HM Government
Construction

UK Government – Building A New World

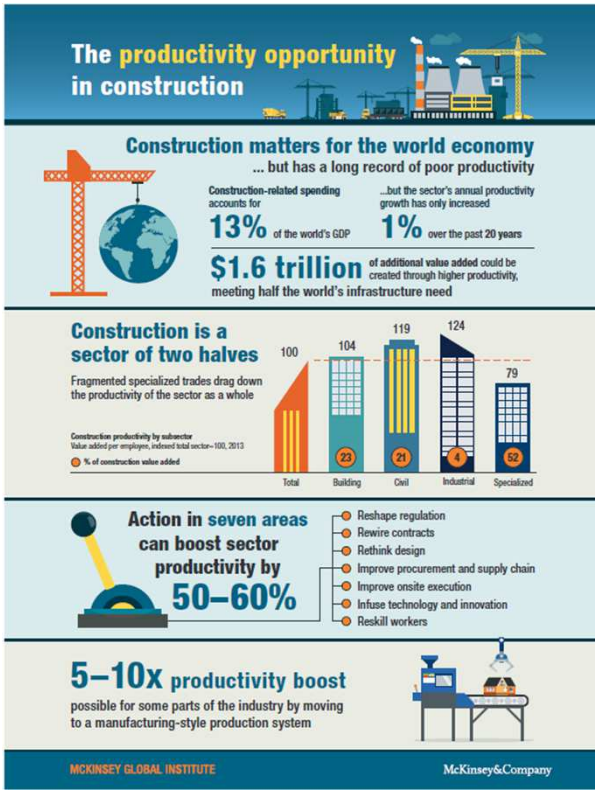
Digital Built Britain – Programme Overview

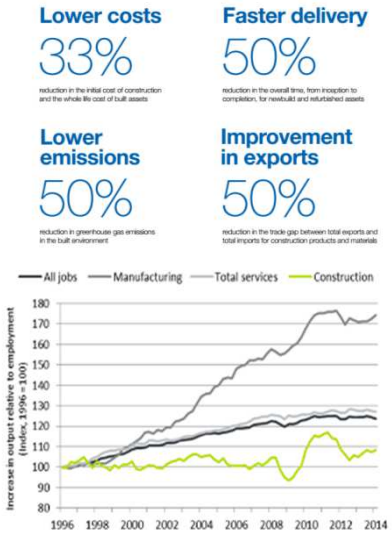
Dr Mark Bew MBE

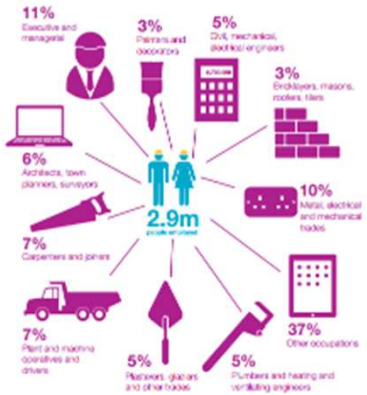
Digital Built Britain

Introduction

HM Government
Construction







There are **2.9 million** jobs filled in the Construction Industry, circa 10% of all jobs (in over 280,000 businesses)

Construction contributes nearly **£90bn** to the UK economy, 6.7% of the total

Digital Built Britain

Introduction

HM Government
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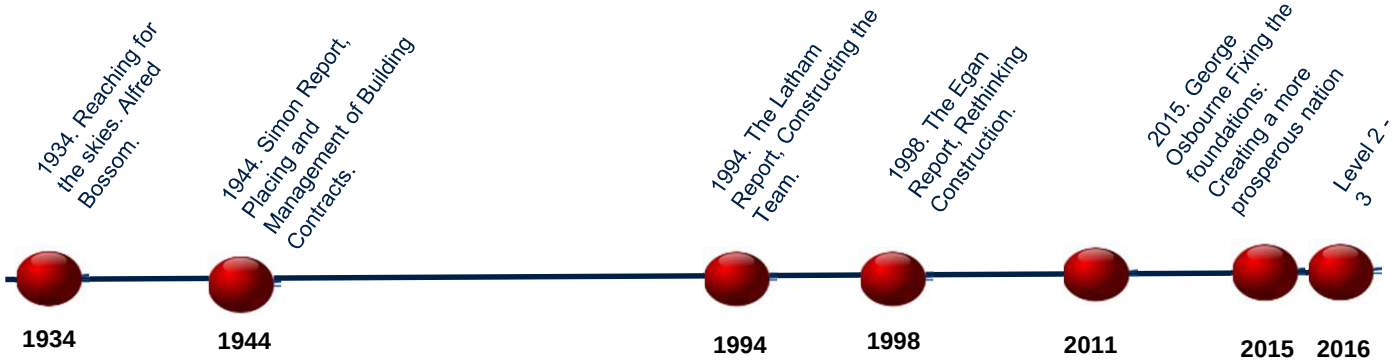


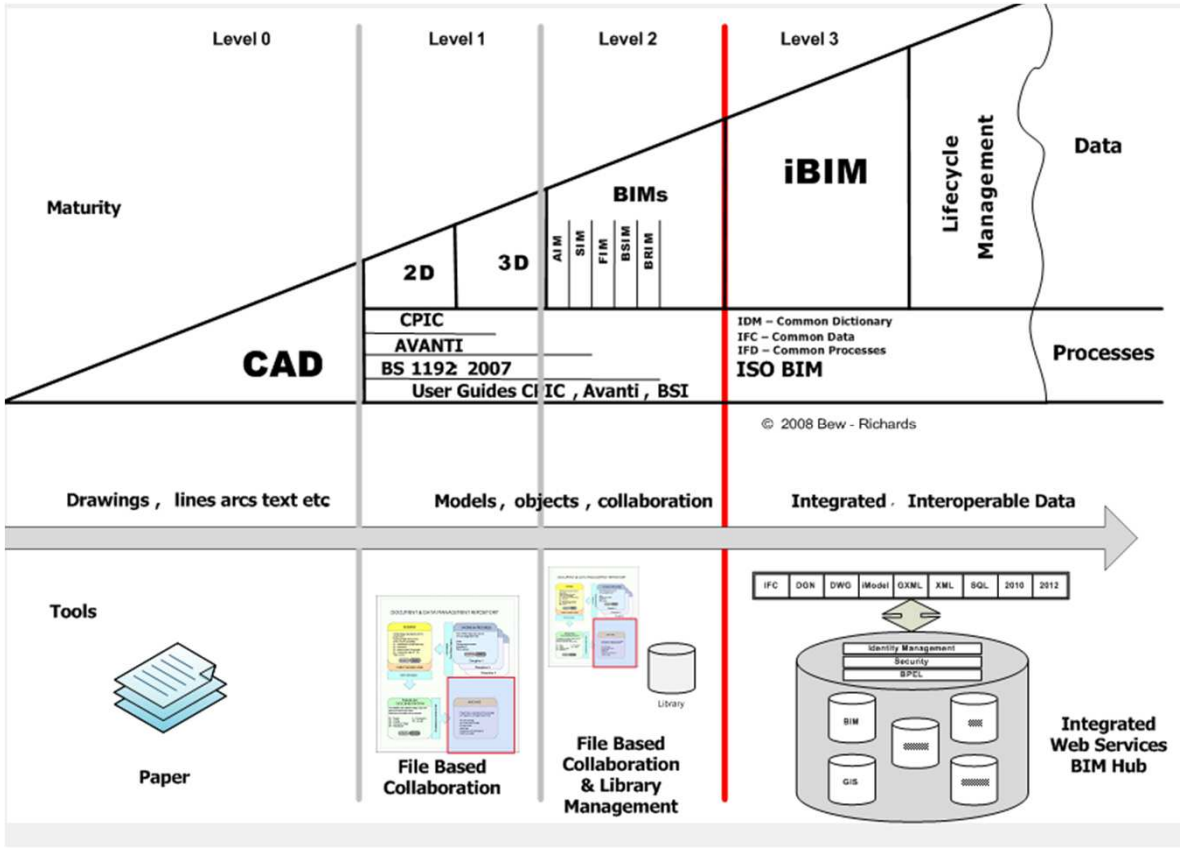
- Benchmarking
- Procurement Methods
- Government Soft Landings
- DfMA / Manufacturing
- Intelligent Client
- Fiscal Constraint
- Increasing Productivity

Since 1934 c70 reports have been issued on UK construction efficiency

Digital Built Britain

What is BIM?

HM Government
Construction



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What is Level 1 BIM?

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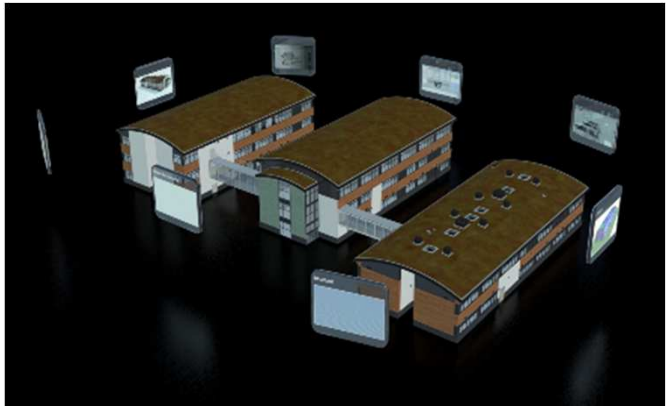
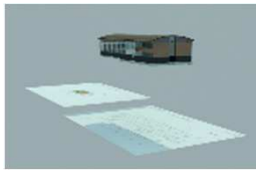
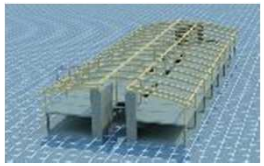
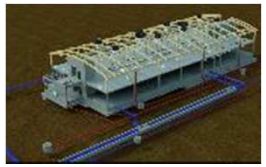
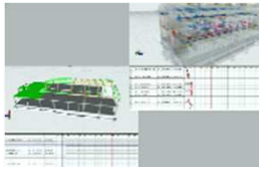
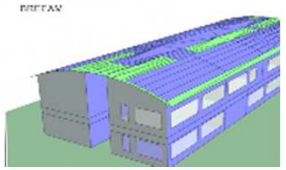
Construction

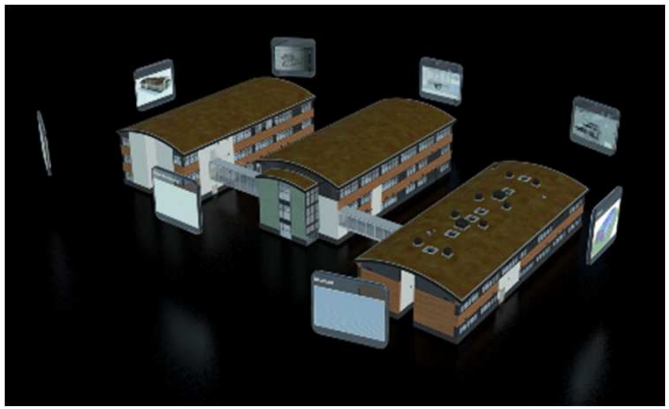
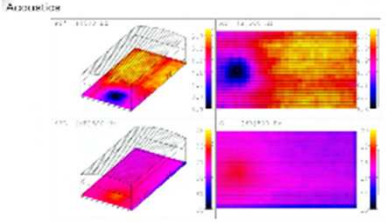
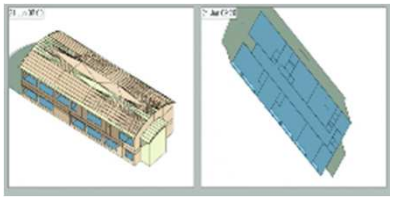
- Drawings
- Schedules
- Programmes
- Bills of Quantities
- Letters
- Emails
- Social Media
- Calculations
- Video

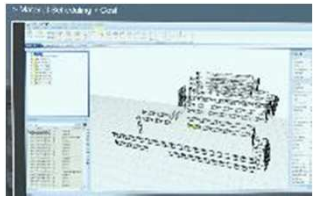


What is Level 2 BIM?

