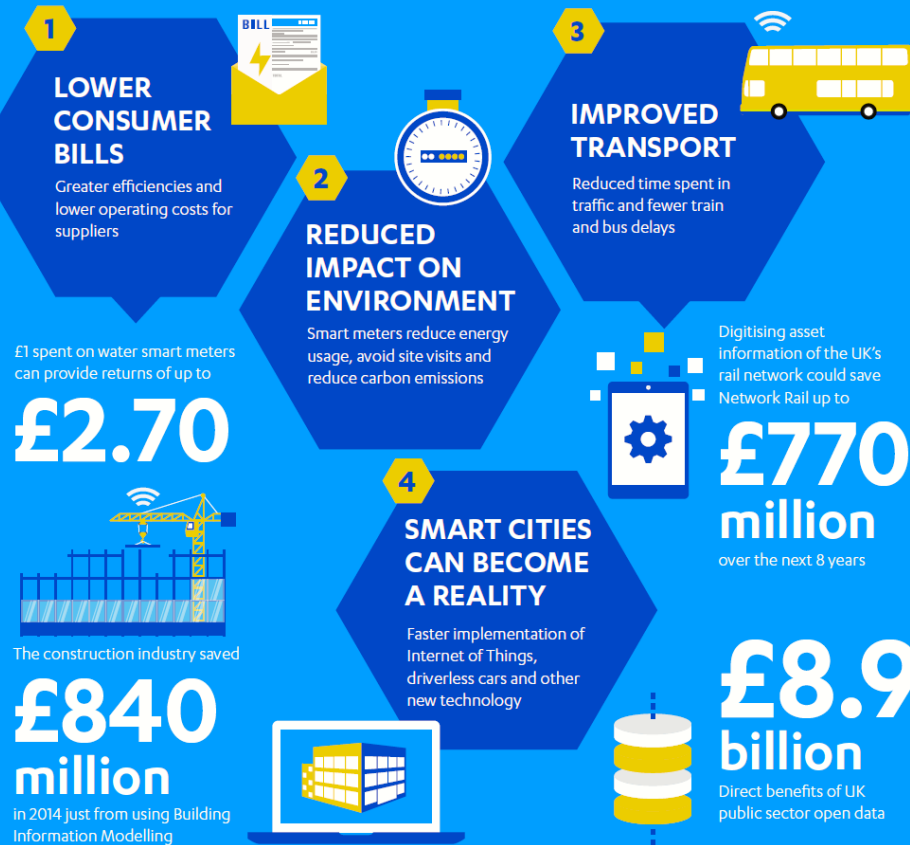
Data for public good

Recommendations

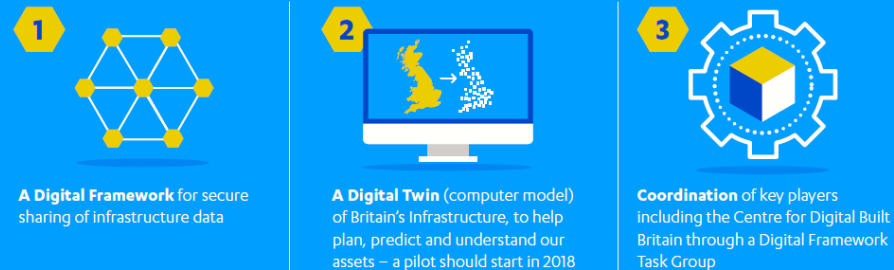
- 1 Digital Framework**
for secure sharing of infrastructure data
- 2 A National Digital Twin**
a digital twin of Britain's Infrastructure to help plan, predict and understand our assets
- 3 A Digital Framework Task Group**
to provide coordination of key players



THE IMPACT OF IMPROVED DATA SHARING



The Commission recommends:



Sources: IDC and Open Evidence, PwC, Network Rail, Deloitte, Mott MacDonald and HM Government

