

works | services | supply



Using the ISO19650-compliant Information Protocol and BIM with NEC Contracts

Housekeeping

Please turn your video off

Please use chat box for your questions – we need lots!!

Please mute

We may ask you to unmute to ask our question directly

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Chartered Civil Engineer
NEC Lead, Mott MacDonald
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May Winfield

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- Specialist in BIM and construction technology
- Spoken on construction technology worldwide
- Member of ISO 19650 UK Transition Guidance Working Group
- Led drafting team of BS EN ISO19650 Guidance legal section
- Co-author of JCT 2019 Practice Note on BIM
- Co-author of ISO19650-compliant BIM Protocol
- Chair of BIM4Legal and UK BIM Alliance Ambassador

Contents

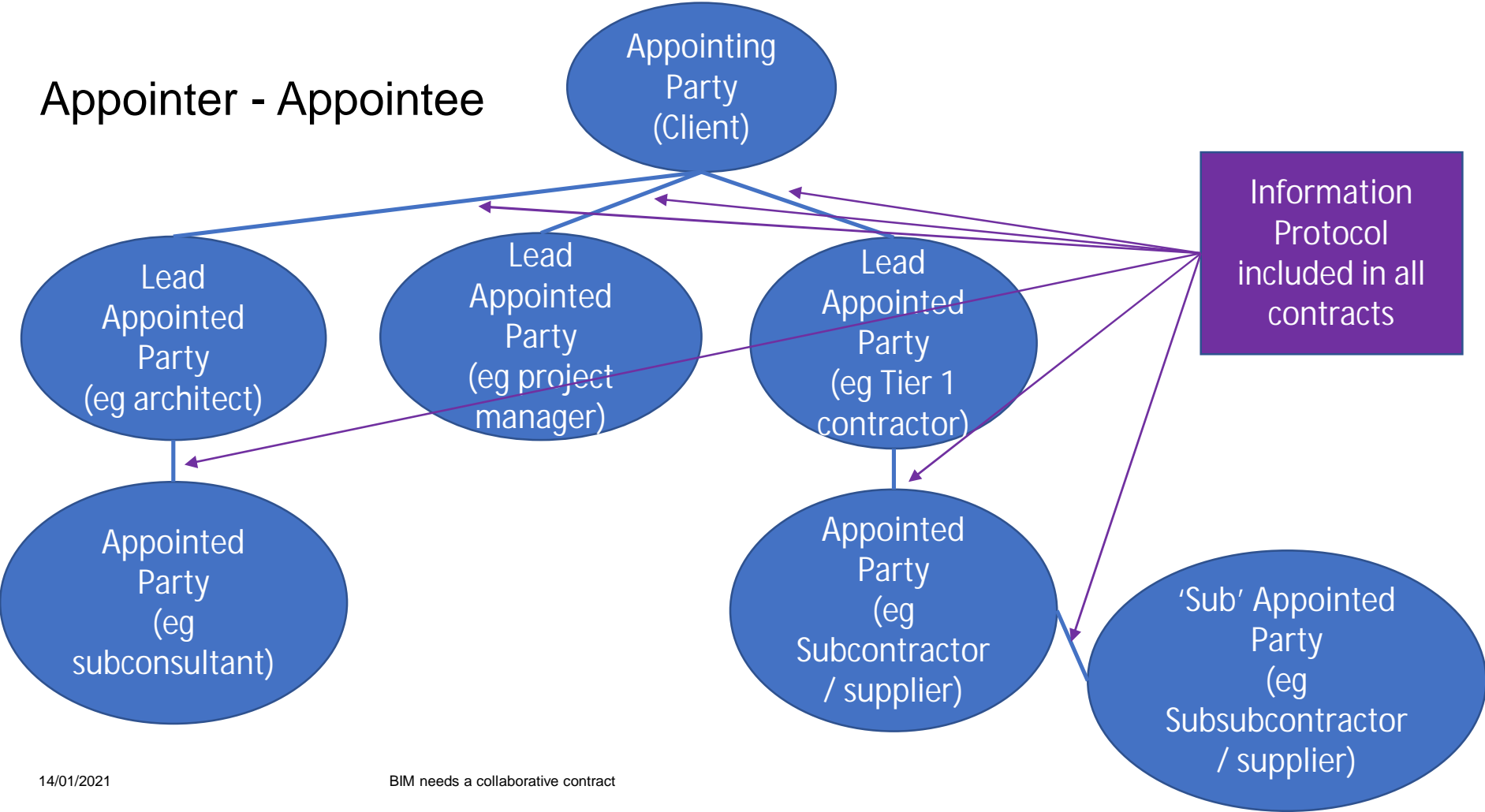
- The ISO19650 Information Protocol
- NEC real basics
- NEC4 X10 Information Modelling
- NEC4 and the ISO Protocol
- Collaborative contracts - NEC's X12 (multi-party) partnering option
- What next?

