BIM MIDDLE EAST 2019
CONFERENCE & EXPO

Introducing ISO 19650
Standard for BIM

Gary Pattison
Certification Technical Expert – Digital Construction

By Royal Charter

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Introducing ISO 19650 Standard for BIM
Agenda

- Introduction to ISO 19650
    Gain an understanding about the new ISO 19650 international standards for BIM

- BSI BIM Certification
    Our journey so far and the introduction of ISO 19650

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We are a purpose-driven business focused on Organizational Resilience.

By Royal Charter

- We work for the public good to improve, standardize and simplify business systems
- Profit is reinvested back into BSI and never distributed
- We are independent from outside influence

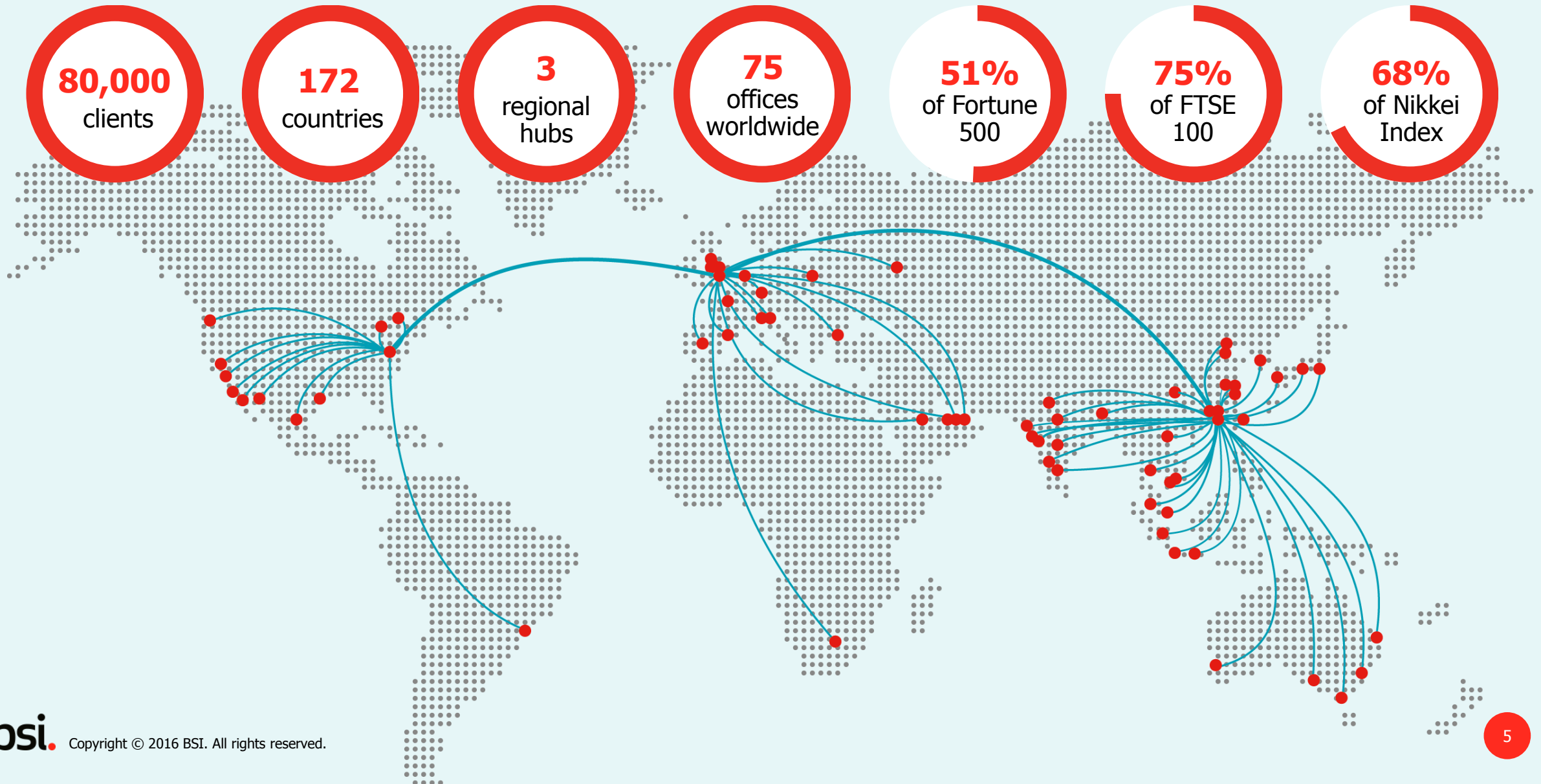bsi.
...making excellence a habit.

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Around the world, we enable businesses like yours to turn best practices into habits of excellence.

84,000 clients in **193** countries
50% of the Fortune 500
84% of the FTSE 100
81% of the Nikkei 225 Index
23 of the Top 25 medical device manufacturers certified

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BSI: A global organization

80,000 clients

172 countries

3 regional hubs

75 offices worldwide

51% of Fortune 500

75% of FTSE 100

68% of Nikkei Index

Introduction to ISO 19650

By Royal Charter

Introduction to BIM

BIM Standards

BS 1192 / PAS 1192-6

PAS 1192-2

PAS 1192-3

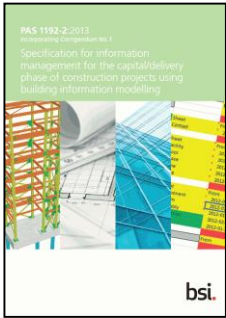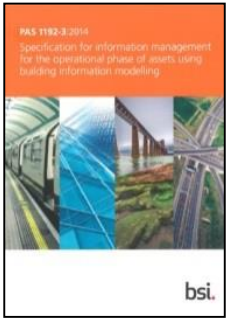| BRIEF	DESIGN	CONSTR.	USE	DECOM.

