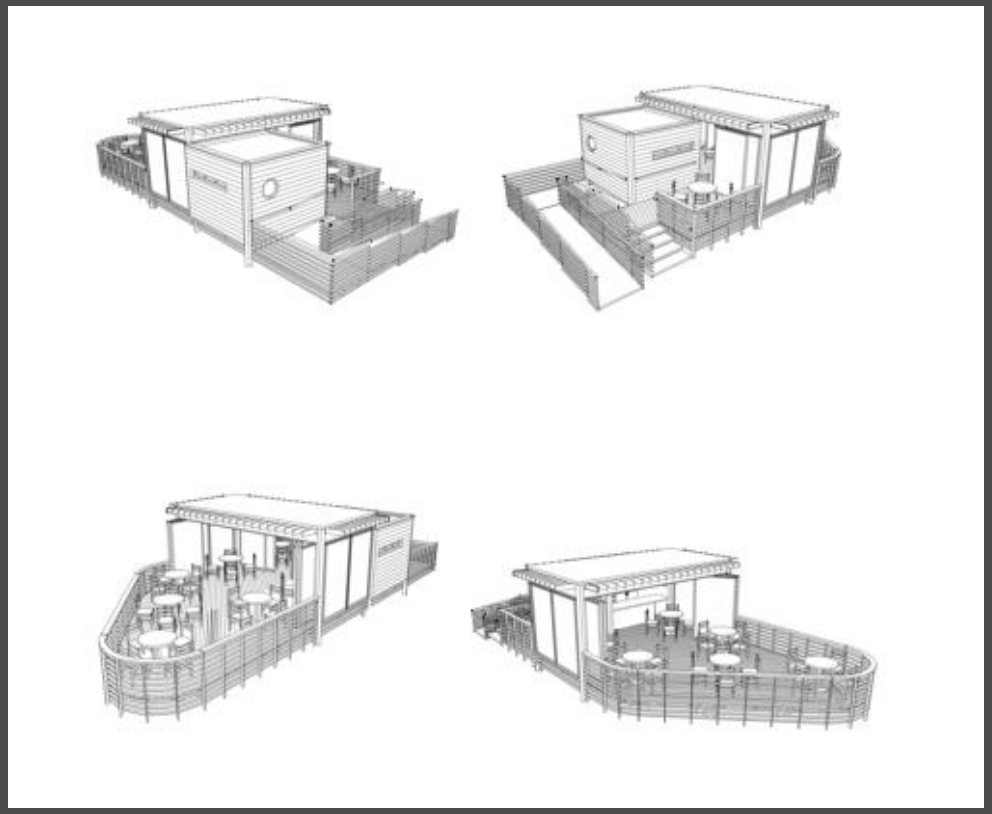
CONSTRUCTING EXCELLENCE
in the built environment

GRAPHISOFT

Protocols & BIM



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Benedict Wallbank RIBA

- **Multiple contributors each with their own working methodologies and CAD standards.**

- **Different software used by contributors.**

- **Different end objectives from different contributors. (Doing your work with a view to it being used by others.)**

- **Different requirements and organisation of data storage in file or database structures.**

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Protocols (standards) are the Essential Foundation for Successful BIM

- Without a protocol, collaborating with others will at best be problematic and at worst will cause BIM to fail.

- Developing the protocol allows the most efficient model structure to be developed.

- Ensures that the exchange of information between parties is facilitated.

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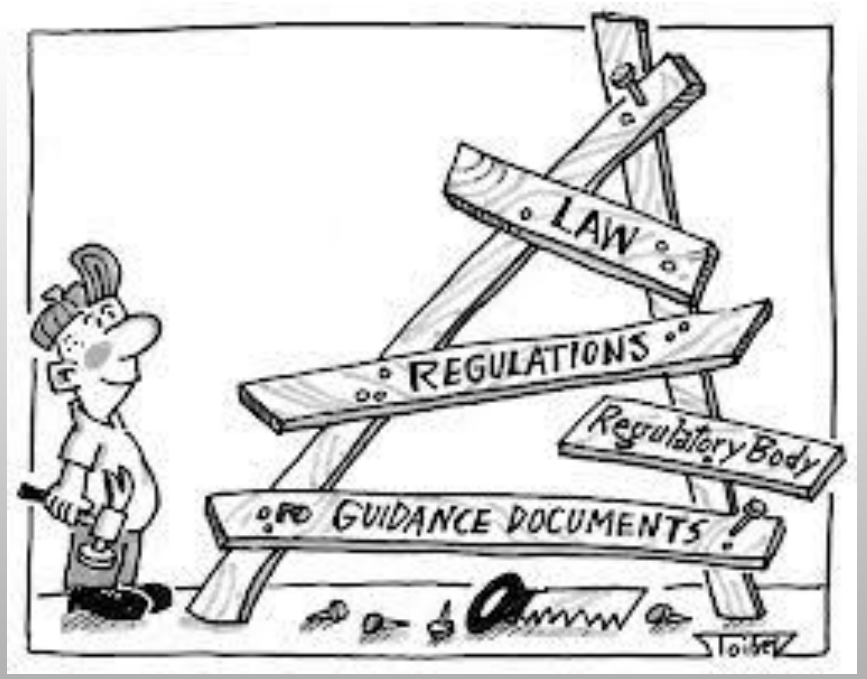
The Protocol is the Essential Foundation for Successful BIM

- **Project Appointments.**
- **Professional Indemnity Insurance.**
- **Contract Documentation.**



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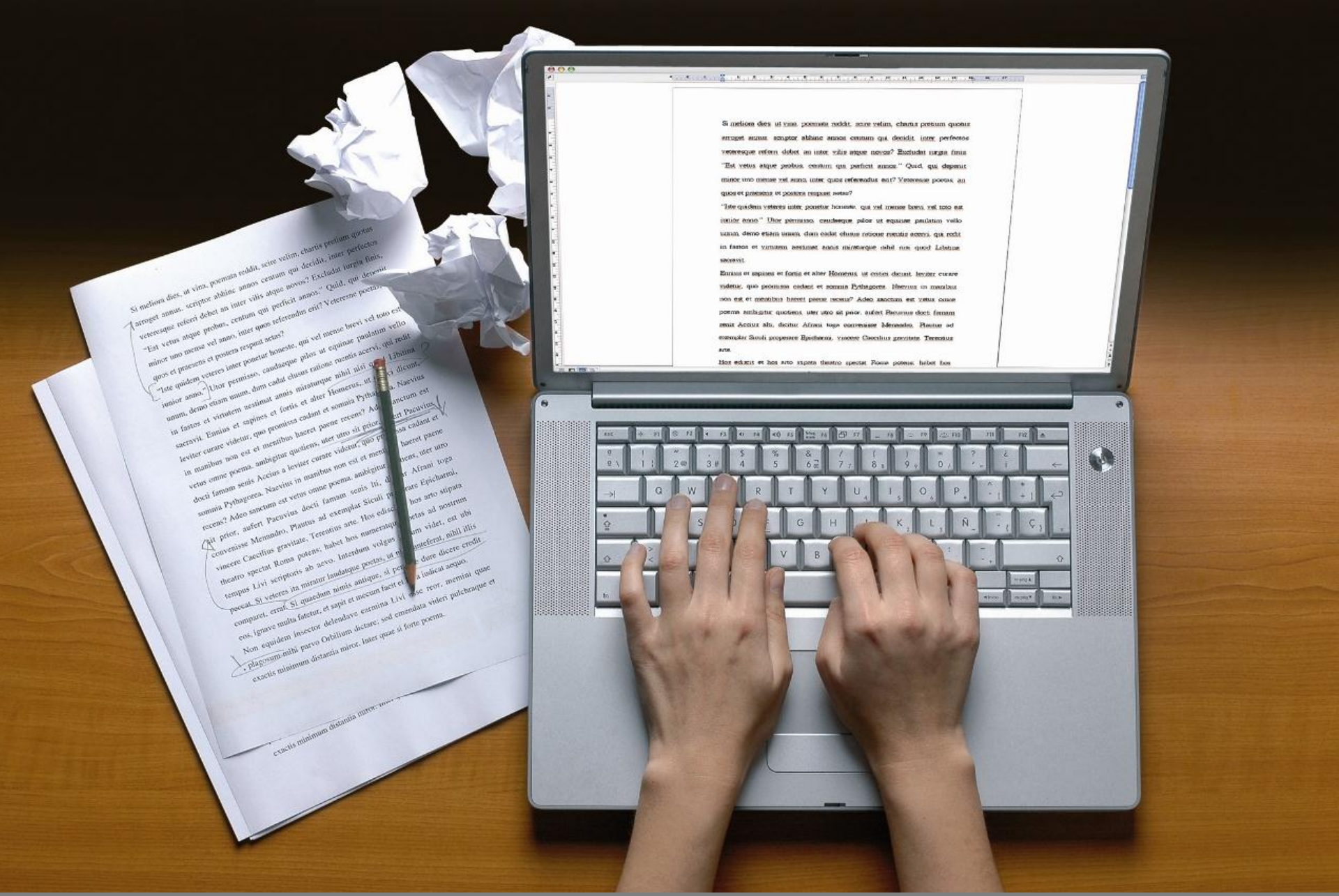

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There were no standards…..so do it yourself!

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中国建筑科学研究院
China Academy of Building Research

BiM

v1.0 – September 2011

EC Nation BIM Guide

ARCHIBUS®

Chengdu (ASC – China – Chengdu)

CRC Construction Innovation
BUILDING OUR FUTURE

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BIM ガイドライン
Kokudo Kotsusho

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How Standards Proliferate

- **We have gone from no standards to 100's!**
- **Over the next few years only the best will survive**

  …….but what do we do now?

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So everyone went off and wrote one!

- **Find local BIM Standards and use them. (Many in English!)**

- **If there is a buildingSMART International home of openBIM standard it is likely to be similar to other countries.**

- **Don’t assume the prevalent software in your country is also prevalent elsewhere. (Use IFC’s)**

- **Set up templates for different standards you use regularly.**

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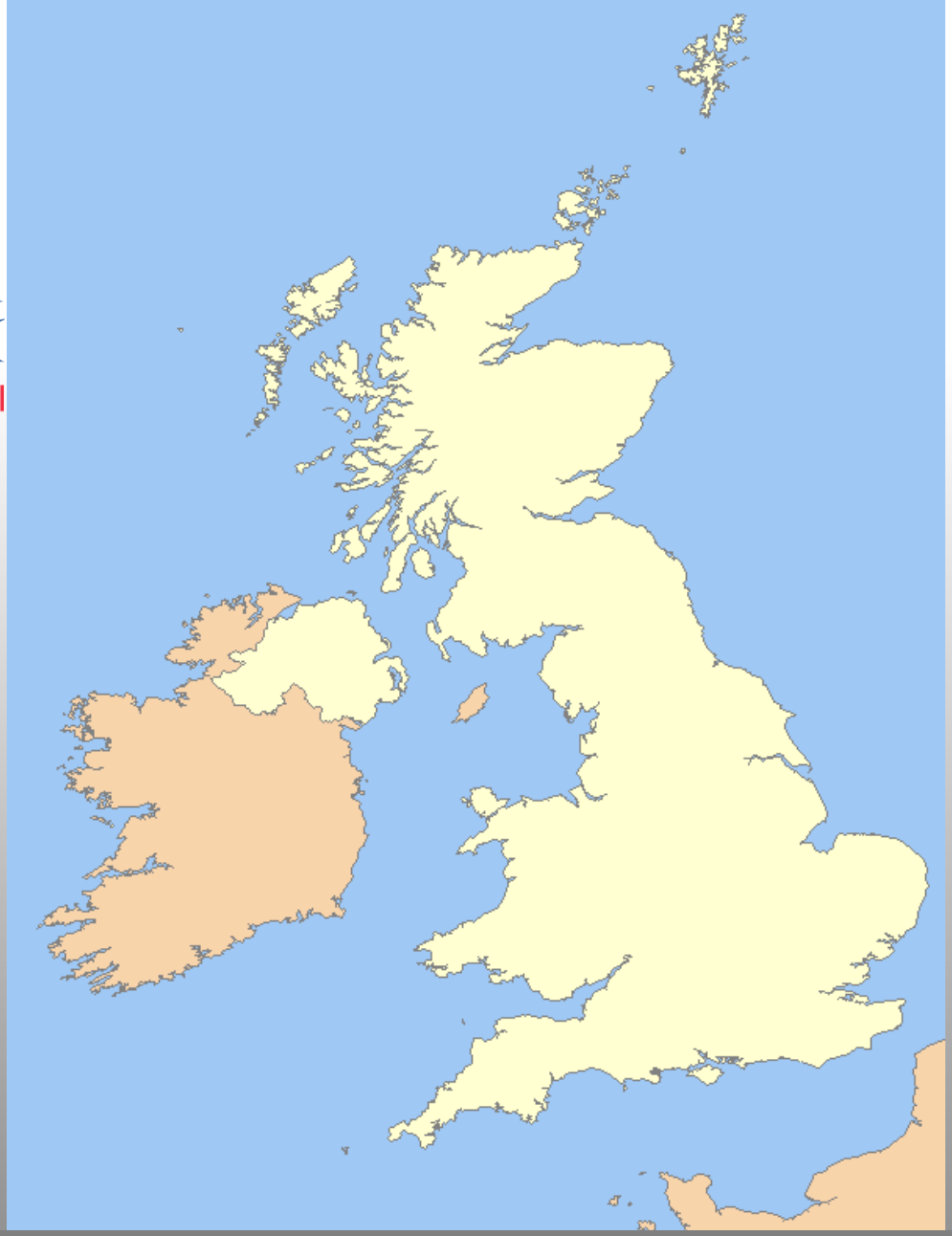
Construction Industry Council

COBie

bsi.



