BIM – the UK experience

Richard Waterhouse Chief Executive

A digital transformation

The problem….

Irresistible force meets immovable object

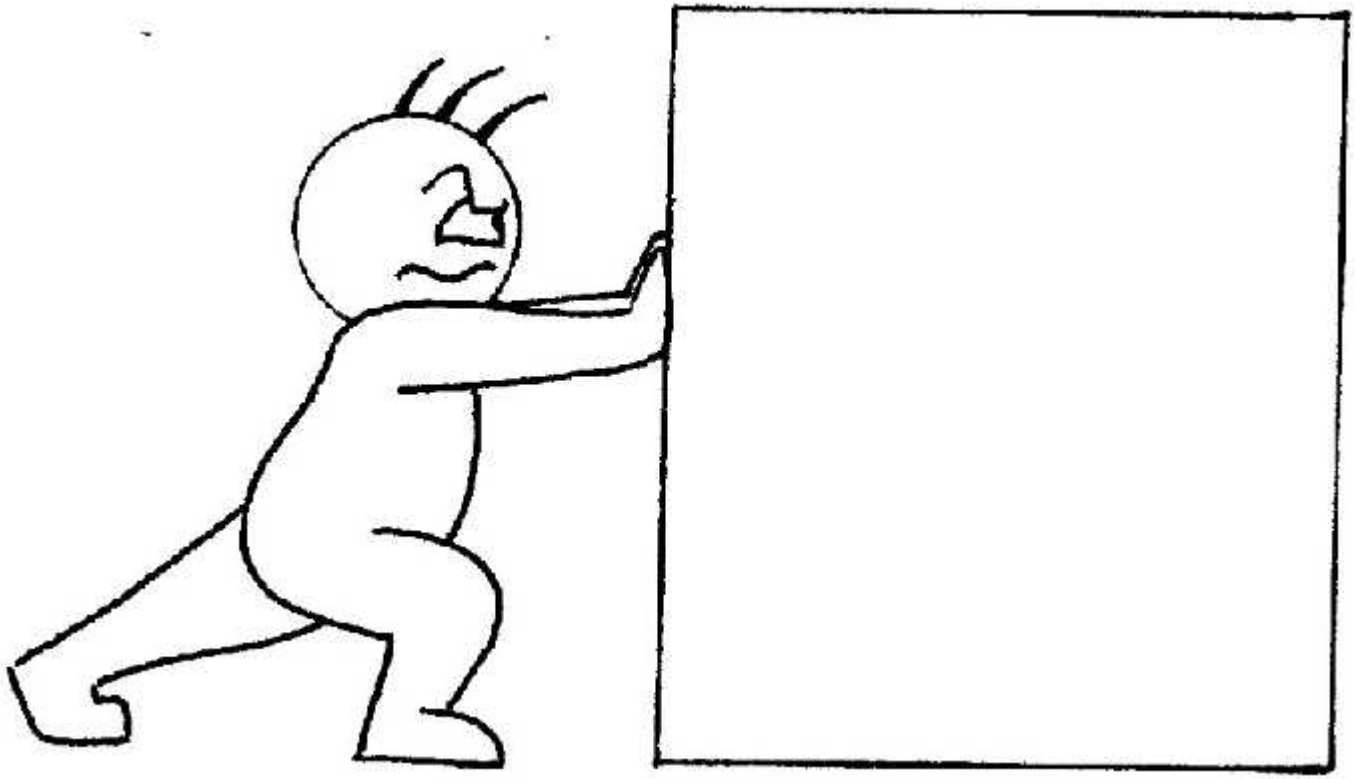


Fig.1

Problems to be solved:

10% of construction claims caused by incorrect or incomplete data

£2bn of construction re-work each year

Data re-created multiple times with process breaks with over-design at many stages

UK Government Strategy

UK Government Strategy

"This Government's four year strategy for BIM implementation will change the dynamics and behaviours of the construction supply chain, unlocking new, more efficient and collaborative ways of working. This whole sector adoption of BIM will put us at the vanguard of a new digital construction era and position the UK to become the world leaders in BIM."

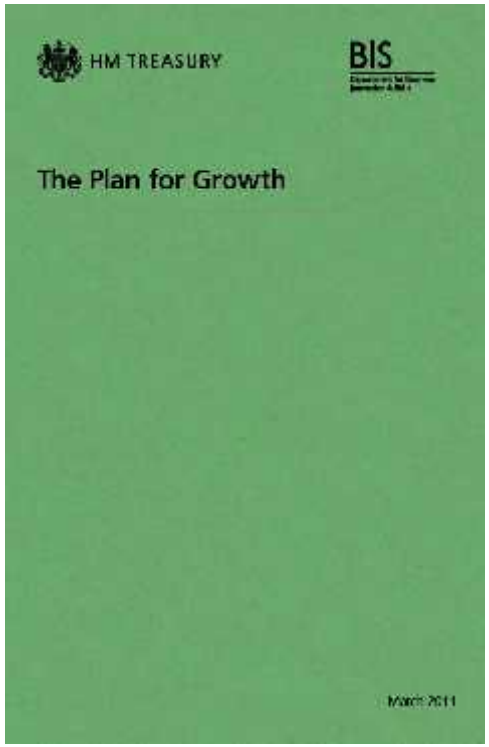
Francis Maude
Minister for the Cabinet Office