BS 1192-4

ASSET LIFECYCLE

PAS 1192-5

BS 1192
Info. Sharing (CDE)

PAS 1192-2
Design & Construction

PAS 1192-3
Asset Management

BS 1192-4
Info. Transfer

PAS 1192-5
Security

PAS 1192-6
Health & Safety

Introduction to ISO 19650
Publication of the New International BIM Standards
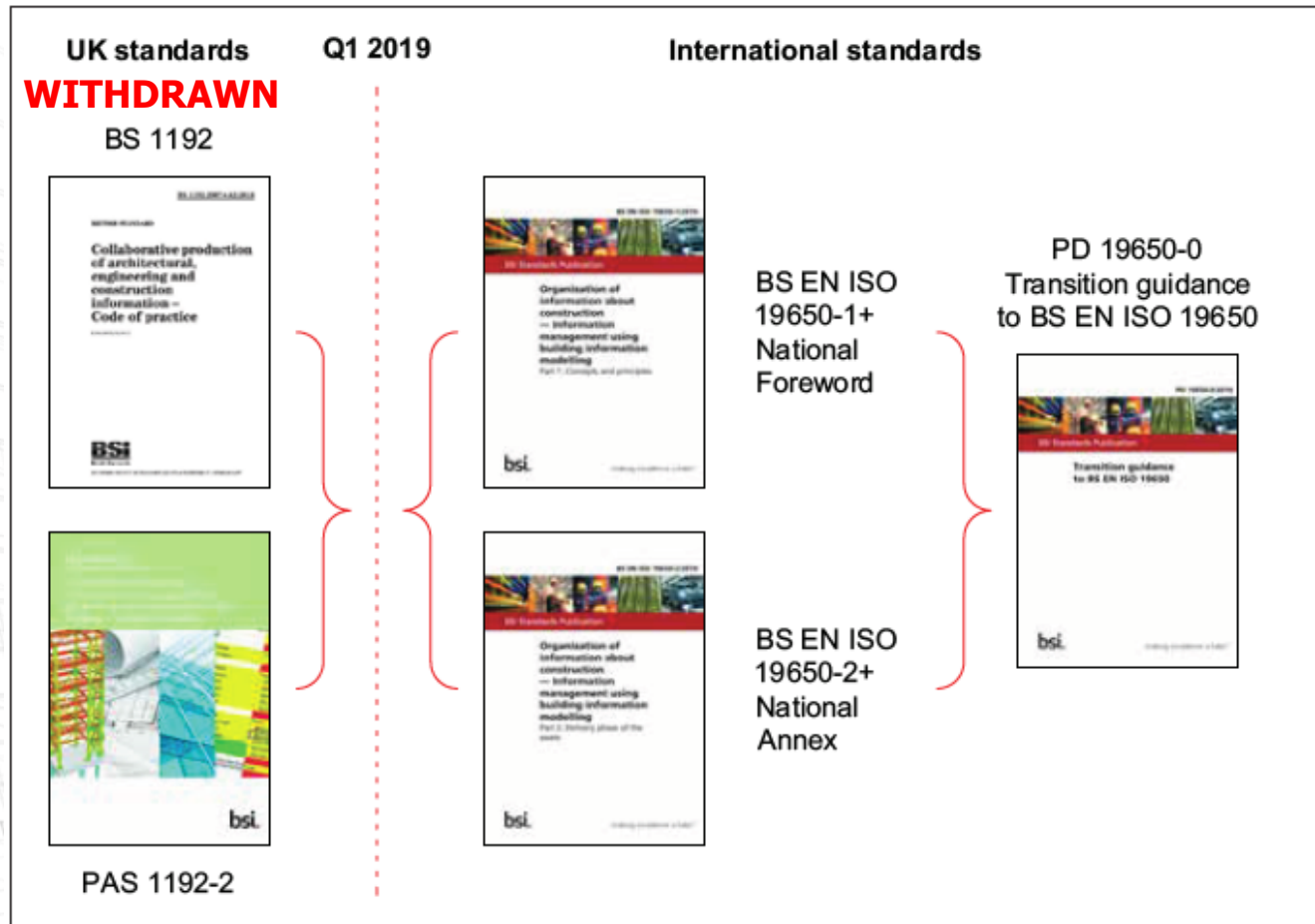
Introduction to BIM
ISO 19650: What's the Same & What's New?

- Modified structure
- New/amended terms
- Some new requirements
- Clarifications
- Entire asset lifecycle viewpoint
- Increased flexibility
    1. Applied proportionately
    2. Less restrictive requirements
    3. Allow for regional differences
- Lessons learnt

- Core principles of BS 1192 and PAS 1192-2 remain

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Introduction to BIM
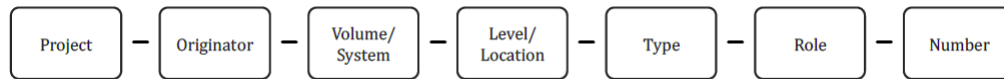## BS EN ISO 19650-2 UK National Annex

- Information container identification

| Project | — | Originator | — | Volume/ System | — | Level/ Location | — | Type | — | Role | — | Number |

- Information container metadata:
  1. Status code (S0, S1, S2, …)
  2. Revision code (P01.01, P01.02, …)
  3. Classification (Uniclass 2015)

- Information model exchange

- Project's information requirements (PIR)

BS EN ISO 19650-2:2018

National Annex NA
(informative)

National Annex to BS EN ISO 19650-2:2018

NA.1   General

The role of a National Annex to a standard is to clarify its implementation within a country, but it should not preclude international cooperation and agreement.

A National Annex should clarify any regional, language or country-specific usage. For international collaborative projects, an international or a specific National Annex may be selected.

Other countries are currently developing their own National Annexes.

Introduction to BIM

PD 19650-0:2019

BSI Standards Publication

Transition guidance to BS EN ISO 19650

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- Overview of BS EN ISO 19650-1/2

- ISO transition highlights

- Clause-by-clause mapping
  (BS 1192 & PAS 1192-2 → BS EN ISO 19650-1/2)

- Changes in terminology

- Transition guidance relating to BS 1192 & PAS 1192-2

Introduction to BIM

BIM Standards – Internationalisation of BIM

BS 1192
Info. Sharing (CDE)

PAS 1192-2
Design & Construction

PAS 1192-3
Asset Management

BS 1192-4
Info. Transfer

PAS 1192-5
Security

PAS 1192-6
Health & Safety

**PD 19650-0
Transition
Guidance**

**INTERNATIONAL
STANDARDS**

**ISO 19650-1
2018**

**ISO 19650-2
2018**

ISO 19650-3
2020 (TBC)

ISO 19650-5
2020 (TBC)