TM

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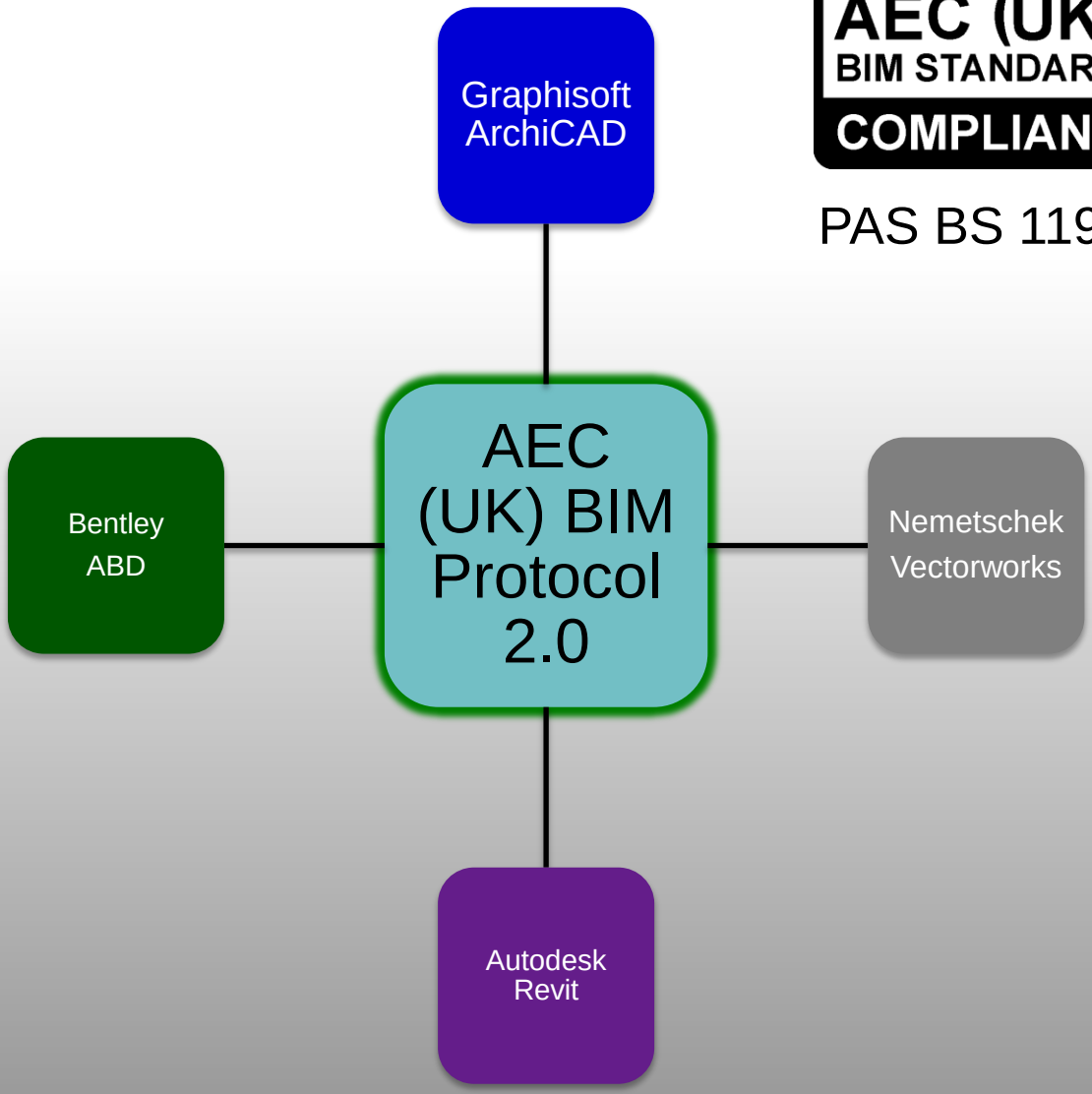

AEC (UK) BIM STANDARD COMPLIANT

PAS BS 1192:2 Compilant

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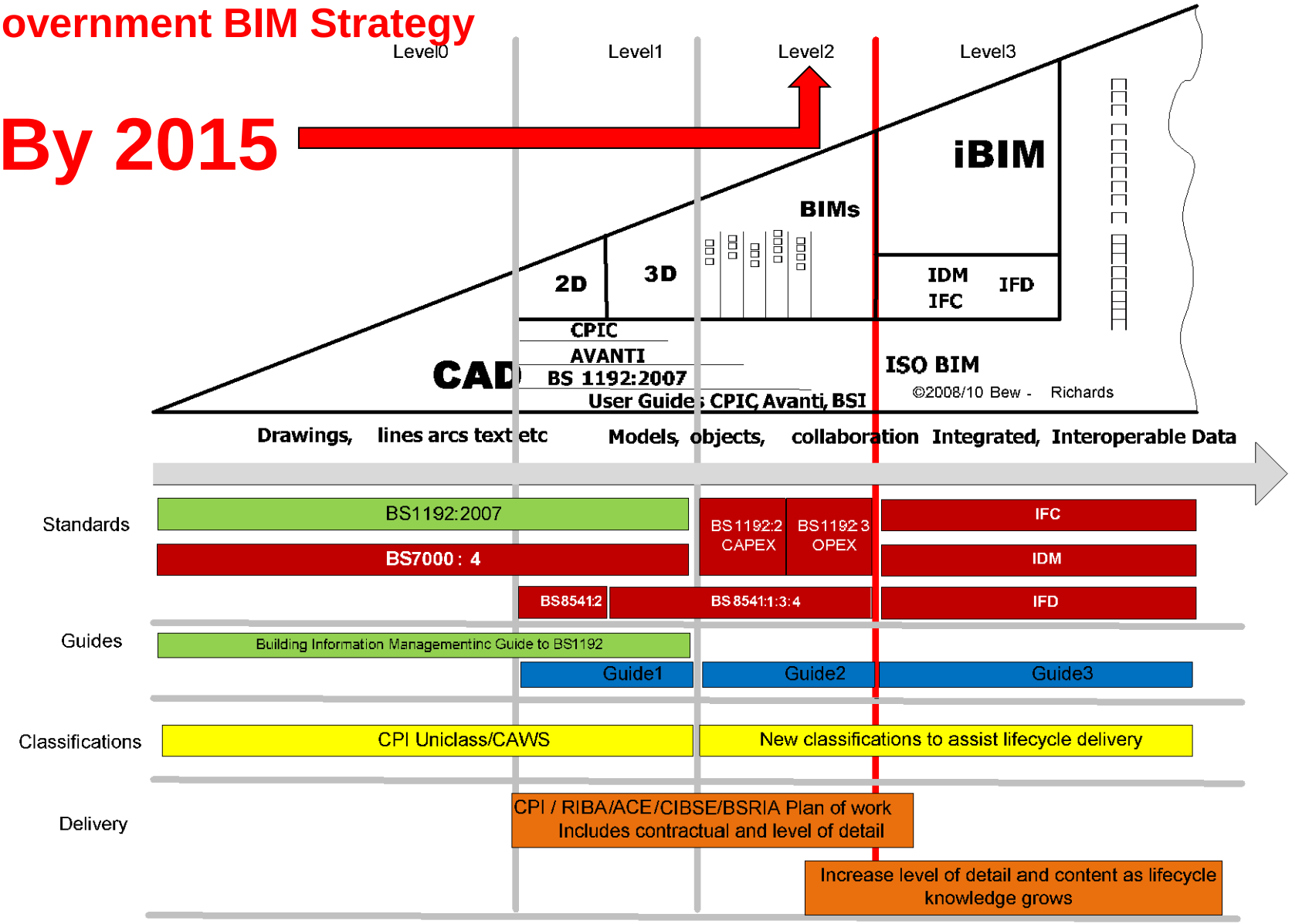
Government BIM Strategy



© Mark Bew & Mervyn Richards

- Documents not in perfect alignment yet…….but starting to be.

- Standardisation as far a it is possible will help BIM adoption and practice.

- Set up templates for different standards you use regularly.

- It takes a while to get set up and train staff to new methodologies but once it's done it's done.

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COBie 2012

EXPORT
EXPORT
EXPORT

Why?

- 80% of the cost of a building lies beyond construction.
- Asset information is currently very poor.
- Save 5% here and you have saved 20% of a building's construction.
- Providing structured data for handover, will enable Building operators to more effectively/ efficiently manage their built asset.

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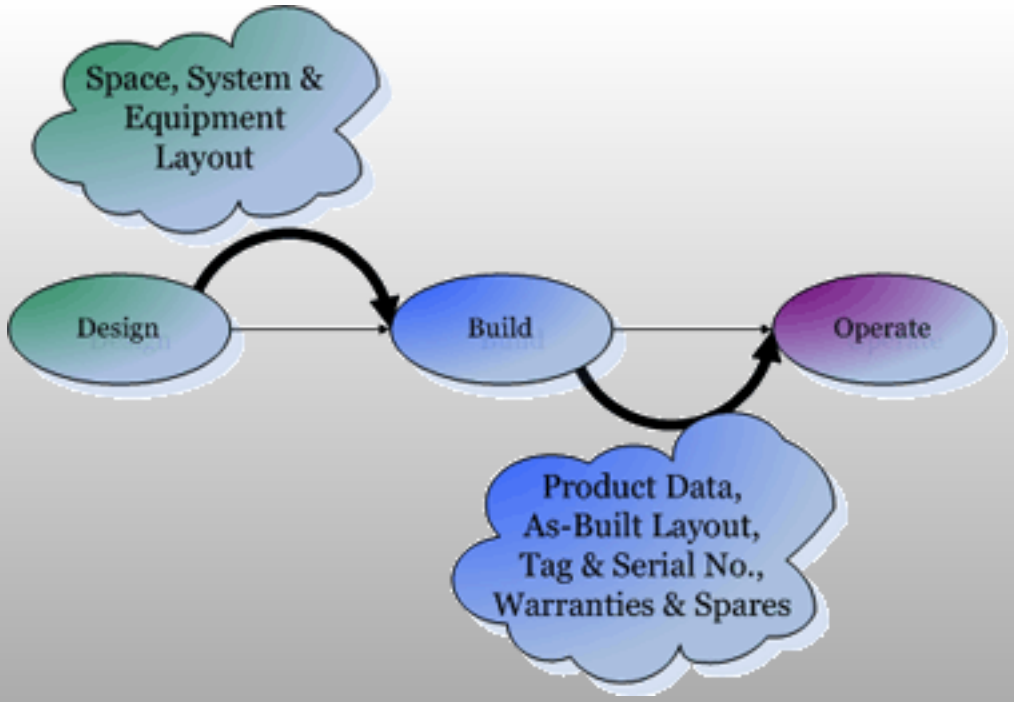
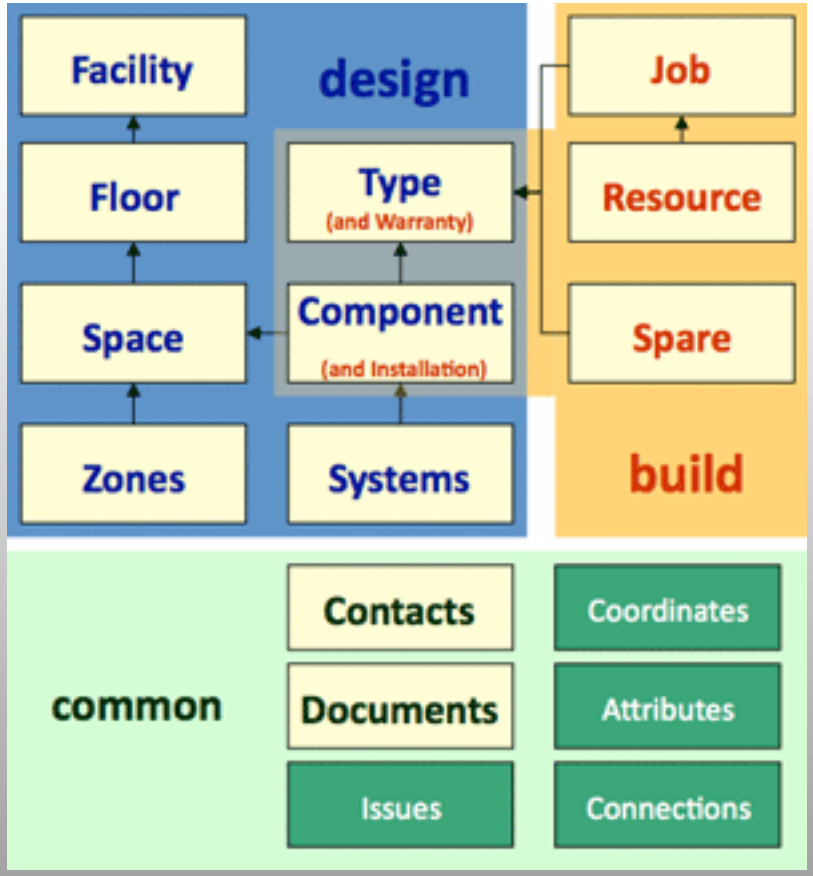

Space, System & Equipment Layout
Design
Build
Operate
Product Data, As-Built Layout, Tag & Serial No., Warranties & Spares


Facility
design
Job
Floor
Type
(and Warranty)
Resource
Space
Component
(and Installation)
Spare
Zones
Systems
build
common
Contacts
Coordinates
Documents
Attributes
Issues
Connections

COBie

Is a sub-set of…..

IFC

(Industry Fournation Classes)

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COBie in the UK – JAN 2013 definitions

- At brief/early stage design (COBie drop 1, CIC stage 1)
- Four drops of information during construction (COBie drops 2a, 2b, 3 and 4, CIC stages 3, 4, 5, 6)
- One drop one year after PC. (Measures performance against specification).
- End of March 2012 information for COBie drops defined for first projects - redefined January 2013
- Validation tools being developed by Government.

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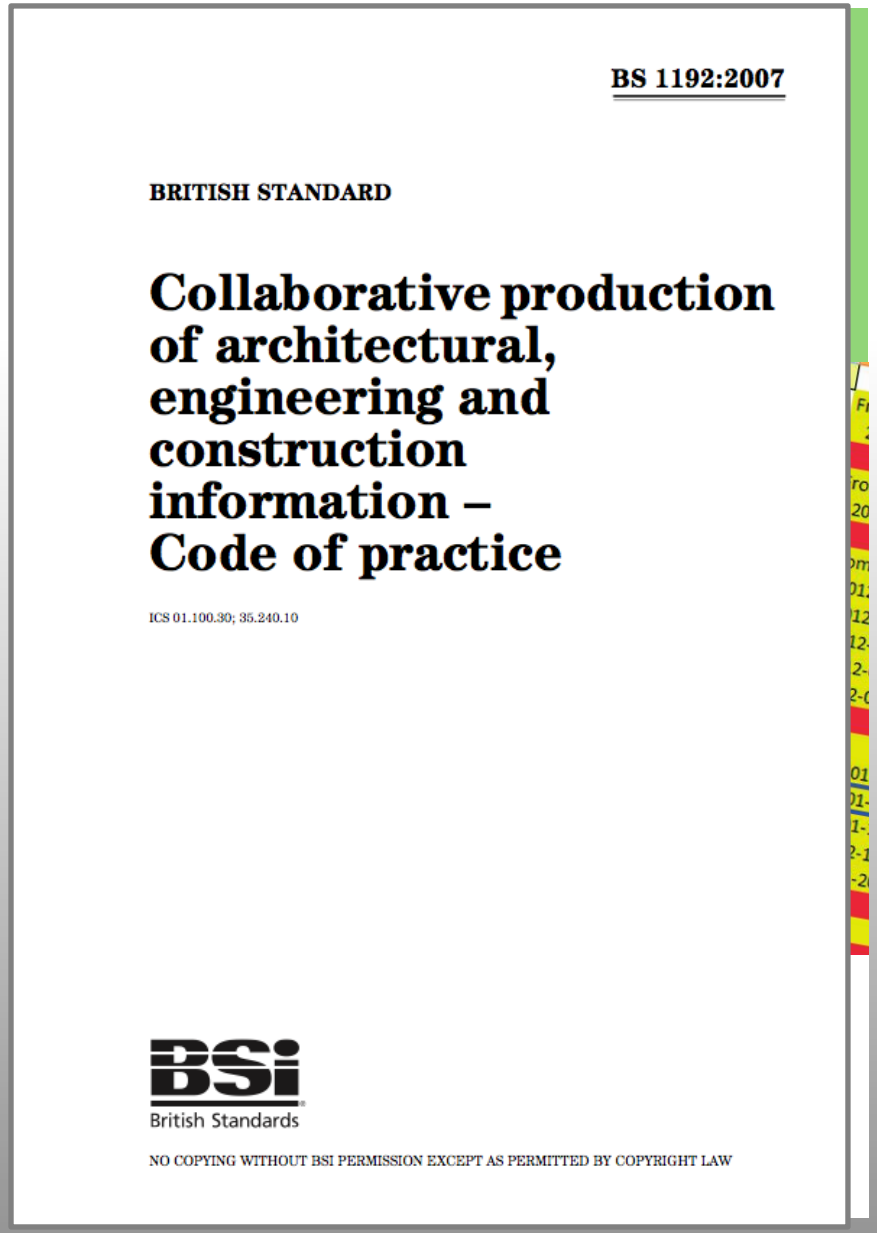
British Standards



- **BS 1192-1: 2007** Collaborative working in 2D CAD.