BIMTaskGroup.org

UK Government Strategy

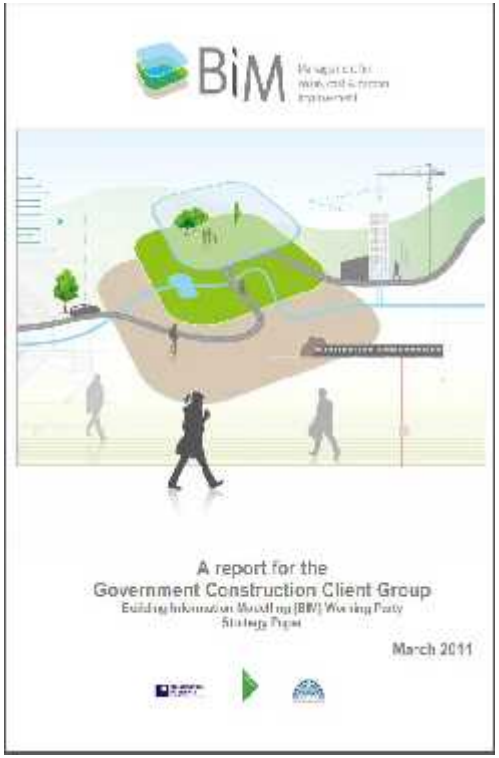
UK Government Strategy

UK Government Strategy



Plan for Growth
March 2011

Low Carbon Action Plan
June 2011



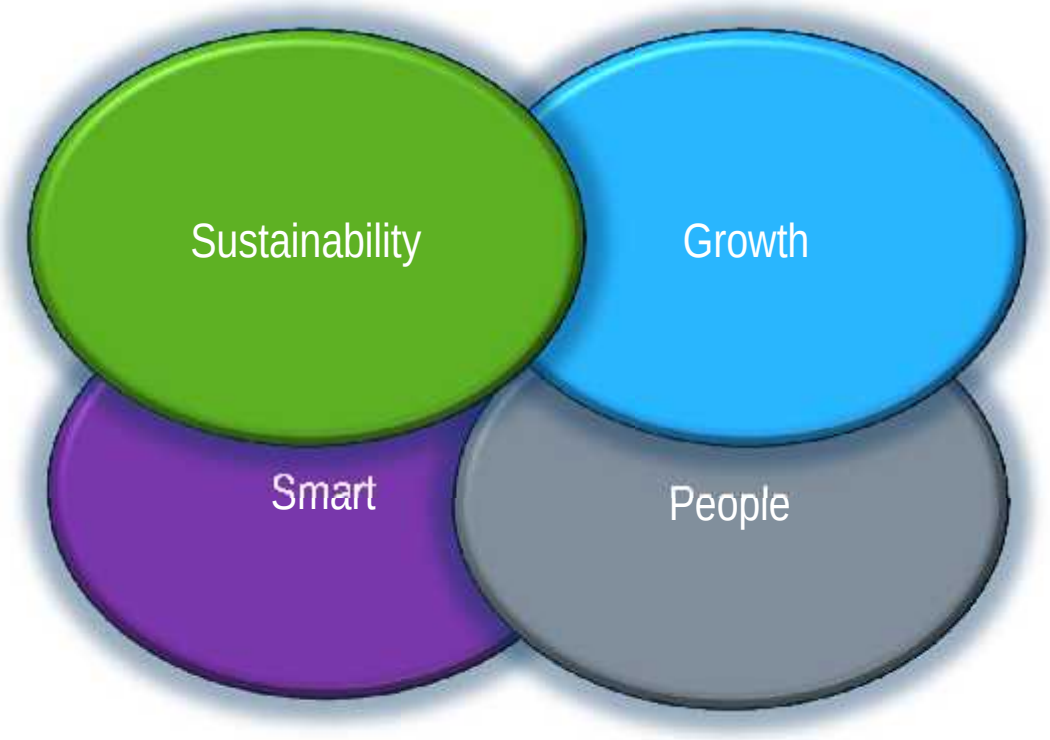
BIM Strategy
June 2011

Simple objectives and requirements:

- 3D collaborative environment by 2016
- COBie output at key stages including handover
- 20% capital cost reduction for construction phase

