



Building Information Modelling

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By Royal Charter



Session Overview

1. BSI the UK's national **standard** body
2. The UK's **policy** position on BIM
3. What is **BIM** really?
4. What are the **benefits** of BIM?
5. A practitioner's **experience** of BIM
6. What's happening **outside** of the UK?



BSI Group structure



By Royal Charter

Policy,
Engagement

National
Standards
Body

Standards

Information
Solutions

Market Development,
Committee management

Sales, Membership,
ICT Platforms

Assessment
and
Certification

Compliance
support

Training

Advisory
Services

BSI Built Environment Sector

- One of largest sectors within BSI
 - 100+ Technical Committees
 - 300+ Sub-Committees
 - 3500 Committee Members
 - 8000 Construction related Standards, documents & guides
- Highly **Regulated** at a National level – Building Regulations, Fire Safety, Health & Safety...
- Major **European Directives/Regulations** - Construction Products Regulations, Energy Performance of Buildings, Safety of Machinery...
- Sector covers **building design to demolition**, and everything in-between...



Why does industry use our Standards?

- to help optimise compliance with regulations, and conditions (89%)
- to enhance their reputation (84%)
- to achieve greater environmental performance (73%)
- to encourage innovation through diffusion of knowledge (50%)

Construction specific...

- they improve customer satisfaction by streamlining processes
- they improve the quality of products and services through benchmarking
- they open up new marketplaces, and facilitate trade

Standards are knowledge of
'what good looks like'

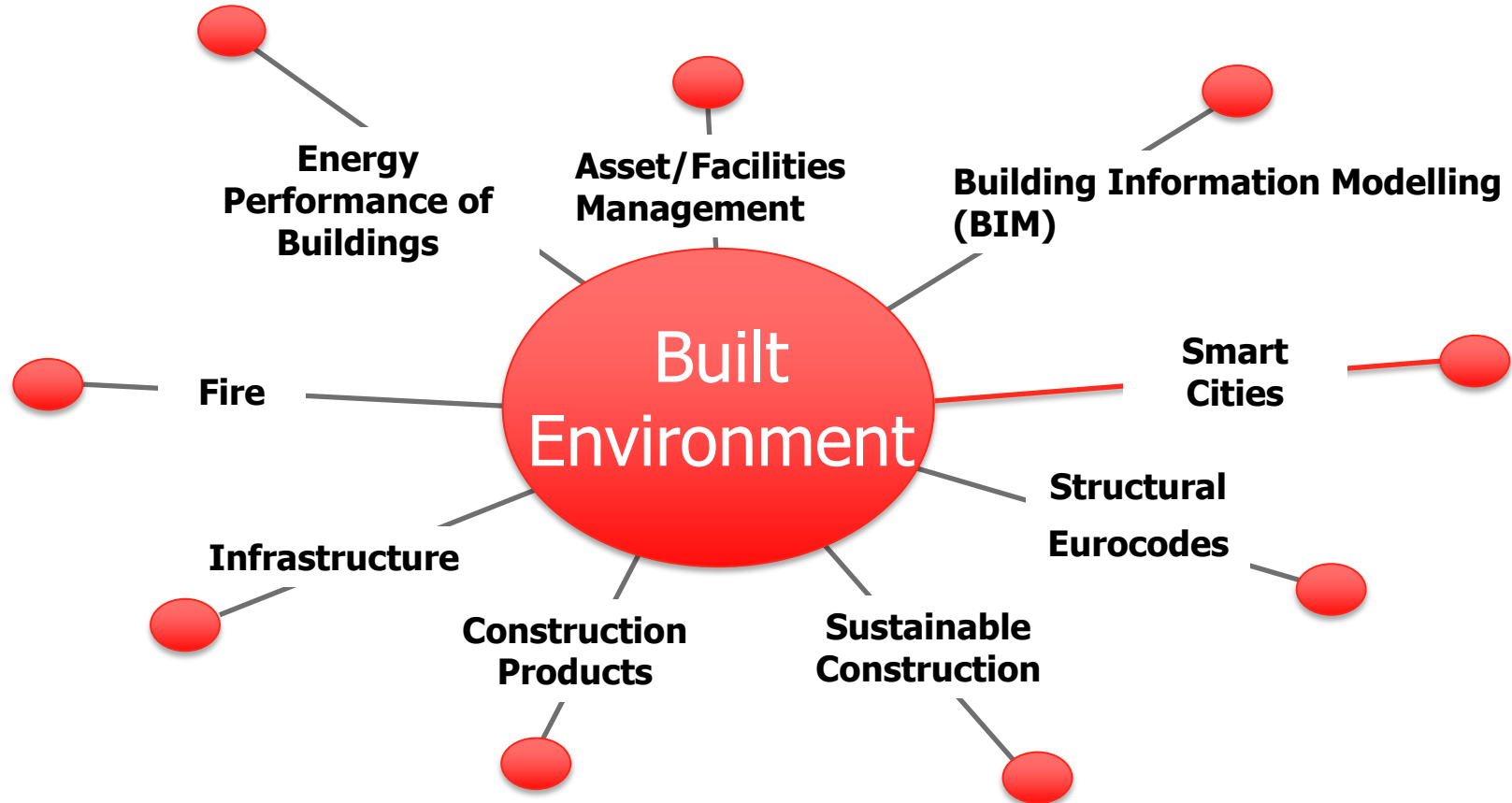
Standards are a tool to share
information with other stakeholders