- **PAS BS 1192-2: 2012 (CAPEX)** Collaborative working in BIM in design and construction of facilities. Available free on www.bimtaskgroup.org

- **PAS BS 1192-3: (OPEX)** Working with BIM for Operation of facilities. Due for release March 2014.

- **PAS BS 1192-4: (COBie).** Due for release late 2013.

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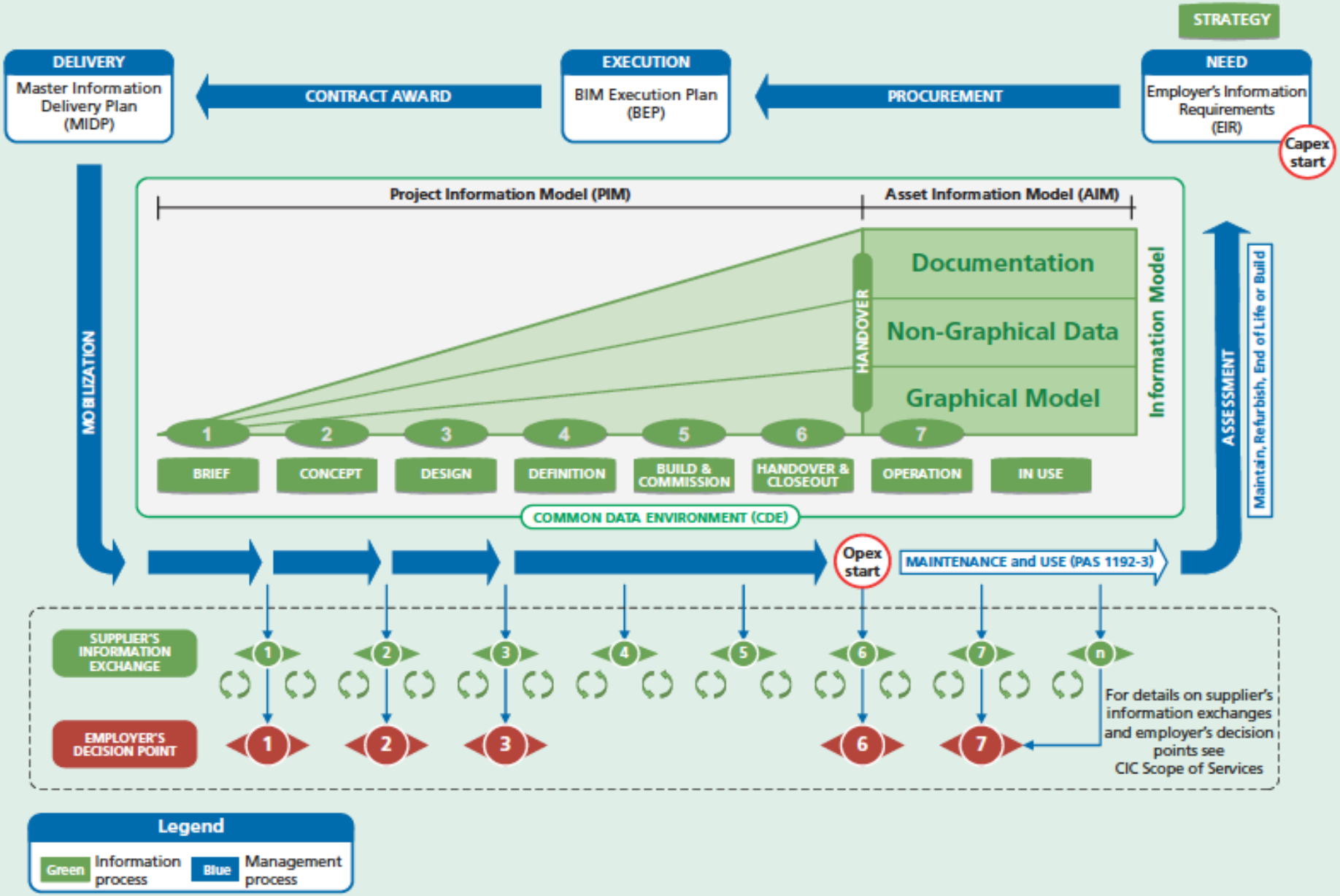
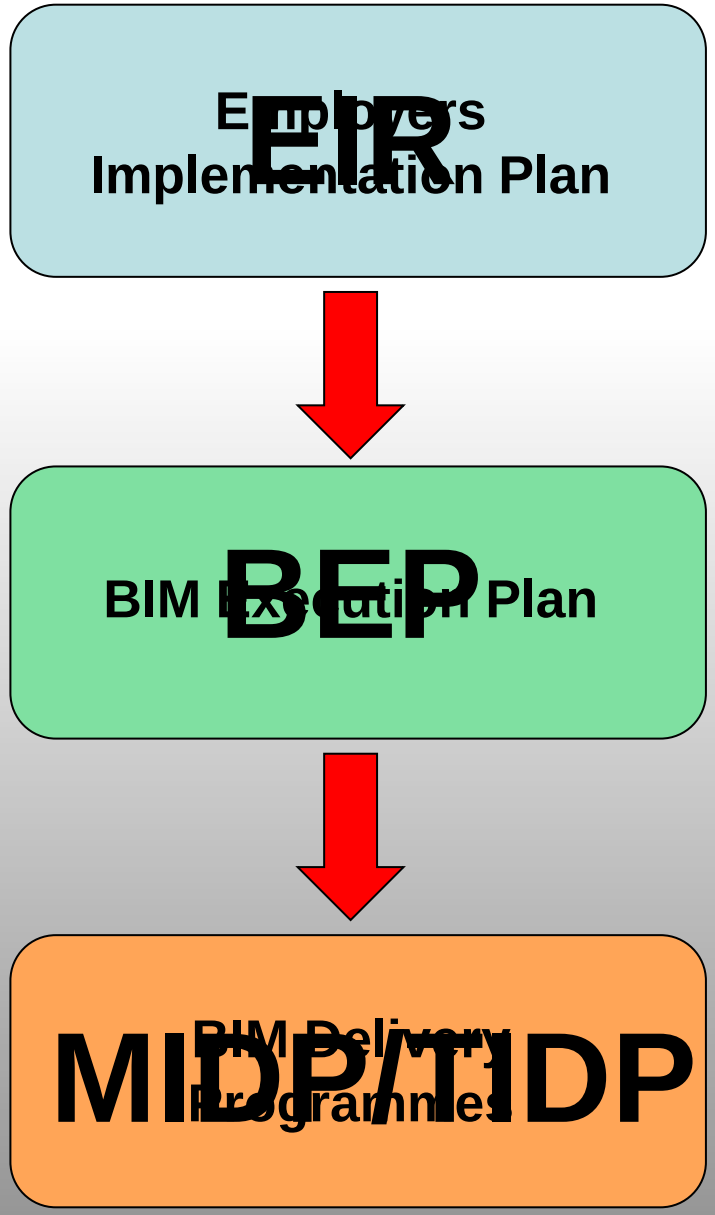

STRATEGY
NEED
Employer's Information Requirements (EIR)
Capex start
PROCUREMENT
EXECUTION
BIM Execution Plan (BEP)
CONTRACT AWARD
DELIVERY
Master Information Delivery Plan (MIDP)
MOBILIZATION
Project Information Model (PIM)
Asset Information Model (AIM)
Documentation
Non-Graphical Data
Graphical Model
HANDOVER
Information Model
1 BRIEF
2 CONCEPT
3 DESIGN
4 DEFINITION
5 BUILD & COMMISSION
6 HANDOVER & CLOSEOUT
7 OPERATION
IN USE
COMMON DATA ENVIRONMENT (CDE)
ASSESSMENT
Maintain, Refurbish, End of Life or Build
Opex start
MAINTENANCE and USE (PAS 1192-3)
SUPPLIER'S INFORMATION EXCHANGE
EMPLOYER'S DECISION POINT
1 2 3 4 5 6 7 n
For details on supplier's information exchanges and employer's decision points see CIC Scope of Services
Legend
Green Information process
Blue Management process



- Sets the high level standards.
- The BEP is subsidiary to the EIR
- Sets the project specific standards.
- Are developed by the contributors to the federated model.
- The issue and use of information in the collaborative environment is made clear.

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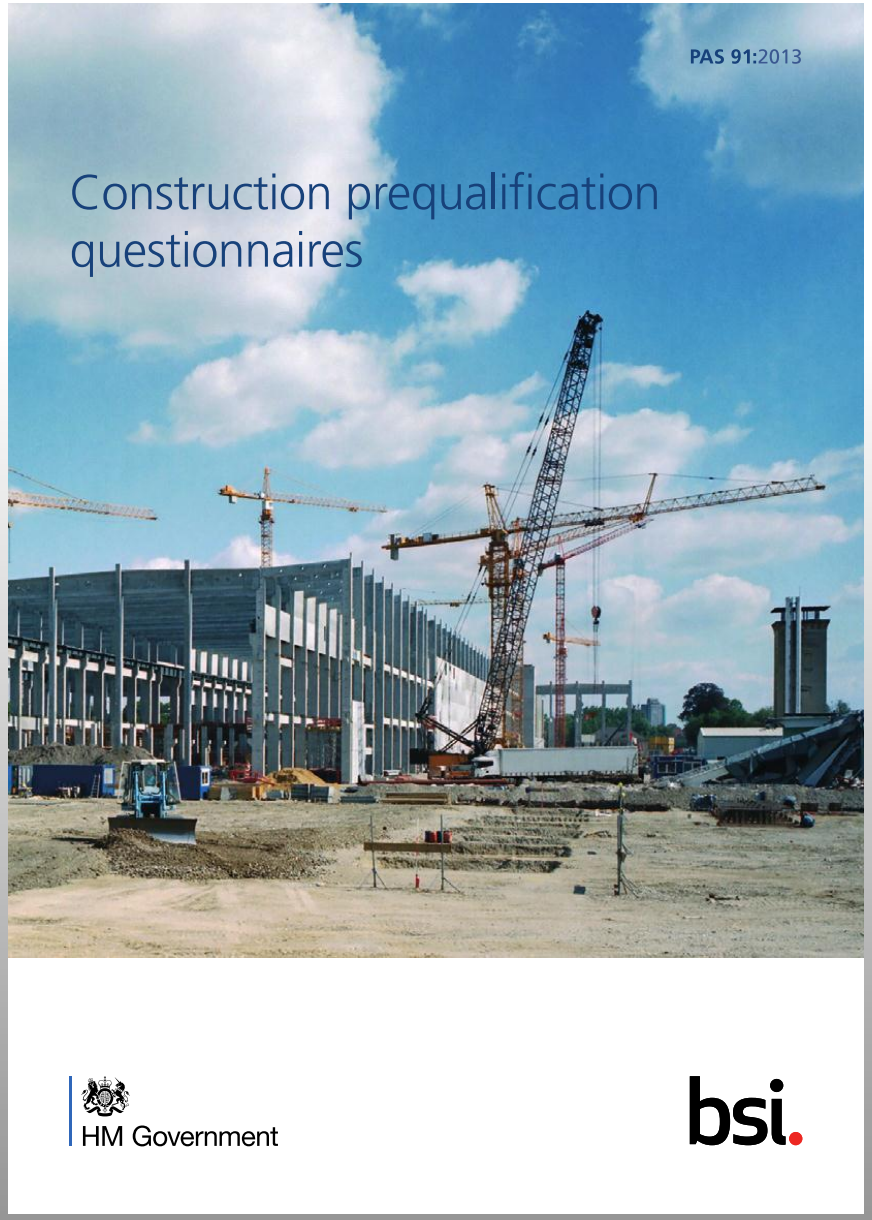
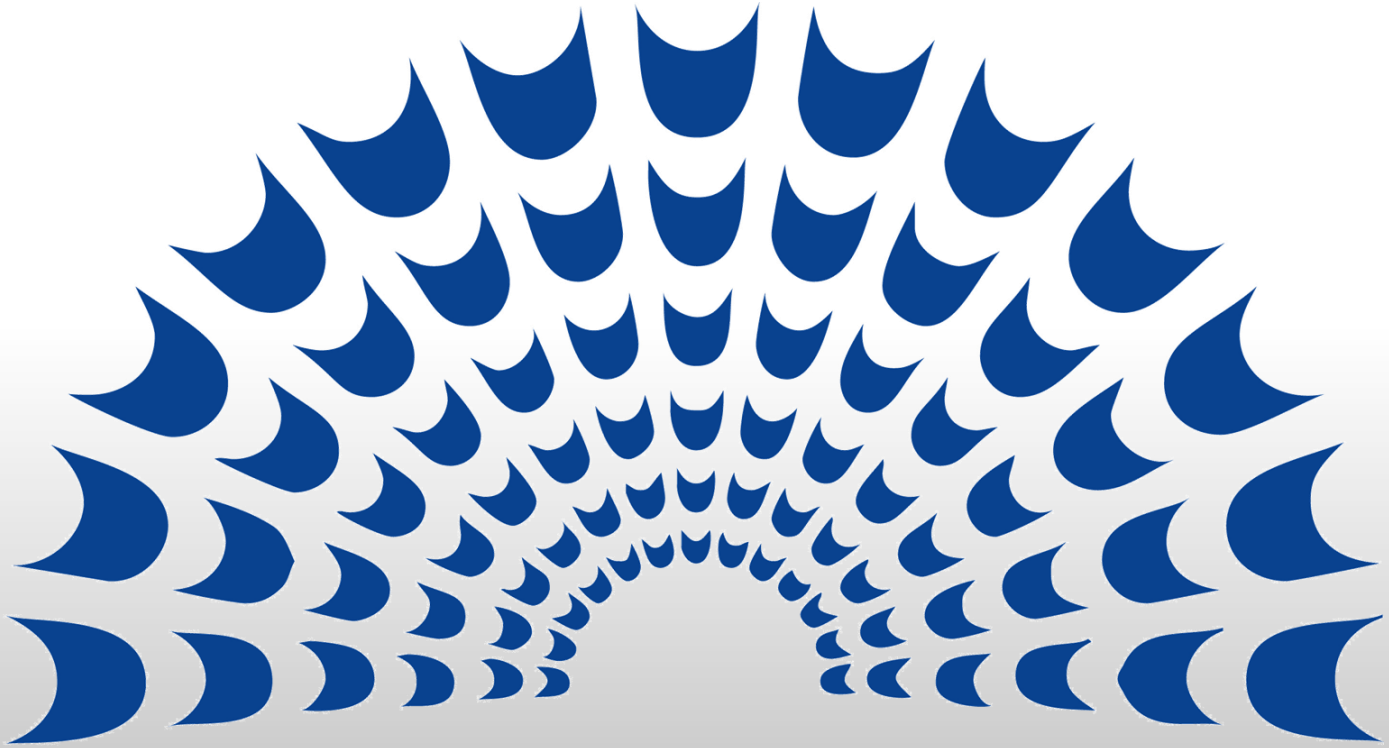
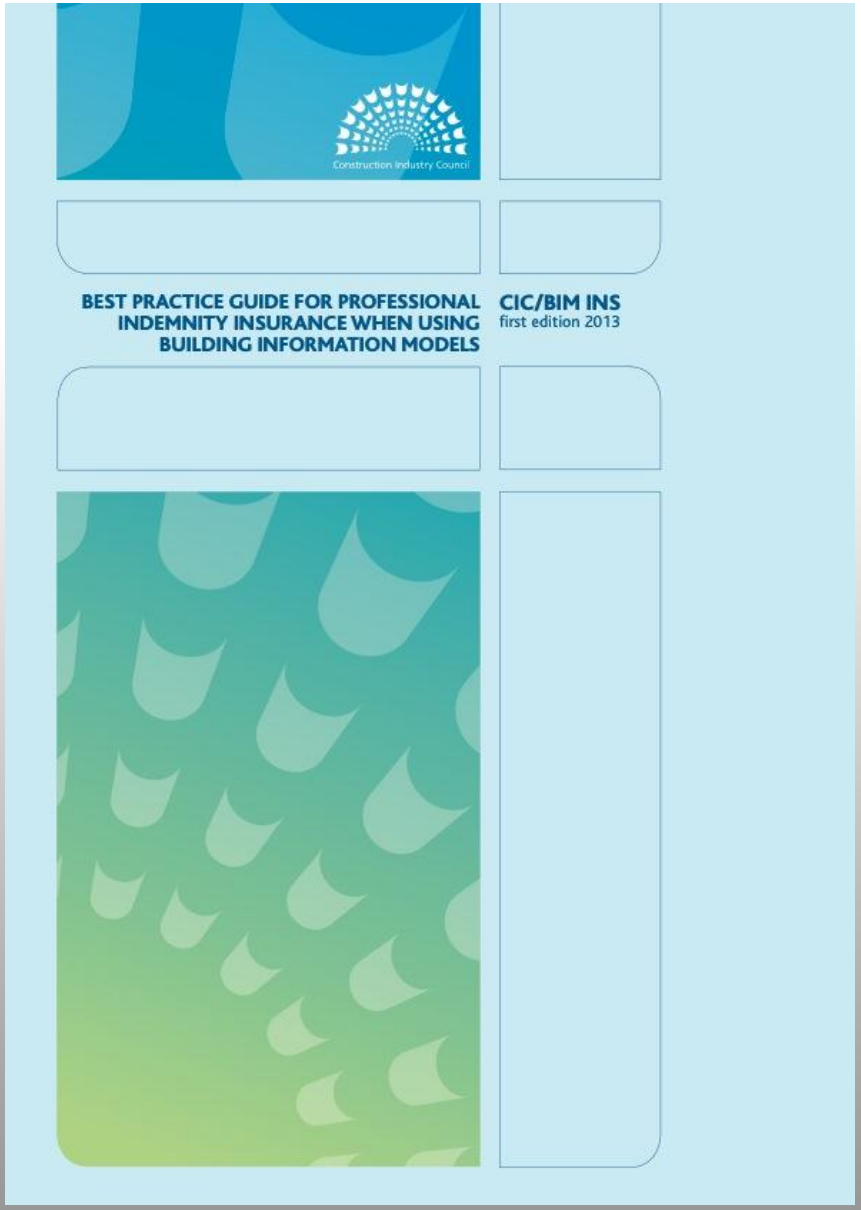