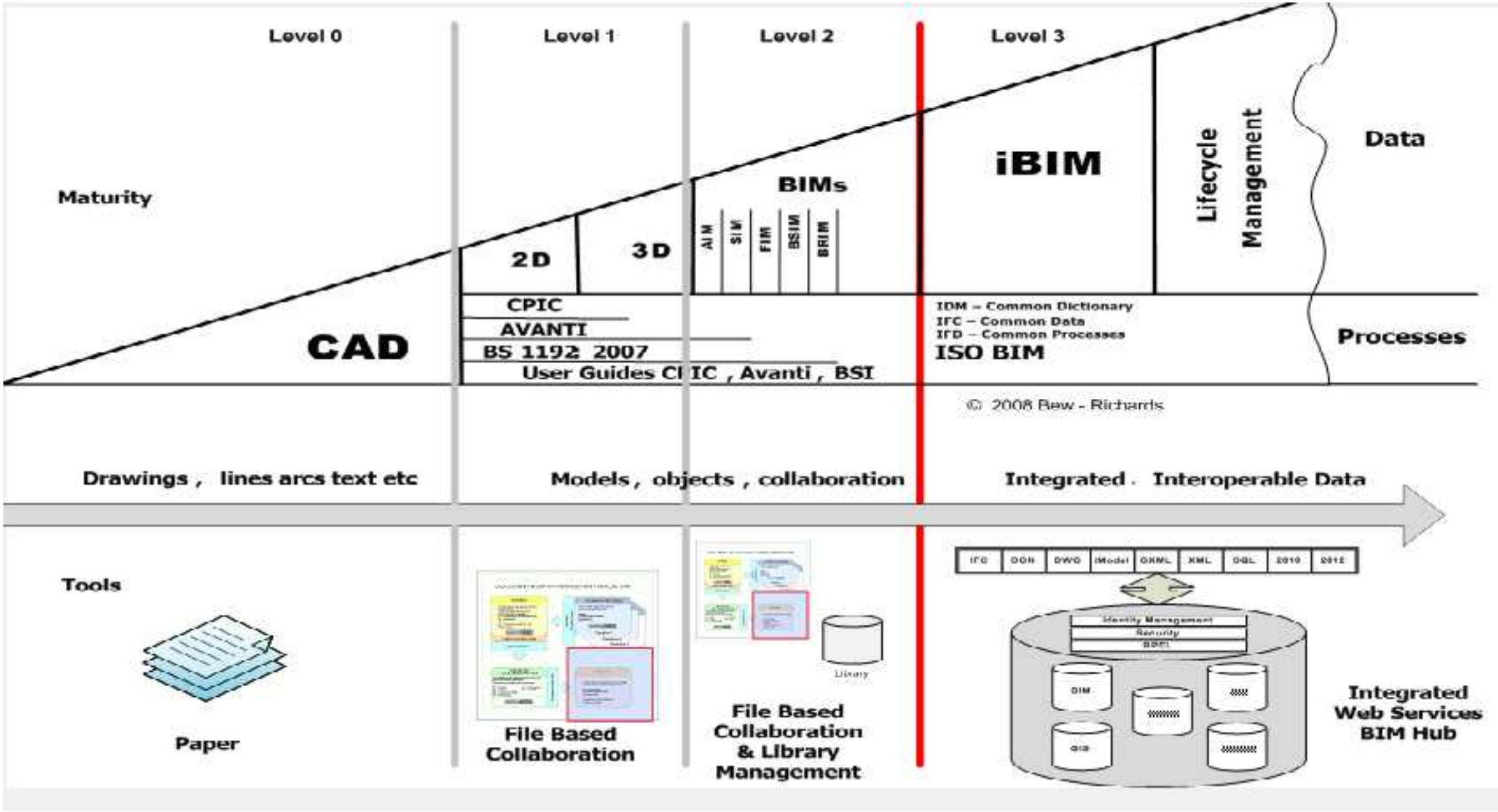
This could only be done with major industry change