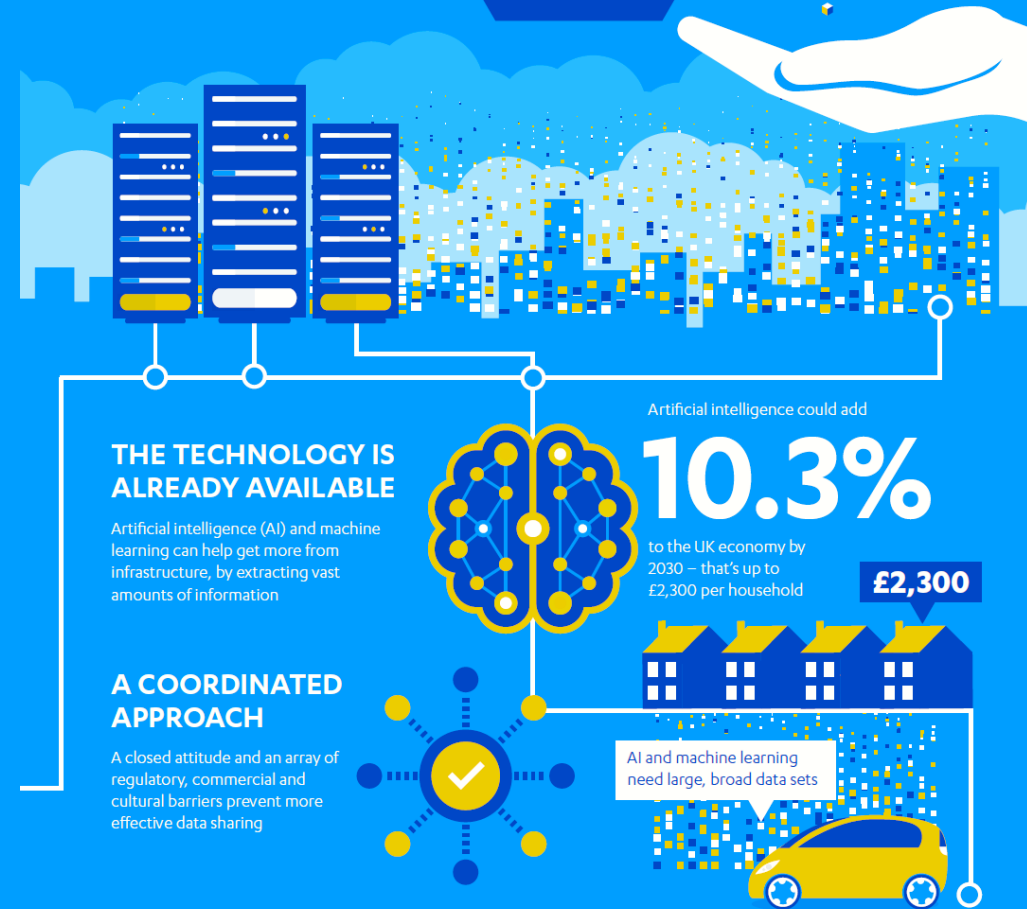
REALISING THE BENEFITS OF A SMART INFRASTRUCTURE THROUGH DATA SHARING

Population growth, economic growth and climate change are straining our infrastructure.

SHARE DATA

Sharing more information about infrastructure across the public and private sectors securely will enable the UK to use, maintain and plan national systems better

Data contributes around
£50 billion
to the UK economy a year¹.