- **PAS 91 2013 Construction Pre Qualification Questionnaire has Annex D on BIM.**
- **PAS BS 55 Asset Management .**
- **BS 8541-1/3/4 2012 Library objects for architecture, engineering and construction. Identification and classification. Code of practice.**



Construction Industry Council

(CIC)



- **Insurers like BIM!**
- **For Level 2 BIM no need for change.**
- **New forms of insurance starting to emerge.**
- **If someone asks for more money change your insurer.**

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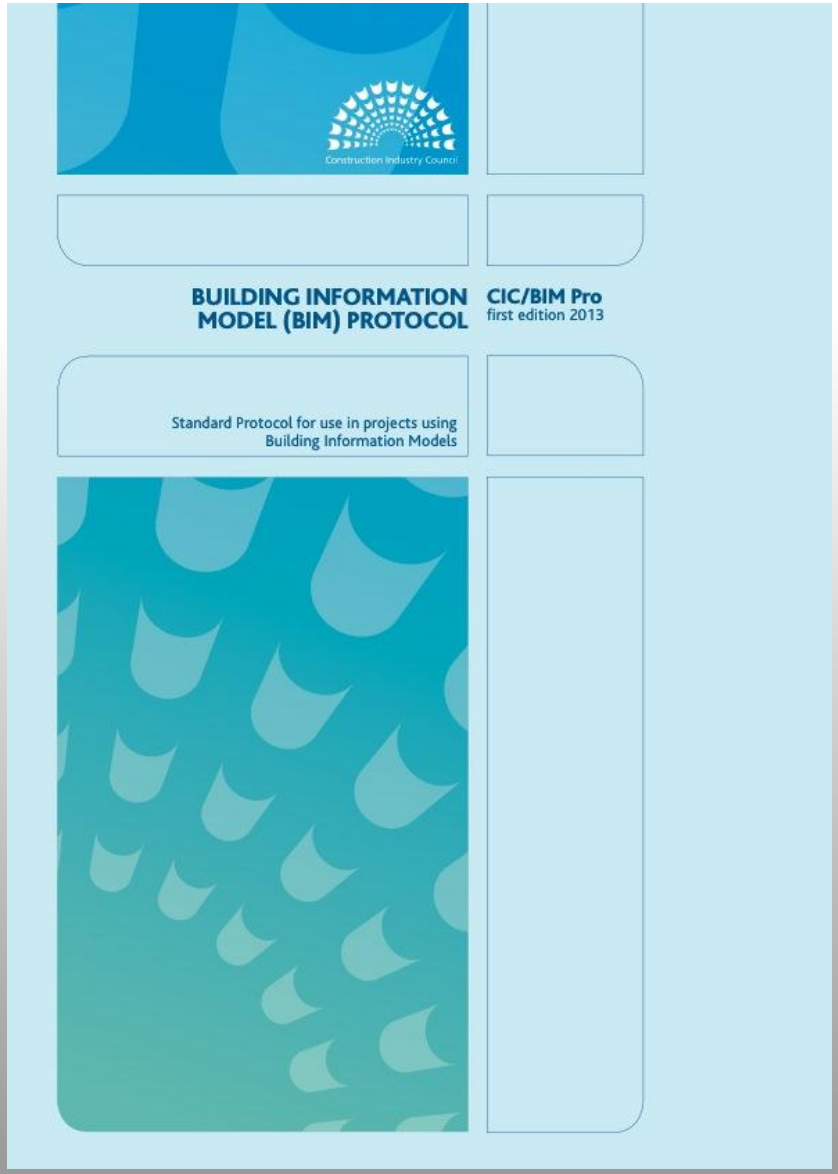

- **More of an EIR than a BEP.**
- **Aligns somewhat with other data.**
- **Has a clause on software selection. Is that a Client role?**

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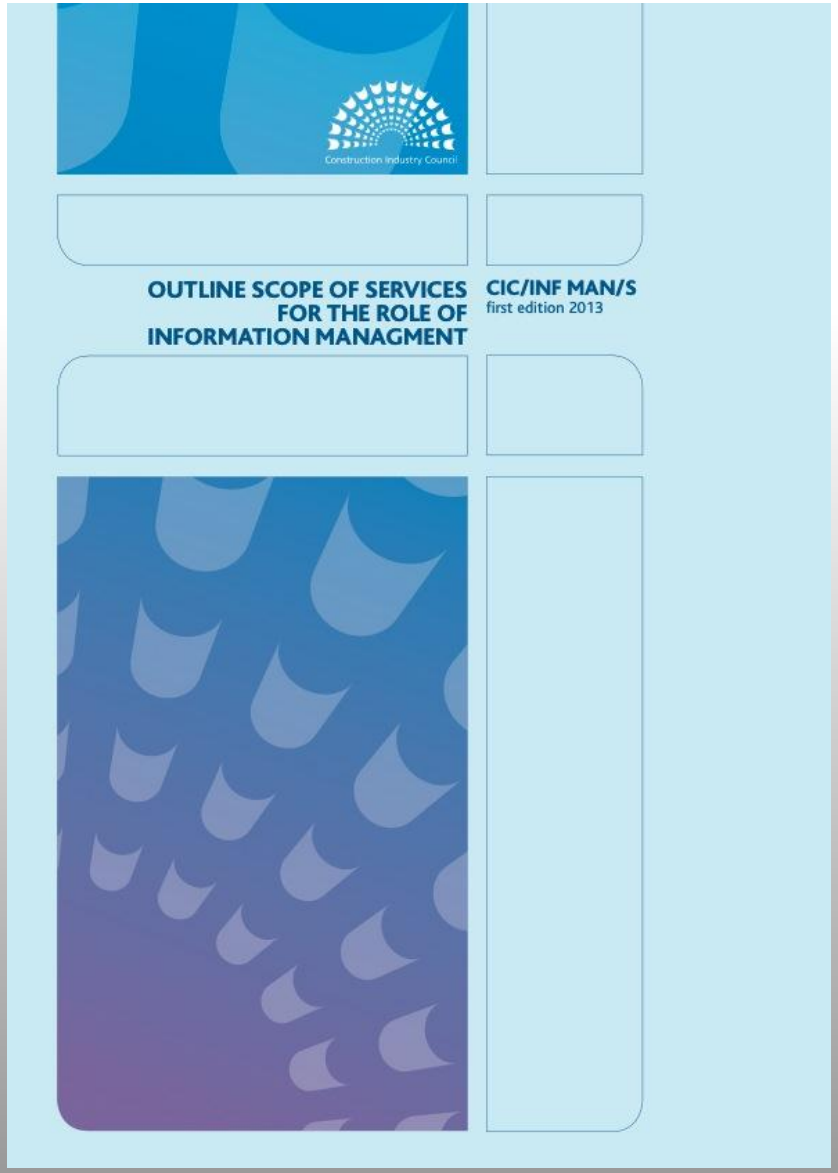

- **Controversial! Is this a new role?**
- **Purpose: Enforce common data environment and validation of data.**
- **It is needed….but not yet established who does this.**
- **My guess: Lead consultant for first two COBie drops then contractor.**

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- **Industry wide understanding of stages. Same for architects, engineers, contractors and facility opperators.**

- **Institutes in the process of revising and issuing their work stages.**

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RIBA Plan of Work 2013

RIBA

The RIBA Plan of Work 2013 organises the process of briefing, designing, constructing, maintaining, operating and using building projects into a number of key stages. The content of stages may vary or overlap to suit specific project requirements. The RIBA Plan of Work 2013 should be used solely as guidance for the preparation of detailed professional services contracts and building contracts.

www.ribaplanofwork.com

Stages / 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	Identify client's **Business Case** and **Strategic Brief** and other core project requirements.	Develop **Project Objectives**, including **Quality Objectives** and **Project Outcomes**, **Sustainability Aspirations**, **Project Budget**, other parameters or constraints and develop **Initial Project Brief**. Undertake **Feasibility Studies** and review of **Site Information**.	Prepare **Concept Design**, including outline proposals for structural design, building services systems, outline specifications and preliminary **Cost Information** along with relevant **Project Strategies** in accordance with **Design Programme**. Agree alterations to brief and issue **Final Project Brief**.	Prepare **Developed Design**, including coordinated and updated proposals for structural design, building services systems, outline specifications, **Cost Information** and **Project Strategies** in accordance with **Design Programme**.	Prepare **Technical Design** in accordance with **Design Responsibility Matrix** and **Project Strategies** to include all architectural, structural and building services information, specialist subcontractor design and specifications, in accordance with **Design Programme**.	Offsite manufacturing and onsite **Construction** in accordance with **Construction Programme** and resolution of **Design Queries** from site as they arise.	Handover of building and conclusion of **Building Contract**.	Undertake **In Use** services in accordance with **Schedule of Services**.
Procurement *Variable task bar	Initial considerations for assembling the project team.	Prepare **Project Roles Table** and **Contractual Tree** and continue assembling the project team.	The procurement strategy does not fundamentally alter the progression of the design or the level of detail prepared at a given stage. However, **Information Exchanges** will vary depending on the selected procurement route and **Building Contract**. A bespoke **RIBA Plan of Work 2013** will set out the specific tendering and procurement activities that will occur at each stage in relation to the chosen procurement route.			Administration of **Building Contract**, including regular site inspections and review of progress.	Conclude administration of **Building Contract**.	
Programme *Variable task bar	Establish **Project Programme**.	Review **Project Programme**.	Review **Project Programme**.	The procurement route may dictate the **Project Programme** and may result in certain stages overlapping or being undertaken concurrently. A bespoke **RIBA Plan of Work 2013** will clarify the stage overlaps. The **Project Programme** will set out the specific stage dates and detailed programme durations.				
(Town) Planning *Variable task bar	Pre-application discussions.	Pre-application discussions.	Planning applications are typically made using the Stage 3 output. A bespoke **RIBA Plan of Work 2013** will identify when the planning application is to be made.					
Suggested Key Support Tasks	Review **Feedback** from previous projects.	Prepare **Handover Strategy** and **Risk Assessments**. Agree **Schedule of Services**, **Design Responsibility Matrix** and **Information Exchanges** and prepare **Project Execution Plan** including **Technology** and **Communication Strategies** and consideration of **Common Standards** to be used.	Prepare **Sustainability Strategy**, **Maintenance and Operational Strategy** and review **Handover Strategy** and **Risk Assessments**. Undertake third party consultations as required and any **Research and Development** aspects. Review and update **Project Execution Plan**. Consider **Construction Strategy**, including offsite fabrication, and develop **Health and Safety Strategy**.	Review and update **Sustainability, Maintenance and Operational** and **Handover Strategies** and **Risk Assessments**. Undertake third party consultations as required and conclude **Research and Development** aspects. Review and update **Project Execution Plan**, including **Change Control Procedures**. Review and update **Construction** and **Health and Safety Strategies**.	Review and update **Sustainability, Maintenance and Operational** and **Handover Strategies** and **Risk Assessments**. Prepare and submit Building Regulations submission and any other third party submissions requiring consent. Review and update **Project Execution Plan**. Review **Construction Strategy**, including sequencing, and update **Health and Safety Strategy**.	Review and update **Sustainability Strategy** and implement **Handover Strategy**, including agreement of information required for commissioning, training, handover, asset management, future monitoring and maintenance and ongoing compilation of **'As-constructed' Information**. Update **Construction** and **Health and Safety Strategies**.	Carry out activities listed in **Handover Strategy** including **Feedback** for use during the future life of the building or on future projects. Updating of **Project Information** as required.	Conclude activities listed in **Handover Strategy** including **Post-occupancy Evaluation**, review of **Project Performance**, **Project Outcomes** and **Research and Development** aspects. Updating of **Project Information**, as required, in response to ongoing client **Feedback** until the end of the building's life.
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.**	**Concept Design** including outline structural and building services design, associated **Project Strategies**, preliminary **Cost Information** and **Final Project Brief.**	**Developed Design**, including the coordinated architectural, structural and building services design and updated **Cost Information.**	Completed **Technical Design** of the project.	**'As-constructed' Information.**	Updated **'As-constructed' Information.**	**'As-constructed' Information** updated in response to ongoing client **Feedback** and maintenance or operational developments.
UK Government Information Exchanges	Not required.	Required.	Required.	Required.	Not required.	Not required.	Required.	As required.