Changing an industry



Supporting change

The Bew:Richards wedge



Resources – the BIM standards set

PAS 1192-2 (2013) Information during capital phase

PAS 1192-3 (2014) Information during operational phase

BS 1192- 4 (2014) COBie

BIM Protocol

Government Soft Landings

Classification

Digital Plans of Work

Resources – Standards

BS8541-1 to BS8541-4

Library objects for architecture, engineering and construction

BS8541-5 Assemblies

Draft in July

BS8541-6 Product declarations

Draft in August

Managing the whole process

BIM : BAM : BOOM

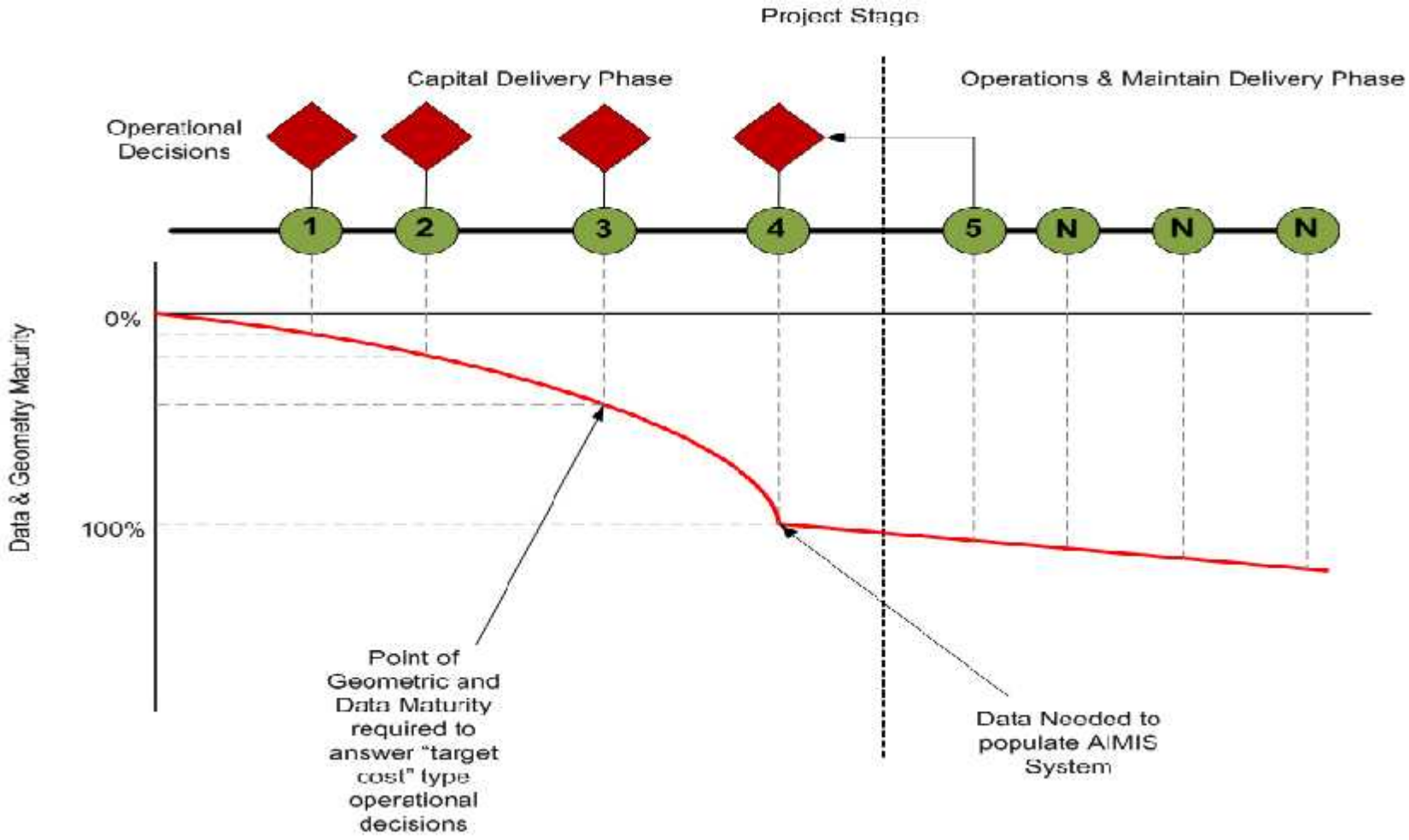
Savings have always been targeted at design and construction costs