Standards can be seen as the flip side of IP
tools, used to protect information

Harmonization – improving best practice through standardization

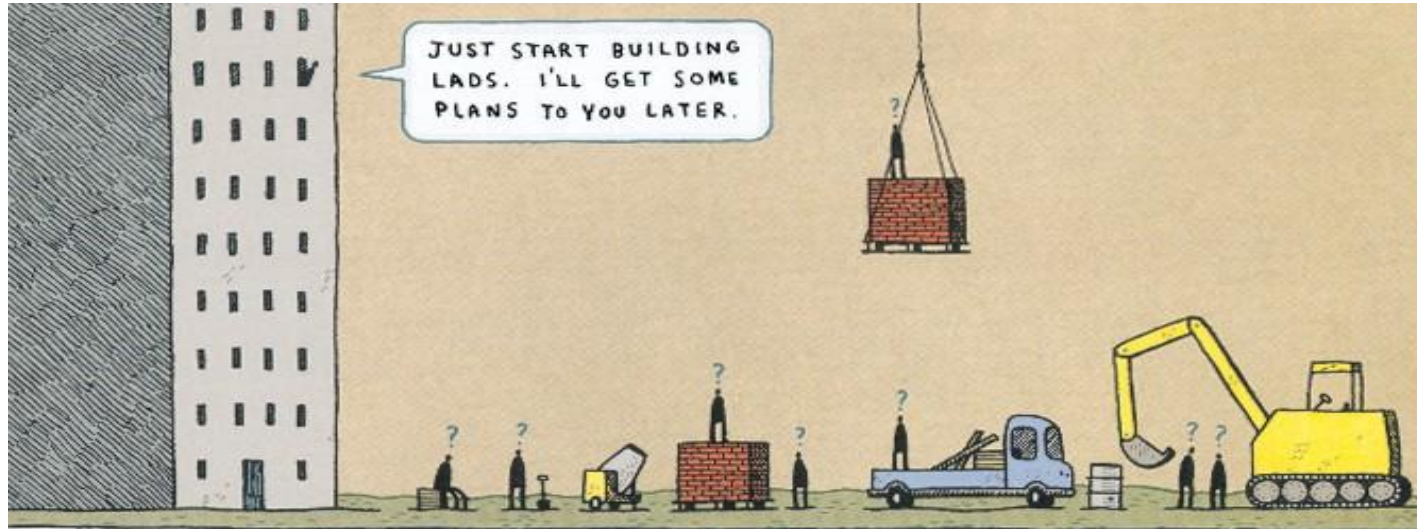


Built Environment – the standards landscape



So, what's the problem?

Not that long ago it wasn't uncommon for new buildings to be **drawn 2.5 times**, and **constructed 1.5 times...**



= poor value, and poor productivity; and that's just the construction phase...