***Variable task bar** – in creating a bespoke project or practice specific RIBA Plan of Work 2013 via www.ribaplanofwork.com a specific bar is selected from a number of options.

© RIBA

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Construction Project Information Committee

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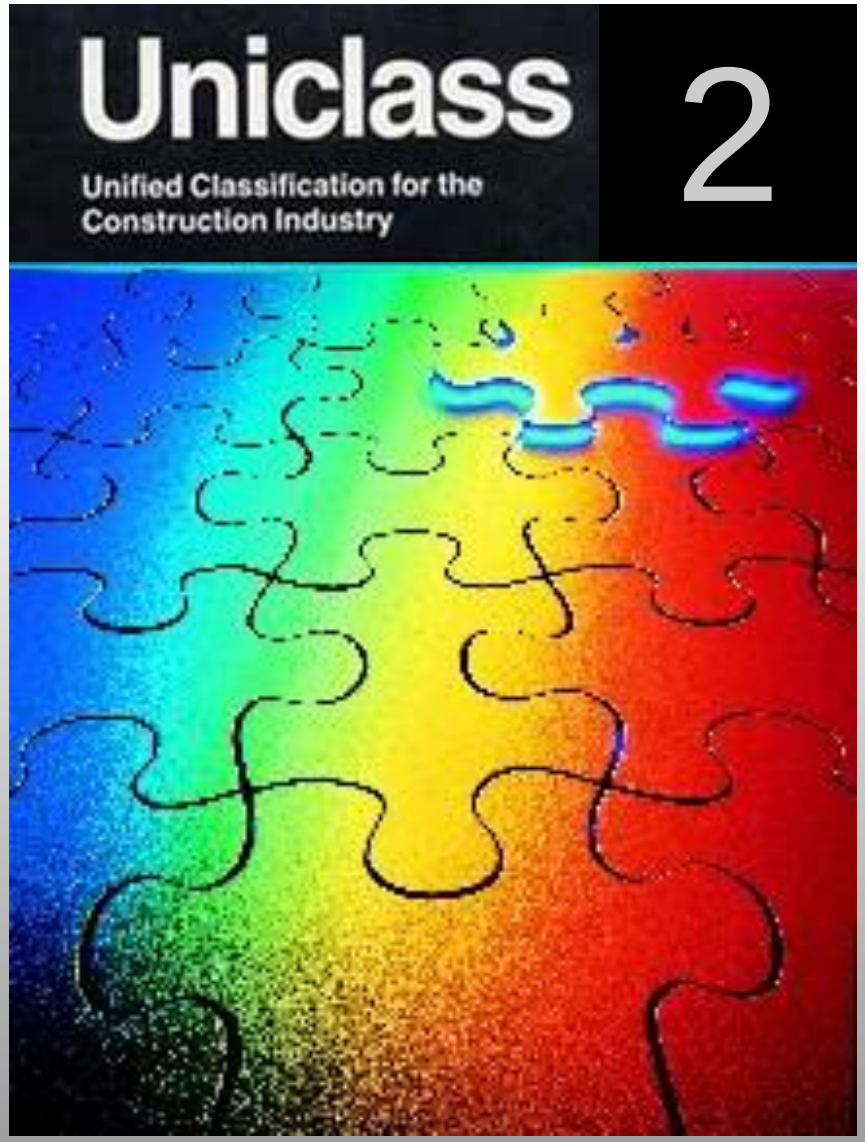

- **A unified classification system replacing Uniclass and CSI.**
- **Whether you are an architect, a QS or a building manager classifications will be the same.**
- **Same data can be used throughout the process and is entered once for use throughout building lifecycle.**
- **Includes buildings, infrastructure and integrated project and office management.**
- **Aims to align with ISO 12006-2.**

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Code	Description	Table	Version	Parent Code
Sp-40-90	Animal Medical, Health, Welfare And Funerary Spaces	Sp-Spaces	1.0	Sp-40
Sp-40-90-02	Animal Clinics	Sp-Spaces	1.0	Sp-40-90
Sp-40-90-03	Animal Clipping And Pedicuring Boutiques	Sp-Spaces	1.0	Sp-40-90
Sp-40-90-04	Animal Dispensaries	Sp-Spaces	1.0	Sp-40-90
Sp-40-90-05	Animal Exercise Yards	Sp-Spaces	1.0	Sp-40-90
Sp-40-90-06	Animal Funerary Spaces	Sp-Spaces	1.0	Sp-40-90
Sp-40-90-07	Animal Operating Theatres	Sp-Spaces	1.0	Sp-40-90
Sp-40-90-08	Animal Quarantine Spaces	Sp-Spaces	1.0	Sp-40-90
Sp-40-90-09	Animal Recovery Wards	Sp-Spaces	1.0	Sp-40-90
Sp-40-90-37	Hippotherapy Pools	Sp-Spaces	1.0	Sp-40-90
Sp-40-90-90	Welfare Aquaria	Sp-Spaces	1.0	Sp-40-90
Sp-40-90-92	Welfare Aviaries	Sp-Spaces	1.0	Sp-40-90
Sp-40-90-93	Welfare Cages	Sp-Spaces	1.0	Sp-40-90
Sp-40-90-95	Welfare Kennels	Sp-Spaces	1.0	Sp-40-90
Sp-40-90-97	Welfare Stables	Sp-Spaces	1.0	Sp-40-90
Sp-40-90-98	Welfare Stalls	Sp-Spaces	1.0	Sp-40-90
Sp-40-90-99	Welfare Sties	Sp-Spaces	1.0	Sp-40-90
Sp-45	Recreational Spaces	Sp-Spaces	1.0	Sp
Sp-45-05	Amusement Spaces	Sp-Spaces	1.0	Sp-45
Sp-45-05-01	Adventure Playgrounds	Sp-Spaces	1.0	Sp-45-05
Sp-45-05-03	Amusement Arcades	Sp-Spaces	1.0	Sp-45-05

- **Beta's of 7 tables available on: www.bimtaskgroup.org**
  Ac – Activities, **Co** – Complexes, **Ee** – Elements, **En** – Entities, **Sp** – Spaces, **Ss** – Systems, **WR** - Work Results
- **Products, Phases, Work Results for Specification at "for comment stage" on CPI web site.**

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Open BIM
&
Closed BIM

A 4MSA - BIM Design Suite; 4M FineELEC; FineHVAC; 4M FineSANI; 4M IDEA Architecture; IntelliCAD; 4M STEEL; 4M STRAD
AceCad Software Ltd. - StruCad; StruWalker
ActiveFacility - ActiveFacility
Advent - Artlantis
AEC3 - AEC3 BimServices
A-NULL Bauohysik GmbH - ArchiPhysik
ArchiBus Inc. - Archibus
Arktec, S.A. - Tricalcar
ArtrA Ltd - ArtrA Field BIM & Life Cycle Management
Asite Solutions Ltd. - cBIM Manager
Asuni CAD, S.A. - VisualARQ
Autodesk - 3DS Max; AutoCAD Architecture; AutoCAD MEP; Buzzsaw; CAMduct; CAPmep+; Civil; Civil 3D; Constructware; Design Review; Ecotect Analysis; ESTmep+; FABmep+; GIS Design Server; Green Building Studio; Land Desktop; LandXplorer; Map3D; MapGuide; Navisworks; Revit Architecture; Revit MEP; Revit Structure; Robot Structural Analysis; Seek; Structural Detailing; Topobase; Quantity Take-off; Utility Design; Vault
AutoDesSys, Inc. - bonsai3D; formZ; RenderZone

B Bauhaus Universitat Wiemar - IfcGears; Open IFC Tools
Beck Technology (part of Beck Group) - DProfiler
Bentley Systems, Inc. - Architecture V8i; Assetwise; Cloudworx; ConstructSim; Electrical Systems V8i; Facilities; Hevacomp; LEAP; Mechanical Systems V8i; Pointools; PowerRebar; ProStructures; RAM; speedikon V8i; STAAD; Structural Modeller V8i; Tas Simulator
BIMserver.org - BIMserver; BIMsurfer WebGL viewer
bocad-3D - bocad Software GmbH

C **Cad-Quality Oy** - CADie Sahakka
Cadwork - cadwork wood

C Causeway - BIMMeasure; Professional Design Suite
Centre Scientifique et Technique du Batiment (CSTB) - IFC SDK
ClearEdge 3D - EdgeWise Building; EdgeWise Plant
Computers and Structures, Inc. (CSi) - Bridge; COL; ETABS; Perform3D; SAFE; SAP2000
Constructivity.com, LLC - Constructivity Model Editor; Constructivity Model Server Constructivity Model Viewer
CSC Ltd - Fastrak; Orion; S-Frame; Structural BIM; TEEDS
CYPE Ingenieros, S.A. – CYPECAD

D Dalux - Dalux BIM Checker; Dalux Building Viewer; DaluxFM
Dassault Systemes Solidworks Corp - CATIA, DELMIA; Draftsight; Enovia; Exalead; Primavera; Solidworks; Simulia
DataCAD LLC - DataCAD; DataCAD LT
Data Design System ASA - DDS-CAD Architect; DDS-CAD BIM-Enhancer; DDS-CAD Construction; DDS-CAD MEP; DDS-CAD Viewer
Datacubist Oy - simplebim; simplebim.Developer
Deliver Simulation Ltd - SUperPlan
Design Builder Software Ltd - Design Builder
Design Data - SDS/2
Design Master Software, Inc. - Design Master Electrical; Design Master HVAC; Design Master Plumbing
Dexter + Cheney, Inc. - Venture
Digital Alchemy - IFC BIM Validation Service; IFC Model Exchange for Microsoft Visio; IFC Takeoff for Microsoft Excel; Space Layout Editor for Microsoft Visio
Digital Canal Corporation - Digital Canal; Planswift; Solid builder
Doe2 - DOE-2; eQUEST

E Eagle Point Software Corporation - LANDCADD; LandSketch; Pinnacle; Siteworks
EcoDomus - EcoDomus FM; EcoDomus PM (Tokmo)
ENG Studios - Spider Clash / Clash Locator; YouBIM

E Equa Simulation AB - IDA ICE
Esri - ArcGIS; Data
Eurostep Group AS - BIM Collaboration Hub; IFC Toolbox
Exactal Technologies Pty Ltd - CostX

F Facilities Management Software GmbH - FaMe
FM:Systems - FM:Interact

G GALA Construction software - GALA Construction Software
Gehry Technologies - Digital Project Designer; Digital Project Extensions; Digital Project Viewer; GTX
GEM Team Solutions GbR - IFC Quick Browser
Granlund - BSPro; RIUSKA, ROOMEX; RYHTI
Graitec SA - Advance Concrete; Advance Design; Advance Steel; SuperSTRESS
Graphisoft - ArchiCAD; ArchiCAD Solo; ArchiCAD Star(T); BIM Explorer *(formerly Virtual Building Explorer)*; EcoDesigner; MEP Modeller
GROUPE ARCHIMEN - ACTIVe3D Build Server; ACTIVe3D Facility Server

H Holistic City Software - CityCAD
Holte Byggsafe AS - SmartKalk
Horizontal Systems, Inc. (owned by Autodesk) - Horizontal Glue

I ICON - ICON System
InfoGraph GmbH - InfoCAD
Informatix Inc. - Piranesi
Ing. Software Dlubal GmbH - RFEM; RSTAB
Innovaya, LLC - Innovaya
Integrated Environmental Solutions Limited (IES) - VE Gaia; VE Pro; VE-Toolkits; VE-Ware
Inter-CAD Kft - AxisVM

I **ITI International Training Institute** - Benchmark

J Jidea Oy - ScaleCAD
Jotne EPM Technology AS - EDMserver

K **Karlsruhe Institute of Technology** - FZK Viewer
Kubit - DistToPlan; hylasFM; MonuMap; PhoToPlan; PointCloud; PoinSense Plant; TachyCAD; VirtuSurv
Kymdata Oy - CADS Planner Electric

M MAXON Computer GmbH - Cinema 4D
Maxwell Systems, Inc. - ProContractorMX
McNeel - AccuRender; Bongo; Brazil; Bubble; DOSLib; Flamingo; Flamingo nXt; Grasshopper; openNURBS; Penguin; iRhino3D; Rhinocerous; Rhino OSX
MicroSurvey Software Inc. - FieldGenius; PointCloud CAD; STAR*NET
M-SIX - Veo (coming soon - see video preview)

N **National Institute of Standards and Technology (NIST)** - IFC File Analyzer; SteelVis
Nemetschek - Allplan Allfa; Allplan Architecture; Allplan BCM; Allplan Engineering; Frilo; Renderworks; Scia Engineer; Scia Steel; Vectorworks Architecture; Vectorworks Landmark
Newforma - Construction Suite; Design Suite; Owner Suite; Project Analyzer
Nomitech - CostOS BIM Estimating

O Oasys - MassMotion
On Center Software, Inc. - Digital Production Control; On-Screen Takeoff; QuickBid
Onuma, Inc. - Onuma System
Oracle - AutoVue 3D Professional

P ProFM Inc. - SyD (Share Your Design)

P **Progman Oy** - MagiCAD Circuit Designer; MagiCAD Comfort & Energy; MagiCAD Electrical; MagiCAD Heating & Piping; MagiCAD Room; MagiCAD Sprinkler Designer; MagiCAD Suite; MagiCAD System Designer; MagiCAD Ventilation;

Q **Quickpen** (owned by Trimble) - AutoBid Mechanical; AutoBid Sheet Metal; DuctDesigner 3D; PipeDesigner 3D; Vulcan

S **Safe Software Inc.** - FME
SECOM Co., LTD. - IFC2SKP plugin; IFCsvr ActiveX Component
Simulation Lab Software - SimLab Composer
SMB AG - MORADA
SOFiSTiK AG - SOFiSTiK Structural Desktop (SSD)
Solibri, Inc. - Solibri Model Checker; Solibri Issue Locator; Solibri Model Optimizer; Solibri Model Viewer
SPACE GASS - SPACE GASS
STEP Tools, Inc. - ST-Developer
Structural Design Software in Europe AB / Strusoft - FEM-Design; Impact; VIP-Energy; WIN-Statik
Synchro Ltd. - Open Viewer; Project Constructor; Synchro Database Module; Synchro Express; Synchro Professional; Synchro Server

T **Tekla Corporation** - Tekla BIMsight; Tekla Structures
Tech Soft 3D - HOOPS Exchange; HOOPS Publish; HOOPS Visualize
Tetra 4D - 3D PDF Converter
Tilt-Up Design Systems, LLC - Tilt-Werks
TQS Informatica Ltda. - CAD/QST
TNO Building and Construction - IFC Engine DLL; IFC Engine Viewer
Trelligence, Inc. - Affinity
Triple Squid Software Design - MoI
TRIRIGA Inc. (owned by IBM) - TRIRIGA Facilities

T Trimble Navigation Limited - AllTrak; Digital Pen Solutions; Field Link for MEP; MEP Layout Solution

U UGent SMARTLAB - IFC-to-RDF Web Service

US Department for Energy - EnergyPlus

V Vela Systems, Inc - Field BIM; Vela Web; Vela Mobile; Vela Reports

Vertigraph, Inc. - BidPoint XL; BidScreen XL; SiteWorx, SiteWorx OS

Vico Software, Inc. - Vico Office Suite

Vintocon - ArchiFM

Vizelia - Real Estate

Z Ziggurat Systems Ltd. - Ziggurat

Statement A:

"BIM is a business process from which you can select technology that best meets your needs."