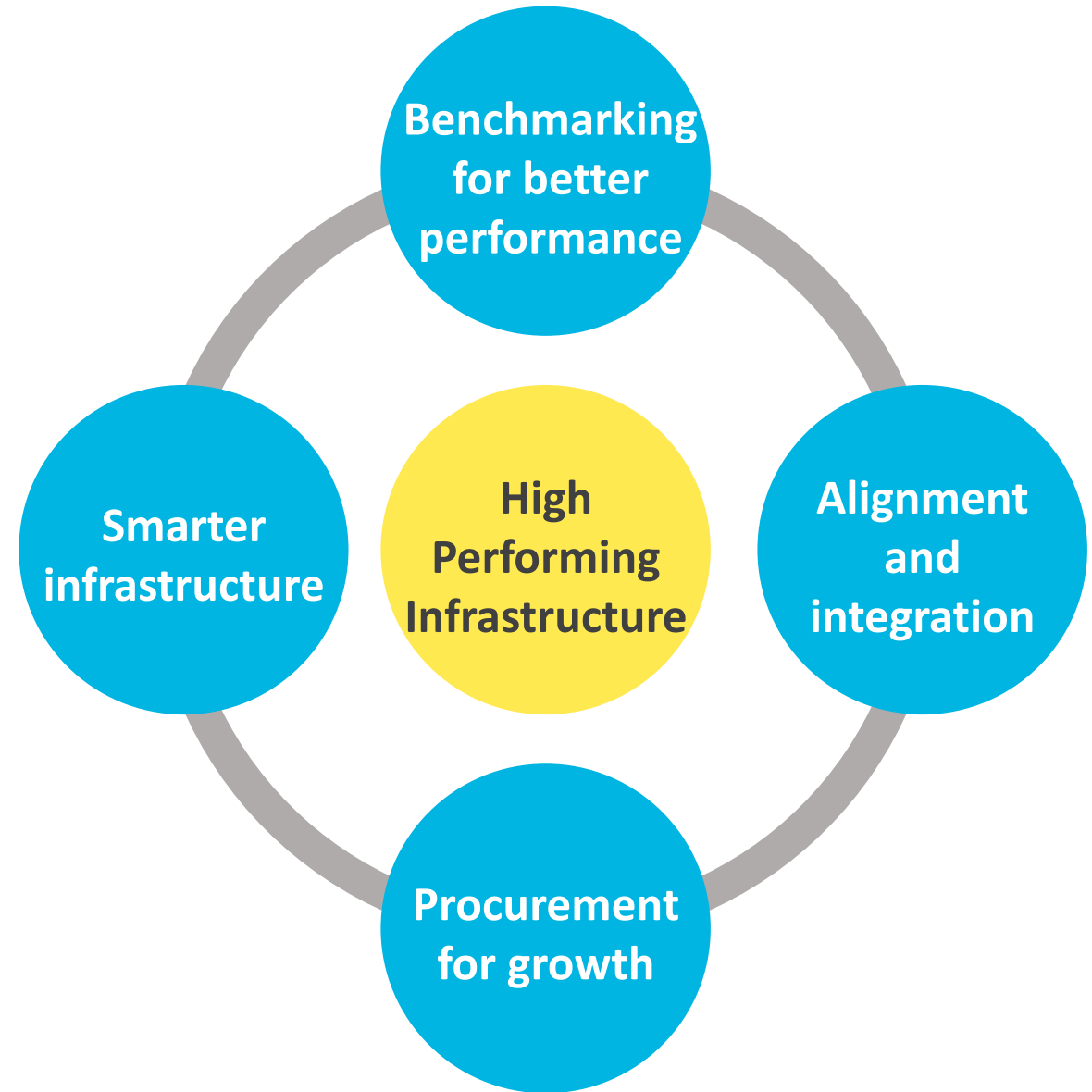
Transforming Infrastructure

Performance

Transforming Infrastructure Performance is the Infrastructure and Project Authority's long-term programme to improve the delivery and performance of infrastructure.