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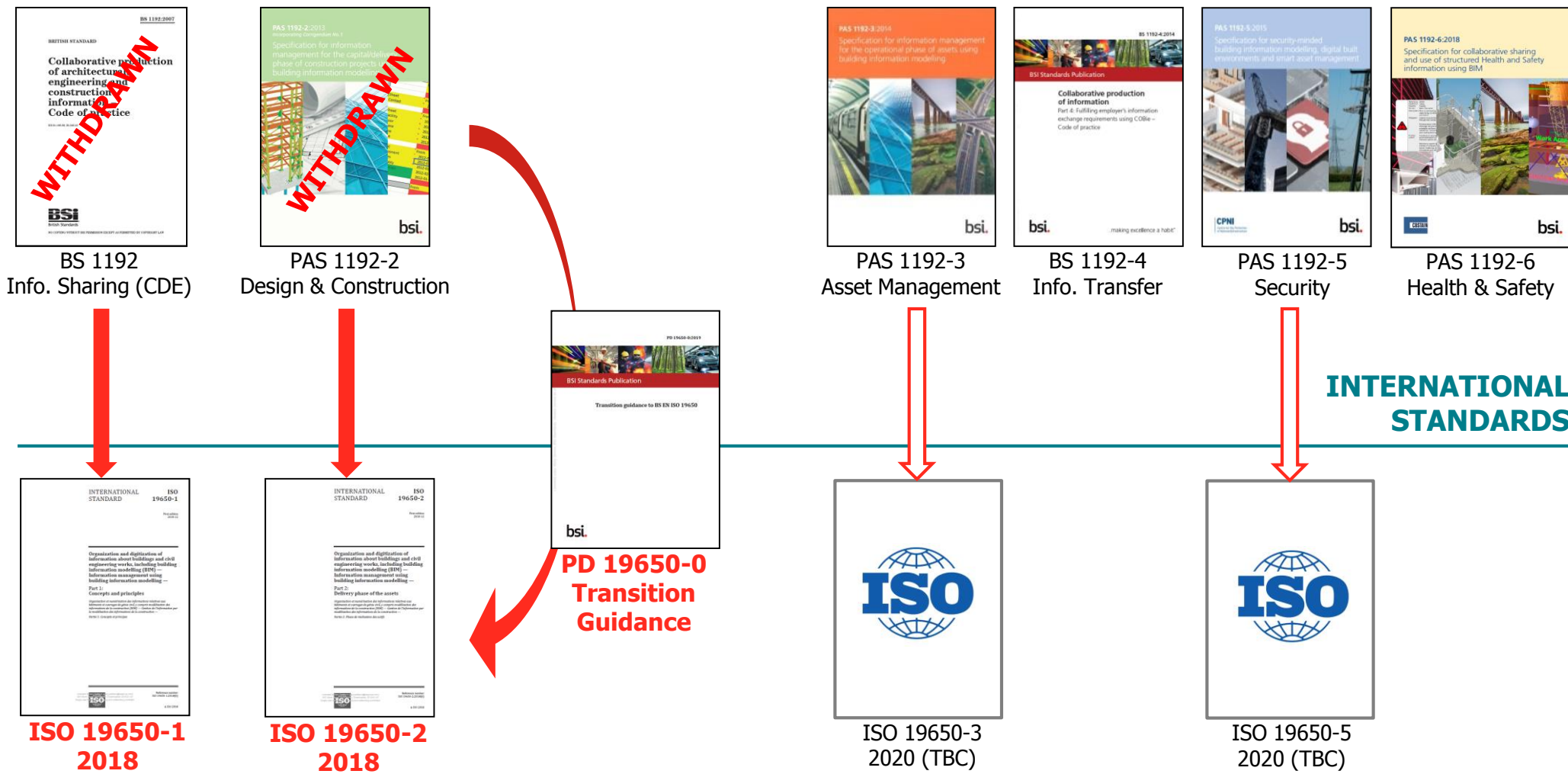
Introduction to ISO 19650
Core BS/PAS 1192 Principles Remain

Interested parties' information requirements		Appointment information requirements		Information deliverables	
Organizational Information Requirements (OIR)	*encapsulates* →	**Asset Information Requirements (AIR)**	*specifies* →	**Asset Information Model (AIM)**	
↓ *contributes to*		↓ *contributes to*		↑ *contributes to*	
Project Information Requirements (PIR)	*contributes to* →	**Exchange Information Requirements (EIR)**	*specifies* →	**Project Information Model (PIM)**	

- CDE
- OIR / AIR / PIR / EIR
- PIM / AIM
- BEP
- MIDP/TIDP

Introduction to ISO 19650
New & Amended Terms
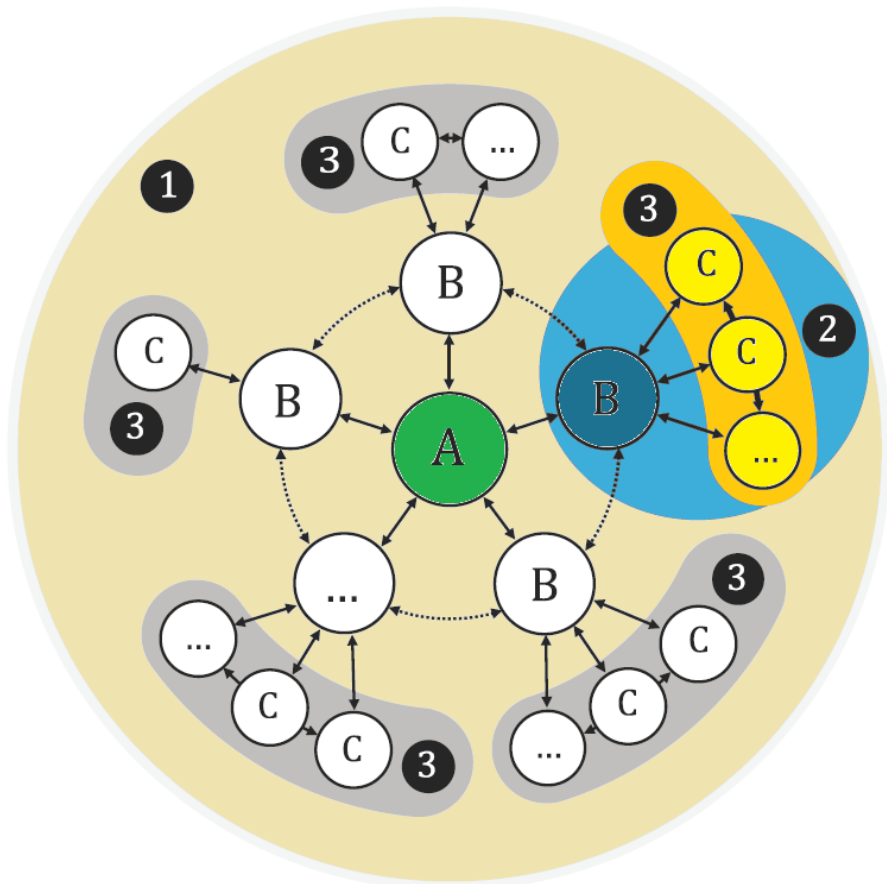

OLD	NEW
BS 1192 / PAS 1192-2	**ISO 19650-1/2**
client	**A** appointing party
lead supplier (tier 1)	**B** lead appointed party
supplier (non-tier 1)	**C** appointed party
	1 project team
	2 delivery team
	3 task team