An Alternative Approach – The Coalition Government’s BIM Strategy

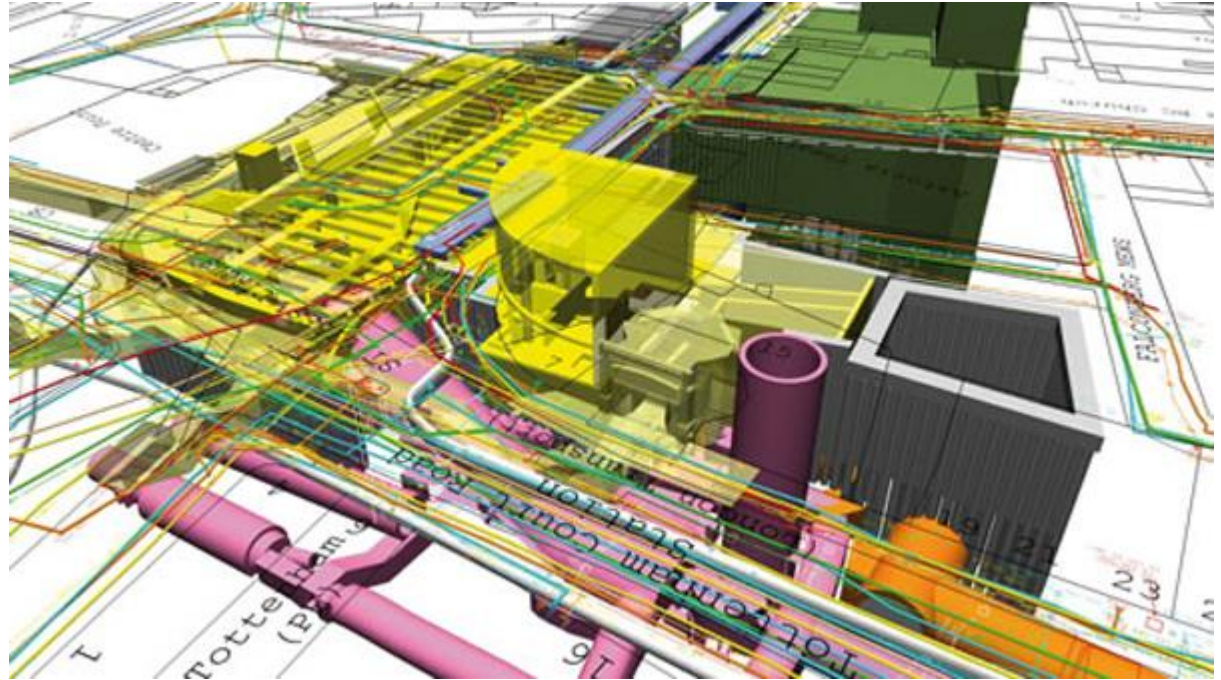
"This Government's four year strategy for BIM implementation will change the dynamics and behaviours of the construction supply chain, unlocking new, more efficient and collaborative ways of working. This whole sector adoption of BIM will put us at the vanguard of a new digital construction era and position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

Francis Maude
Minister for the Cabinet Office

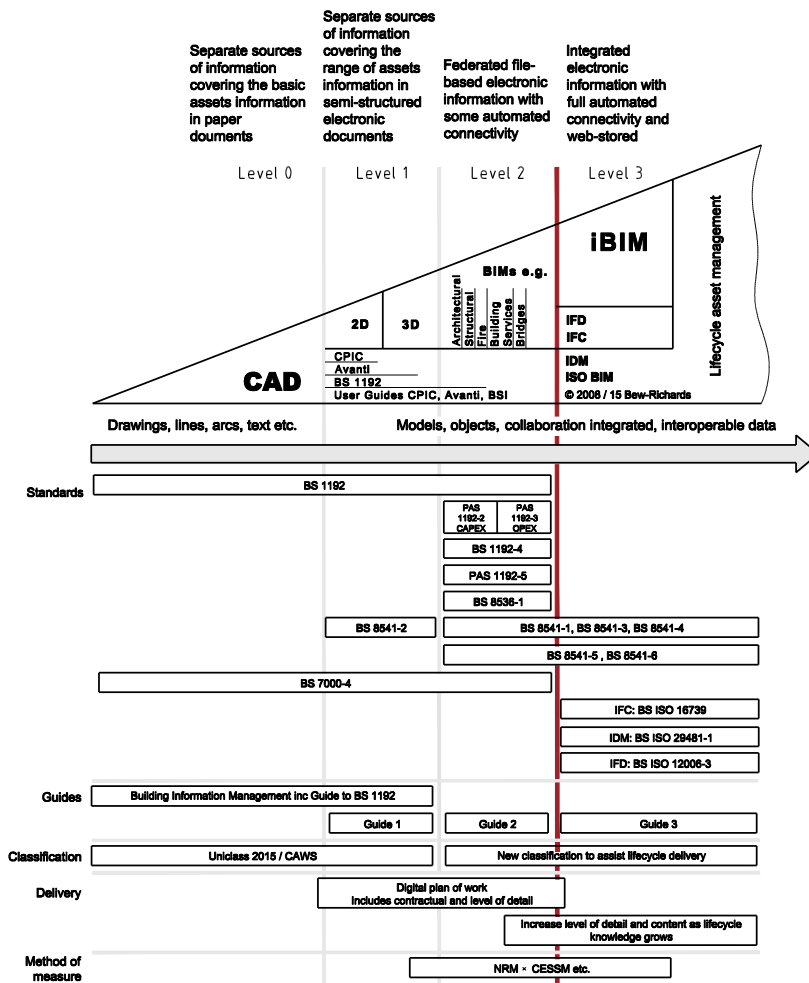


But what is BIM?