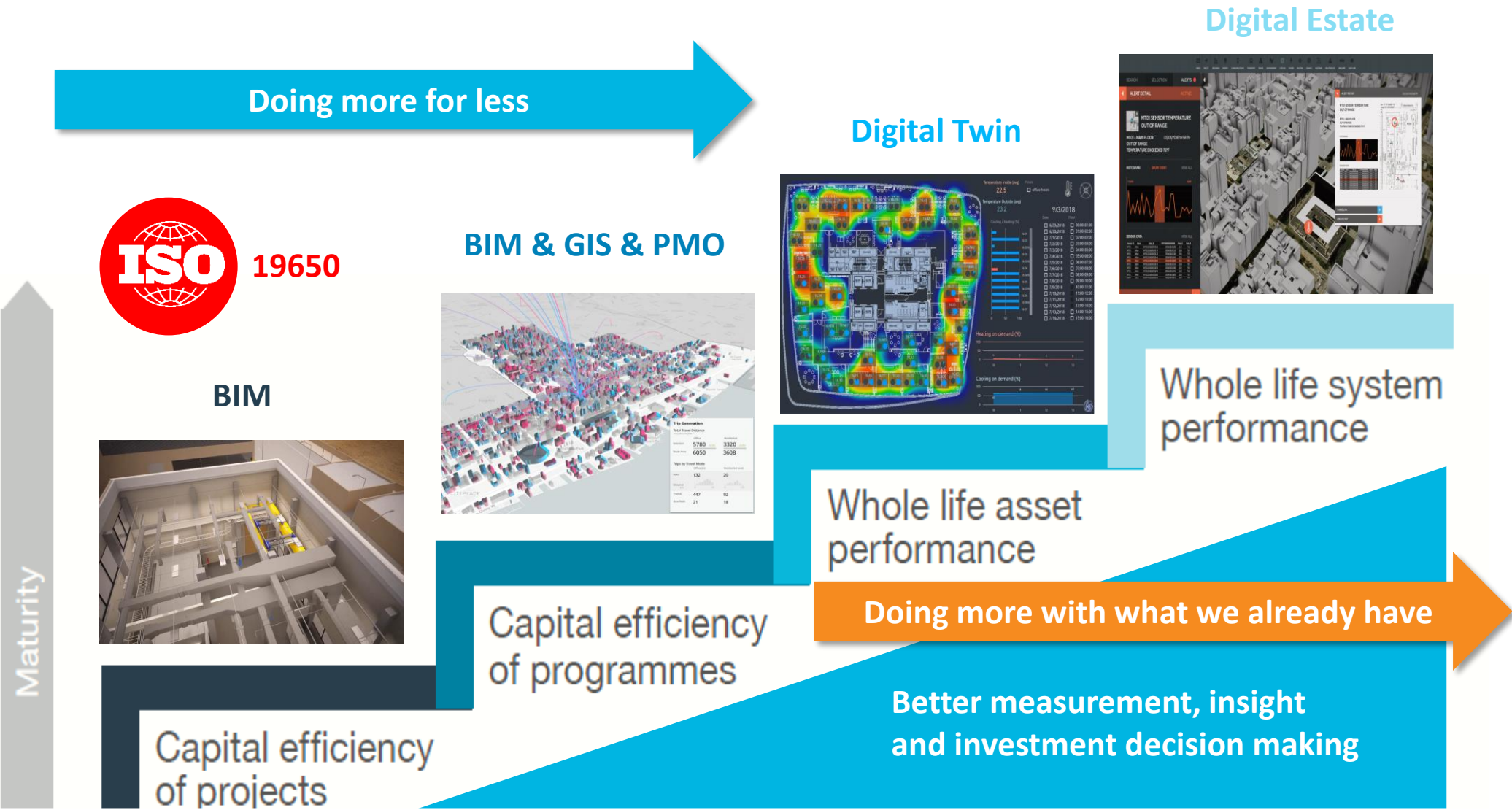
The IPA examine how the government and industry can work together to benchmark performance and select the right projects; improve integrated planning across sectors; support effective commercial relationships; and increase uptake of technologies and innovations – both for new and existing infrastructure.

They also set themselves some bold ambitions for the short-term, identifying key areas they want to prioritise over the next two years. This includes improving their capability as the country's biggest construction client.