Design
1

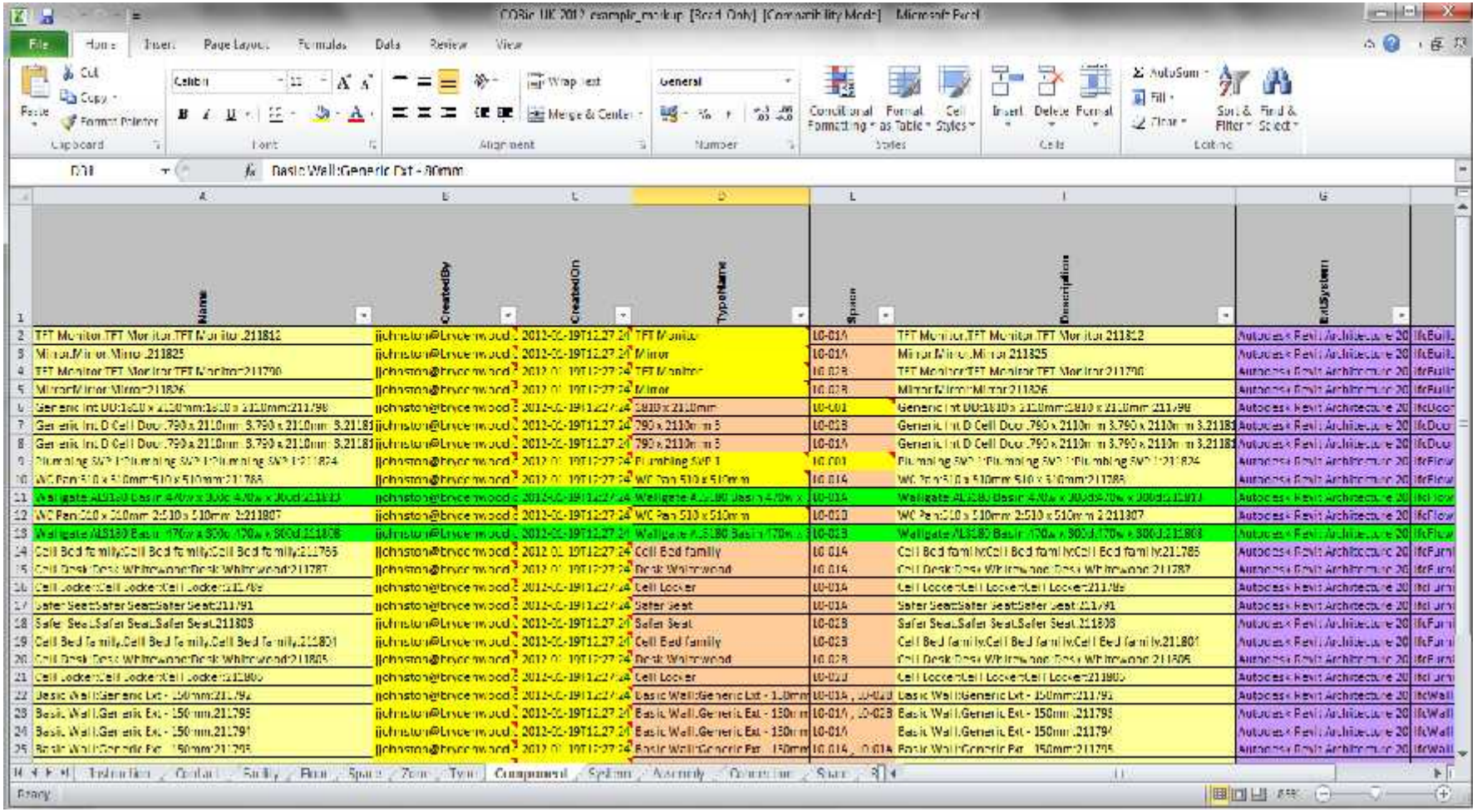
Build
10

Operate
100

COBie UK 2014

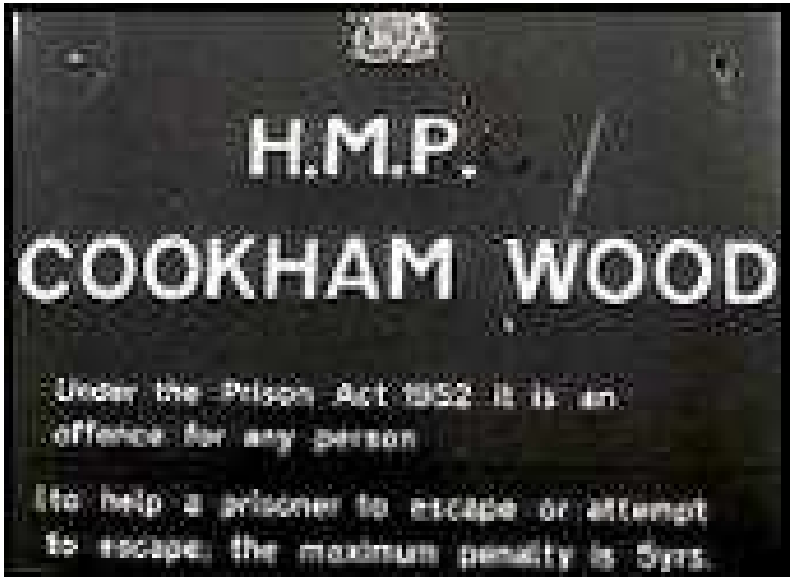


COBie UK 2014



So how are we doing?

Pilot projects



Pilot projects

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

Justice

HM Government

NBS

Pilot projects

Currently over £1bn of live projects

Needs to be £20bn in less than two years…

We need to change the industry and that change will also be cultural….