HM Government
Construction



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Push & Pull

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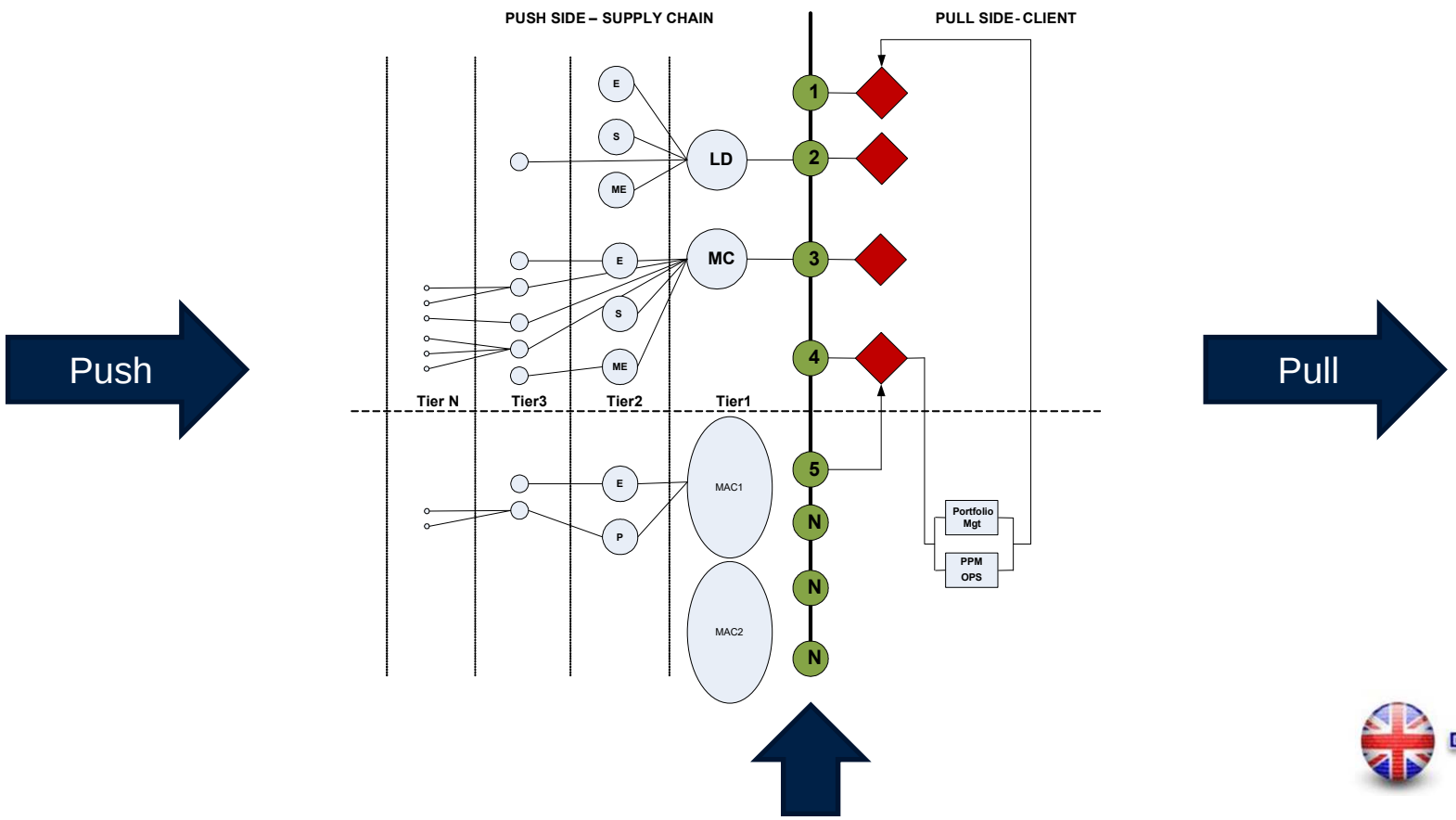

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Level 2 BIM “Package”

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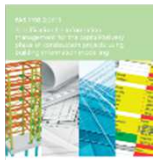
- PAS1192:2 Capital Delivery
- PAS1192:3 Operational Delivery
- BS1192:4 Data Structure
- Data Classification
- Digital Plan of Works (Levels of Data Detail)
- PAS1192:5 Security
- BIM Contract Protocol
- Government Soft Landings



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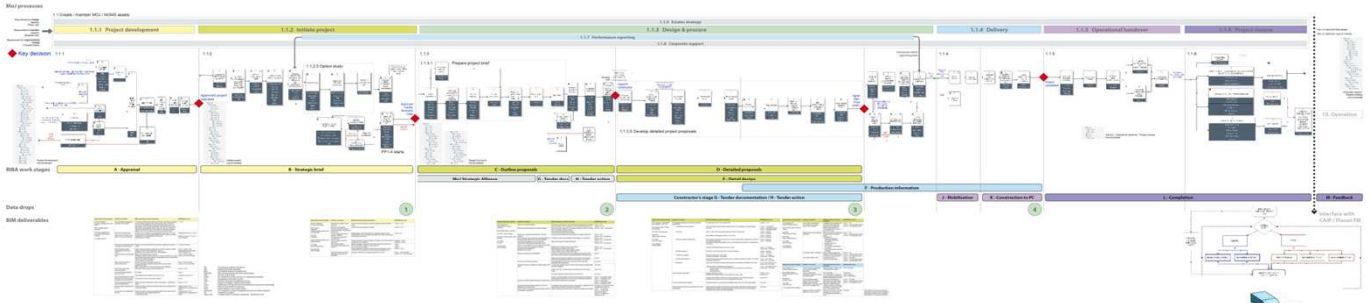
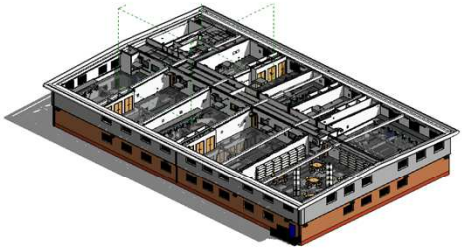
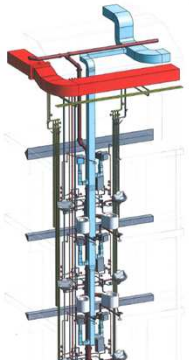
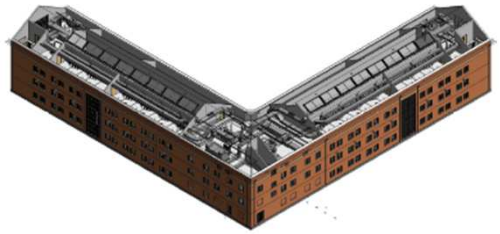
Case Study - MoJ

HM Government
Construction









- Implementation Plan
- EIR
- Tender Documents
- Scoring Process
- Framework Training
- Framework Support

Justice

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Where is the value?

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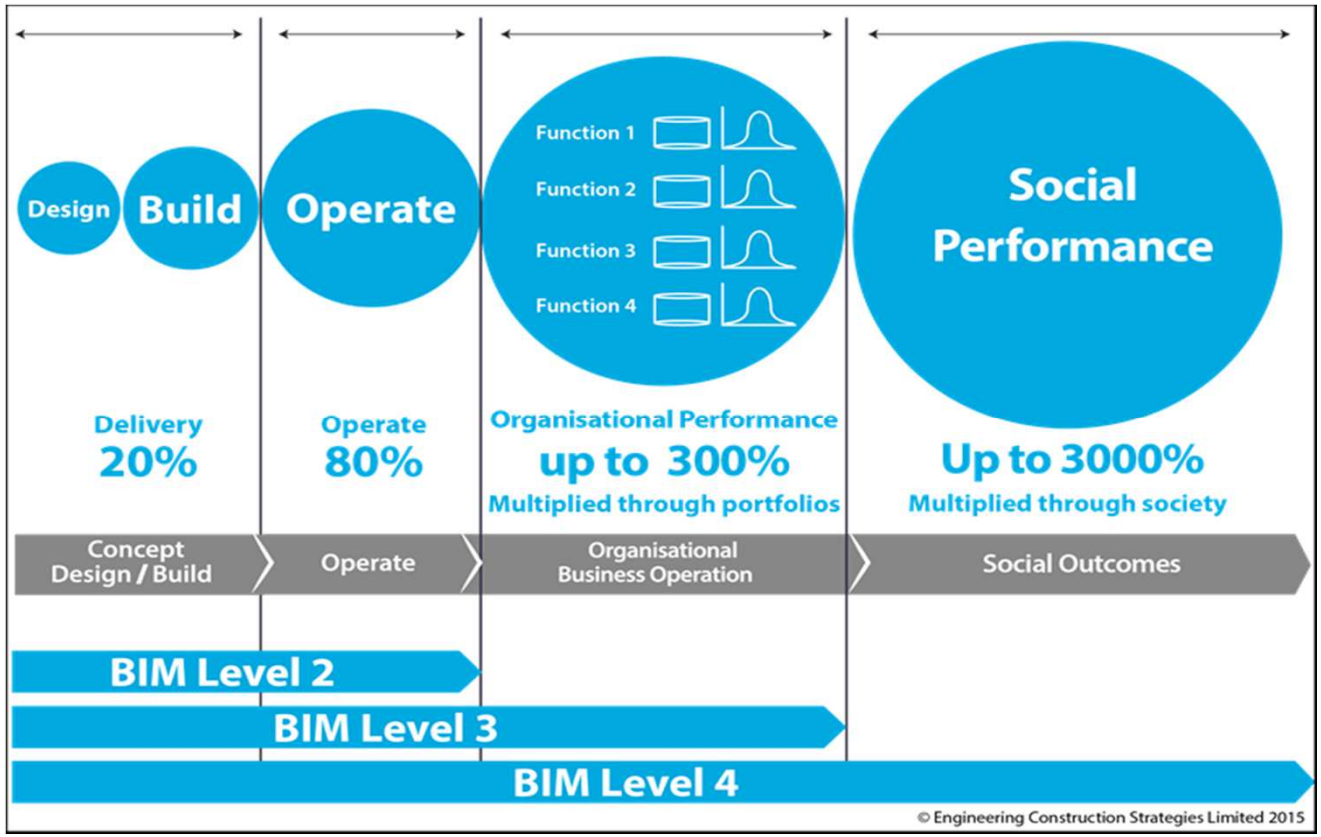

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Level 2 City “Package”

Department for Culture Media & Sport

HM Government Construction

- PAS 180 - Vocabulary
- PAS 181 – SC Concept Model – Guide to establishing a model for data interoperability
- PAS 182 - Smart city concept model
- *PAS 183 – Guide to establishing a decision framework for sharing data and information services*
- *PAS 184 - (Smart Cities – Guide to developing project proposals for delivering smart city solutions)*
- PAS 185 – SC – Security Mindedness

- PD 8100 – SC Overview – Guide
- PD 8101 – SC Guide to the role of the Planning & Development Process

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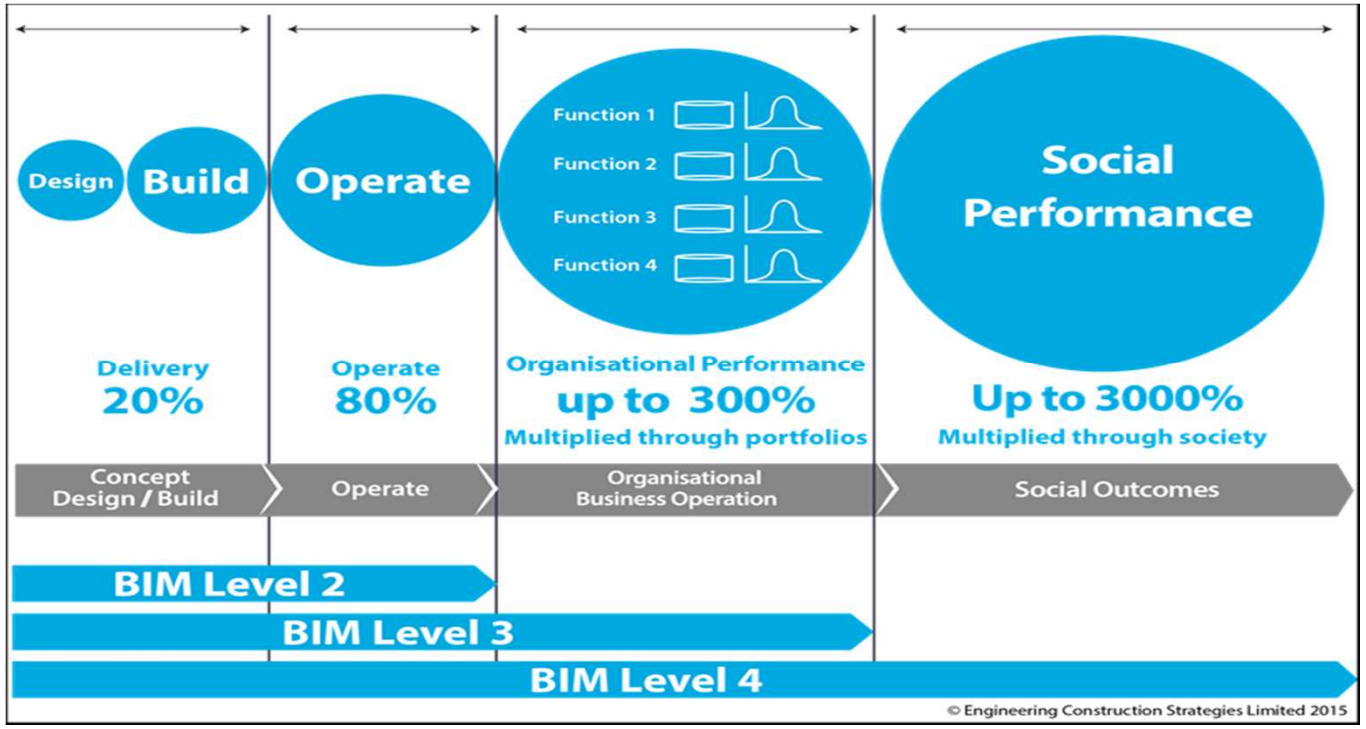
BIM & (Smart) Cities