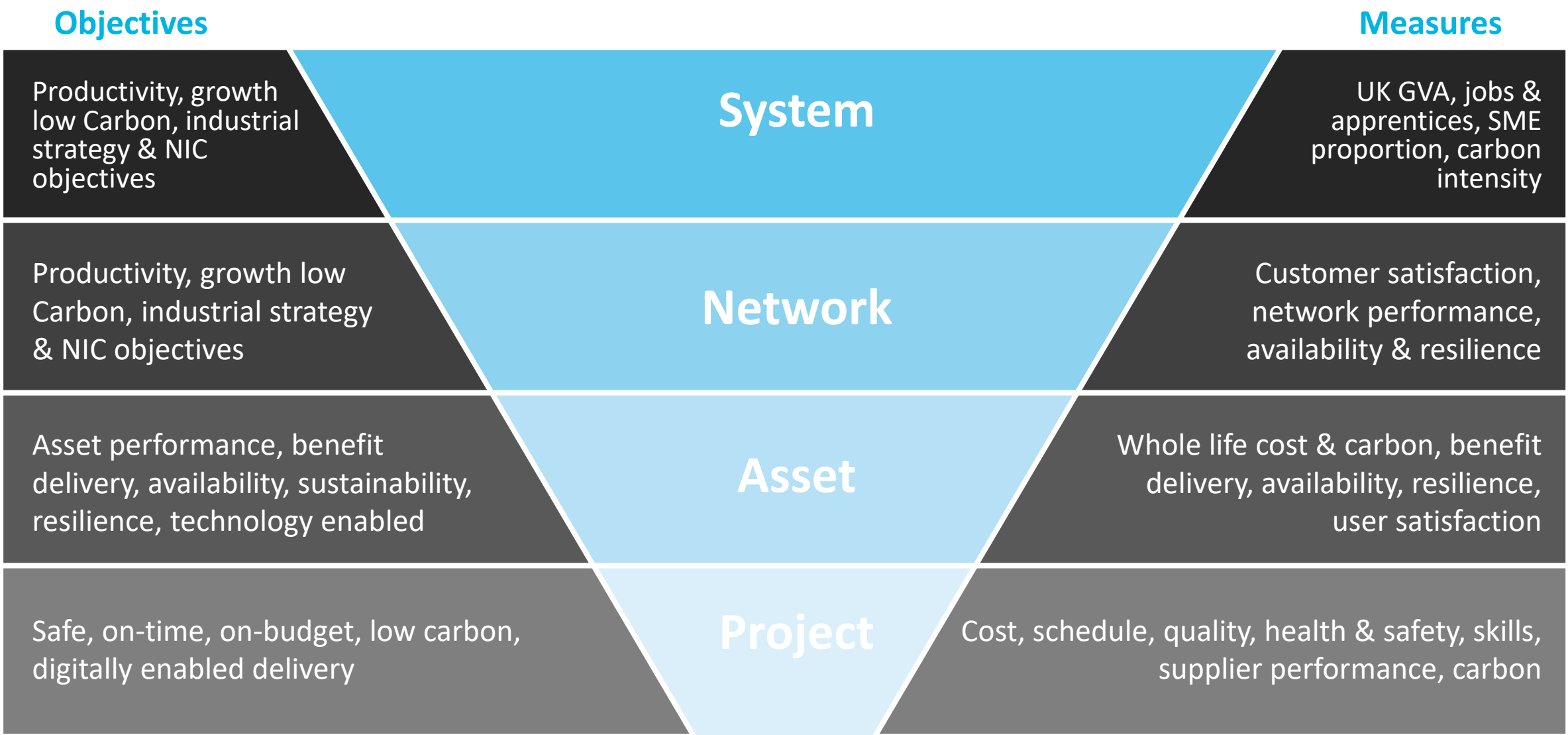
Our clients are unlocking the benefits of BIM

and wider Digital Transformation at various levels



What do HM Government want for their investment?

£60Bn per annum for next 10 years projected



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£60Bn per annum for next 10 years projected