- **Multi-dimensional digital tool**
- **Visual model managing asset data from inception to demolition**
- **Collaborative 3D Model – the creation, gathering and exchange of data to all parties**



BIM Maturity Model



- **Level 0 - Unmanaged CAD**
- **Level 1 - Managed CAD in 2 or 3D**
- **Level 2 – BIM - Managed 'Collaborative' 3D environment**
 - Govt. requires Level 2 on **all** public sector assets centrally procured
- **Level 3 – Fully open process and data integration, or "iBIM" (integrated BIM)**

UK Market Driver



From April 2016, all HM Government construction MUST be carried out using BIM Level-2:

“£109 billion of future gov. constructions opportunities up for grabs” (up to 2020)

"Government will require fully collaborative 3D BIM (with all project and asset information, documentation and data being electronic) as a minimum by 2016."

The way in which BIM readiness is judged is through a pre-tender pre-qualification questionnaire (PQQ): PAS 91 (Table 8)

Table 8 - Optional Question Module 04: Building information modelling, avoity and capability

NOTE This will be used for UK Government procured projects for Departments that have committed to implementation of the BIM Strategy and may be used for other clients achieving a similar path.

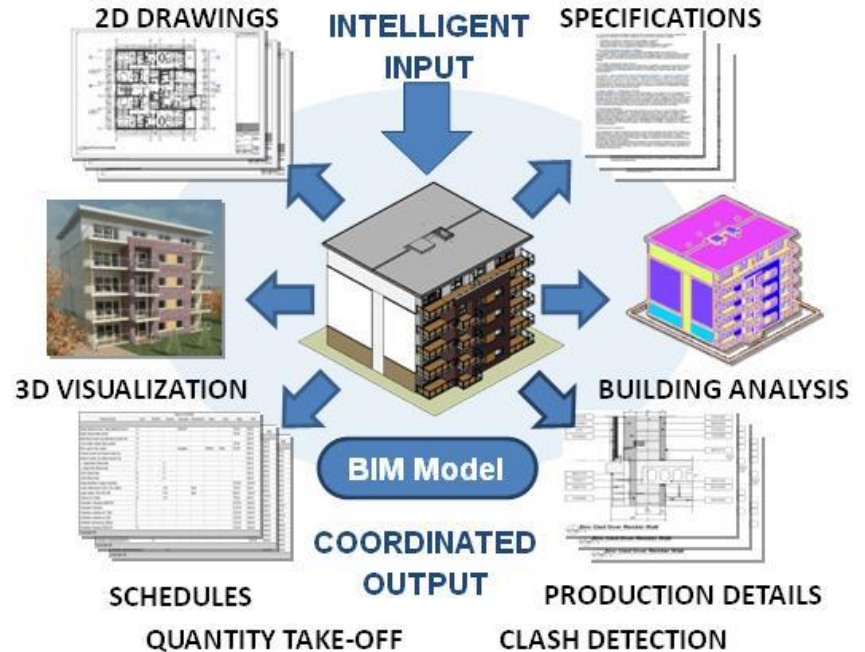
Question	Description of information to support of response, which will be taken into account in assessment	YES	NO	NO ANSWER	PLEASE PROVIDE EVIDENCE TO SUPPORT YOUR INFORMATION
Q. No. 1	Do you have the capability of working with a project using "Common Data Environment" as described in BS PAS 1192:2:2013 and to able to exchange information between supply chain members in an efficient and collaborative manner if you have delivered a project in the way you may use this for demonstrate your capability. Your explanation should be clear and concise.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Q. No. 2	Do you have the capability of working with a project using "Common Data Environment" as described in BS PAS 1192:2:2013 and to able to exchange information between supply chain members in an efficient and collaborative manner if you have delivered a project in the way you may use this for demonstrate your capability. Your explanation should be clear and concise.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Q. No. 3	Do you have the capability of working with a project using "Common Data Environment" as described in BS PAS 1192:2:2013 and to able to exchange information between supply chain members in an efficient and collaborative manner if you have delivered a project in the way you may use this for demonstrate your capability. Your explanation should be clear and concise.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Exemptions