HM Government
Construction



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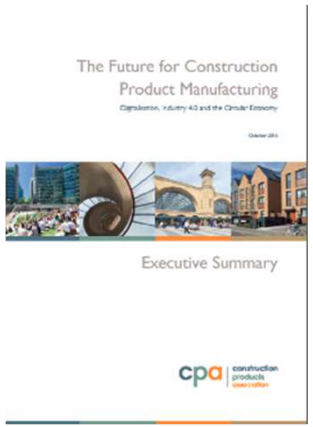
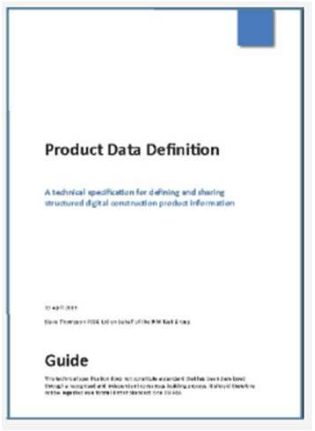
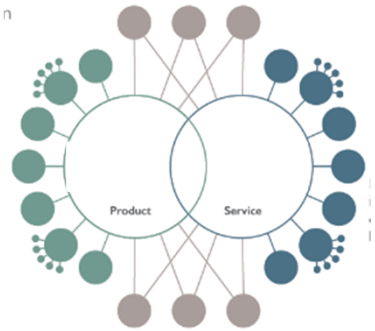
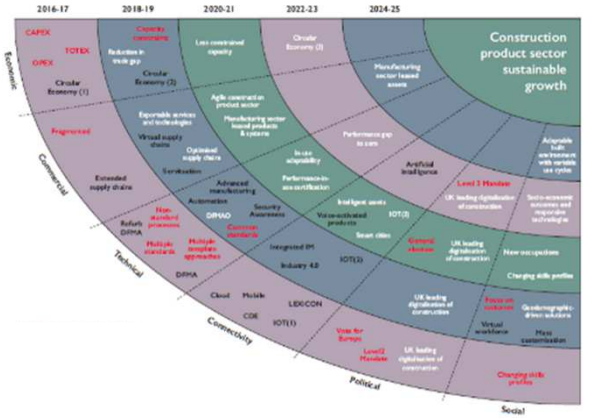
Level 2 - Manufacturing









www.constructionprducts.org.uk www.bim-level2.org/en/guidance

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Level 2 Achievements

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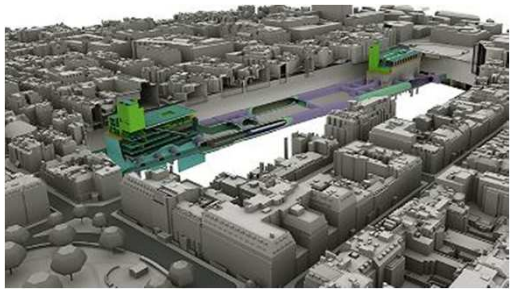

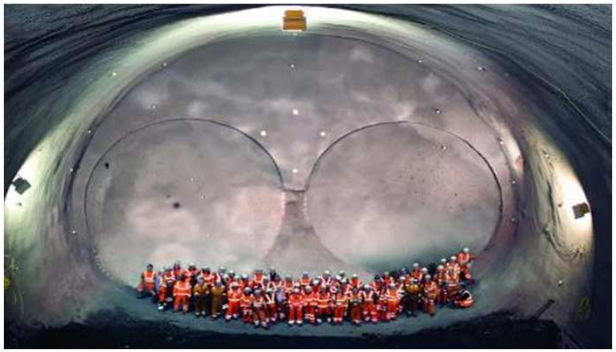

Crossrail

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Level 2 Achievements

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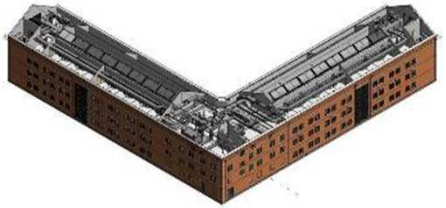
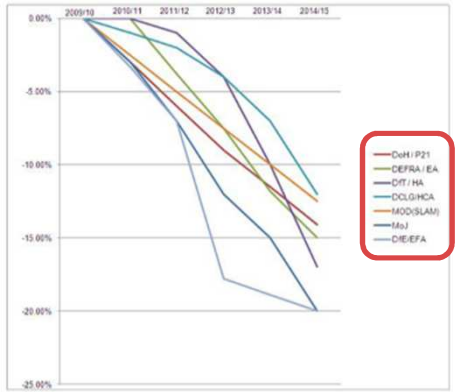


Education
Funding
Agency



Home Office
Environment Agency
Department for Business, Energy & Industrial Strategy
NetworkRail
Defence Infrastructure Organisation
highways england
PROCURE
Homes & Communities Agency
Cabinet Office
EUBIM TASKGROUP
cen
ISO

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International Programme

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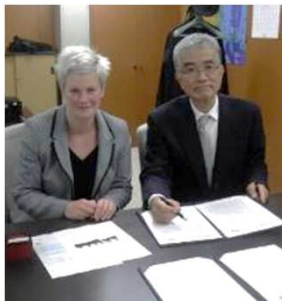
European Union

EU Public Procurement Directive
10 >> 22 nations
Grow market alignment to UK Level 2 – Opening Markets
Defend investment and grow trade

Improvement in exports
50%

Latin America

MoU with Brazil, Chile, Mexico (2017)
FCO Support
Trade Development



Asia

Japan MoU: 2017/18
Indonesia, Vietnam – support from Prosperity
Growth & Development

Middle East / Asia Pac: 2017/18

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Level 3 – Functional Improvements

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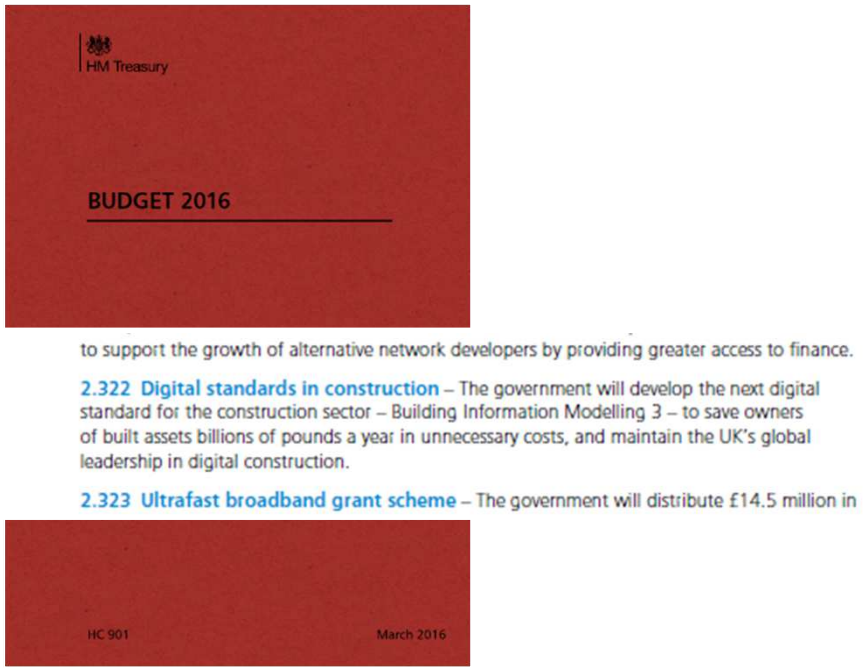

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http://digital-built-britain.com/

Strategic Outline Business Case

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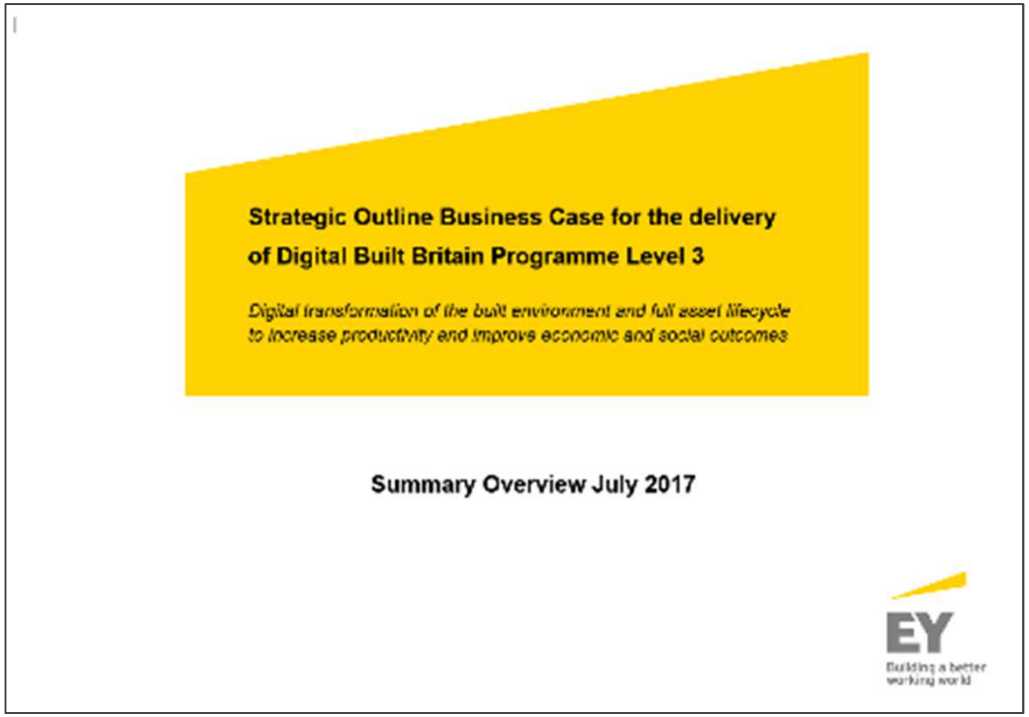

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Introduction

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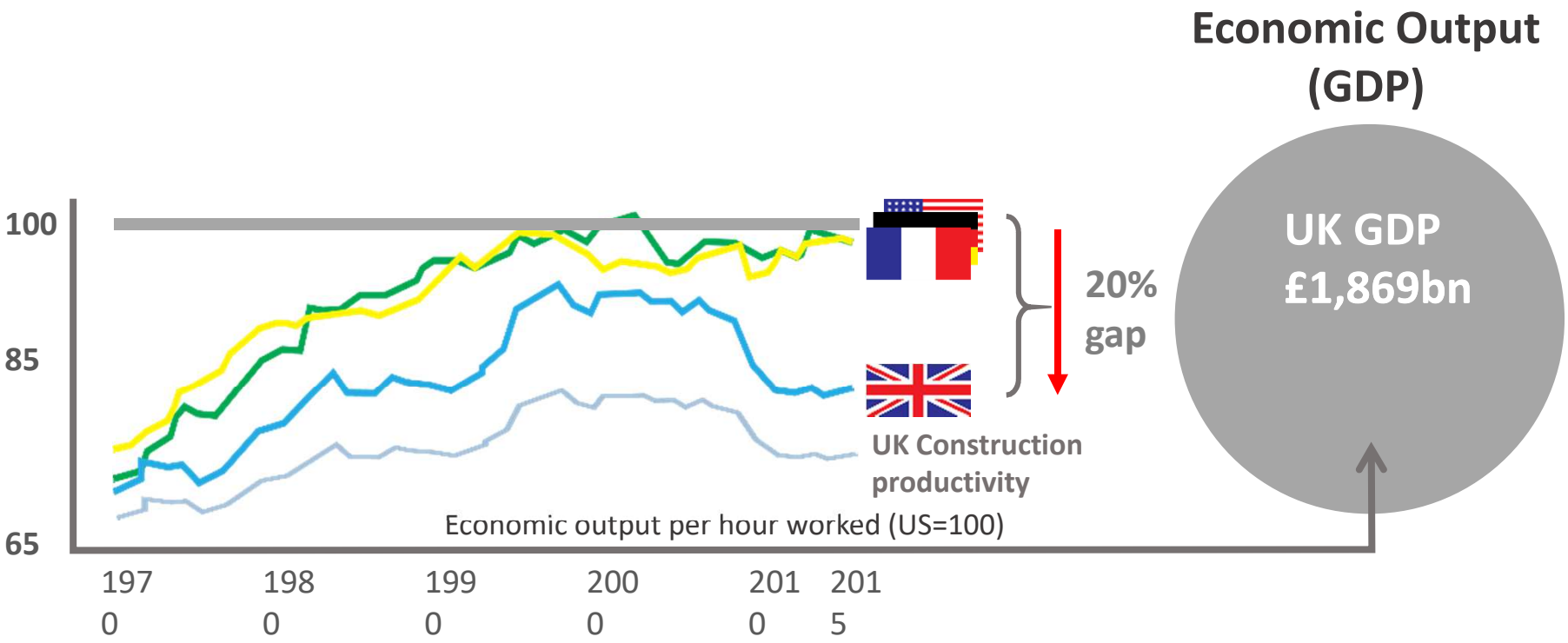