Changing relationships - work streams

Project bank accounts

Project insurance and contracts

Revised plan of works

RIBA Plan of Work

RIBA Plan of Work

RIBA

[illegible]

www.ribaplanofwork.com

RIBA Plan of Work 2013

Tasks	0 Strategic Definition	1 Preparation and Brief	2 Concept Design	3 Developed Design	4 Technical Design	5 Construction	6 Handover and Close Out	7 In Use
Core Objectives	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Procurement *Variable task bar	Initial considerations for assembling the project team.	[illegible]	[illegible]			[illegible]	[illegible]	
Programme *Variable task bar	Establish Project Programme.	Review Project Programme.	Review Project Programme.	[illegible]				
(Town) Planning *Variable task bar	Pre-application discussions.	Pre-application discussions.	[illegible]					
Suggested Key Support Tasks	Review Feedback from previous projects.	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Sustainability Checkpoints	Sustainability Checkpoint – 0	Sustainability Checkpoint – 1	Sustainability Checkpoint – 2	Sustainability Checkpoint – 3	Sustainability Checkpoint – 4	Sustainability Checkpoint – 5	Sustainability Checkpoint – 6	Sustainability Checkpoint – 7
Information Exchanges (at stage completion)	Strategic Brief.	Initial Project Brief.	[illegible]	[illegible]	Completed Technical Design of the project.	'As-constructed' Information.	Updated 'As-constructed' Information.	[illegible]
UK Government Information Exchanges	Not required.	Required.	Required.	Required.	Not required.	Not required.	Required.	As required.

[illegible]

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RIBA Plan of Work

Design Responsibility Matrix

Aspect of design	2 - Concept Design			3 - Developed Design		
	Design team			Design team		
	Design responsibility	Level of design	Information exchange	Design responsibility	Level of design	Information exchange
15 PREPARATORY ELEMENTS						
20 WHOLE-ENTITY STRUCTURAL ELEMENTS						
25 WALL AND BARRIER ELEMENTS						
30 ROOF, FLOOR AND PAVING ELEMENTS						
35 FIXED ACCESS, TUNNEL, SHAFT, VESSEL AND TOWER ELEMENTS 40 SIGNAGE AND FITTINGS, FURNISHINGS AND EQUIPMENT (FF&E) ELEMENTS 40-10 Signage						
40-10-30 External signage	LKJ Landscapes	Outline	1:100	LKJ Landscapes	Performance	1:100
40-10-40 Internal signage	City Centre Architects	Outline	1:100	City Centre Architects	Full (generic)	1:200 1:100 1:50 1:20 1:10 1:5 1:2 1:1
40-10-85 Signage power supply and protection	Wires & Fires Ltd	Outline	1:100	Wires & Fires Ltd	Performance	
40-15 Fittings, furnishings and equipment (FF&E)	City Centre Architects	Outline	1:100	City Centre Architects	Outline	
45 FLORA AND FAUNA ELEMENTS						
50 DISPOSAL ELEMENTS 55 PIPED SUPPLY ELEMENTS						
60 HEATING, COOLING AND REFRIGERATION ELEMENTS						
65 VENTILATION AND AIR CONDITIONING ELEMENTS 70 ELECTRICAL ELEMENTS						
75 COMMUNICATIONS, SECURITY, SAFETY,						

Global recognition

‘The UK programme based on the BIS BIM Strategy is currently the most ambitious and advanced centrally driven programme in the world.’

Patrick MacLeamy
Chief Executive Officer of HOK

Global recognition

‘The understanding and endorsement of building information modelling in the United Kingdom construction industry is as rapid as it is impressive…BIM is now key to the Construction Strategy and has catapulted UK construction to the forefront in BIM standards and adoption worldwide’

Phillip G. Bernstein FAIA RIBA
Vice President, Autodesk Strategic Industry Relations