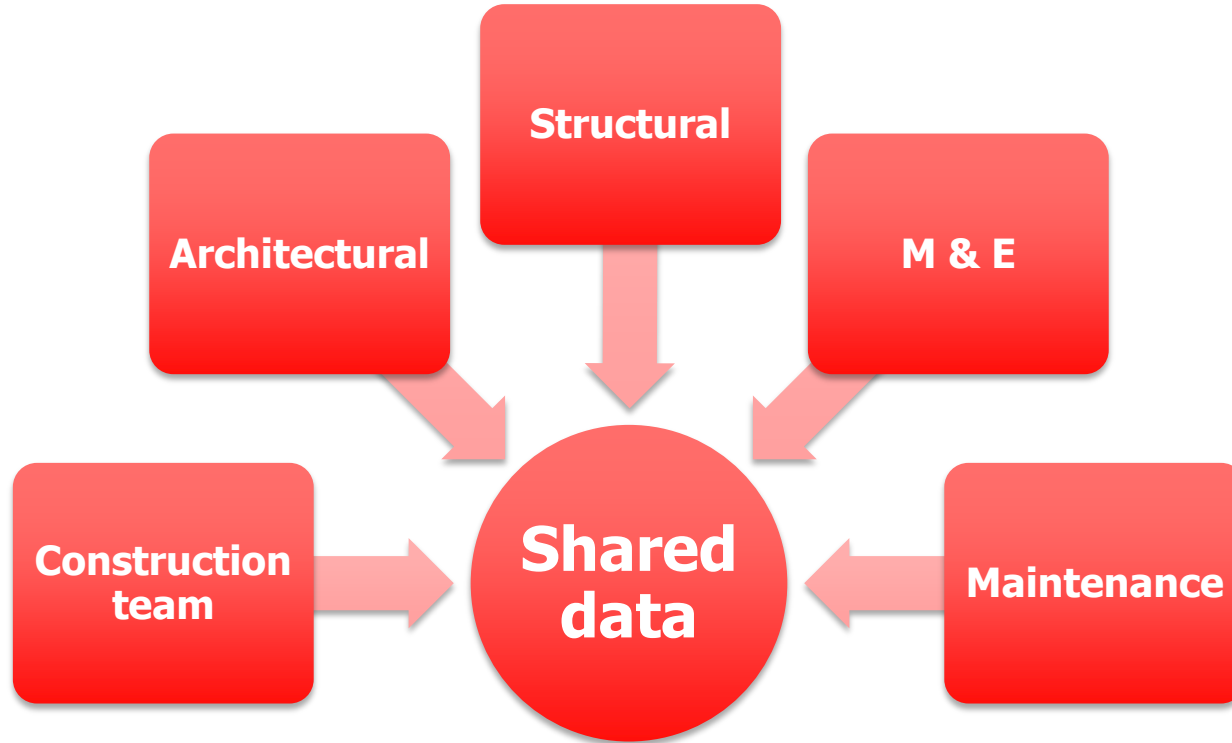
The questions in this module need not be completed if your organization holds a third party certificate of compliance with BS PAS 1192:2:2013 (due for publication in 2013) from an organisation with a related UKAS accreditation, or equivalent.

NOTE Such accrediting...