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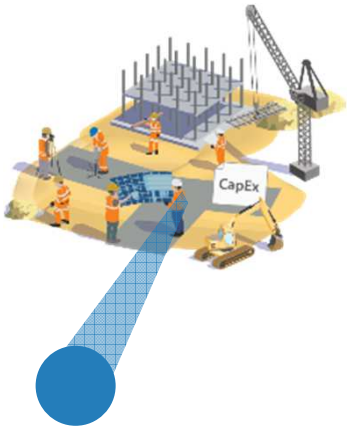
Source: Building Our Industrial Strategy Green Paper

The Built Environment contributes significantly to economic output

HM Government
Construction

CapEx



£89bn

Construction Sector

OpEx

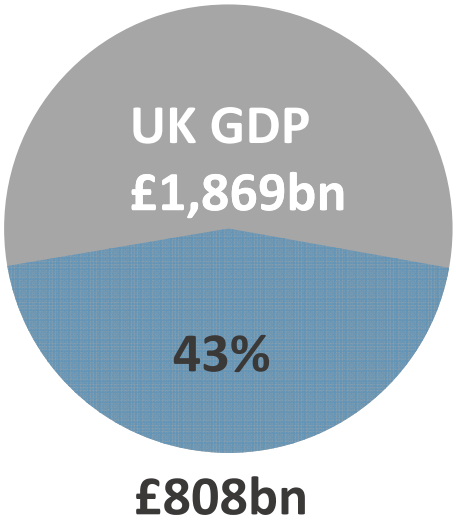
£122bn

Infrastructure and Facilities Management

Service Provision

£597bn

Economic contribution of services predicated on the built environment (e.g. transport, healthcare, etc.)



£808bn

Improved construction output leads to improved operations

Improved construction output leads to optimised business services

Digital Built Britain

Sources: ONS, gov.uk, Gazprom, Facilities Management Journal, Arcadis

But constraints in Britain's built environment infrastructure are acting as a brake on economic growth

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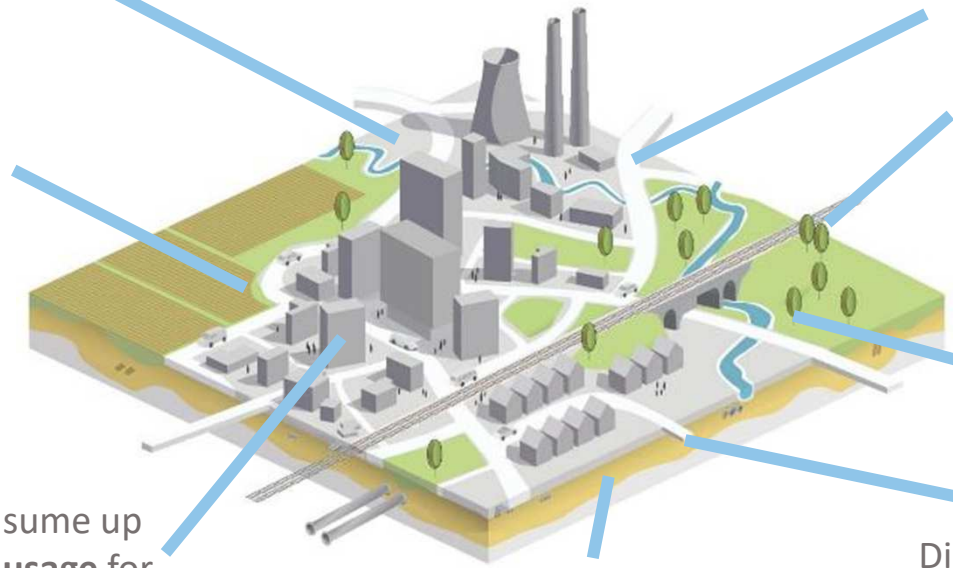
Delays in strategic financial **decisions** increase project costs by est. 100%

20% of total construction costs is **re-work**

Homes and offices consume up to 4x designed **energy usage** for same output



Transport and Energy supply contribute to more than 50% to UK's total greenhouse gas emissions

Traffic congestion costs the UK economy £13.1bn in 2013

Train delays in Scotland cost the economy £85 million in 2015/16

It costs the NHS **£600m pa** to treat illnesses caused by living in poor housing conditions in England

Disruption from **flooding** costs the UK economy £1bn pa

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The DBB Programme supports the UK's Industrial Strategy with information tools, skills and services to support communities and places

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Digital Built Britain

Digital Built Britain enables the information feed-forward and feed-back loops…

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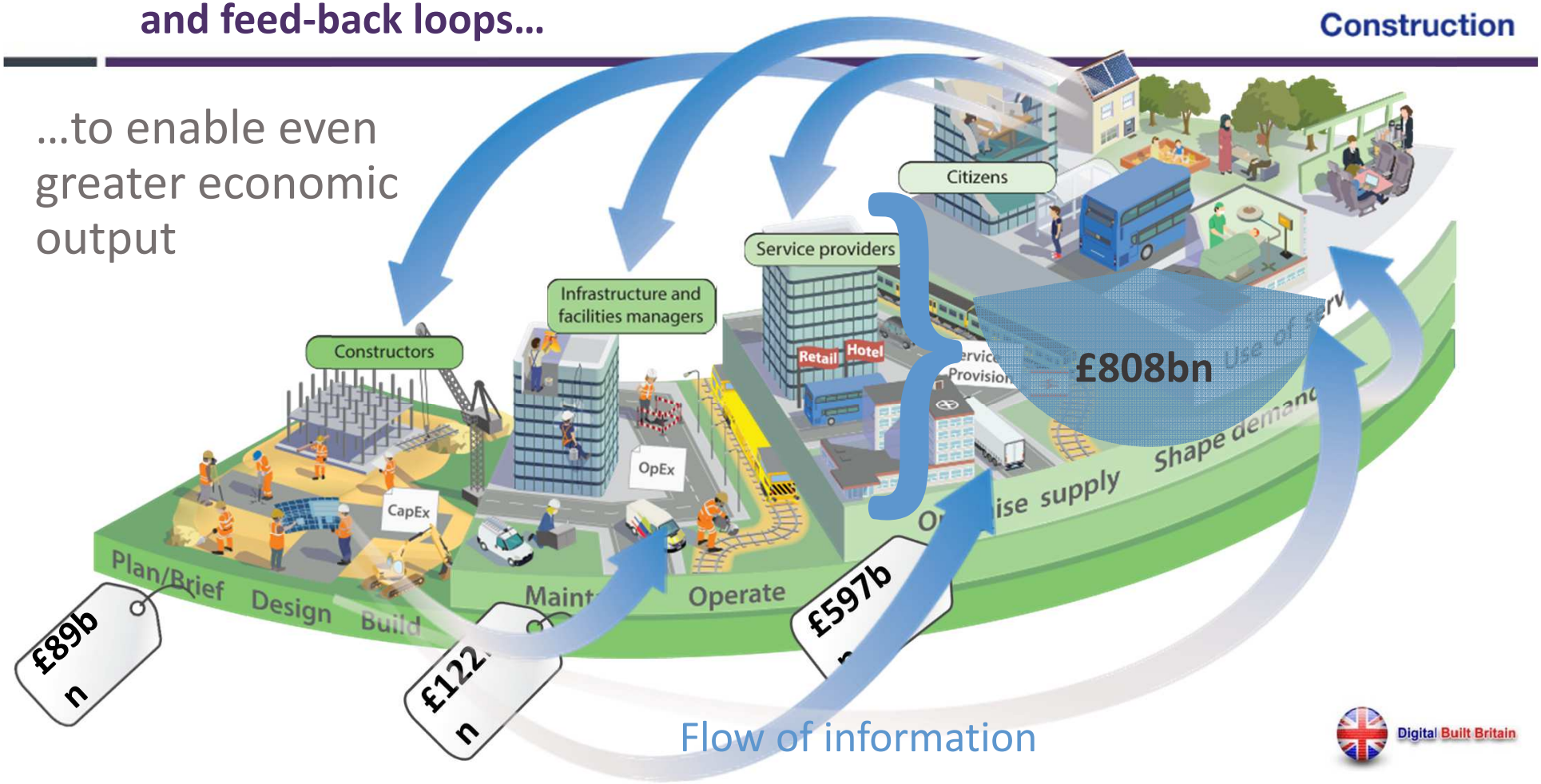
…to enable even greater economic output



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Initial analysis shows whole-life benefits could be as much as 0.5-6% of GDP

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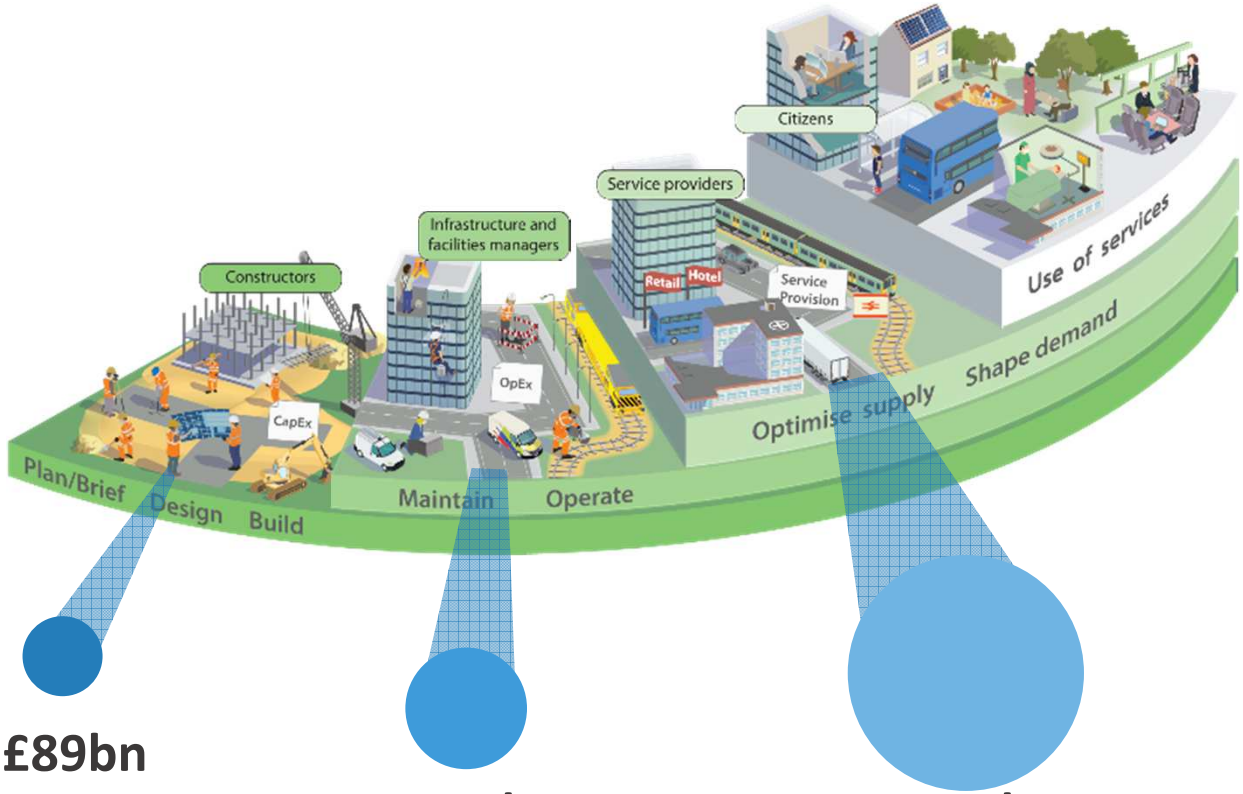