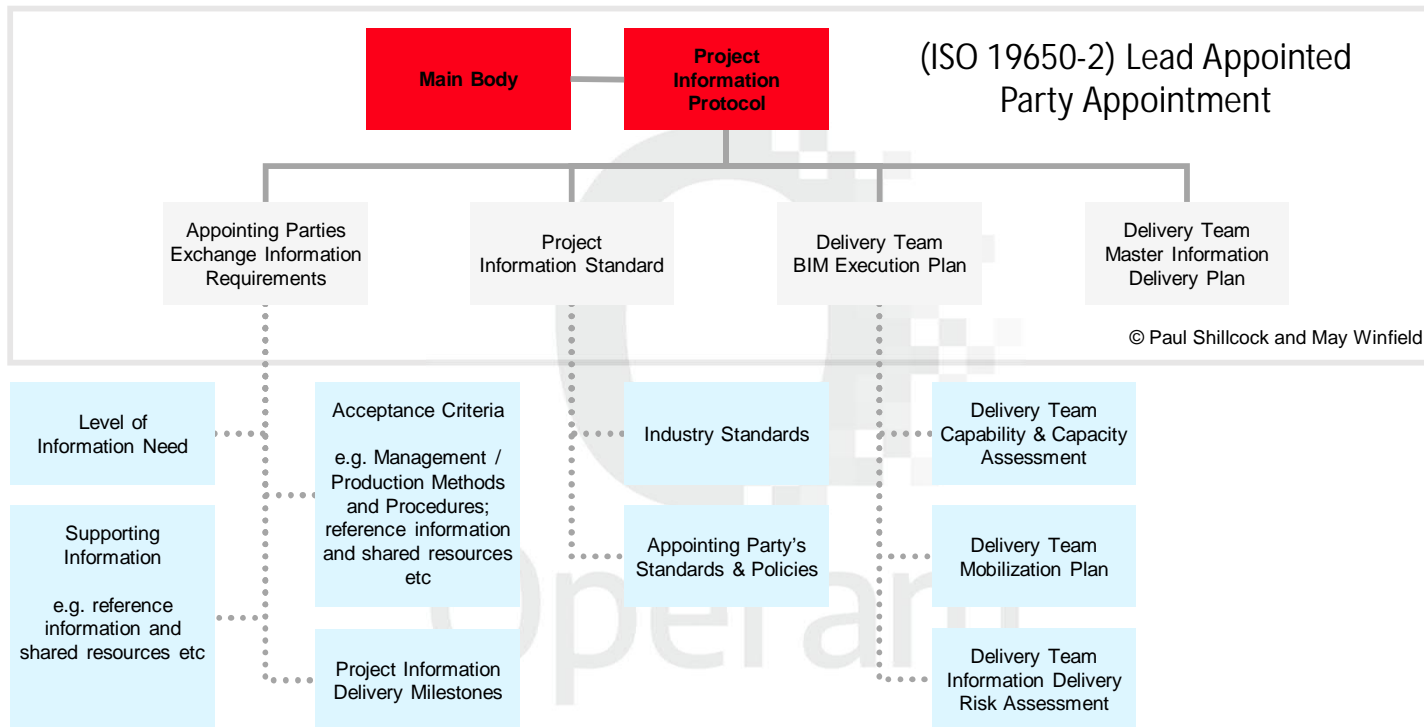
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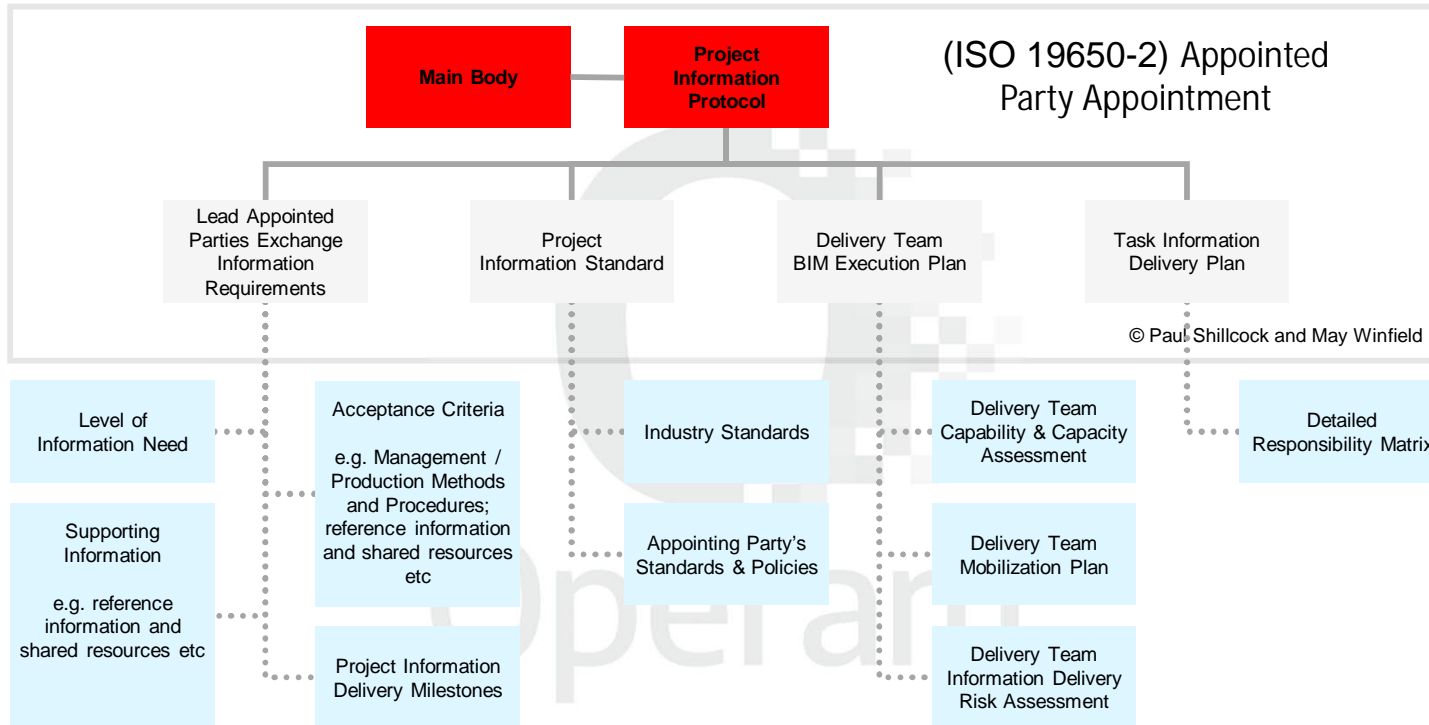
ISO19650-compliant Information Protocol – a brief summary

Appointer - Appointee






Appointment Documents	Referenced Documents	<p>The purpose of this diagram is to show the relationship between the various information management documents within an appointment and is not intended to be legal guidance.</p> <p>Not all contracts have schedules; for example the schedules contents would be contained in NEC3/4 Z-clauses and Works Information/Scope instead. Legal advice should always be sought when preparing appointments.</p>
Appointment Schedules	Appended ————— Referenced	



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Appointment Schedules	Appended Referenced 	



**WHO
SHOULD
USE THE
PROTOCOL**

Everybody


(applying BS EN ISO 19650-2:2019)

You Are:

- The one doing the appointing in this agreement = Appointor
- The one being appointed in this agreement = Appointee
- Also will be an:
 - Appointing Party
 - Lead Appointed Party
 - Appointed Party