Information is at the centre of BIM



Shared data through the asset lifecycle

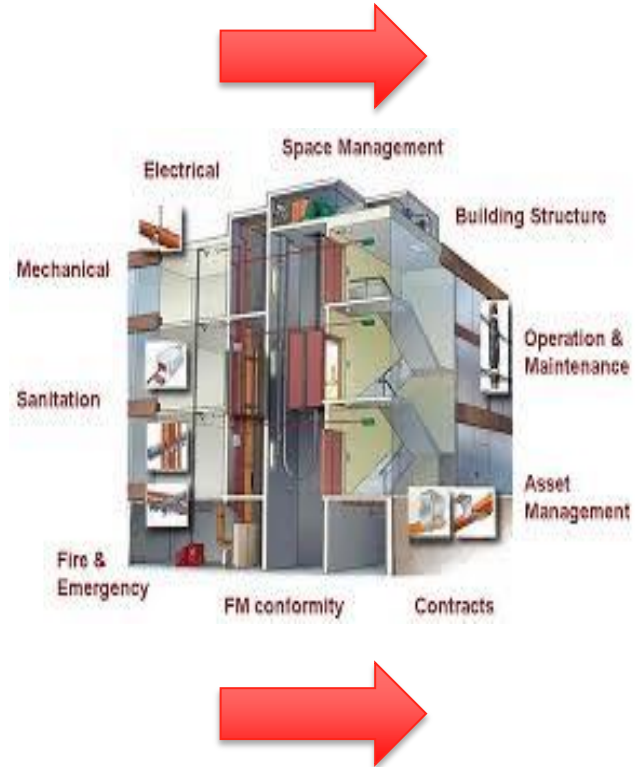


Construction phase benefits



Operational phase benefits

Effective handover, including 'fire' systems



Reduced operating costs & carbon emissions

Improved asset information for Reg. 38 & FRA

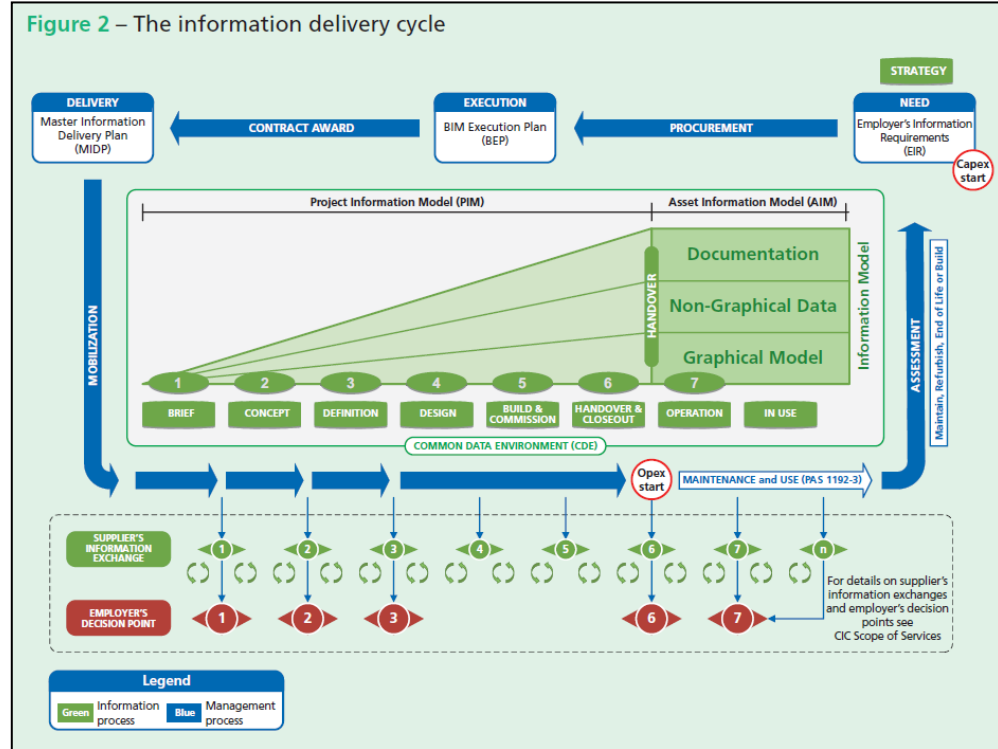
Reduced maintenance costs

PAS 1192-2: Structure

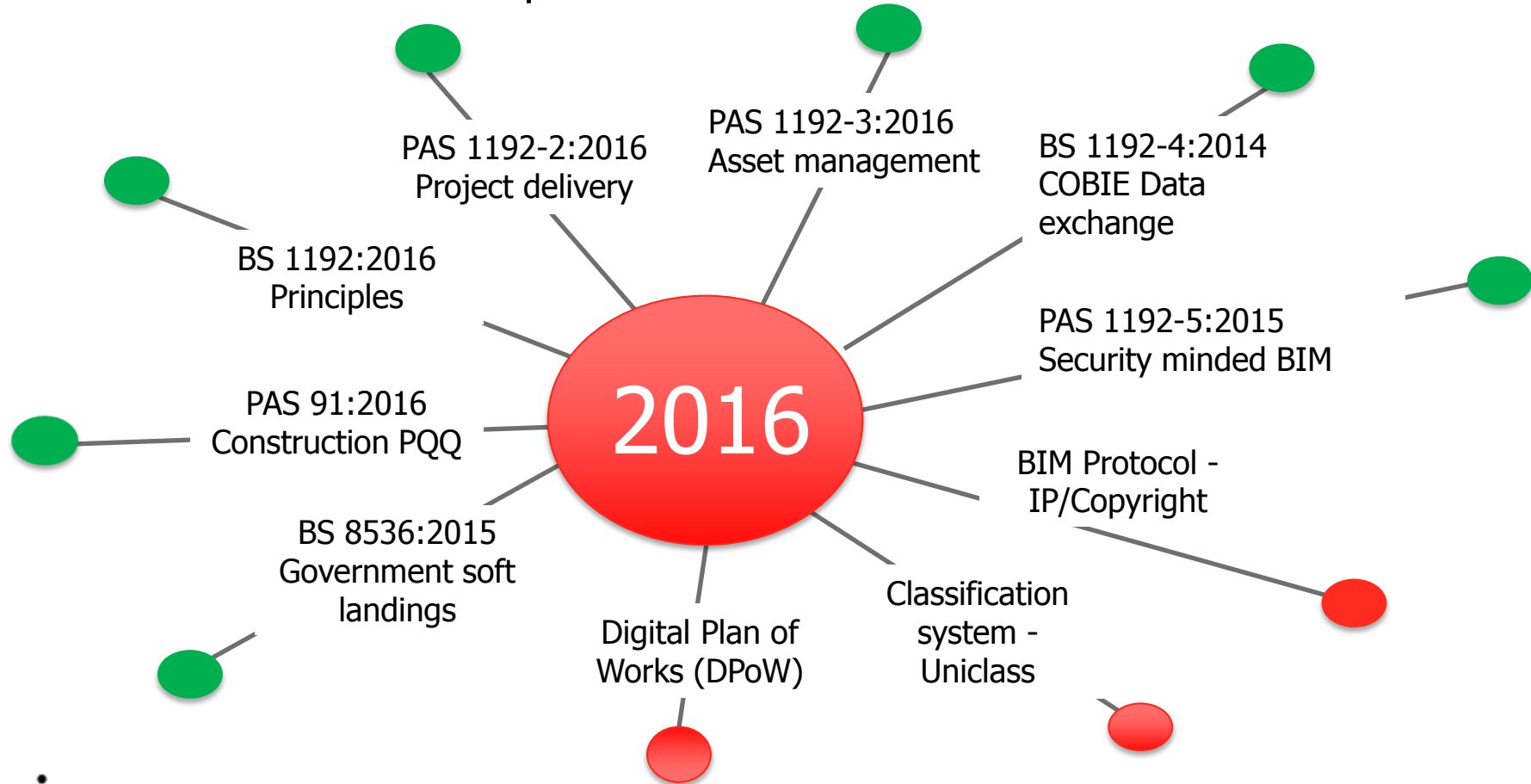
The PAS is a set of procedures that follow a construction project from 'brief' to 'asset management'.