£89bn
(15% - 25%)

£122bn
(10% - 20%)

£597bn
(10% - 15%)

*Dependent on the option chosen

0.5% - 6% increase in GDP*

£1,869bn
(£9bn - £120bn)

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We need a better understanding of how these systems fit together in order to enable integrated strategic financial investment planning

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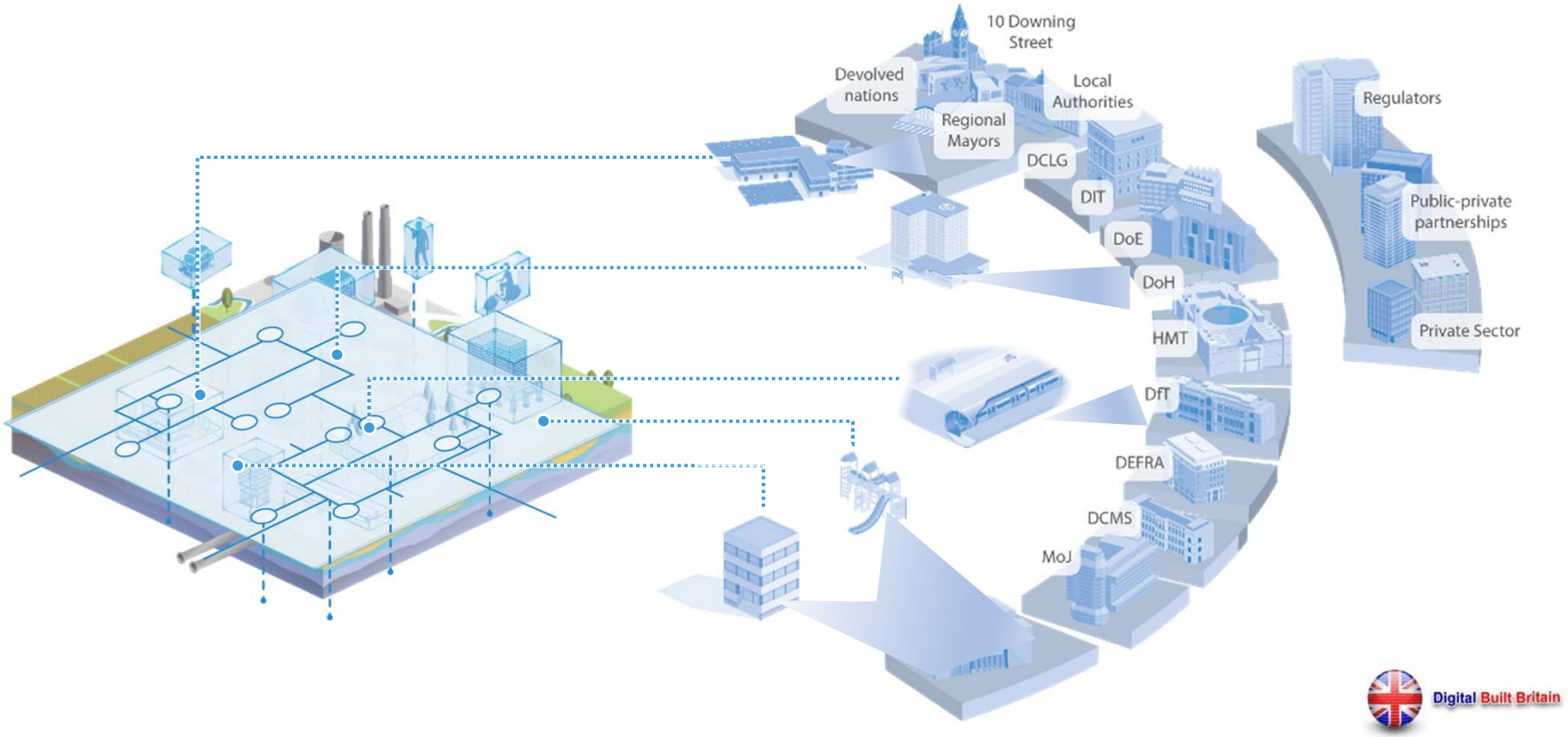

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The Digital Built Britain programme is delivering:

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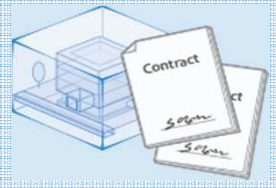
An information framework of the UK built environment to enable data sharing across the entire market

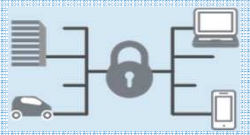


New commercial frameworks for projects and facilities management designed with information management in mind

A co-operative cultural environment that seeks to learn and share

Training for the public sector in the use of data and data-driven decision making

Domestic and international growth and jobs in technology and data sciences



Secure transaction for built environment data

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Level 3 – Functional Improvement

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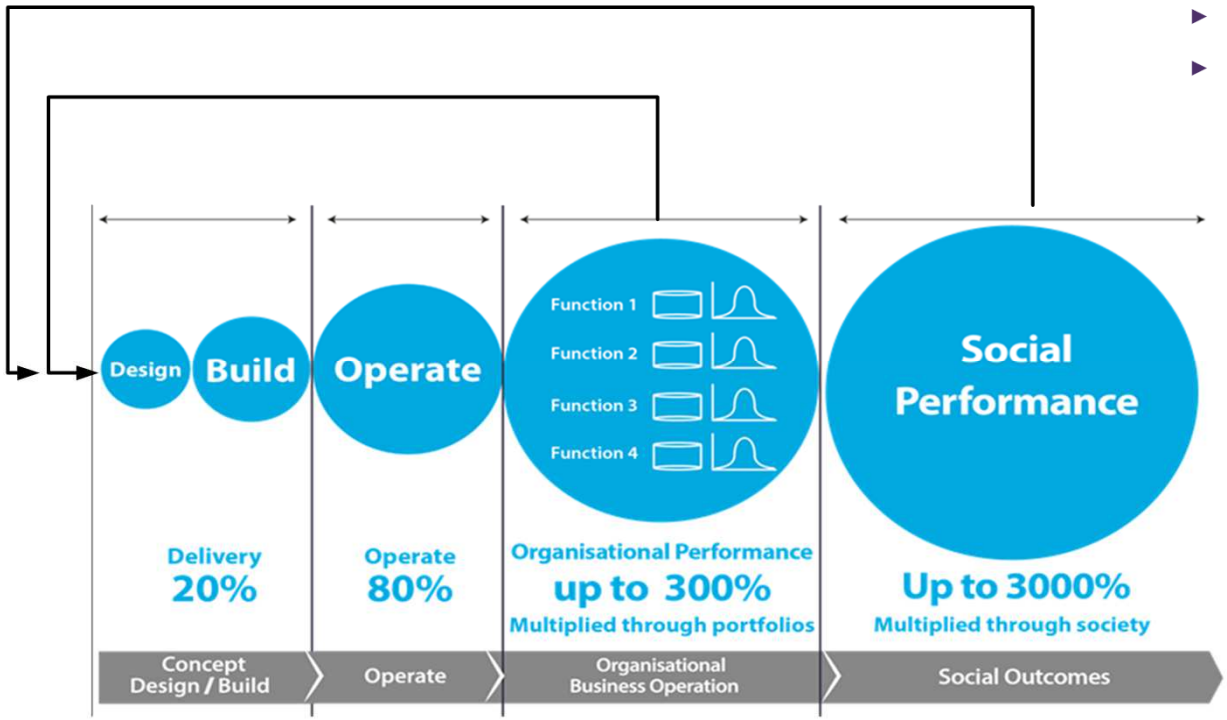

- Demands of Customers
- Buildings and Communities
- Feedback & Systematic Learning

Digital Built Britain

GeoConnect + Platform – 2D

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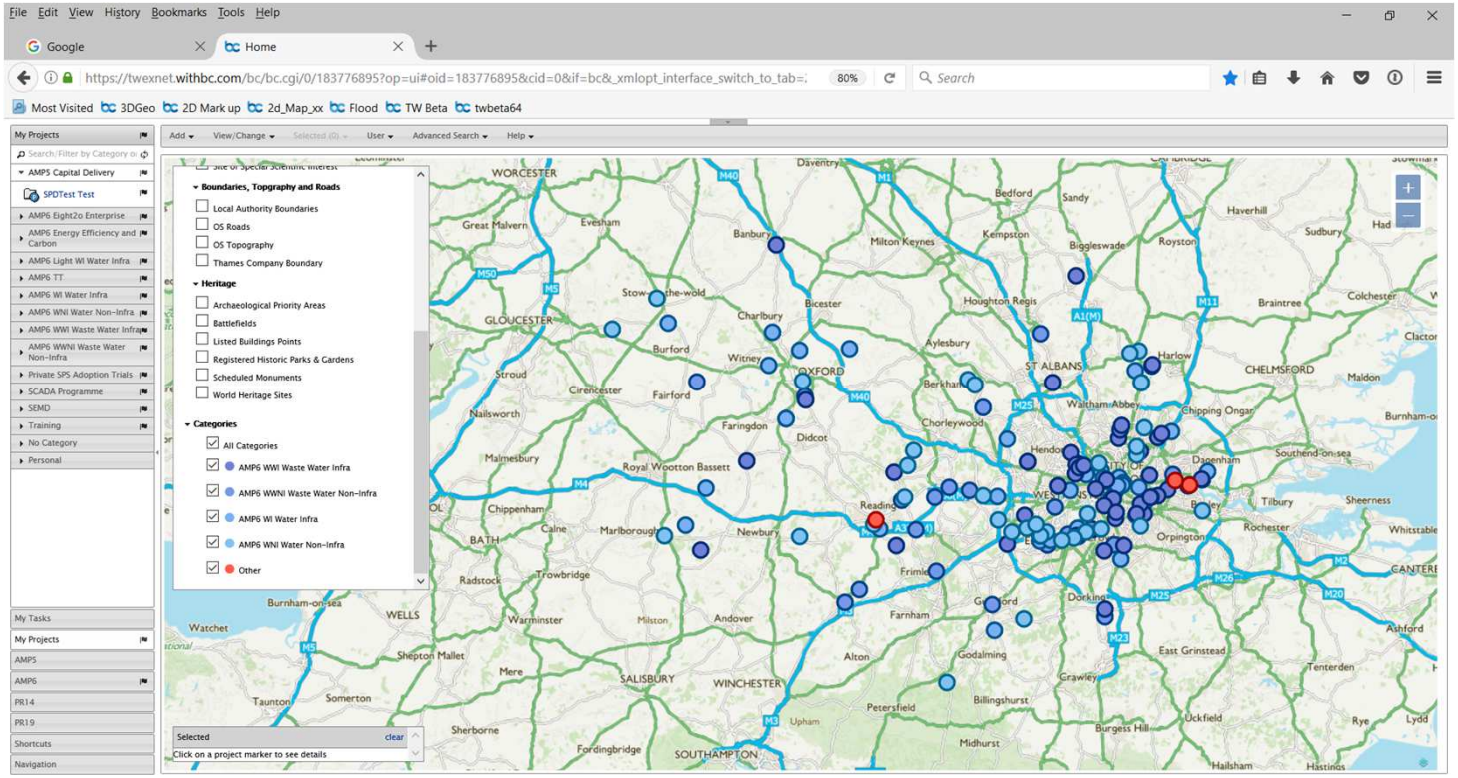