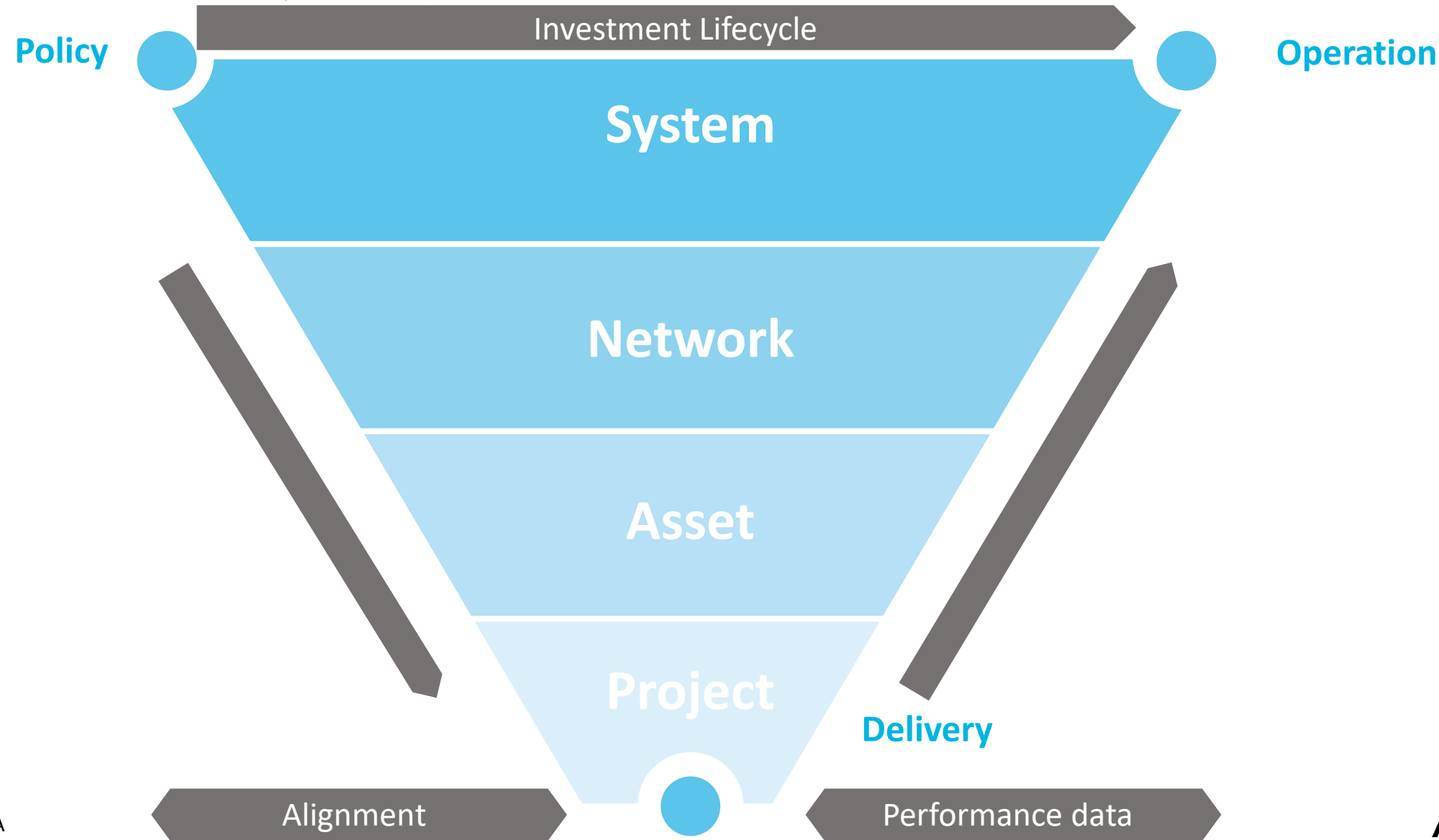


Image source: IPA

Support smart construction

Demand Side

Use the governments purchasing power to build critical mass in sectors amenable to modern methods, starting with the five departments that will adopt a presumption in favour of offsite construction by 2019. The IPA will work with departments and industry bodies such as the CLC to implement this, including identifying and addressing obstacles to faster uptake.

Over the course of the TIP programme, the IPA will also explore opportunities to support uptake in other high potential sectors such as housing , as supply capacity and capability matures.

Supply Side

Government has committed to invest £170m to support innovation in the sector, including to develop and commercialise digital and offsite manufacturing technologies through the Construction Sector Deal.

Through TIP the IPA will work across government and with industry to support final agreement of the Sector Deal, to ensure effective delivery of the key enablers to modernising construction, and to identify and help address workforce capacity or capability gaps.

Support smart construction

Our proposal: a Platform approach to Design for Manufacture and Assembly (P-DfMA)