Makes recommendations for the adoption of industry conventions which would collectively further improve industry efficiency:

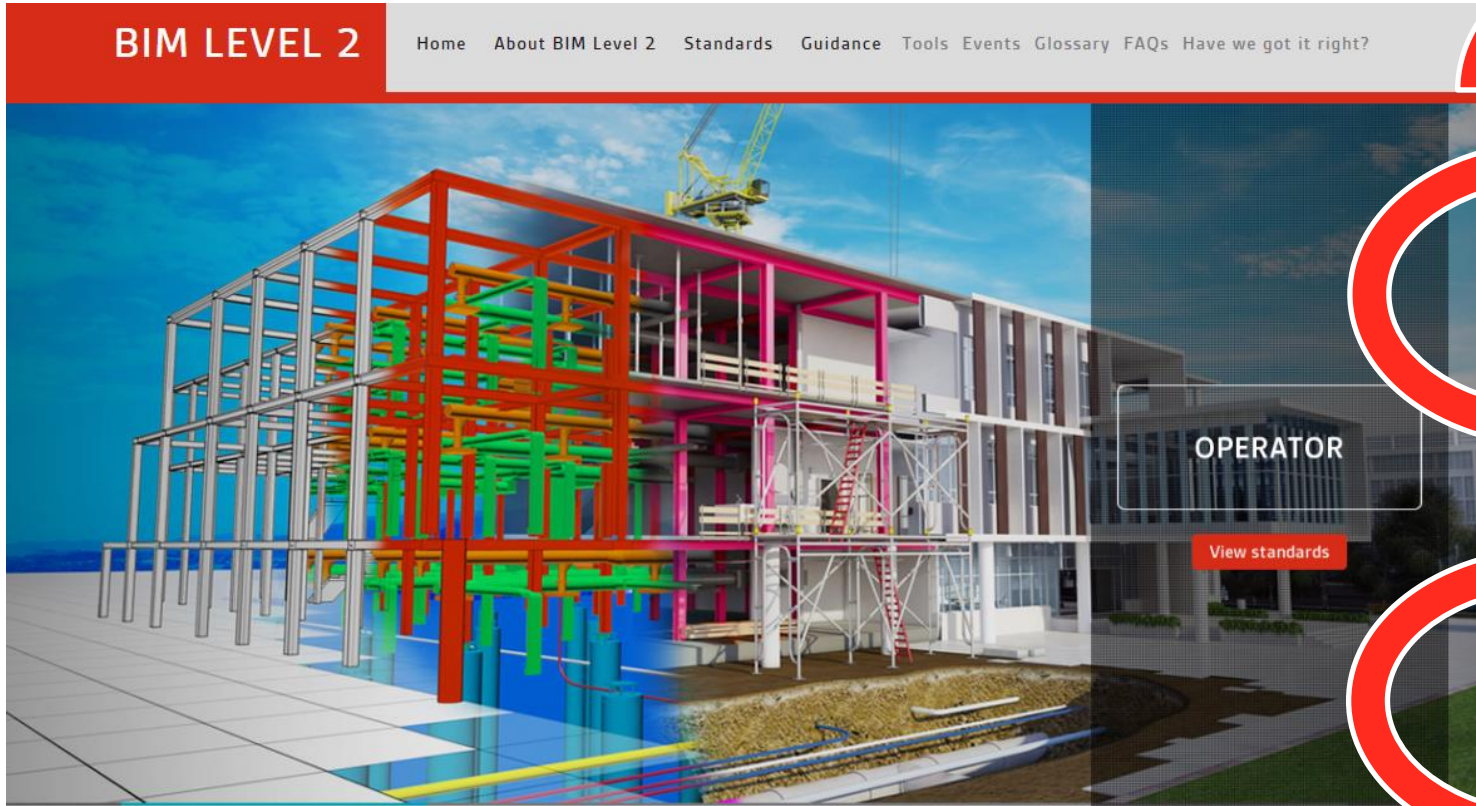
- Classification system
- Job roles and hierarchy
- Naming conventions
- Level model 'Definition'
- Plan(s) of Work