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GeoConnect + Platform – 3D

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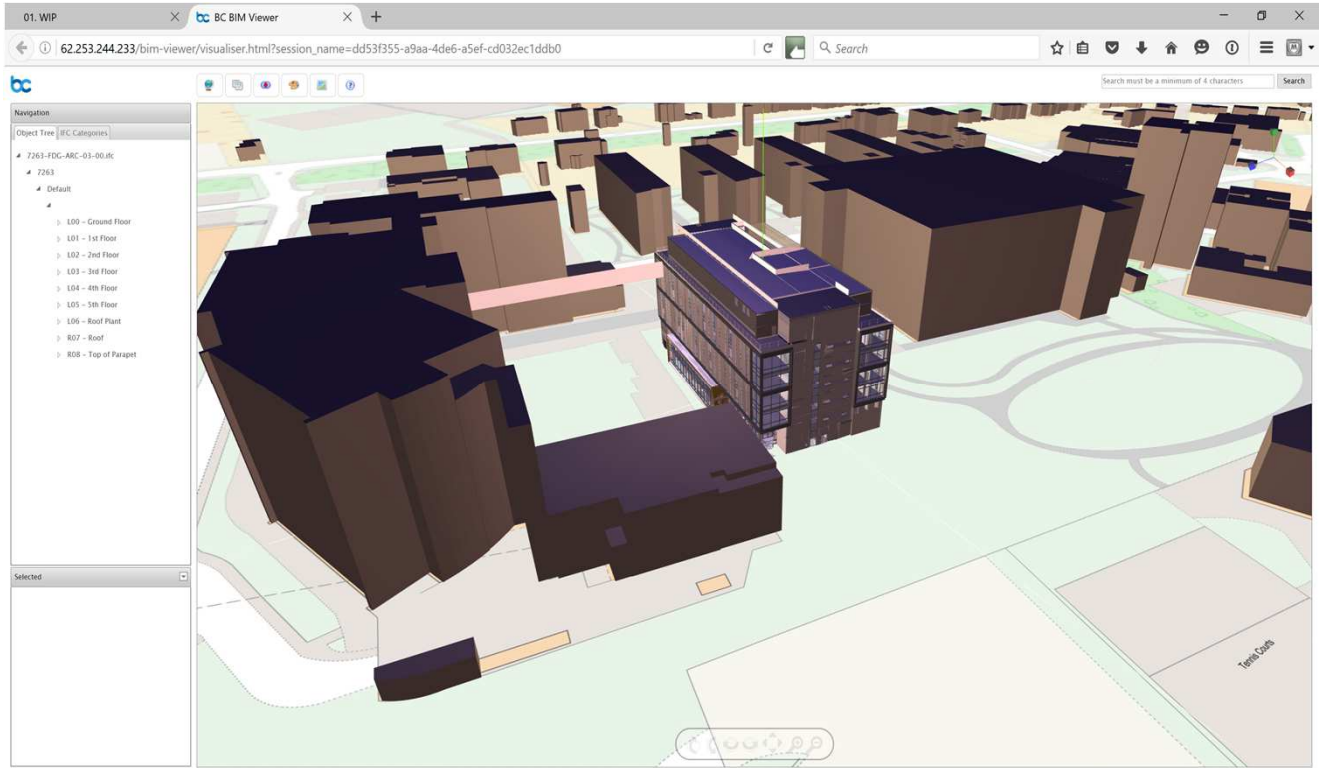
Connect: Extruded Building Heights

HM Government
Construction



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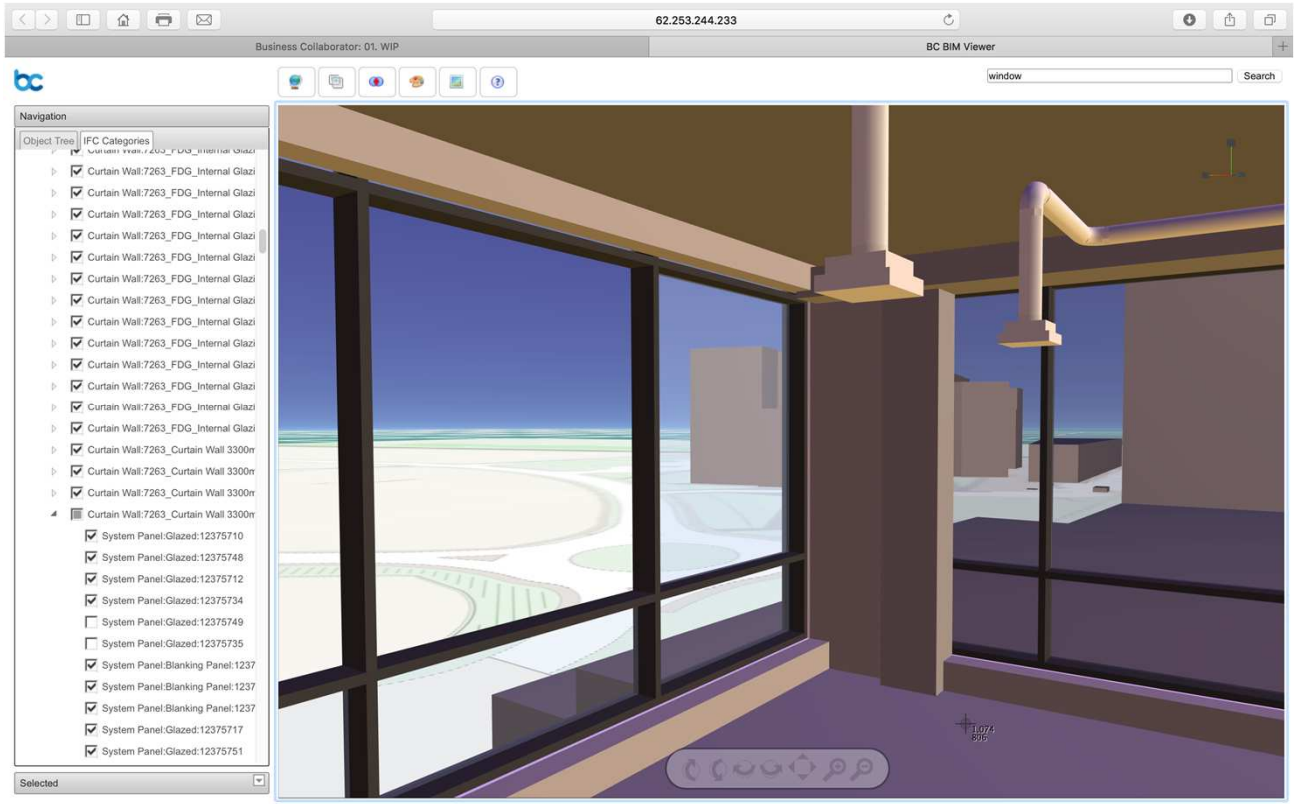
View: Looking Inside Out

HM Government
Construction



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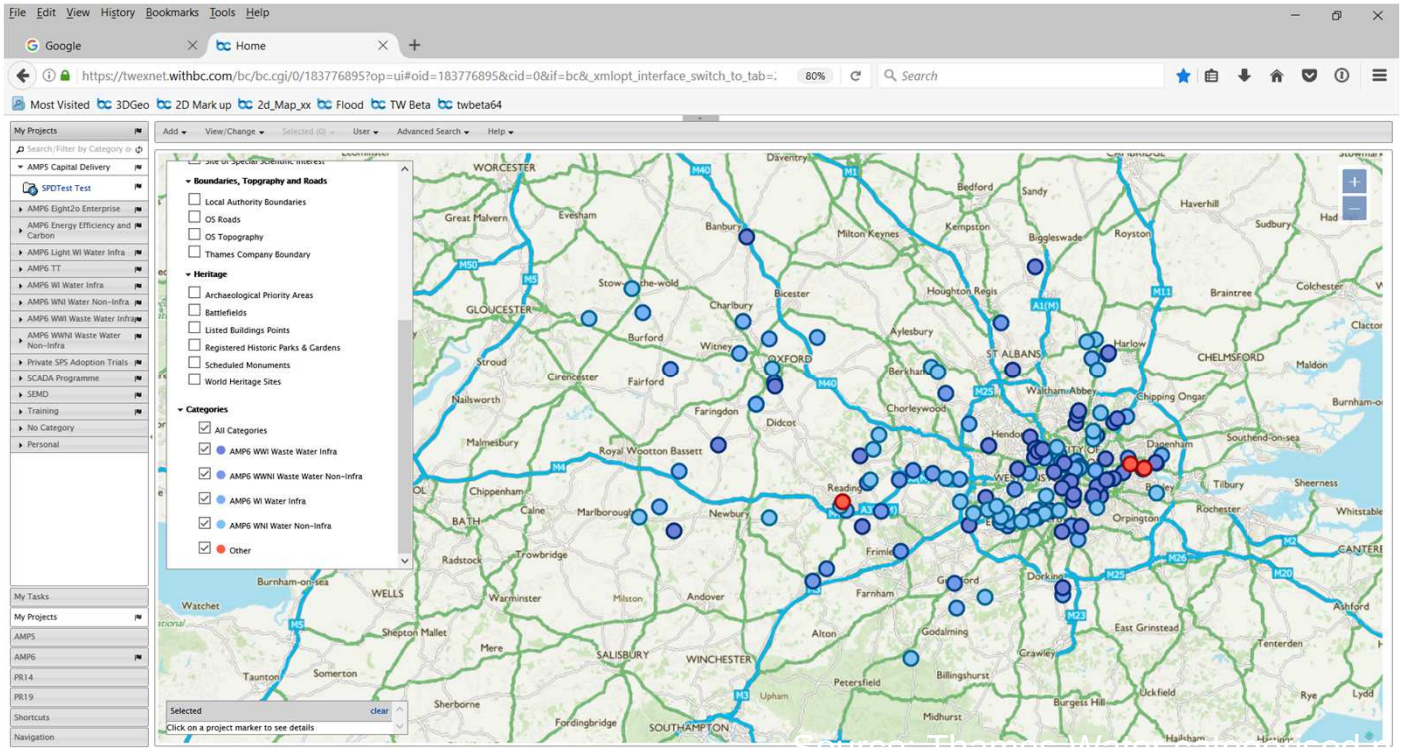
Find and Locate : Assets & Projects

HM Government
Construction



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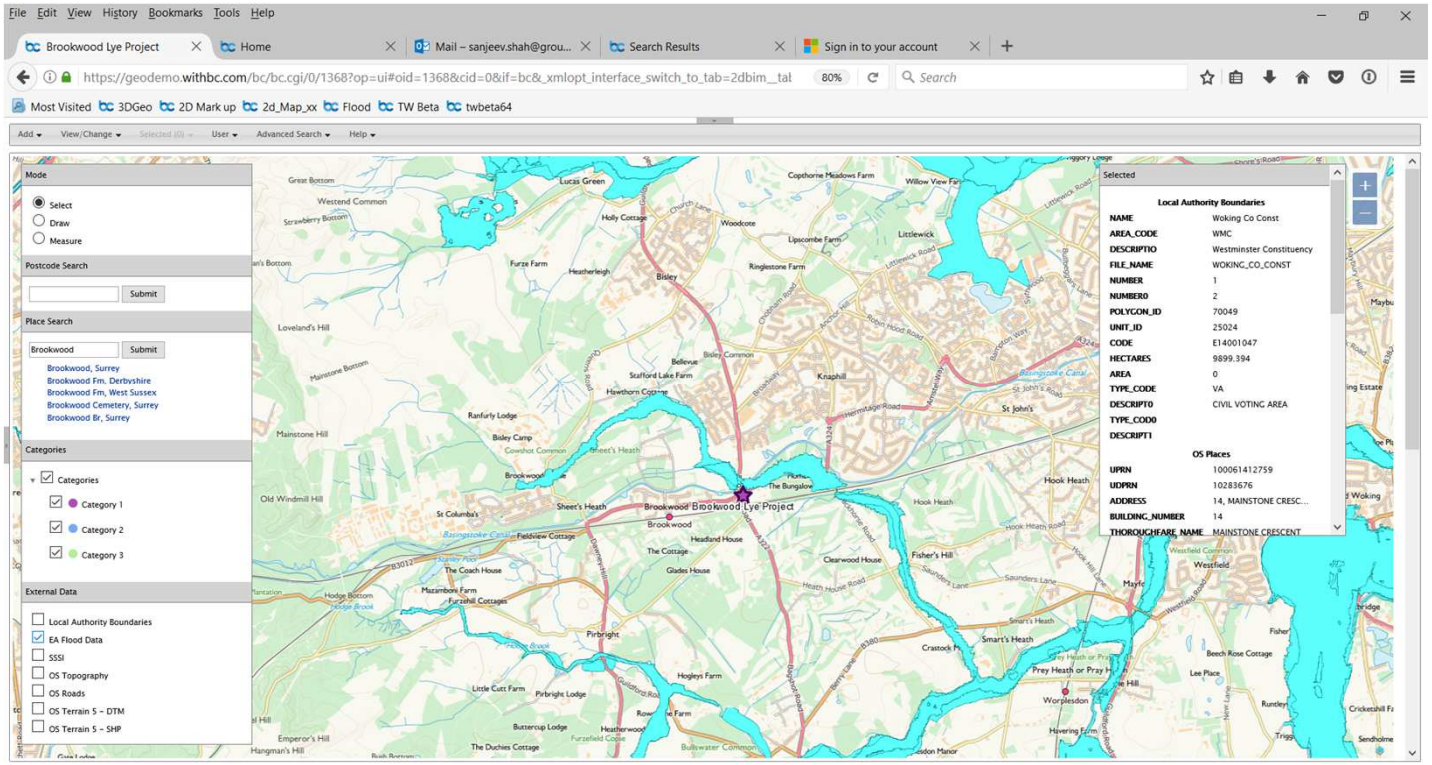
Connect : Flood Areas