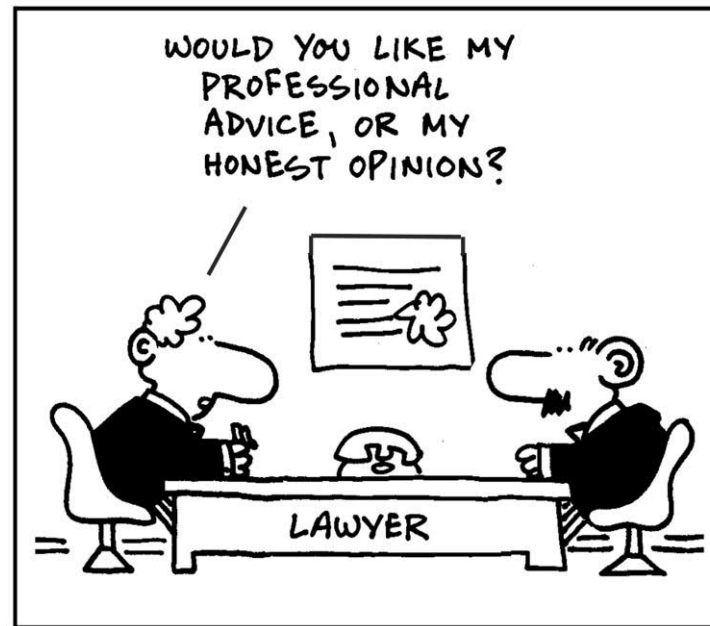
#InformationProtoco





“BIM according
to...”

BIM ACCORDING TO BS EN ISO 19650



CartoonStock.com

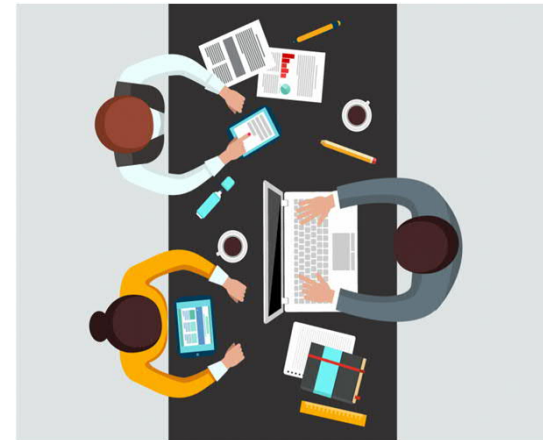
#InformationProtocol



Interpretation and Structure: Where to find everything

Simplifying search for definitions and documents

- Coversheet (Information Particulars)
 - Who is everyone
 - Where is everything
 - Replaces Schedules
- 13 Definitions:
 - Contractual definitions
 - ISO 19650 definitions



#InformationProtocol

Term	Particulars
Appointment	[Describe appointment and Parties]
Appointing Party	[the Appointer] OR [Appointing Party entity]
Lead Appointed Party	[Party] OR [the Appointer] OR [Appointee]
Appointor	[Party]
Appointee	[Party]
Works	[Describe]
Level of Information Need	[Refer to document/part thereof]
Exchange Information Requirements	[Refer to document/part thereof]
BIM Execution Plan	[Refer to document/part thereof]
Project's Information Production Methods and Procedures	[Refer to document/part thereof]
Project's Information Standard	[Refer to document/part thereof]
Master Information Delivery Plan	[Refer to document/part thereof] OR (if not applicable to Appointee) [N/A]
Task Information Delivery Plan	[Refer to document/part thereof] OR (if not applicable to Appointee) [N/A]
Risk Register	[Refer to document/part thereof]
High Level Responsibility Matrix	[Refer to document/part thereof]

- Coversheet/Information Particulars
 - Fill in before and after
 - Update later (see 4.10 and 4.11)

#InformationProtocol



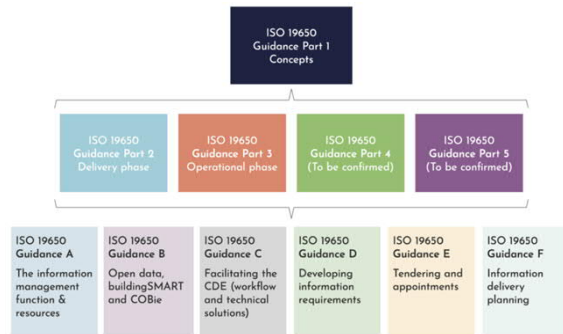
Checklist



Yes



No



3.5.2 Master information delivery plan vs detailed responsibility matrix

The detailed responsibility matrix supports the production of the TIDPs and MIDP. It informs the scope requirements of each task team so that they can adequately define their outputs as part of their TIDP.

For example, a detailed responsibility matrix may define that the "above ground drainage" information is the responsibility of a civil engineer. This communicates to the drainage contractor that their scope is above ground drainage only. When this drainage contractor develops their TIDP to detail out the specific deliverables such as "drainage layout plans", they will be doing this just for above ground drainage. The MIDP compiled by the lead

3.3 High level responsibility matrix contents

As part of their tender response, the prospective lead appointed party filters out the information deliverables they expect to fulfil in consideration of the appointing party's exchange information requirements. This ensures there is no overlap with other delivery teams and clarifies what, at high level, they expect to deliver. For example, a main contractor who is tendering for construction works, and has some contractor design portion works within their scope, needs to make it clear where their scope starts and ends, especially if there is some overlap with another lead appointed party.

The structure of the high level responsibility matrix is often determined by the agreed container breakdown structure as noted in section 3.1 but now includes the WHO.

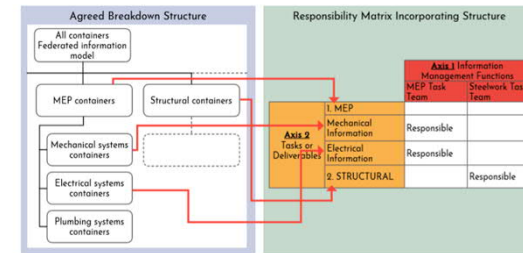
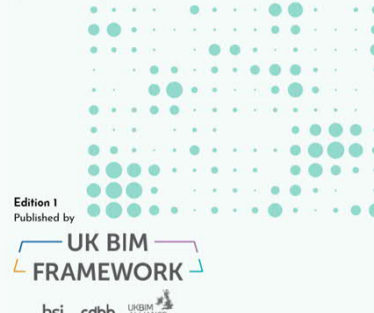


Figure 5: Example of a high-level responsibility matrix incorporating agreed breakdown structure