Introduction to ISO 19650
New & Amended Terms

OLD	NEW
BS 1192 / PAS 1192-2	**ISO 19650-1/2**
contract	appointment
EIR (employer's information requirements)	EIR (exchange information requirements)
Level of definition	Level of information need
PLQ (plain language questions)	PIR (project information requirements)
/	Project's Information standard
/	Project's Information production method & procedure
/	Delivery team's Mobilisation plan
/	Information delivery risk assessment
BIM Level 2	BIM according to ISO 19650
/	Information management function
CDE area	CDE state
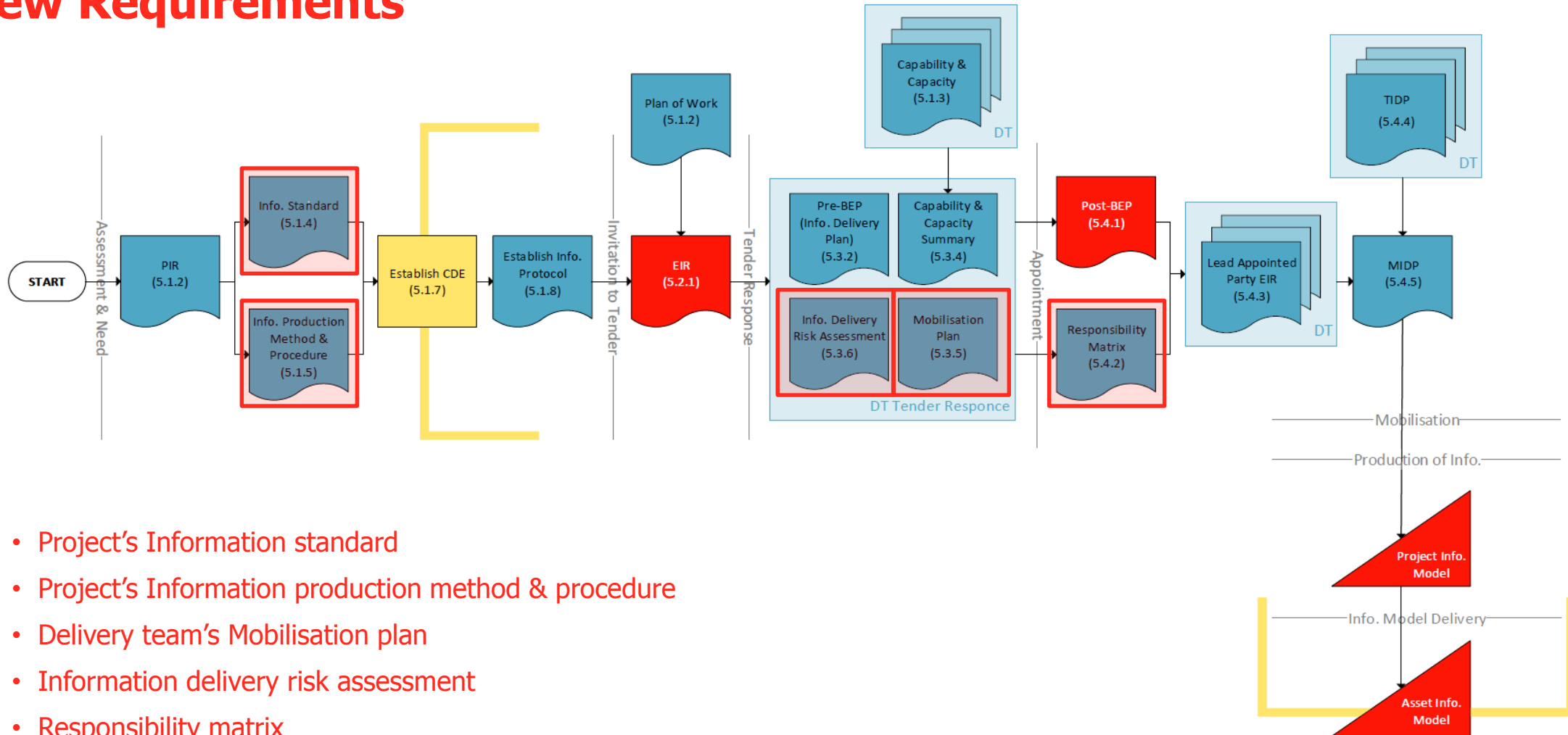
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Introduction to ISO 19650
New Requirements

- Project's Information standard
- Project's Information production method & procedure
- Delivery team's Mobilisation plan
- Information delivery risk assessment
- Responsibility matrix