HM Government
Construction



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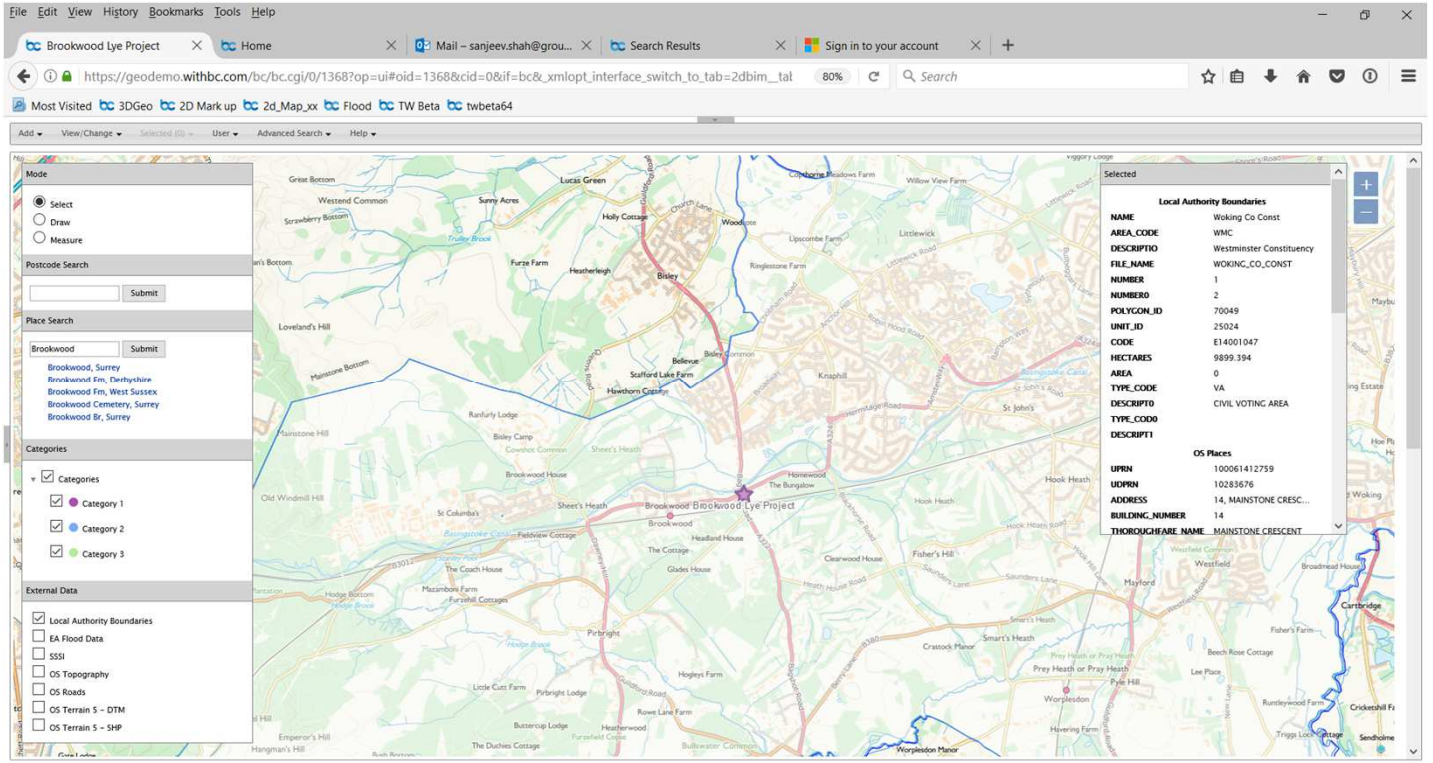
Connect : Local Authority Boundaries

HM Government
Construction



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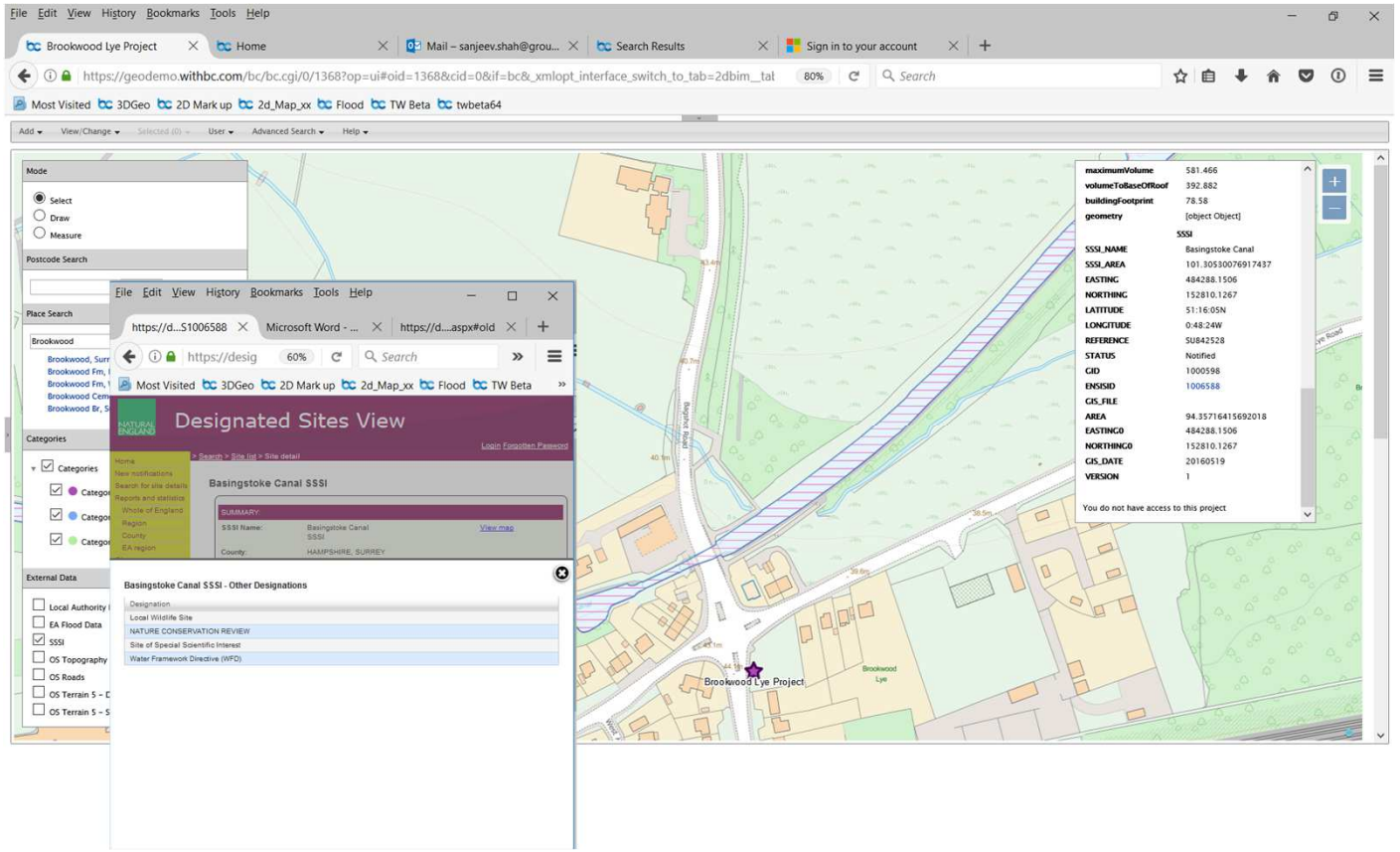
Connect : Sites of Special Scientific Interest

HM Government
Construction



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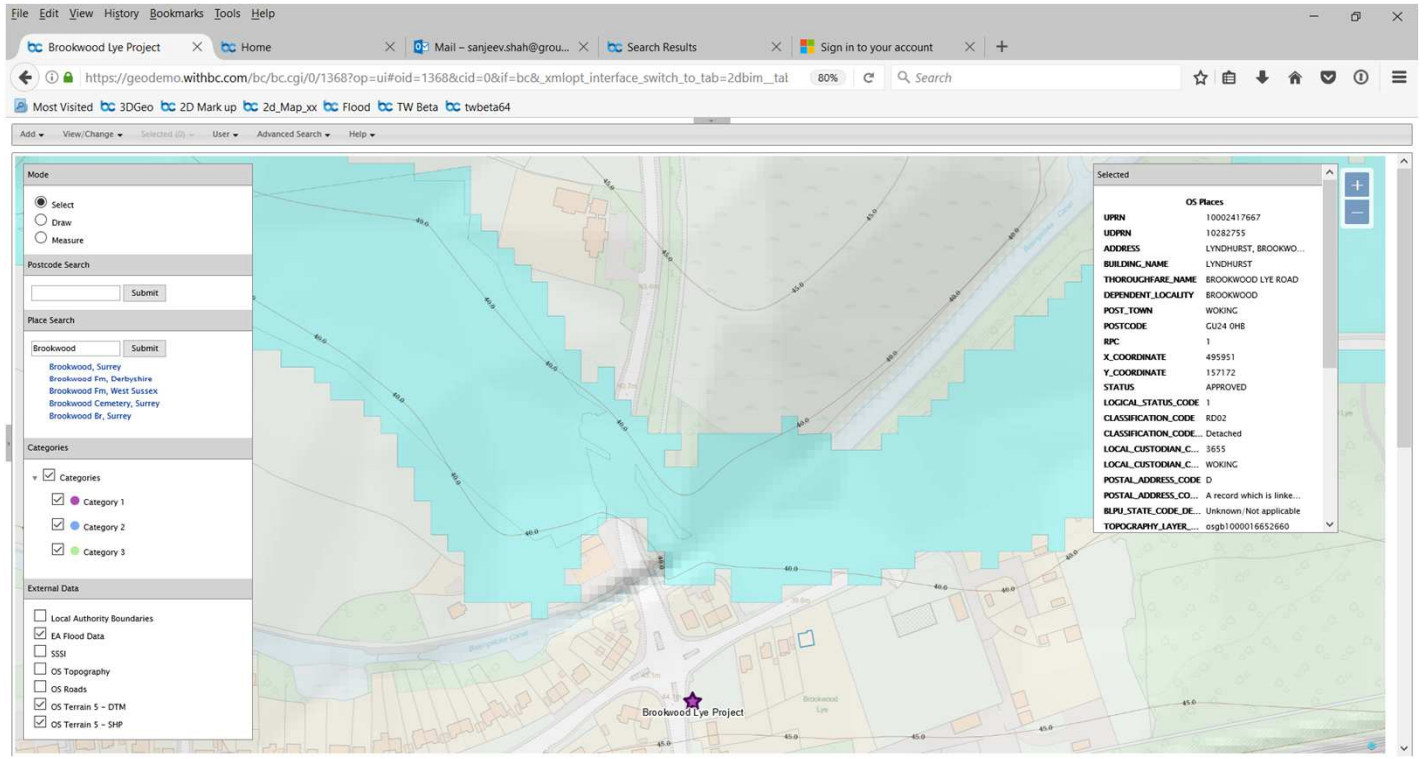
Connect : Terrain 5 + Flood Data