Information management according to BS EN ISO 19650

Guidance Part F About information delivery planning



Retrievable information within file-based TIDP

Information Container Name	Information Container Description
All party wall interface detail	Detail of the north party wall at a scale of 1:20
Partition plan for the whole first floor	Plan defining partition types and acoustic ratings
Fire strategy for the first floor	Fire strategy defining wall and door fire ratings, equipment and escape routes

Figure 13: Non-file-based TIDP approach

File-based TIDP

Information Container Name (File ID)	Information Container Description
HC101-SSI-ZZ-DR-A-0001	Party Wall Interface Detail
HC101-SSI-ZZ-DR-A-0002	Partition Setting Out Plan - First Floor
HC101-SSI-ZZ-DR-A-0003	Fire Strategy Layout - First Floor

Figure 12: File-based-only approach to listing information containers within a TIDP

<https://ukbimframework.org/standards-guidance/>

- ■ 1 Interpretation = The legal bit
- 2 Co-ordination and Conflicts = Coordinating information and resolving conflicting information (collaborate to resolve, unless your agreement specifies otherwise)
- 3 Appointing Party specific obligations
- 4 Everyone's obligations
 - Appointor or Appointee
 - 4.3 Lead Appointed Party has one extra specific duty (for the Risk Register)

4 OBLIGATIONS OF THE APPOINTEE AND APPOINTOR

- 4.1, 4.6 and 4.7 = Comply with the Information Particulars (e.g. Exchange Information Requirements (EIR) and BIM Execution Plan (BEP))
- 4.2 = Reasonable tests of methods and procedures
- 4.3 = Establishing and maintaining the Risk Register
- 4.4 = Task teams maintaining capability and capacity
- 4.8 = Comply with Security Management Plan
- 4.9 = Incorporate the Protocol into all contracts/appointments
- 4.10 and 4.11 = Prepare missing docs in Information Particulars/Update the docs (e.g. BEP)
- 4.12 and 4.13 = Establish and comply with the Task Information Delivery Plan(s)
- 4.14 = Comply with Information Standard and Information Particulars in generating and reviewing information

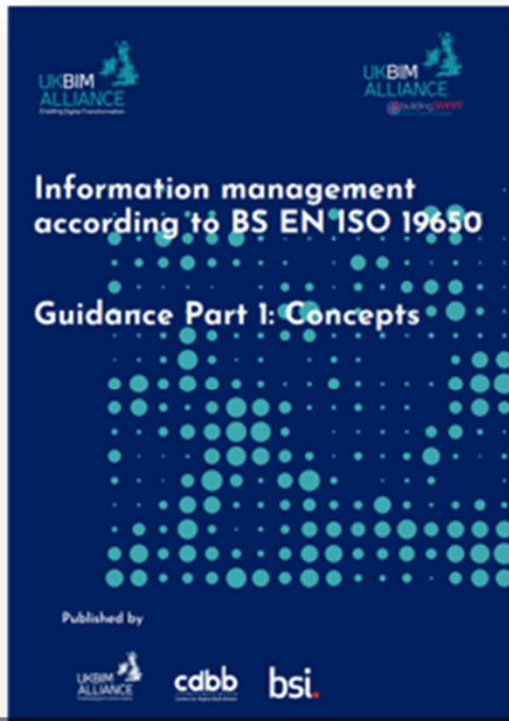
- ■ 5 Common Data Environment (CDE)
 - Appointor or Appointee
 - 5.3 and 5.4 Appointing Party has extra duties
- 6 Management of Information
 - Appointor or Appointee
 - 6.1 Appointing Party has extra duties
 - 6.2.4(a), 6.3.2 and 6.3.4 Lead Appointed Party has extra duties
- 7 Level of Information Need = Agree one if you haven't already

#InformationProtocol



- 8 Use of Information = GDPR and copyright (unless your agreement has clauses)

- 9 Transfer of Information = Deliver necessary information to each other
 - Appointor or Appointee
 - 9.3 and 9.4 Lead Appointed Party has extra duties
- 10 Liability = Only liability for permitted Purpose of the Models, Materials, proprietary work in them
- 11 Security = Compliant with BS EN ISO 19650-5
- 12 Termination = What clauses enforceable after termination (= more legal bits)