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Introduction to ISO 19650
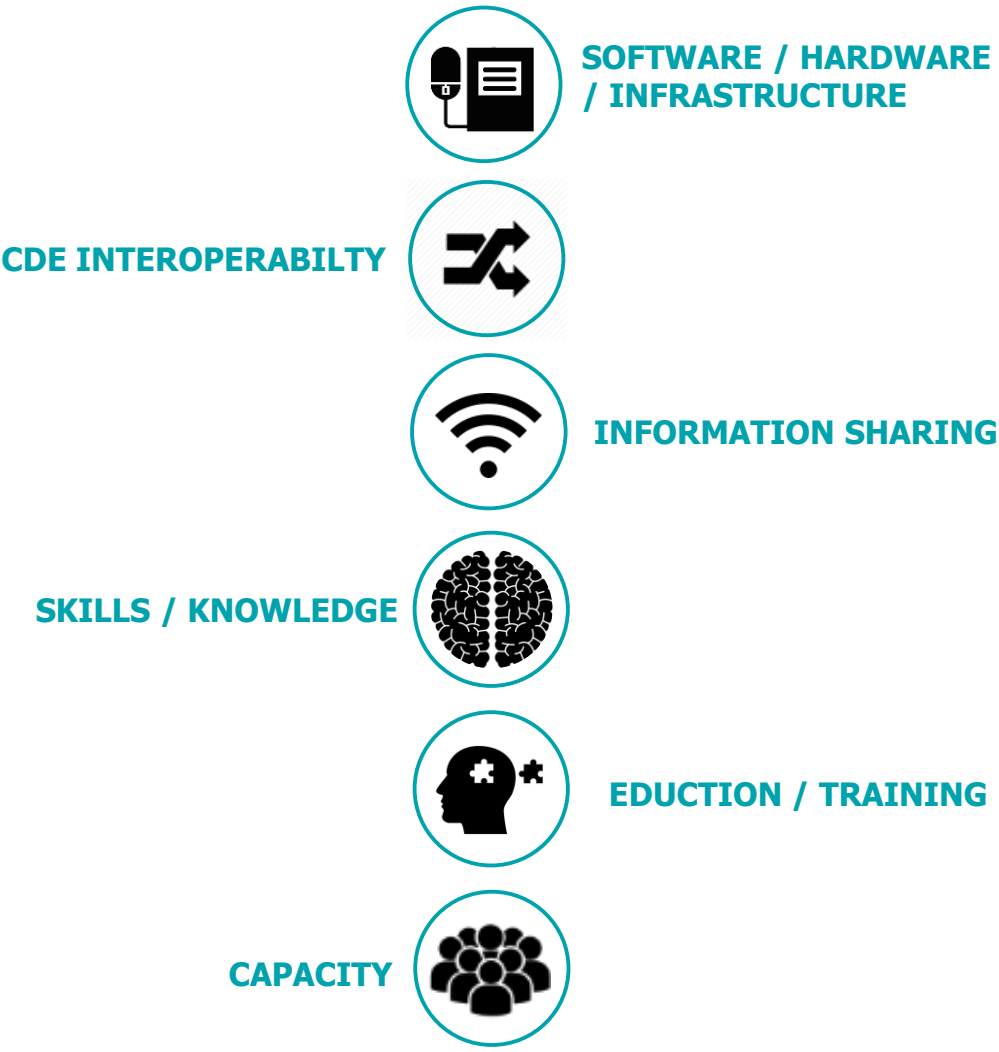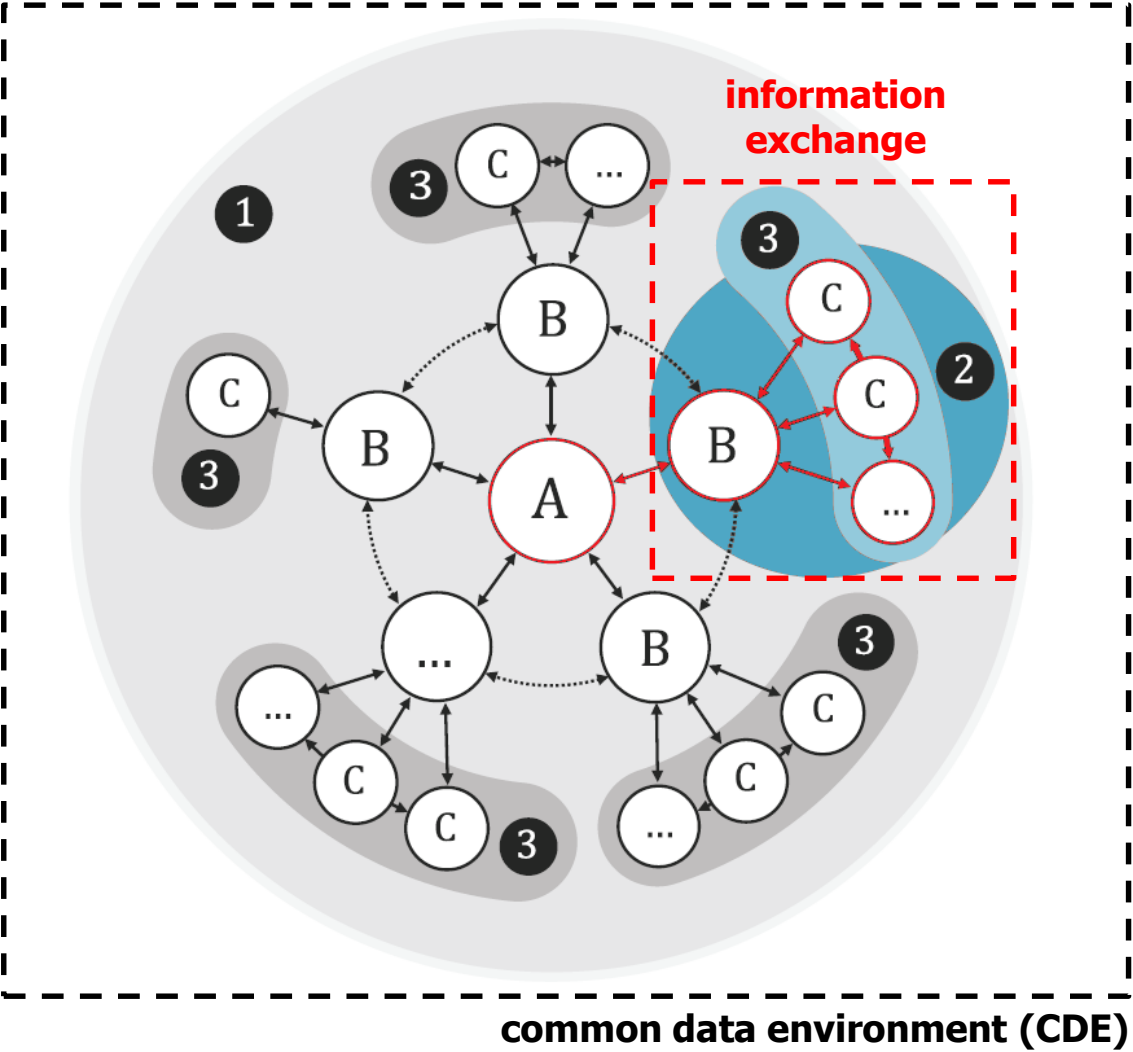## Increased Focus on Appointing Party's Requirements

Introduction to ISO 19650
New Requirements – Mobilisation Plan

information exchange

common data environment (CDE)

SOFTWARE / HARDWARE / INFRASTRUCTURE

CDE INTEROPERABILTY

INFORMATION SHARING

SKILLS / KNOWLEDGE

EDUCTION / TRAINING

CAPACITY

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Introduction to ISO 19650
New Requirements – Information Delivery Risk Assessment

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Introduction to ISO 19650
New Requirements – Information Function Responsibility Matrix

BS EN ISO 19650-2:2018
ISO 19650-2:2018(E)

Annex A
(informative)