HM Government
Construction



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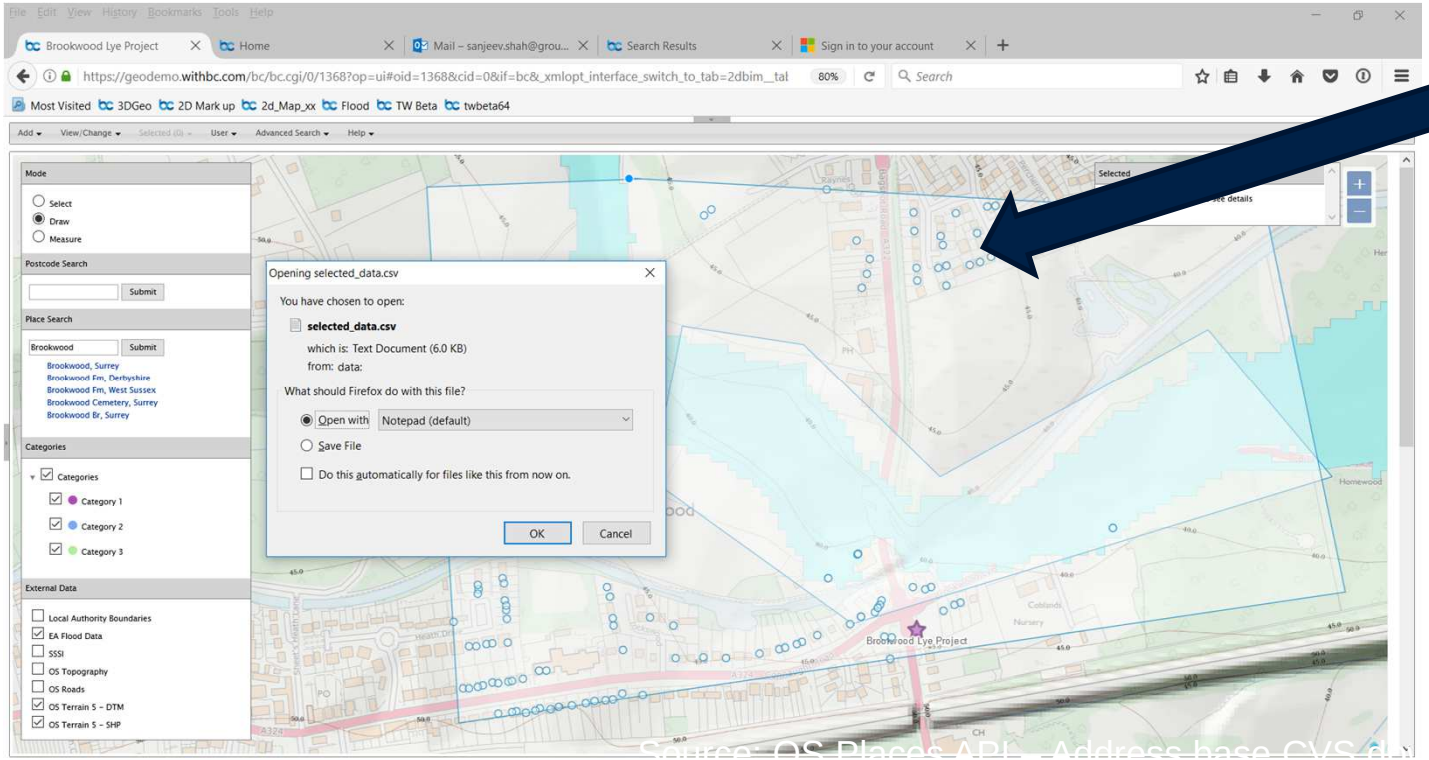
Connect : Addresses

HM Government
Construction



User defined region

Source: OS Places API - Address base CVS file

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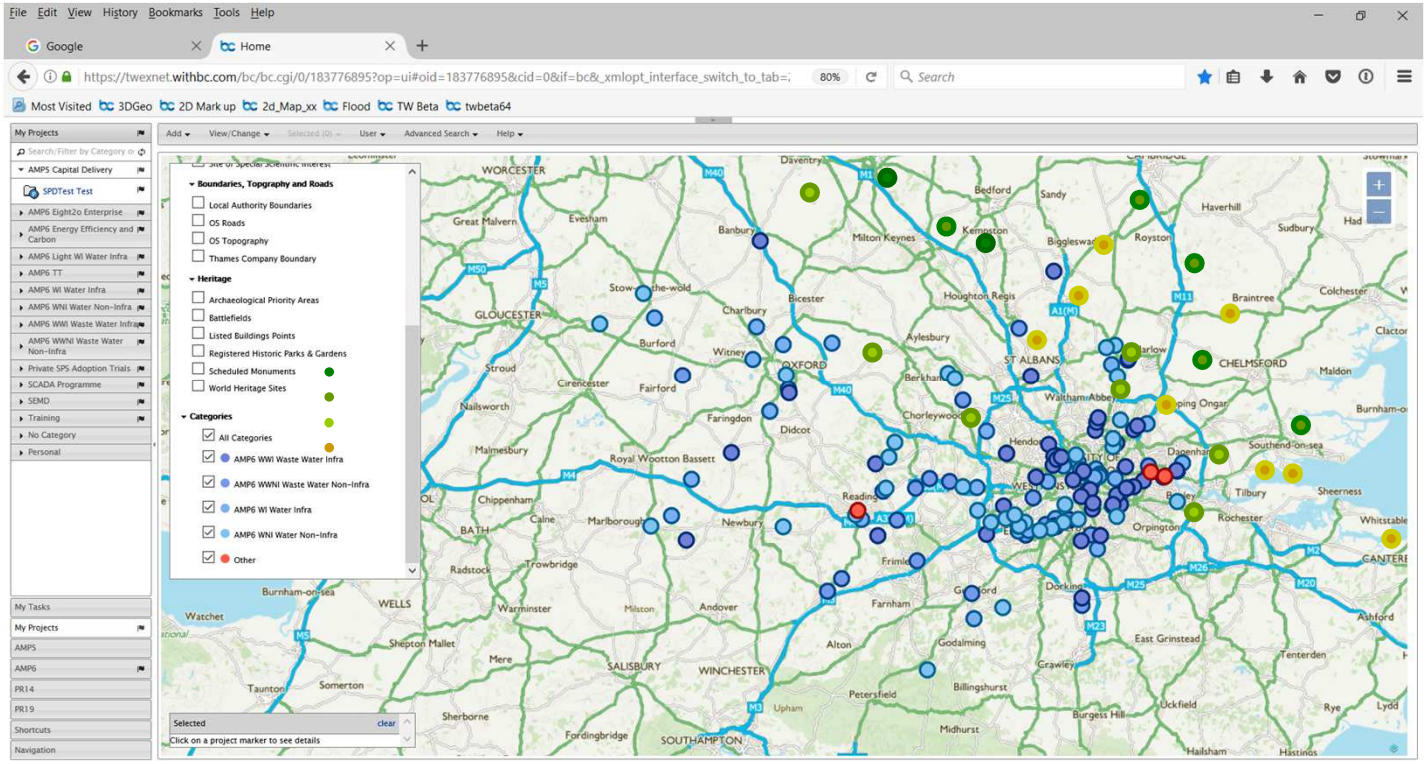
Connect : Supplier Data from ERP

HM Government
Construction



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Connect : Point Cloud & OS Data

HM Government
Construction

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Connect : Point Cloud & OS Data

HM Government
Construction

Digital Built Britain

Connect : Point Cloud & OS Data

HM Government
Construction

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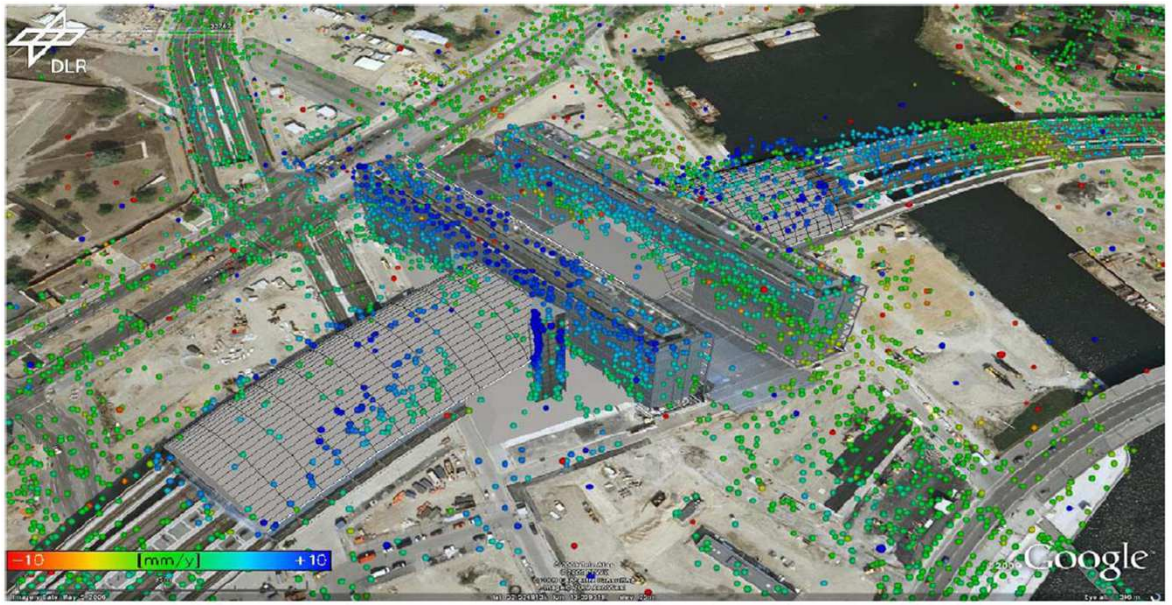
Monitoring Structures From Satellites

HM Government
Construction

- St Marys Abchurch Building (Bank)
- Waterloo Bridge
- Hammersmith Flyover



CATAPULT Satellite Applications

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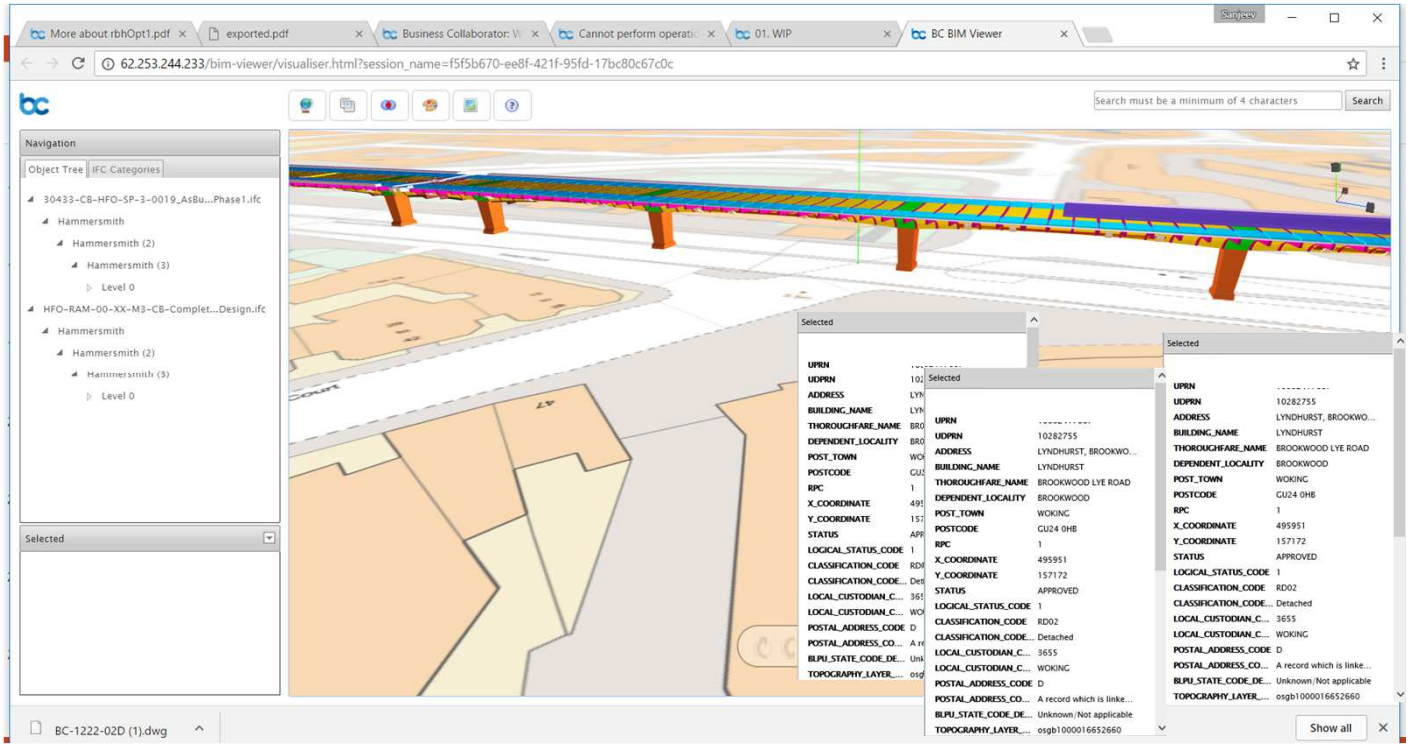
Connect : Sensor Data

HM Government
Construction



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UK Government – Building A New World

Digital Built Britain – Programme Overview

Dr Mark Bew MBE

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