BIM Level 3

Government Construction Strategy 2025

Industrial Strategy
July 2013

Digital Built Britain

Government Construction Strategy 2025

Lower costs

33%

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

Faster delivery

50%

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

Lower emissions

50%

reduction in greenhouse gas emissions in the built environment

Improvement in exports

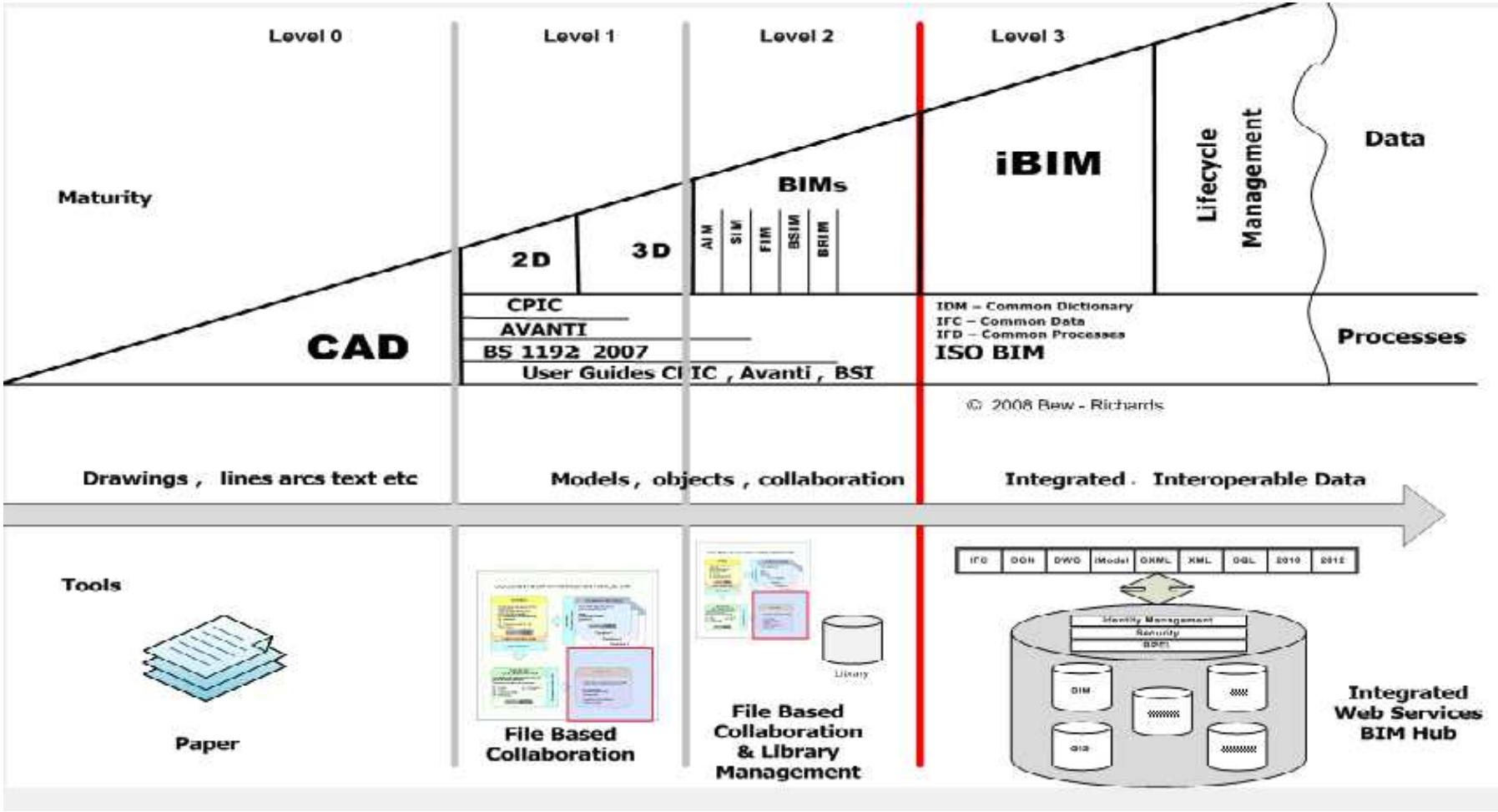
50%

reduction in the trade gap between total exports and total imports for construction products and materials