Information management assignment matrix

Table A.1 — Information management responsibility matrix template

		Appointing party	Third party	Lead appointed party	Appointed party
Key					
R Responsible for undertaking activity					
A Accountable for activity completion					
C Consulted during activity					
I Informed following activity completion					
ID	Task				
5.1.1	Appoint individuals to undertake the information management function				
5.1.2	Establish the project's information requirements				
5.1.3	Establish the project's information delivery milestones				
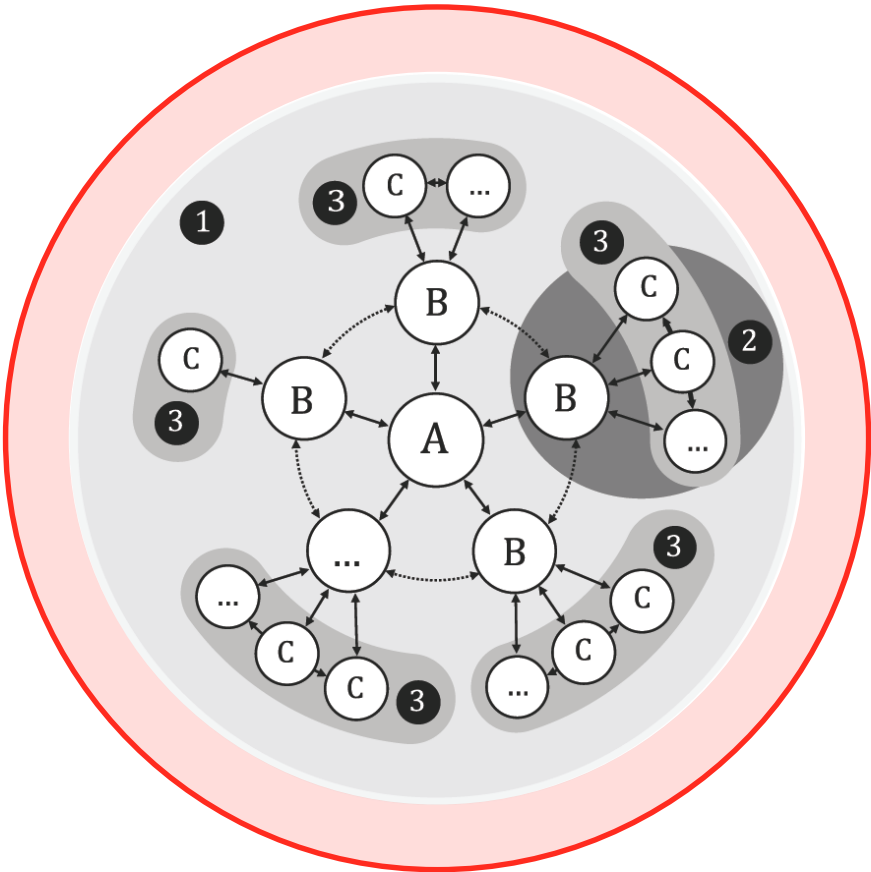
allocation of responsibility

BSI BIM Certification

BSI BIM Certification
Collaborative Approach to Out BIM Schemes

2016

BSI BIM Certification
Supporting the Entire Project Team

Appointing Party / Client

Helping clients specify information requirements to realise maximum benefit of BIM

Lead Appointed Party / Tier 1

Ensuring that the entire delivery team understands and can meet the project's/asset BIM requirements

Appointed Party / Supply Chain

Creating a consistent approach amongst the entire task teams to fulfil BIM appointment requirements

RTA
PARSONS
KHATIB & ALAMI
M MOTT MACDONALD
ATKINS
BK Gulf LLC
ECC
Shapoorji Pallonji

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BSI BIM Certification
Our Certification Schemes

December 2015	April 2016	December 2016	June 2017	June 2017	October 2018	January 2019
BIM Verification for Design and Construction launch	UK Govt target BIM Level 2	BSI Kitemark for BIM Design and Construction launch	BSI Kitemark for BIM Asset Management launch	BSI Kitemark for BIM Objects launch	BSI Kitemark for BIM Level 2 launch	ISO 19650 published
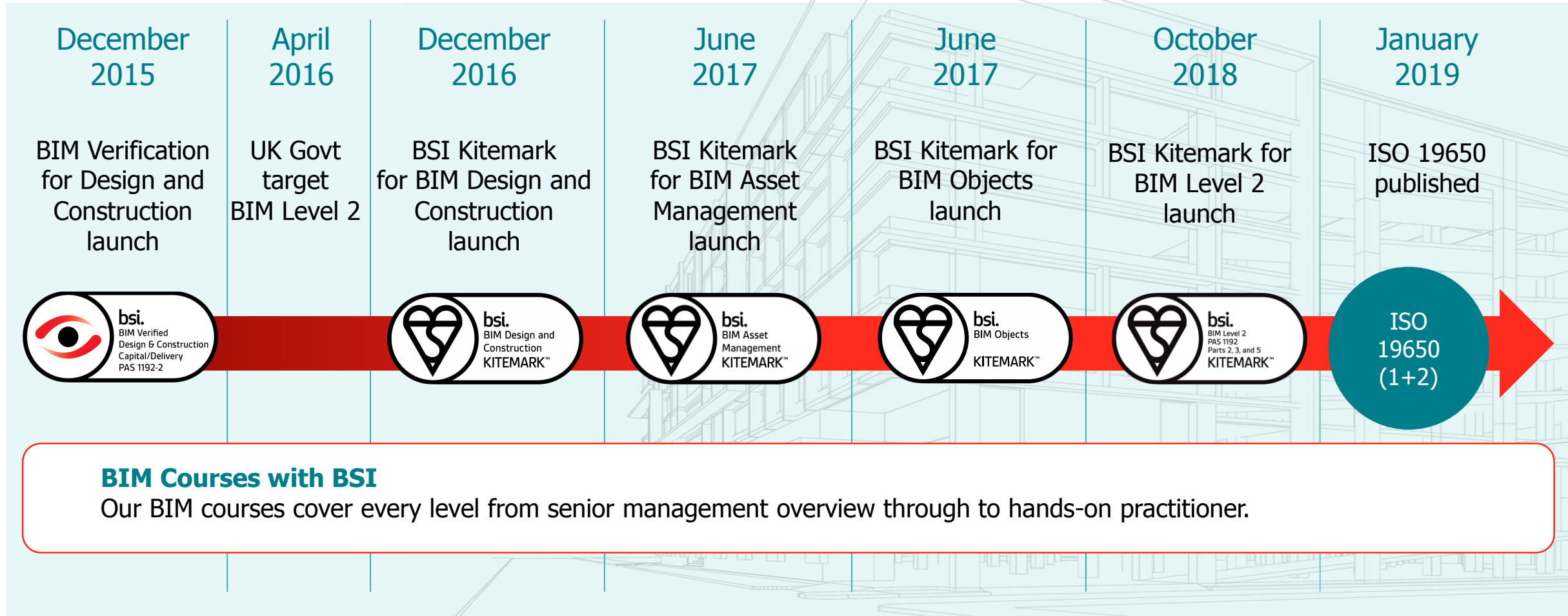
BIM Courses with BSI
Our BIM courses cover every level from senior management overview through to hands-on practitioner.