**Read the
Complimentary
Guidance**

<https://ukbimframework.org/standards-guidance/>

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NEC Basics



Core NEC principles



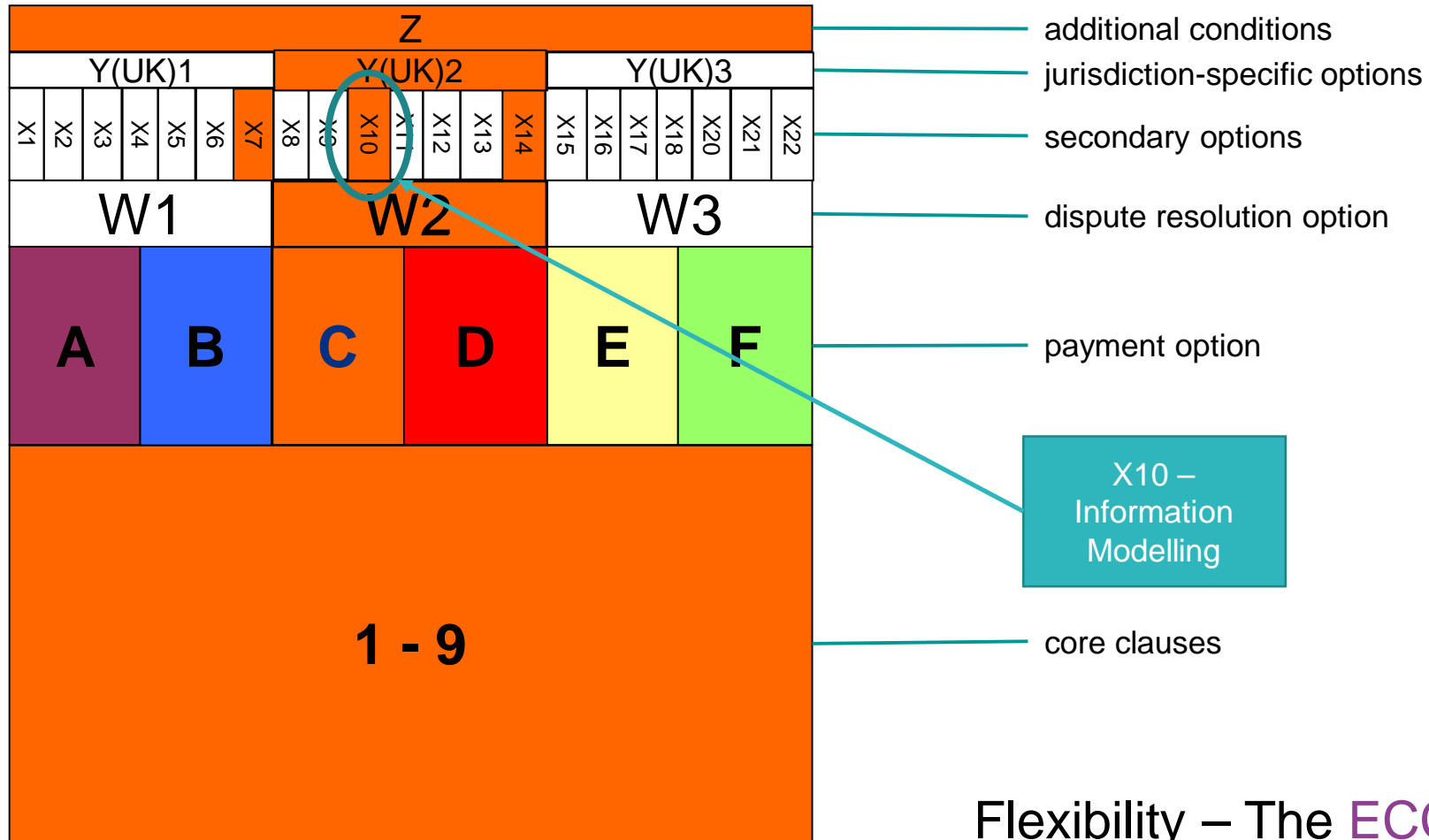
Flexibility



Stimulus to good management



Clarity and simplicity



Flexibility – The ECC4

Stimulus to good management – and good for collaboration

communications

Accepted
Programme

early warning

compensation
events

Compensation events

(Almost) all in one place

Based on 'real' effect of event

Assess time and cost for all

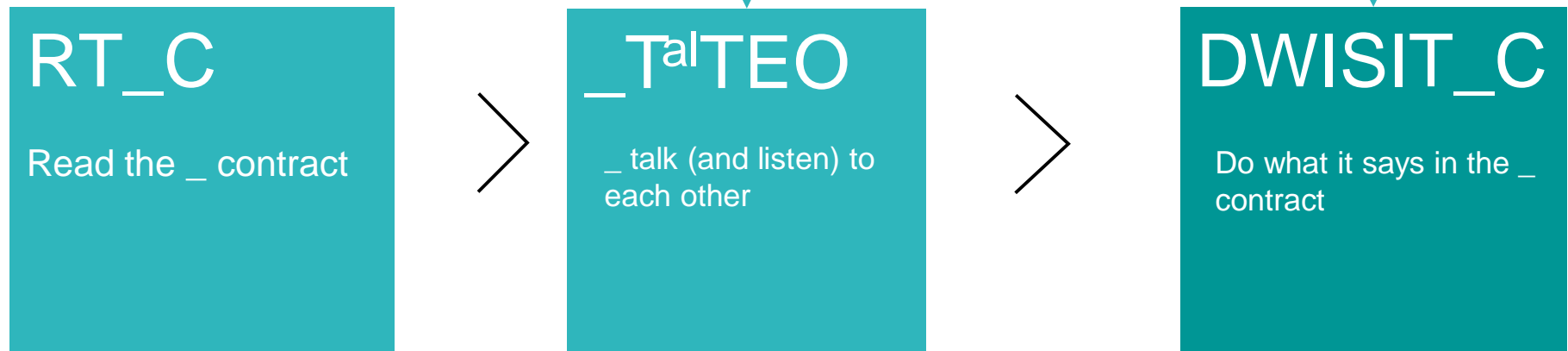
Assess *forecast* now – not 'wait and see'



Clear timebound process for assessment

10.1 The Parties, the *Project Manager* and the *Supervisor* shall act as stated in this contract.

10.2 The Parties, the *Project Manager* and the *Supervisor* act in a spirit of mutual trust and co-operation.



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NEC Option X10 – Information Modelling

NEC4 X10 Information Modelling – new secondary option

- Information Modelling = BIM
- In ECC, PSC, TSC, ECS, SC, DBOC, AC
- Different approach in DBO and Alliance Contracts
- Just 1+ page
- Designed to be THE protocol
- But can include other ‘Protocols’ and more is needed by the ISO
- X10 could be used in NEC3 and possibly even adapted for other contracts – eg FIDIC
- X12 may help.... (more later)