Introduction

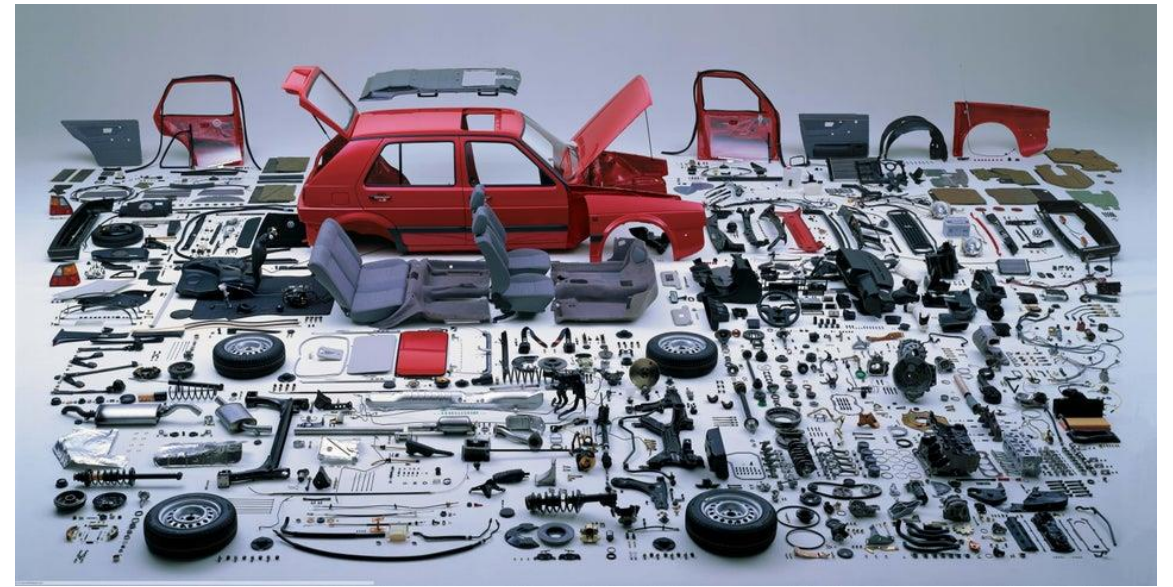
Given the compelling case for change set out above, the government needs to drive the adoption of modern methods of construction.

There are many types of modern methods of construction, from volumetric construction whereby manufactured parts (rooms or even complete small buildings) are assembled offsite in controlled factory settings and transported to the building site as a fully furnished product, to offsite frame construction where a building's frame is built in a controlled setting and transported to a site where it is assembled and the building completed using traditional methods.

There are many good examples of where modern methods of construction are already being applied across government and the wider public sector. However, the full benefits of a manufactured approach will only be delivered by a more consistent and strategic approach that creates a pipeline of demand and changes the way in which the industry delivers built assets.

Ensuring value for money (including whole life cost and value) remains the core principle for departments. It remains the responsibility of industry to innovate and provide best value solutions, and by outlining an approach we aim to provide the sector with a sense of direction without introducing strict measures which would remove competitive tension or space for innovation.

Our preferred approach was selected for a number of reasons. Firstly, the preparatory work required to enable this approach will be beneficial in itself. Secondly, it does not require that all government buildings are made in this way for government to benefit from an economy of scale. And finally, we want to follow and accelerate what is currently the most promising trend in the construction and engineering sector.



VW Golf – Kit of parts



Studio Jantzen - Kit of parts, Portable Classroom

Support smart construction

Drive faster uptake of digital technology

Support coordination of cross-government and cross – sectoral uptake of technology solutions, to improve the way we design and make best use of infrastructure, building on upcoming NIC analysis and recommendations. As part of the TIP programme, there are a number of strands where the IPA will support government efforts to help ensure:

- Infrastructure projects (for new assets or renovations) are planned from the initial stages to be ‘smart’
- Continued development of Digital Built Britain Programme
- Relevant NIC recommendations from its National Infrastructure Assessment and study into new technologies are taken forward.

Centre for Digital Built Britain



What is a digital built Britain?



“A digital built Britain harnesses the wealth of data being created by digital construction, high performing assets, smart cities, the digital economy and connected citizens to deliver a Britain that is fit for the future.”