BSI BIM Certification
BIM Design & Construction Verification

ISO 19650

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BIM Verified
Design & Construction
Capital/Delivery
ISO 19650-1 and -2
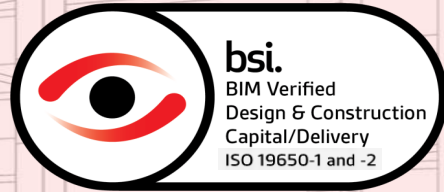
Design & Construction

BIM processes

(ISO 19650-1/2)

competency requirements

management system

(e.g. ISO 9001)

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BIM Design & Construction Verification

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BIM Verified
Design & Construction
Capital/Delivery

Demonstrates:
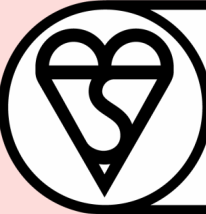
- Your continued capability to deliver a BIM project
- Processes and procedures are embedded in your business
- Evidence of your personnel competency for BIM
- You maintain a complaints procedure

BSI BIM Certification
BIM Design & Construction Kitemark

ISO 19650

bsi. BIM Design and Construction KITEMARK™ — **Design & Construction**

bsi. BIM Asset Management KITEMARK™ — **Asset Management**

ISO 19650

bsi. BIM Level 2 KITEMARK™ — **BIM Level 2 Security Minded Approach**

bsi. BIM Objects KITEMARK™ — **BIM Objects**

BIM processes

ISO 19650-1/2

or PAS 1192-3

Security-minded approach implemented (PAS 1192-5)

management system (e.g. ISO 9001)

Project-based evidence

Client satisfaction (ISO 10004)

Collaborative engagement (ISO 44001)

Design & Construction → **Asset Management**
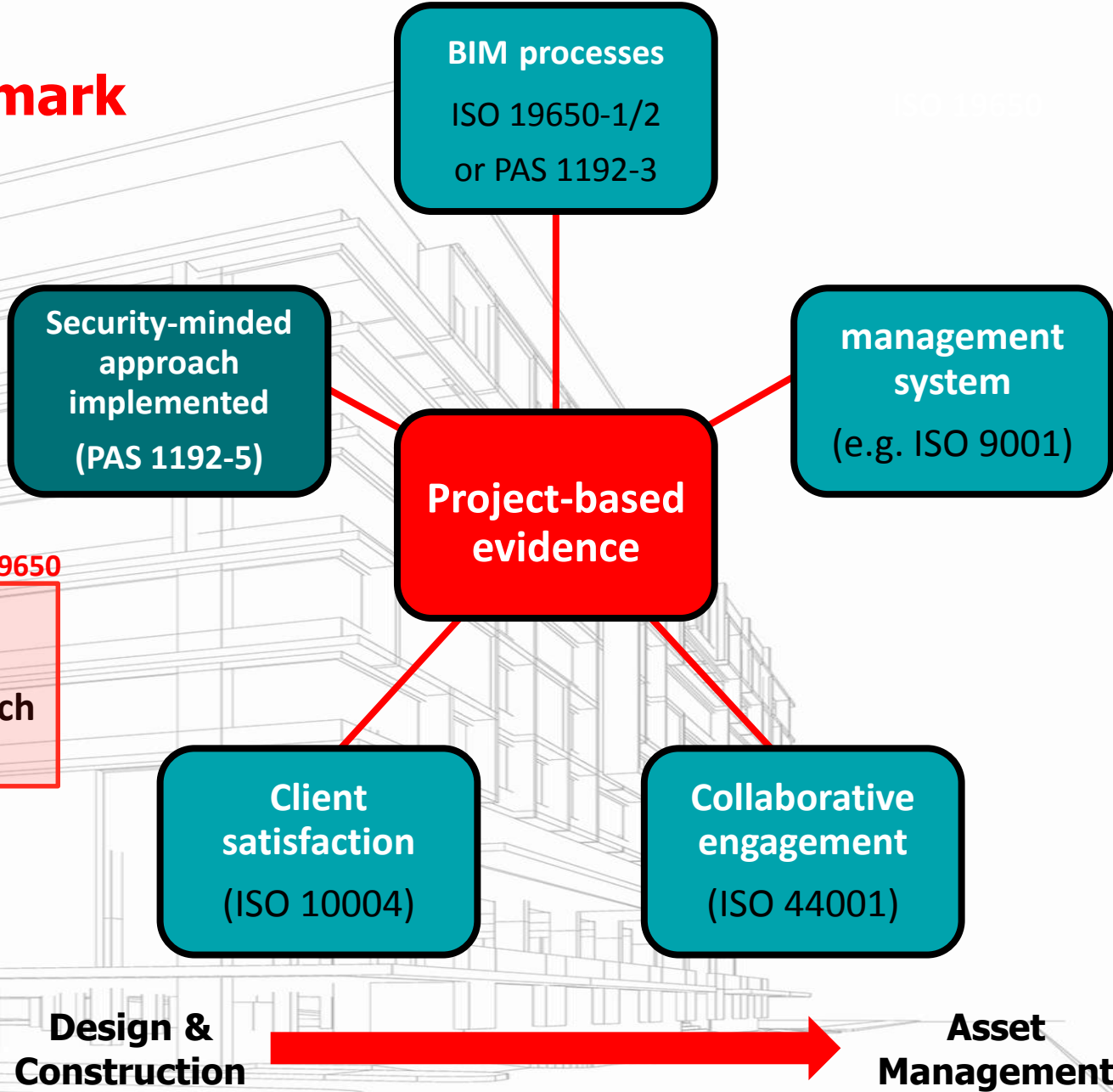
BSI BIM Certification
BIM Design & Construction Kitemark

Demonstrates:

- Processes and procedures are embedded in your business
- Evidence of your personnel competency for BIM
- You maintain a complaints procedure

Plus:

- Your capability **and successful delivery** of BIM projects
- Provides **confidence to your clients** that previous clients are satisfied with your work
- Your BIM **maturity** in the market place
- **Greater supply chain collaboration and peace of mind**
- **Brand recognition with BSI Kitemark™**
- **Regular audits = regular habits**
- **Cost reduction**
- **Consistency across sites**

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BIM Design & Construction Kitemark Requirements – Projects