Statement B:

"BIM is a technology that determines your business process based upon the vendor's capability."

OPEN BIM™ NETWORK

What communication protocol does it need to succeed?

- A common language
- A platform to communicate the common language
- A willingness to communicate the common language

Three Ways To Apply BIM Communication Protocols

1. **Bespoke**
2. **Single platform (Closed BIM)**
3. **Common Platform (Open BIM)**

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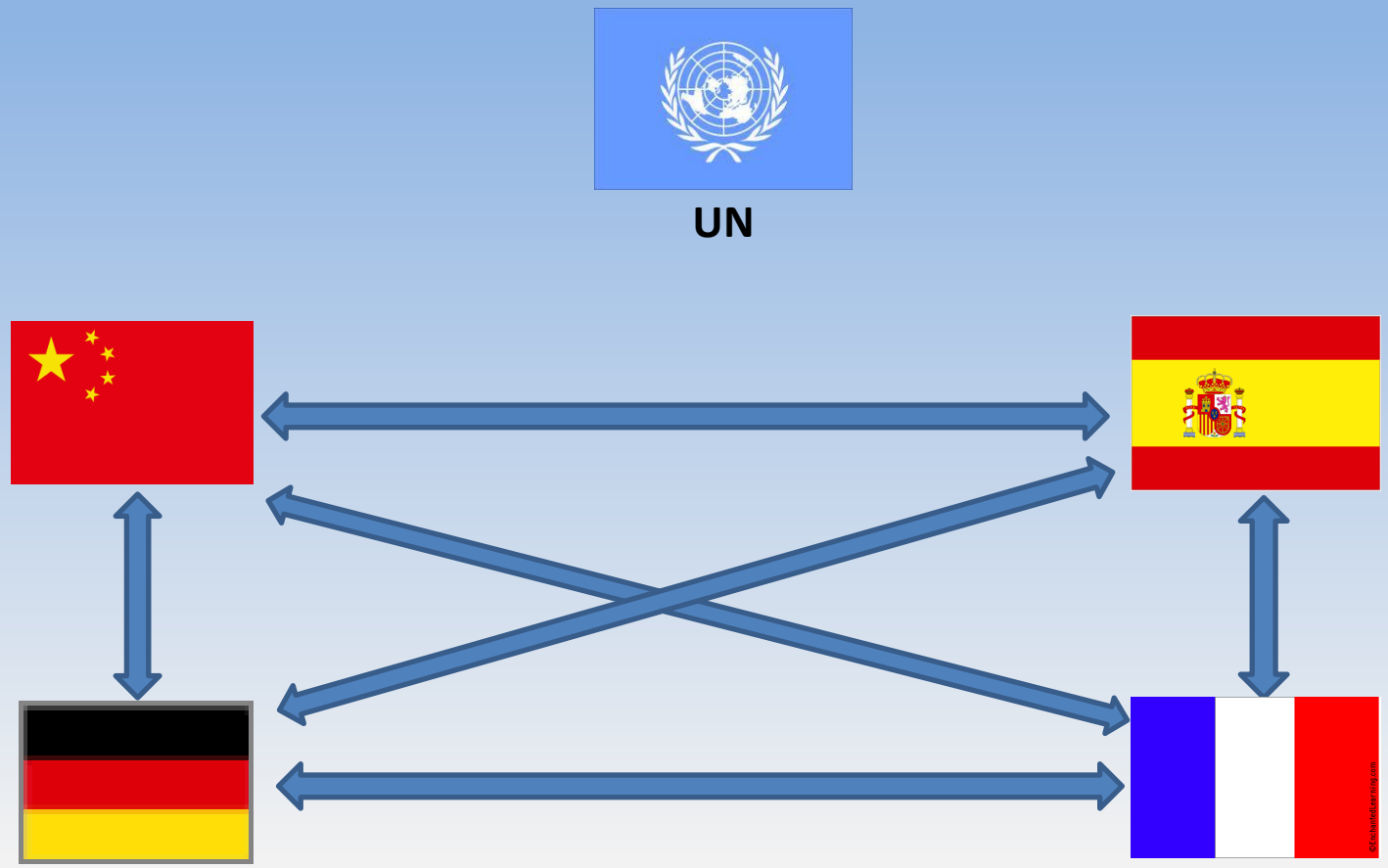
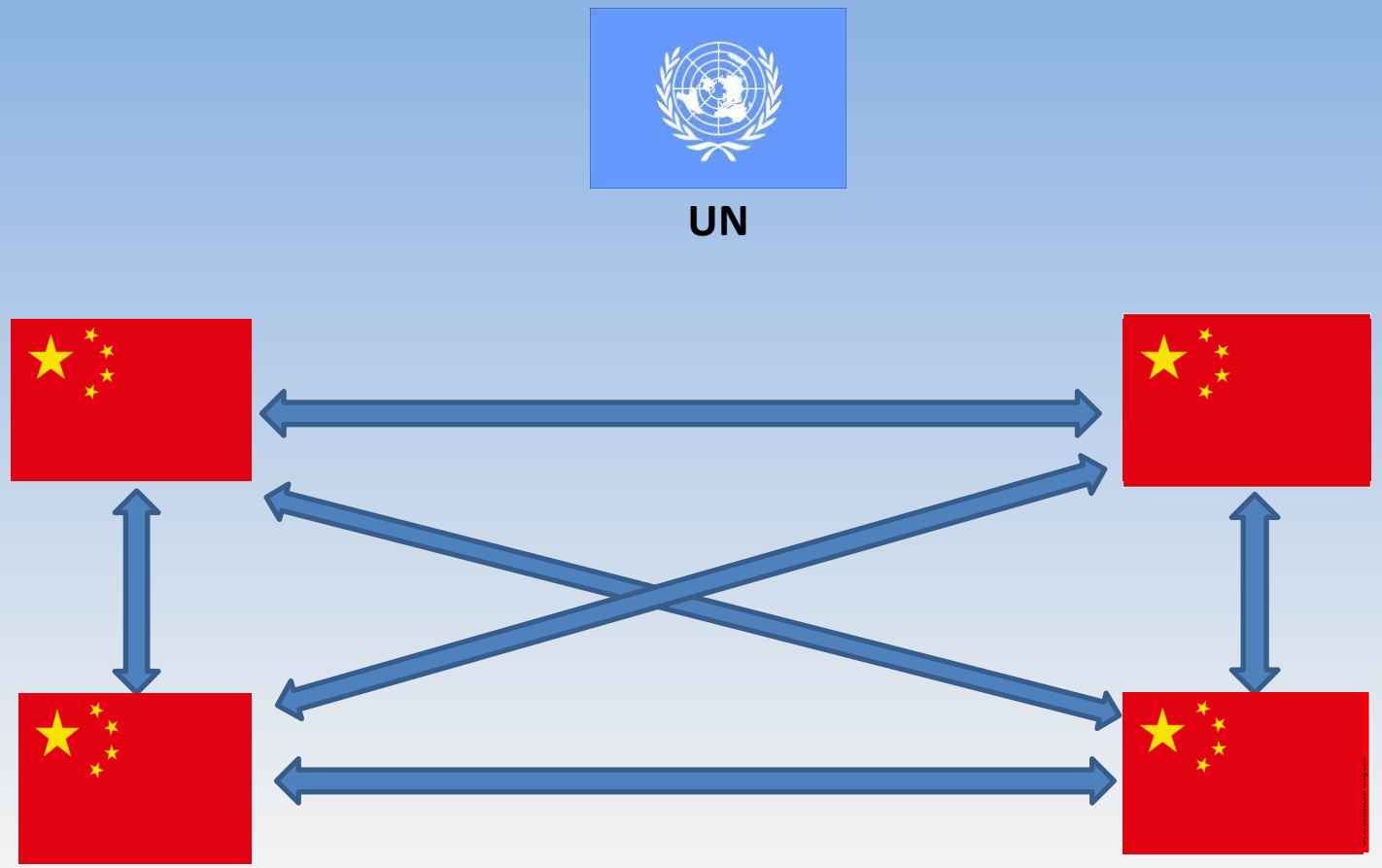


Everyone learns everyone else's language

BESPOKE

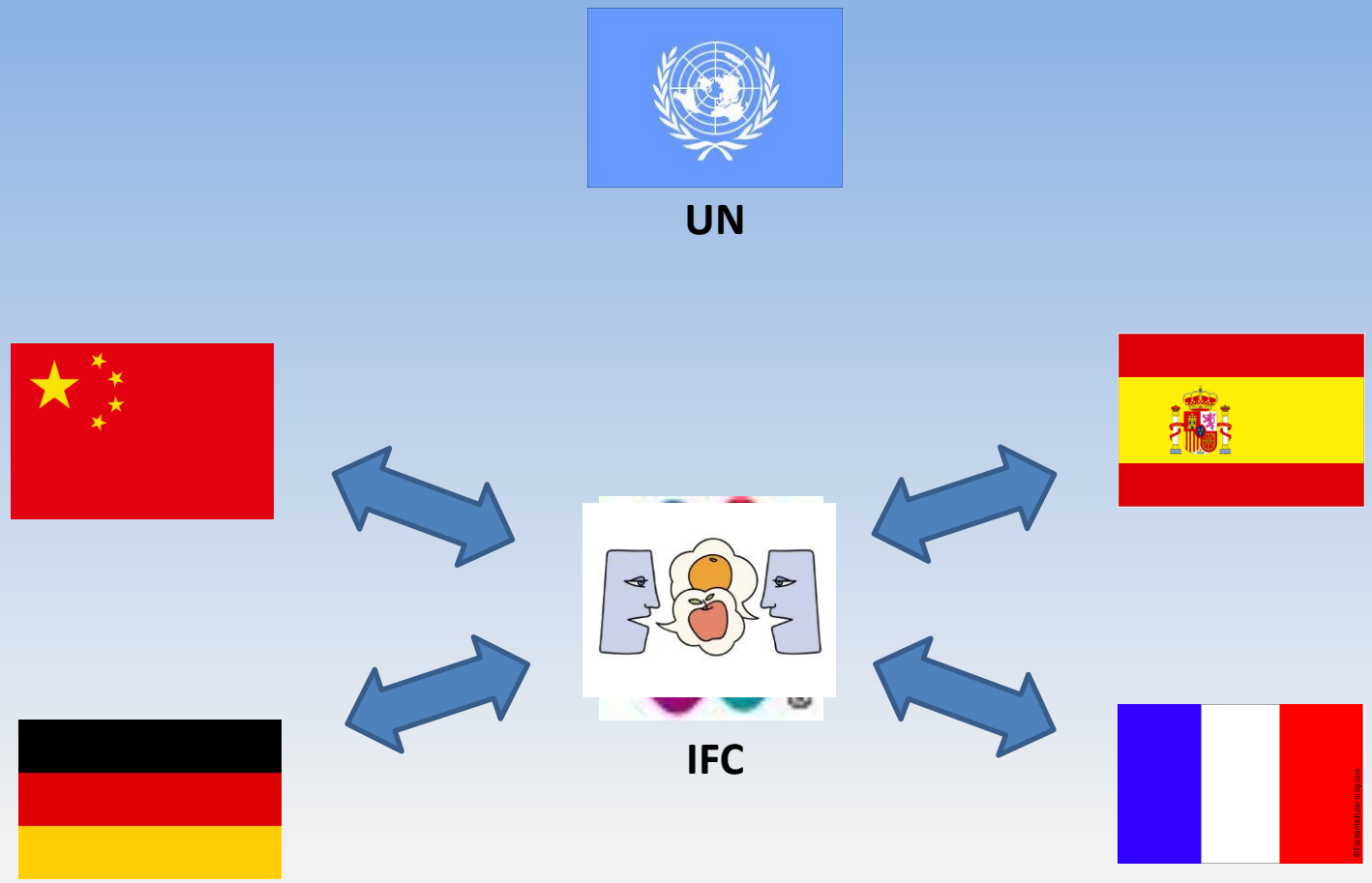
OPEN BIM™ NETWORK



Everybody, bar 1, has to change their language

SINGLE PLATFORM (CLOSED BIM)

OPEN BIM™ NETWORK



Everyone uses their own language with a common interpreter

COMMON PLATFORM (OPEN BIM)

OPEN BIM™ NETWORK

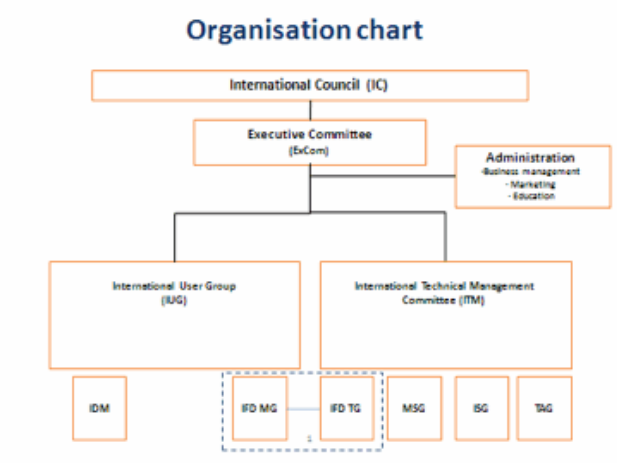
IFC

buildingSMART
International home of openBIM

The IFC format is registered by ISO as an official International Standard ISO/IS 16739.

Building Smart Provide Certification for software to ensure that those certified are adopting IFC's to the required standards.

Building Smart UK Now part of the BRE.



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OPEN BIM NETWORK

Why OPEN BIM Will Succeed

• Best in Class, Fit for Purpose

With such a vast array of software products on the market, it is impossible to accept that any one vendor can produce the best solution to all problems. One open communication protocol means that products can be selected on their capability and not their source.