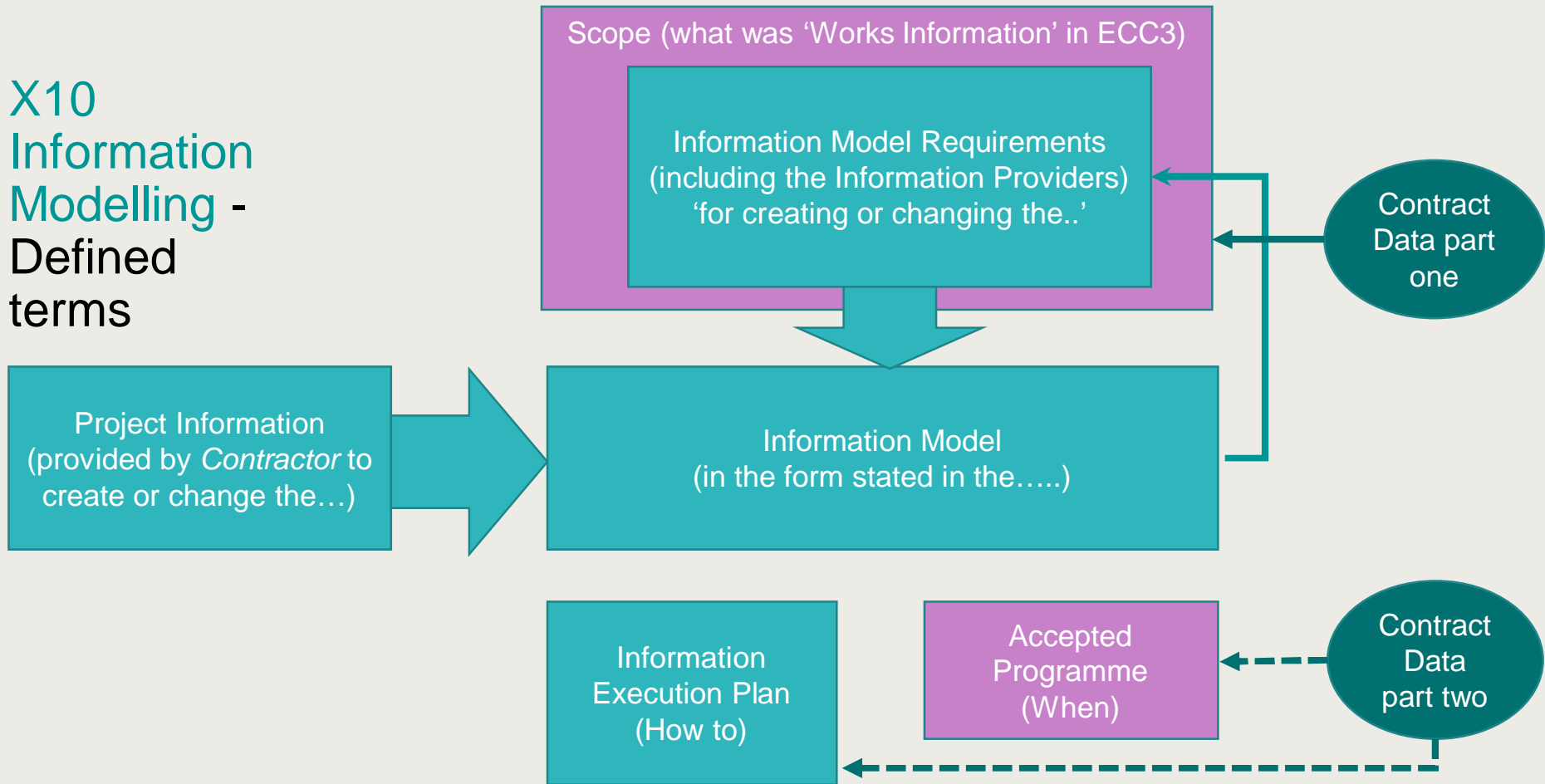
CMA conversion kit:

- ECC: Engineering and Construction Contract
- PSC: Professional Services Contract
- TSC; Term Services Contract
- ECS: Engineering and Construction Subcontract
- SC: Supply Contract
- DBOC: Design Build and Operate Contract
- AC: Alliance Contract

NEC4 X10 Information Modelling – new secondary option

- Covers contractual matters related to the creation and updating of an Information Model
- *Client* ownership of:
 - Project Information and
 - Information Model.

X10 Information Modelling - Defined terms



Information Model Requirements

- How the '*Contractor* collaborates with other Information Providers (X10.2)
- Form in which Project Information to be submitted (X10.4(4))
- Any requirements for the Information Execution Plan (X10.4(2))
- **Any limits on *Client* ownership of :**
 - **Information Model and**
 - ***Contractor's* rights over Project Information (X10.6)**

Information Execution Plan

- The supplier's 'plan' for '**how**' – leave the '**when**' to the programme
- *Like the programme, non acceptance stops nothing!*
- Altered if affected by a compensation event
- Should it be the same document for all Information Providers in the 'team' under their separate contracts? (In the ISO Protocol, each Lead Appointed Party has a plan for its team)
- If so, that could be stated in the Partnering Information in X12

Information Execution Plan

- **Like** the NEC programme it can
 - come with bid and be pointed to from Contract Data Part 2, or
 - be required within X weeks of Contract Date
- **Like** the NEC programme
 - Contractor revises when instructed by *PM* or when it wants to
 - *PM* accepts or gives reasons for not accepting within 2 wks
 - if no response, *Contractor* can prompt. No response after a further week means 'treated as accepted'
- **Unlike** programme
 - NO standard rules on content – **but there are requirements in the ISO Protocol**
 - NO requirement for routine update

Liability (10.7)

- *Client's liabilities:*
 - A fault or error in the Information Model...other than a Defect in the Project Information.
 - A fault in information provided by Information Providers other than the *Contractor*.
- The *Contractor* is not liable for a fault or error in the Project Information unless it failed skill and care normally used See X15 and X18

Who does exactly what and when?

- X10 has no specific requirement or place to say who provides:
 - what (Project Information) and
 - when?
- In the ISO Protocol that might be in the 'High Level Responsibility Matrix' / 'Detailed Responsibility Matrix' / MIDP / TIDP
- With X12 then could very usefully be the same document in each contract

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NEC and the ISO Protocol together



Information protocol to support BS EN ISO 19650-2 the delivery phase of assets

Published by

UK BIM
FRAMEWORK



The ISO Protocol

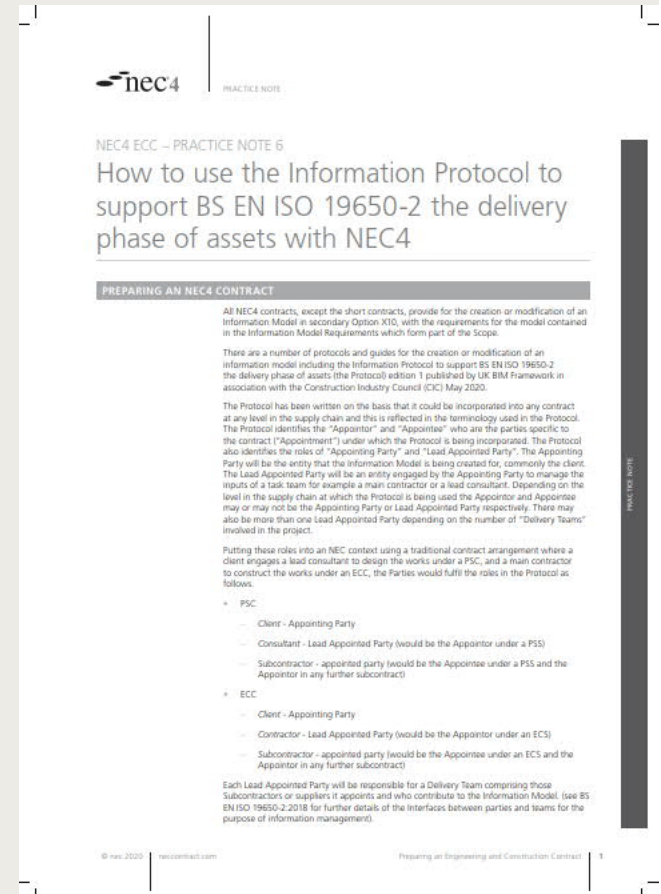
<https://www.neccontract.com/getmedia/41a62fa9-a1a3-4d57-b4c6-e758b1e54a78/Practice-Note-6-ISO-BIM-Protocol.pdf>