Operating Unit (OU)	Project	Establish CDE (5.1.7)	EIR Review (5.3.1)	Pre-BEP Production (5.3.2)	Delivery Team Selection (5.3.4)	Capability & Capacity Summary Production (5.3.4)	Mobilisation Plan Production (5.3.5)	Info. Delivery Risk Assessment Production (5.3.6)	Post-BEP Production (5.4.1)	Responcibility Matrix Production (5.4.2)	Lead Appointed Party EIR Production (5.4.3)	TIDP Production (5.4.4)	MIDP Production (5.4.5)	Project Info. Model Production	Federation Strategy	CDE Management	COBie Production (BS 1192-4)	Proect Handover	Roles & Responcibilities (PAS 1192-2 / ISO 9001)
Operating Unit 1	"Project A"		Y				Y											Y	
Operating Unit 1	"Project B"	Y			Y		Y		Y		Y			Y		Y			Y
Operating Unit 2	"Project C"			Y													Y		
Operating Unit 3	"Project D"	Y	Y															Y	Y
Operating Unit 4	"Project E"		Y													Y			

SAMPLE-BASED APPROACH

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BIM Design & Construction Kitemark Requirements - CDE

Architecture

- Software/systems used
- Interoperability of software/systems

Process

- CDE setup
- CDE management

Functionality

- CDE use

SETUP

DESTRUCTION

USER GROUPS

STATUS CODES (METADATA)

USER KNOWLEDGE

NAMING CONVENTION

CREATION

SHARING

STORAGE

INTEROPERABILTY

ACCESS

SECURITY

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BIM Design & Construction Kitemark Requirements – Client Satisfaction

What are the client's expectations

What are we going to measure?

How are we going to retrieve the measurement?

What will we do with the measurement?

BIM focused

Continual Improvement Process

Assessment: Collaborative engagement

Addressing collaboration across the supply chain to realise BIM benefits

1

Value Creation: Establishing the value of a collaborative relationships

Examples:

| Continual improvement | Learning from experience | Joint innovation | Risk reduction |

Assessment: Collaborative engagement

Addressing collaboration across the supply chain to realise BIM benefits

2

Working Together: Looking for examples of promoting collaboration by the organisation (at project and non-project level)

Examples:

Workshops	Publications (case studies / guides)	Assessment (feedback)	Training (process / software)
Sector engagement	Technical support (onsite/ online)	Software support (technical / financial)	Role / Join exchange

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BIM Design and
Construction
KITEMARK™

Steps towards ISO 19650

Achieving Your BIM Kitemark or Verification certificate

Stage 1 Assessment

- Understanding requirements
- Systems/procedures in place
- Suitable evidence
- Non-conformities
- Plan Stage 2

Stage 2 Assessment

- On-site assessment:
  - ✓ Process
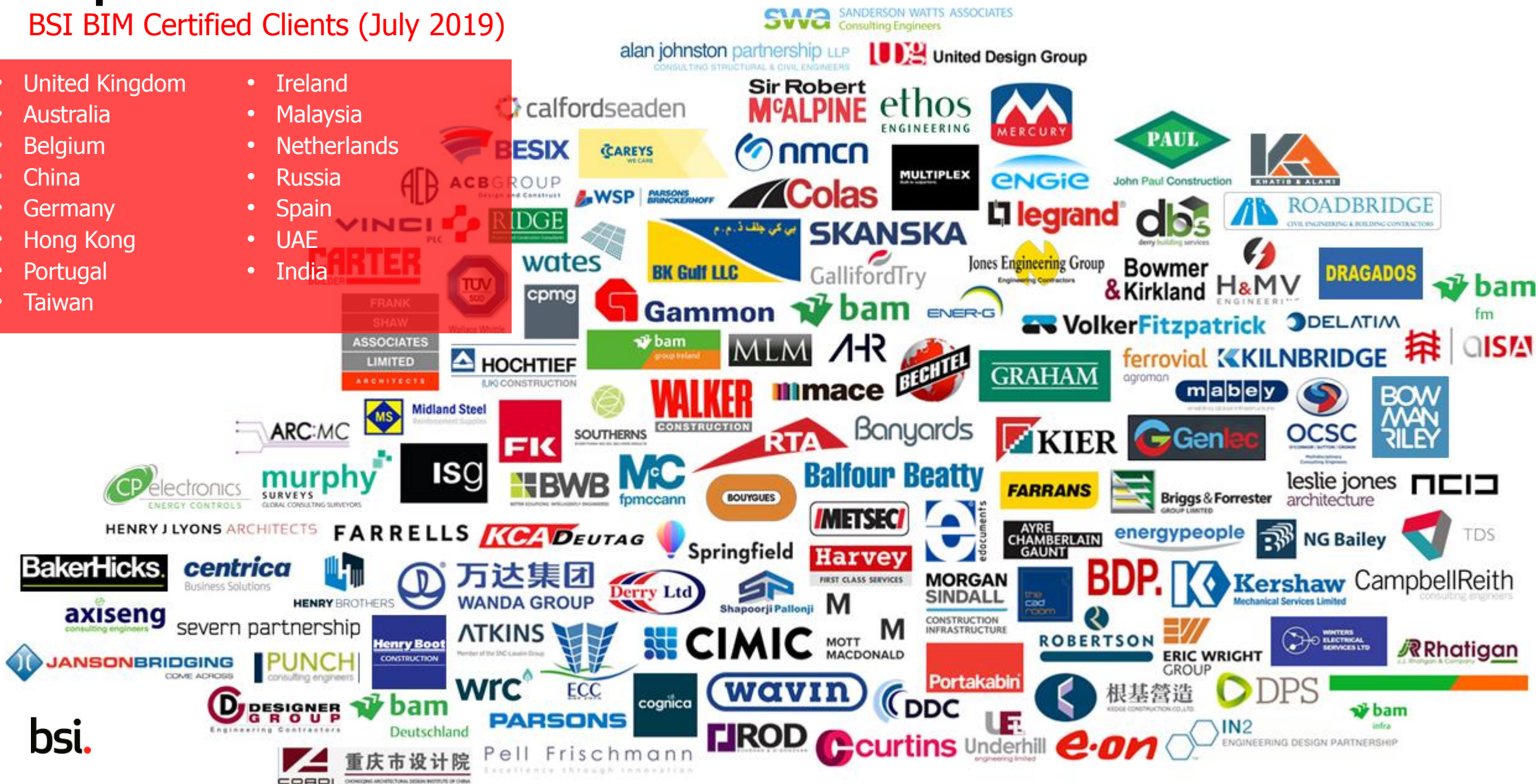 - ✓ Systems
  - ✓ People
  - ✓ Projects

Continuing Assessment Visit

INITIAL

ON-GOING

1-YEAR

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Steps towards ISO 19650
BSI BIM Certified Clients (July 2019)

- United Kingdom
- Australia
- Belgium
- China
- Germany
- Hong Kong
- Portugal
- Taiwan
- Ireland
- Malaysia
- Netherlands
- Russia
- Spain
- UAE
- India

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