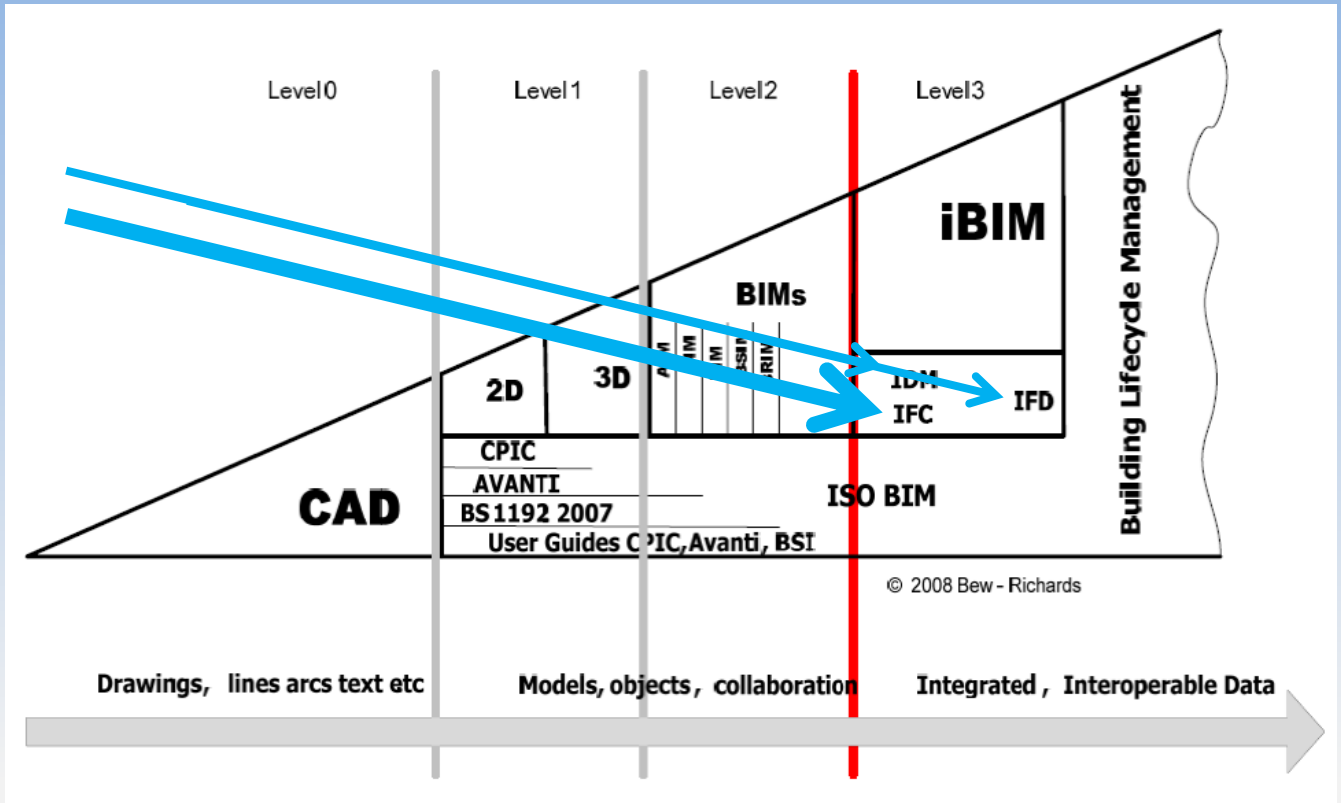
• Competition

The software market is under continuous development and vendors are always looking to improve performance, scope and deliverables. In an open market, this will continue unabated as the quest for competitive advantage is the primary goal.

• Application

In a major construction project, there are likely to be a significant number of stakeholders using a variety of software tools. It makes absolute business sense that each stakeholder can use their tools of choice providing it can exchange data with others. Only if a particular tool set does not have this communication capability should pressure be bought to change.

Why OPEN BIM Now?



"Our final vision for the delivery of this information will be a fully web enabled transparent (to the user) scenario, based on the Building Smart IFC/IDM and IFD standards." ***BIS BIM Strategy***

OPEN BIM™ NETWORK

2 November 2012 Last updated at 11:44

745 Share

Government IT projects: UK adopts open technology standards

The UK government is drawing up a set of open technology standards all future IT projects must comply with.

The standards will dictate how data should be formatted and the ways that software should interoperate.

The push for open standards builds on earlier work to standardise the hardware on which government services are built.

Data is easier to share and re-use when formatted to open standards, says the government

The decision to mandate the open standards follows a four-month consultation exercise.

"For too long, government IT has been too expensive, over-specified and run in contract structures that encourage complexity, duplication and fragmented user services," said Cabinet Office Minister Francis Maude in a speech announcing the strategy.

The standards the government wanted to adopt would favour smaller, innovative tech firms and would demand compliance with open data formats and protocols from every IT supplier, he said.

In the technology world, open standards stand in opposition to proprietary formats. As their name implies they let everyone that wants to look at how a program is built or data is formatted.

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International Alliance for Interoperability

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IFC – COBie Trial 2

CONSTRUCTING EXCELLENCE in the built environment

VINCI CONSTRUCTION UK

LAING O'ROURKE

CIOB

wates

SmartBIM Solutions

AEC3

WILLMOTT DIXON

buildingSMART International home of openBIM

GRAPHISOFT

conject

SOLIBRI

TEKLA

THOMAS VALE construction

mace

virtechs EXPERTS IN 3D BUILDING DESIGN

carillion

OPEN BIM NETWORK

Summary

- **Use Protocols:** You can't do successful collaborative BIM without standards.
- **OpenBIM:** Base your protocols around IFC's for the best chance of future proofing your working methods and working with others.
- **UK OK!:** The BIM Strategy Group has ensured that UK Standards to assist successful BIM adoption have been developed and are largely aligned with each other.
- **COBie:** Structured data for the whole life management of assets is at the heart of UK strategy. It's not going away!
- **Start Now**: It takes a while to change a practice to new ways of working. If you wait for everything to be complete you will have missed the boat.

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- **Workshop:** Examine current business workflow, establish key problem areas, identify the benefits of BIM, map a BIM solution to the problem areas and establish quick wins (maximise ROI)
- **Audit:** Existing business process, technology, skill levels and subsequent gap analysis
- **BIM Deployment Plan**: Key activities and road map defining the process, selecting and sourcing best in class, fit for purpose, technology and developing required skills
- **BIM Implementation:** Assistance to implement, monitor and refine the BIM deployment plan. Write EIR's, BEP's and BIM appointment clauses.
- **Training:** BIM for the business, the department, the user, and the technology. BIM Awareness CPD's.

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Questions?

Graphisoft & ArchiCAD

Implementing Protocols and Open Standards

John Porter

18th June 2013

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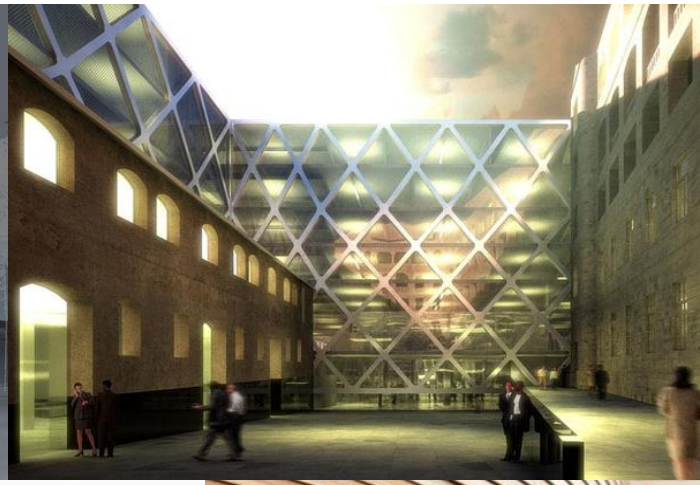
GRAPHISOFT ArchiCAD

Creative, productive and enjoyable design experiences for architects



GRAPHISOFT

Protocols & Open Standards

Graphisoft is committed to open standards

- IFC
- COBie
- OPEN BIM network

OPEN BIM

GRAPHISOFT®

Open BIM Collaboration

ArchiCAD

IFC

An

OPEN

Solution

SOLIBRI

Model Checking

DDS-CAD

Autodesk Revit MEP

AutoCAD MEP

MagiCAD

MEP

et EnergyPlus

GRANLUND SOFTWARE RIUSKA

Energy

NEMETSCHEK Allplan

NEMETSCHEK Scia

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Autodesk Revit Structure

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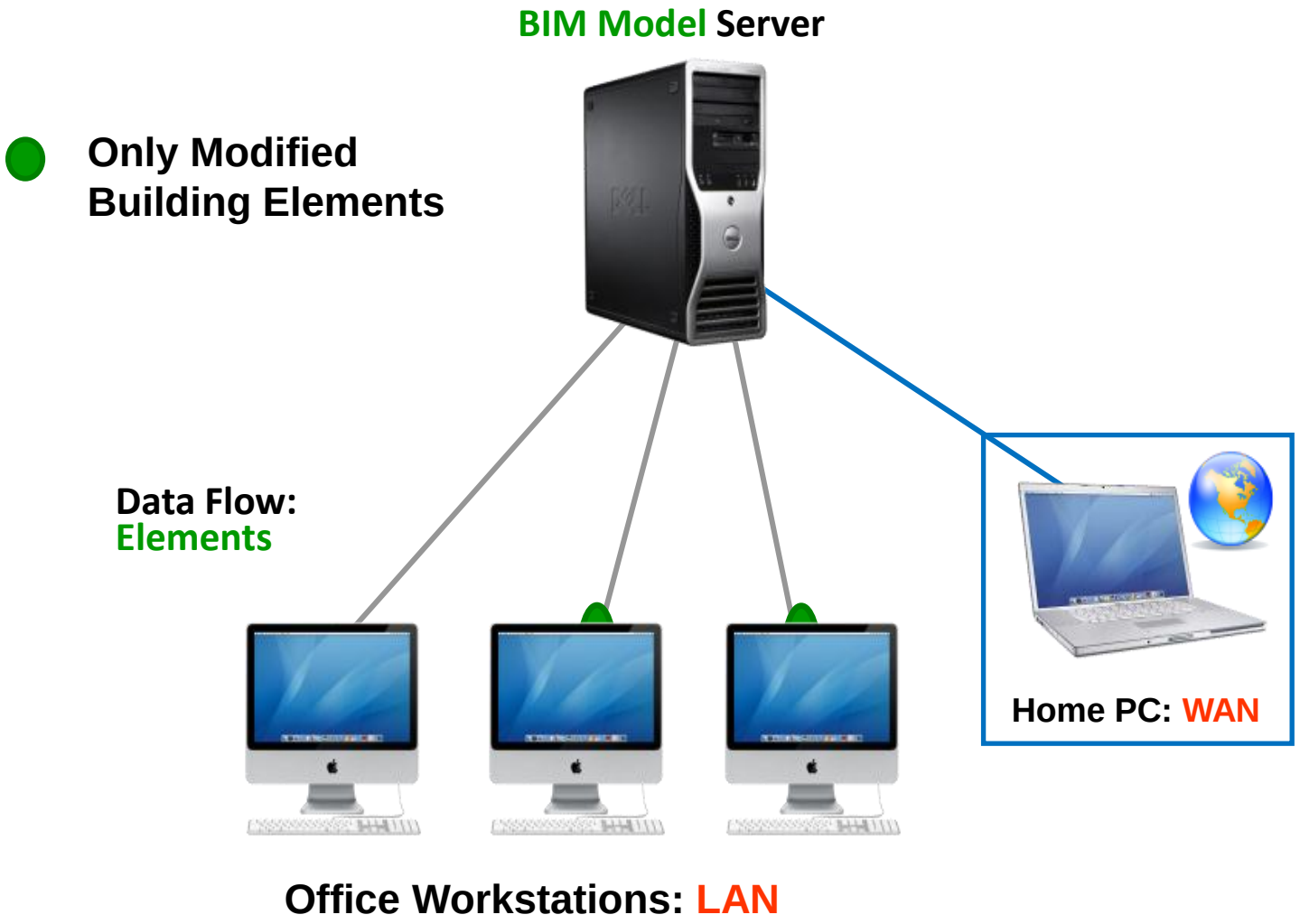
AXISVM

SAP2000

Structural

Why ArchiCAD: Teamwork



- **Smooth large team, multiple office capability using Delta-Server™ Technology.**

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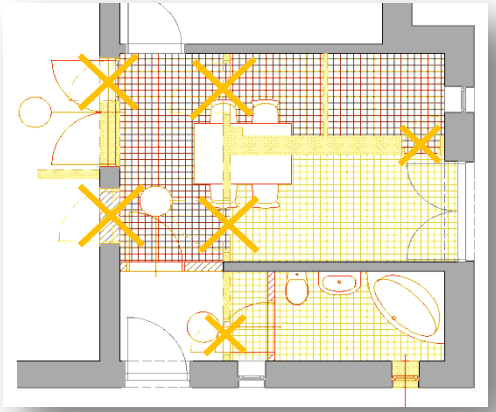
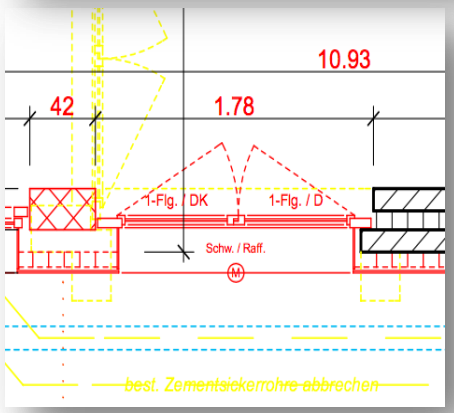
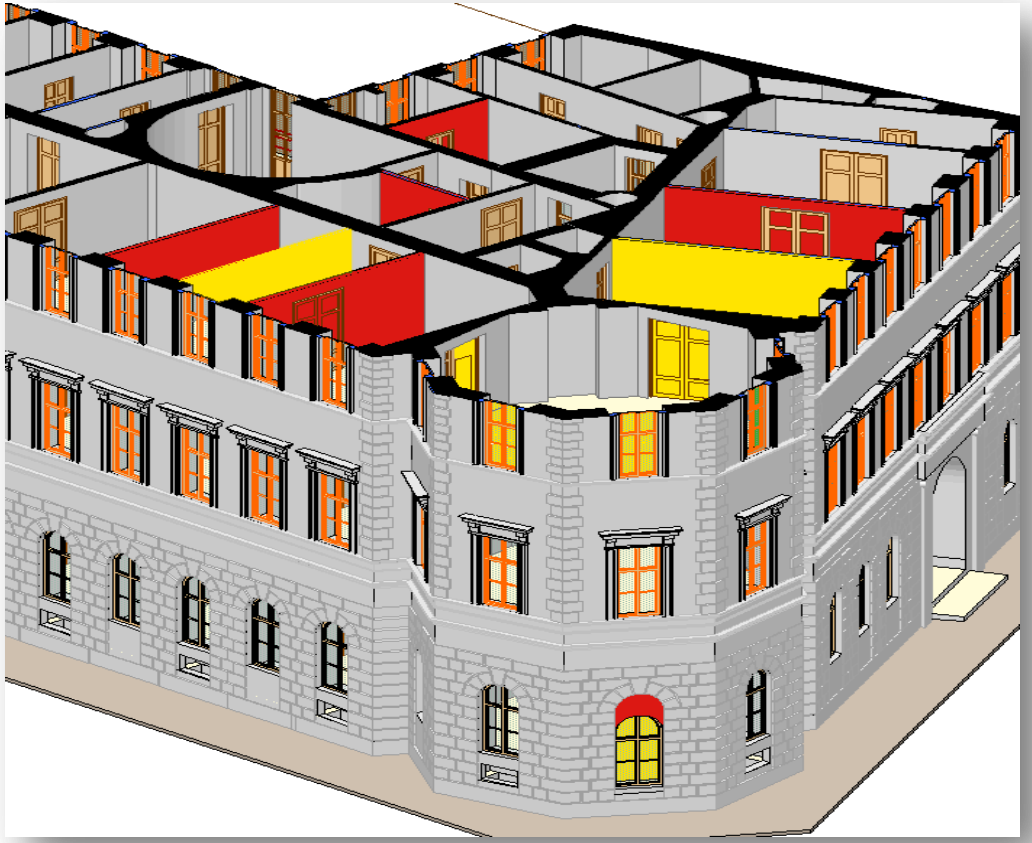
Why ArchiCAD:

BIM Product of the Year 2011 & 2012







- **Award winning renovation, refurbishment and retrofit facilities.**

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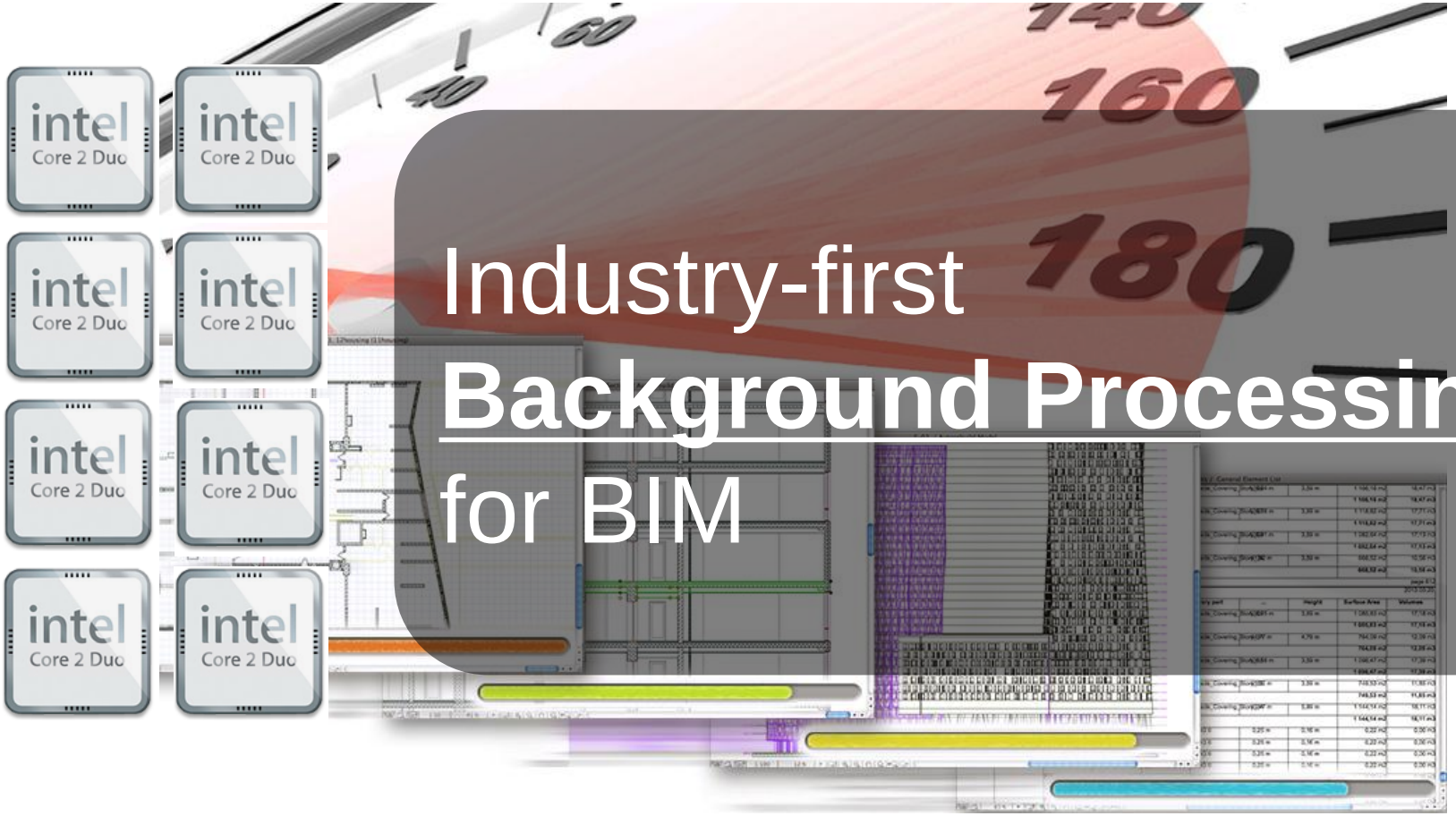
Why ArchiCAD: Performance



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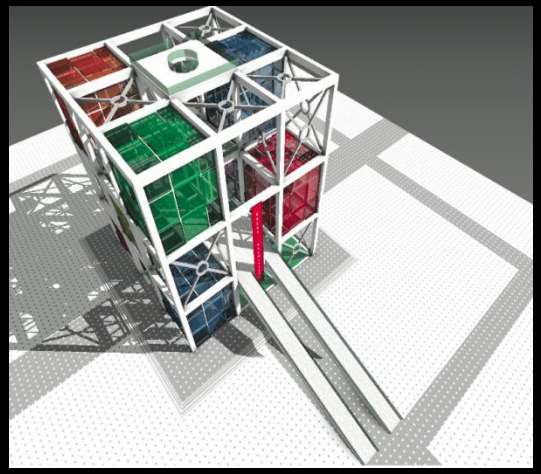
Why ArchiCAD:

BIMx

The Ultimate BIM Communication Tool



- Navigate
- Display BIM Data
  - Material Quantities
  - Measure Dimensions
  - Show Structures

- **BIMX Cloud integrated model-sharing service for tablet and smart phone.**

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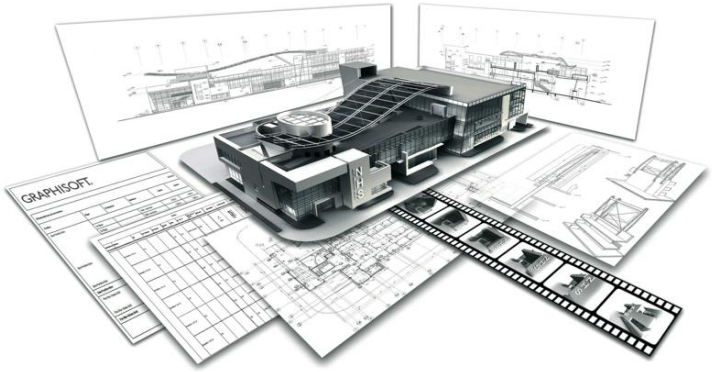
Summary

- Open Standards
  - IFC & COBie
- ArchiCAD is an OPEN BIM Platform
  - 3D modelling for Architects
- ArchiCAD Pilot Scheme



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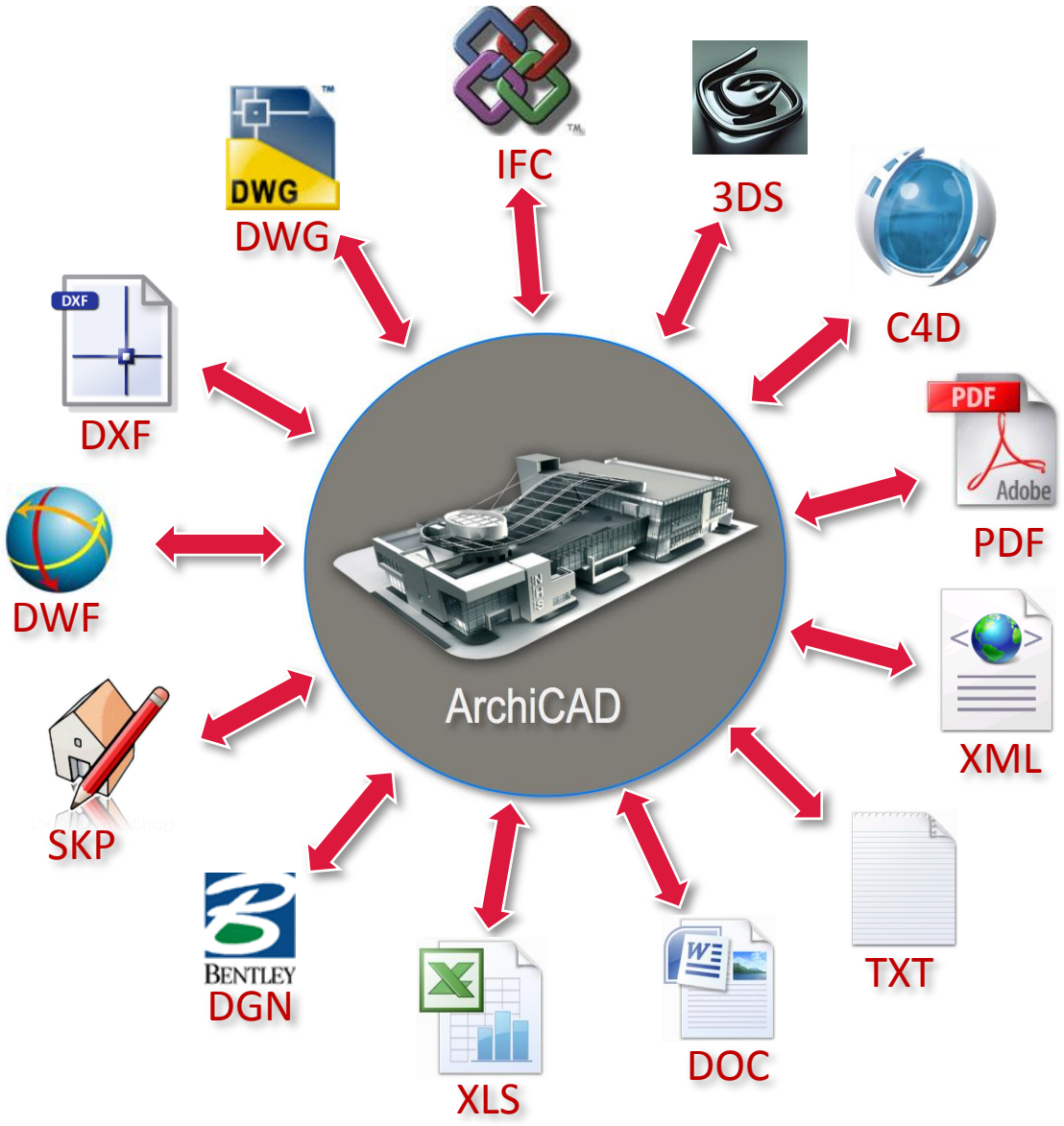
Thank You

GRAPHISOFT®

Open BIM Platform



An

OPEN

Solution

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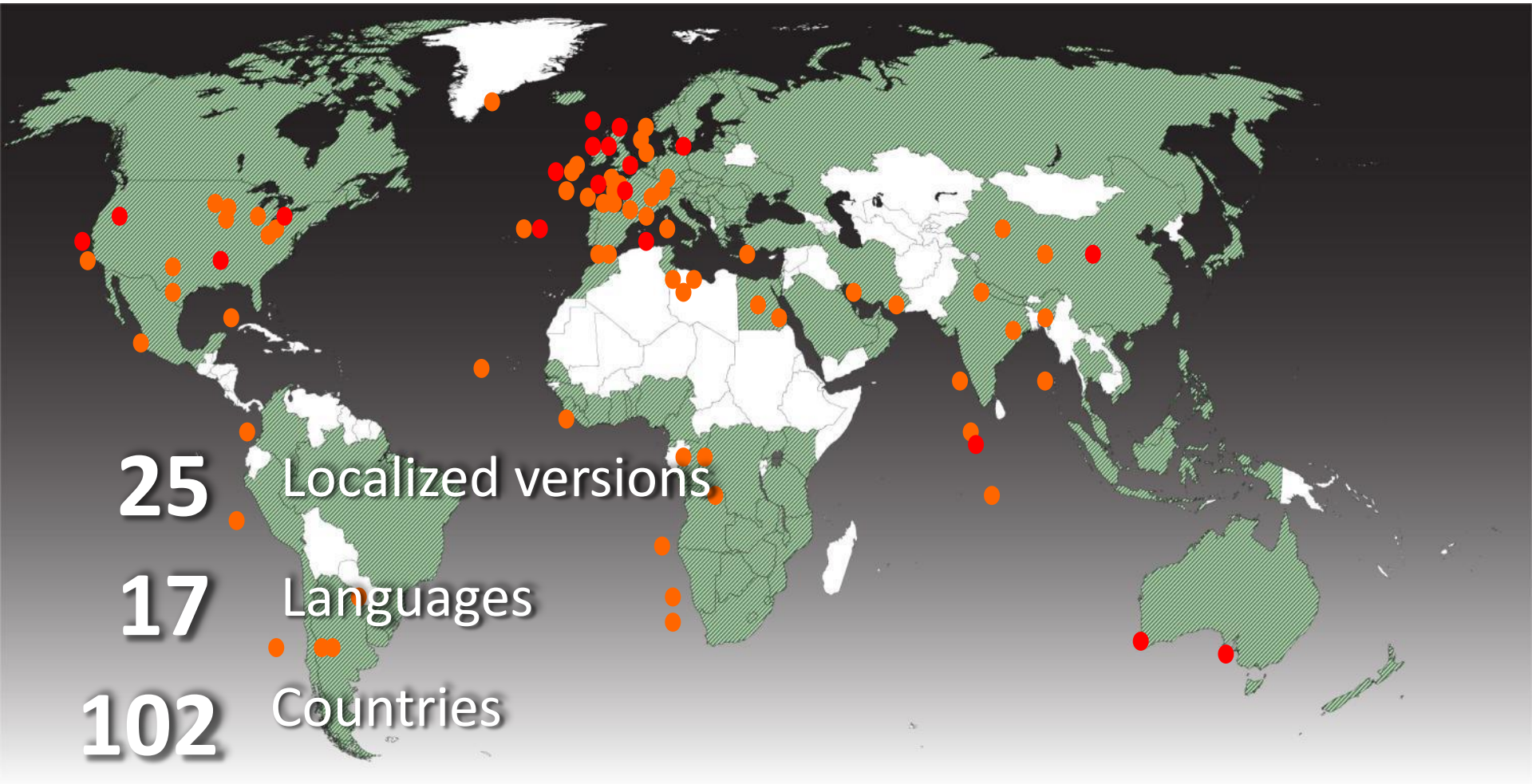
Distribution
Localization



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