The NEC's guidance – practice note 6

<https://ukbimframework.org/wp-content/uploads/2020/06/Information-Protocol-to-support-BS-EN-ISO19650-2.pdf>

14/01/2021

BIM needs a collaborative contract



NEC Practice Note – Model Scope entry

‘The “Protocol” is the Information Protocol to support BS EN ISO19650 – 2, edition 1 published by UK BIM Framework in association with the Construction Industry Council (CIC) dated May 2020.

The *Client* and the *Contractor* comply with the Protocol.

(Modify to suit contract –
Consultant?
Subcontractor?)

The Information Model Requirements are [identify those documents that will form part of the Information Model Requirements – see guidance notes for further details.]

The following terms in the Protocol mean the equivalent term given in the contract.

TERM IN THE PROTOCOL	EQUIVALENT TERM IN THE ECC
Material	Project Information (if provided by the Contractor)
Federated Information Model	Information Model
Lead Appointed Party, Appointor(s), Appointee(s)	Information Providers
BIM Execution Plan	Information Execution Plan
Works	<i>works</i>

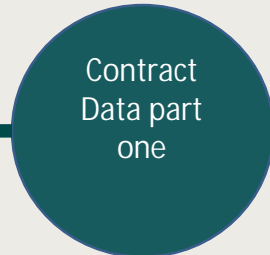
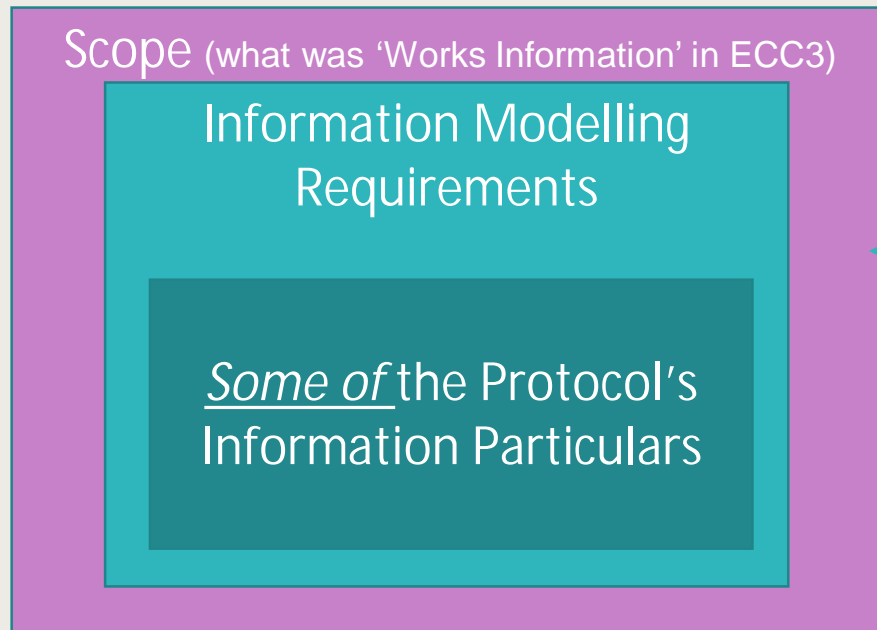
Any notice, instruction or acceptance to be given by the Appointor is given by the *Project Manager*.

← (Modify to suit – *Contractor (ECS)*,
Service Manager (PSC))

Stitching together....

- Need to ensure the 'Information Particulars' addresses all the things that X10 says the Information Requirements must cover:
 - How the '*Contractor* collaborates with other Information Providers (X10.2)
 - Form in which Project Information to be submitted (X10.4(4))
 - Any requirements for the Information Execution Plan (X10.4(2))
 - Any limits on *Client* ownership of :
 - Information Model and
 - *Contractor's* rights over Project Information (X10.6)

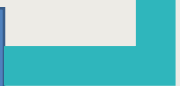
X10 Information Modelling + ISO Protocol



Project Information
(provided by
Contractor to create
or change the...)

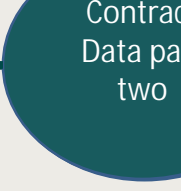


Information Model
(in the form stated in the.....)