Build

Design

Integrate

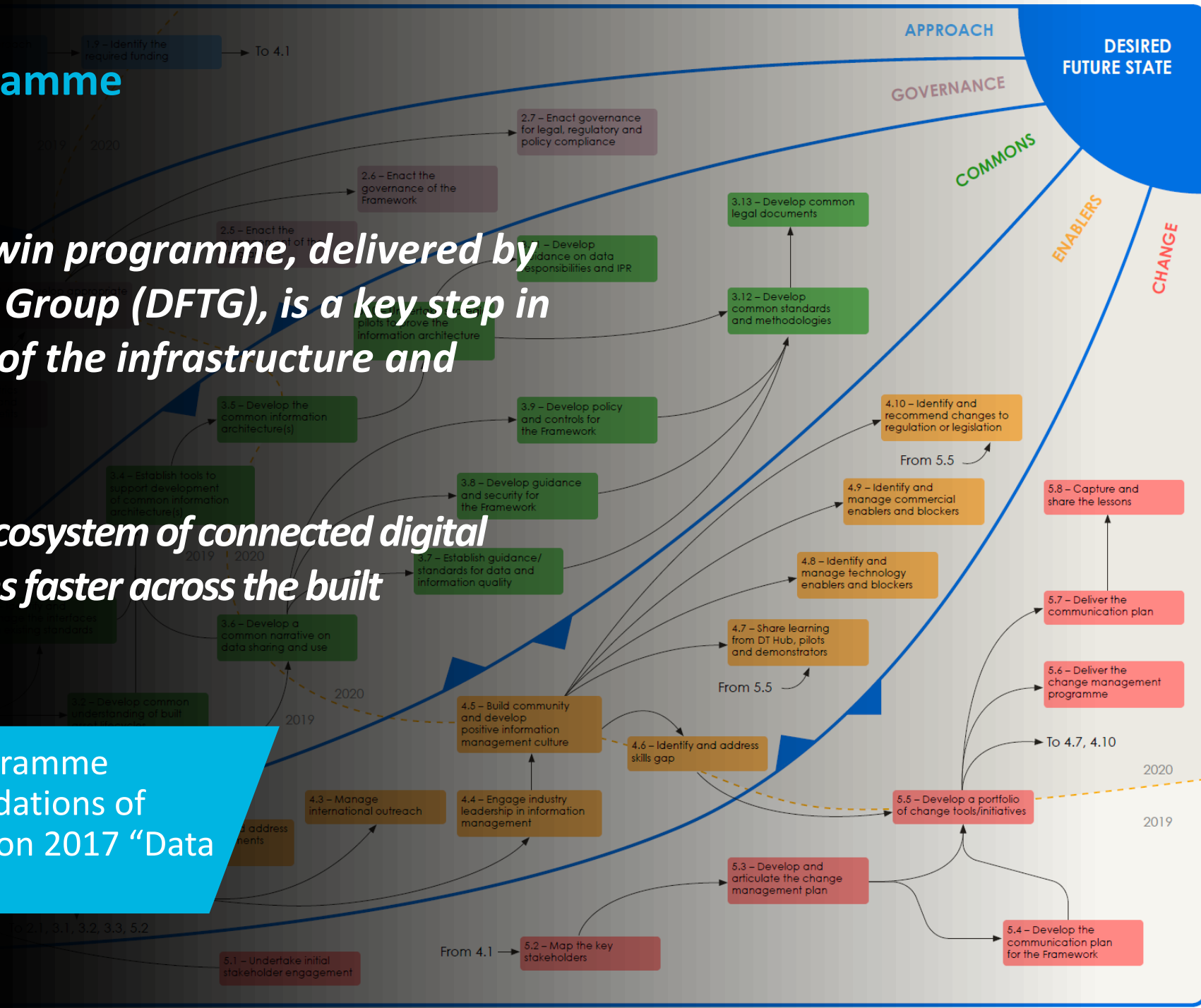
Operate

National Digital Twin Programme

“CDBB’s National Digital Twin programme, delivered by its Digital Framework Task Group (DFTG), is a key step in the digital transformation of the infrastructure and construction sectors.”

“National Digital Twin – An ecosystem of connected digital twins enabling better decisions faster across the built environment.”

CDBB’s National Digital Twin programme
- set up to deliver key recommendations of National Infrastructure Commission 2017 “Data for the Public Good Report





The Gemini Principles

Digital twins of physical assets are helping organisations to make better-informed decisions, leading to improved outcomes.

Creating an ecosystem of connected digital twins – a national digital twin – opens the opportunity to release even greater value, using data for the public good.

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

UK BIM Training Programme

- No UKAS accreditation for BIM yet
- Training syllabus moving from BIM L2 to ISO 19650
- Lots of certified programmes
- Good post grad offering for BIM
- Mainly knowledge based as opposed skills
- No LoF means no harmonisation in learning themes





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