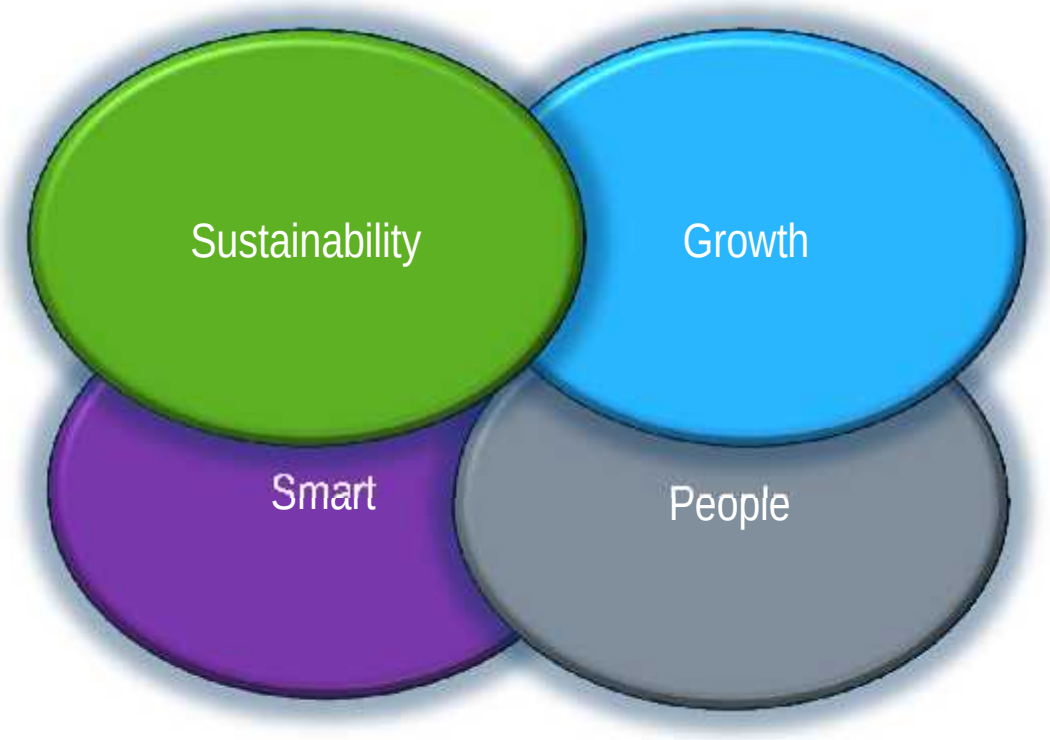
The problem

The solution

Changing an industry – level 3

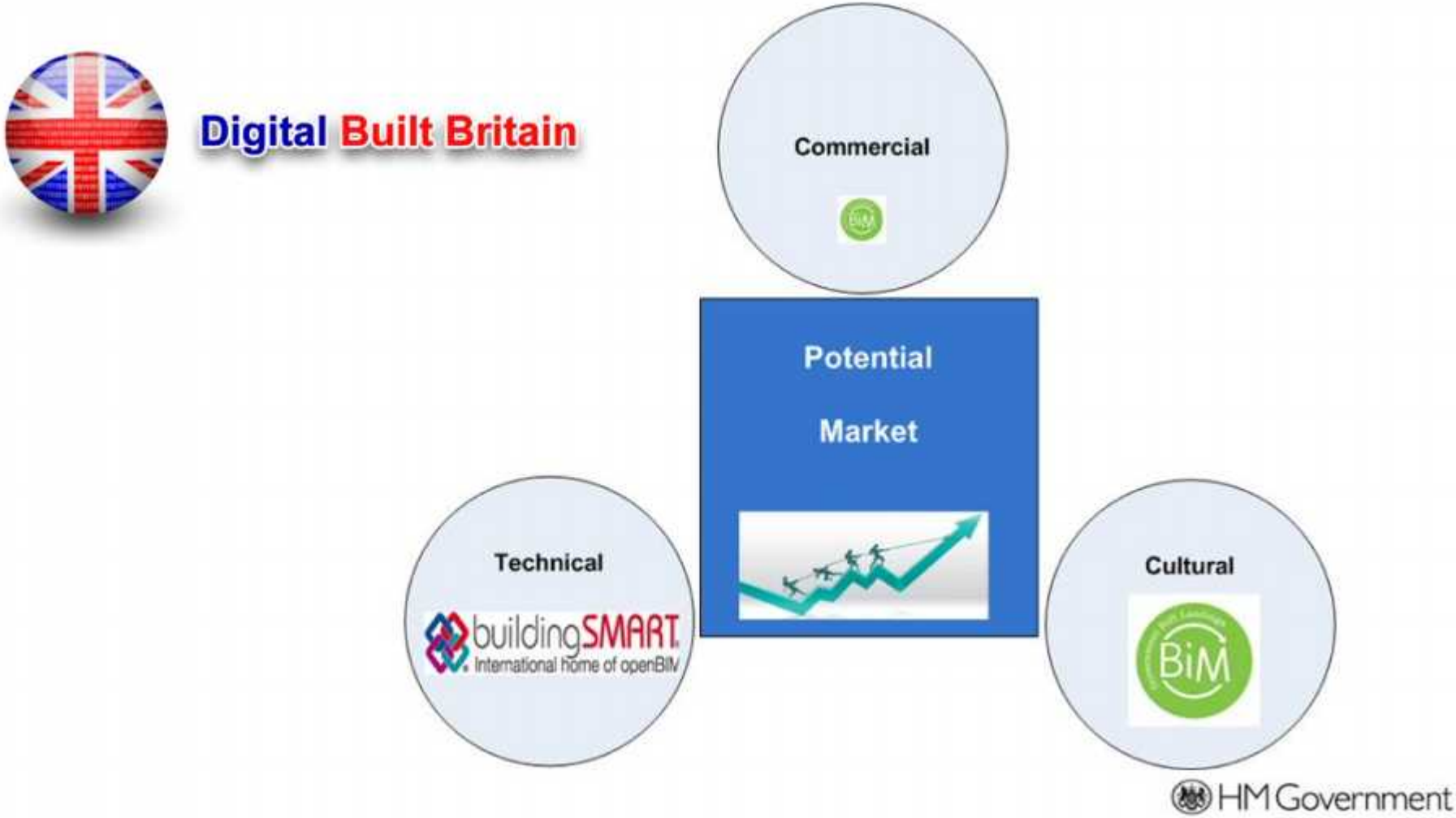


Changing an industry – level 3



Summary

Summary


Digital Built Britain
Commercial
Potential
Market
Technical
buildingSMART
International home of openBIM
Cultural
BIM
HM Government

Summary

Summary

By April 2016, all Government projects will use BIM

There are ambitious targets for 2025 on time, cost, carbon and exports - **revolution** not evolution

Structural change will occur

Global standardisation is happening

Adapt and adopt or be part of history

Thank you

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