BIM Level 2 Essential Components



The home of BIM Level 2 - www.level2BIM.org



Global BIM Standardization Landscape

Committee: **ISO/TC 59/SC13 Construction works information**

Projects: ISO 19650-1 BIM Concepts and principles

ISO 19650-2 BIM Deliver phase of assets

ISO 16757, Data structures - geometry

ISO 16739-1 IFCs- Data schema using EXPRESS schema definitions



Committee: **CEN/TC 442 Building Information Modelling**

Projects: EN ISO 16739 IFCs

EN ISO 12006-3 Framework for object-oriented information

EN ISO 29481-2 IDM – Interaction framework



Committee: **B/555 Construction design, modelling and data exchange**

Projects: BS 1192 BIM Principles

PAS 1192-2 Information management for the delivery phase of assets

PAS 1192-3 Information management for the operational phase of assets

BS 8536-2 FM Briefing for Infrastructure



DRIVE GLOBAL ALIGNMENT



ESTABLISH
KNOWLEDGE
LEADERSHIP



EMBED
GLOBAL
ADOPTION



But what of the uptake of BIM in the UK thus far?

According to the NBS National BIM Report 2016:

- In the last year **54%** have used BIM on at least one project
- **86%** expect to be using BIM in one years' time
- **Over half** of people describe themselves as **confident** in their knowledge and skills in BIM
- **28%** describes themselves as 'not very' or 'not at all' confident in BIM
- Just **10%** perceive the construction industry as being ready to deliver on the Government's requirement
- Albeit, **three quarters** of respondents see BIM as **the future** of 'project information'.

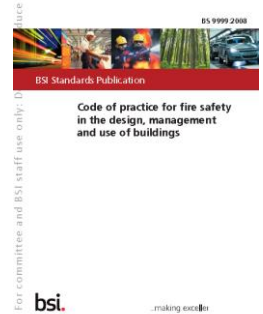
In conclusion...

- BIM L2 is now a **condition of contract** on all central Govt. public procurement.
- A number of the BIM standards are currently **under review**.
- Both **CEN and ISO** now have Technical Committees considering BIM, but Standards are at least **18 months away**.
- You are not too late, but you need to **prepare** yourself and your business for BIM
- BSI **host** all of the **UK BIM L2 Standards** and supporting guidance on -
www.level2BIM.org

A few high profile fire standards...

- **BS 9999** – *Code of practice for fire safety in the design, management and use of buildings* is being reviewed by the appointed BSI Panel now...
 - As with BS 9991, a call for comments was sent out before the work started. This generated **451 committee comments**...
 - Looking to be **evolutionary**, as opposed to revolutionary
 - Scope revised to **avoid overlap** with **BS 9991**
 - Remains one document
 - The **management** section of the guidance revised, PAS 7 cited
 - Developed a useful **process flow chart** for the document
 - Updated recommendations relating to **lifts**
 - Inclusion of new recommendations for **power supplies**
 - New additional guidance on **voice alarm systems, watermist, and fire curtains**

Currently public **comments being considered** ...Due for publication towards end **2016**



And a new fire alarm standard too (BS 5839)...



- The new **BS 5839-1** standard will take into account the *EN 54 Fire detection* series that have been published in the past few years.
- **Multi-sensor detectors** will be included for the first time with a proposal to expand clause 21 to cover new types of fire detectors, particularly multi-sensors.
- Clearer guidance has been proposed on the connection and monitoring of signals between fire alarm panels & an **Alarm Receiving Centre (ARC)**
- Separate section proposed for **video fire detectors**.
- BS 5839-1:201x will be issued for **public comment in Q4 of 2016**.

Questions

Come and see us at -
STAND D83 & VIP lounge

For more information on
Our Standards, see –

WWW.

WWW.