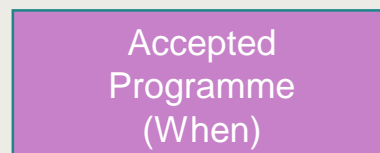
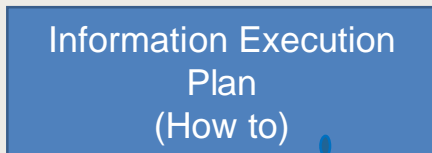
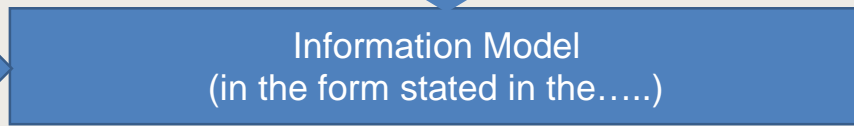
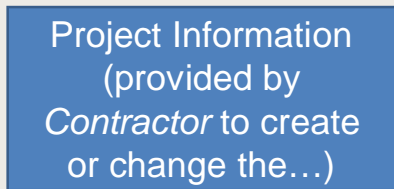
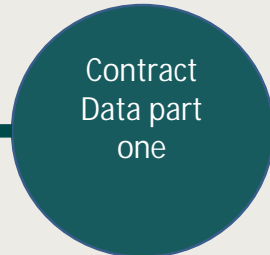
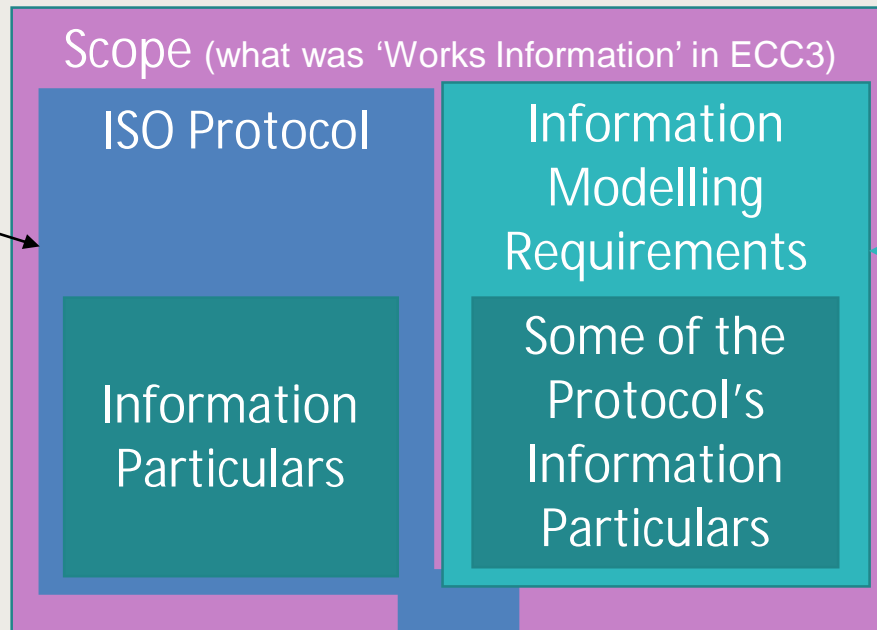
Information Execution
Plan
(How to)

Accepted
Programme
(When)



Could requirement to comply with the Protocol being in the Scope be misunderstood to mean:

X10 Information Modelling + ISO Protocol



ISO Information Particulars 13.15

- Information Particulars means the front page of this Protocol....:

- Level of Information Need
- Exchange Information Requirements
- BIM Execution Plan
- Project's Information Production
- Methods and Procedures
- Project's Information Standard
- Master Information Delivery Plan
- Task Information Delivery Plan
- Risk Register
- High Level Responsibility Matrix
- Mobilization Plan
- Security Management Plan

Red = normally from the client
Black = normally from the 'supplier'
Green = ISO requirement but odd for NEC

The appropriate contents for the Information Particulars may be different along the supply chain on the same project.

If included, then a change in the document will cause a compensation event



Should be useful!

Information Execution Plan (the BIM Execution Plan in the Protocol)

- is from the supply side
 - cannot be unilaterally changed by the *PM*
 - so should not really be part of the Scope
-
- The plan is treated in X10 as a separate document
 - We need to be clear that a change in it should not cause a compensation event

Time – linking the Protocol to the Contract

- 4.6 ‘Subject to any events or circumstances which entitle the Parties to an extension of time and/or additional costs under the Appointment..... require them to share and/or publish at the times stated in the Information Particulars.
- The *Client* may want a clear remedy for lateness of certain information especially if it is making promises to a third party

Time – linking the ISO Protocol to the Contract

- Time requirements need to be ‘in a place’ recognised by the contract
- Important elements and dates in the Protocol’s High Level Responsibility Matrix might be ‘pointed to’ as NEC ‘*conditions*’ and ‘*key dates*’ in the Contract Data part one
- And/but review the 25.3 ‘remedy’ for lateness

Risk Register

- ISO Protocol 4.3: *'The Lead Appointed Party shall establish and maintain the Delivery Team's **Risk Register.**'*
- 13.31 *'**Risk Register** means a risk register containing the risks associated with the timely delivery of information as may be identified in the Information Particulars and/or provided in accordance with the Information Standard.'*
- **Risk Register** will be a common document across contracts
- Need to make sure that a change in the Risk Register does not cause a compensation event
- Keep the **NEC3 Risk Register / NEC4 Early Warning Register separate** as there is one for each contract.

RP1

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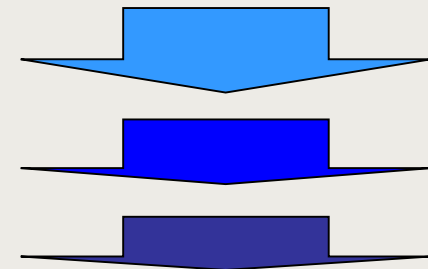


Collaborative contracts to support BIM



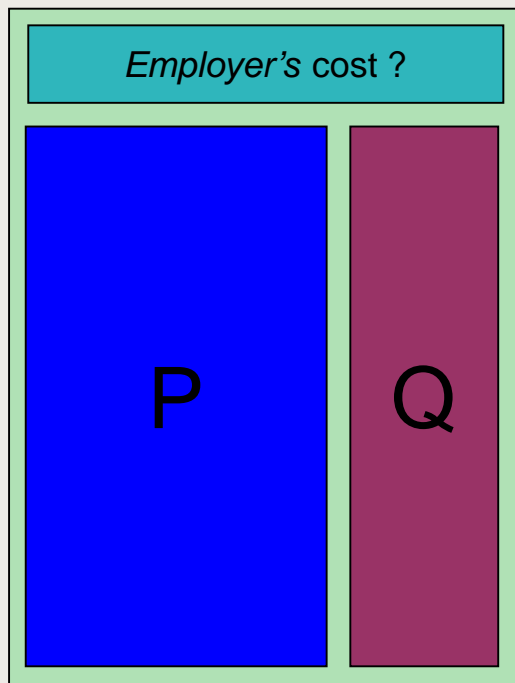
It's clear we need a collaborative contract to support BIM. How collaborative?

- Project Partnering Contract (PPC) 2000? – a multiparty contract
- All NEC contracts
 - 'spirit of mutual trust and collaboration' (CI 10.1)
 - clarity
 - communication
 - programme
 - early warning
 - compensation events
 - KPIs (X20)
- Target cost options (options C or D)
 - 'Open book' and incentive for 'buyer' to collaborate
- Option X22 Early Contractor Involvement
- Option X12 Multi-party collaboration'
- NEC Alliance Contract (2017) all sign up to single contract



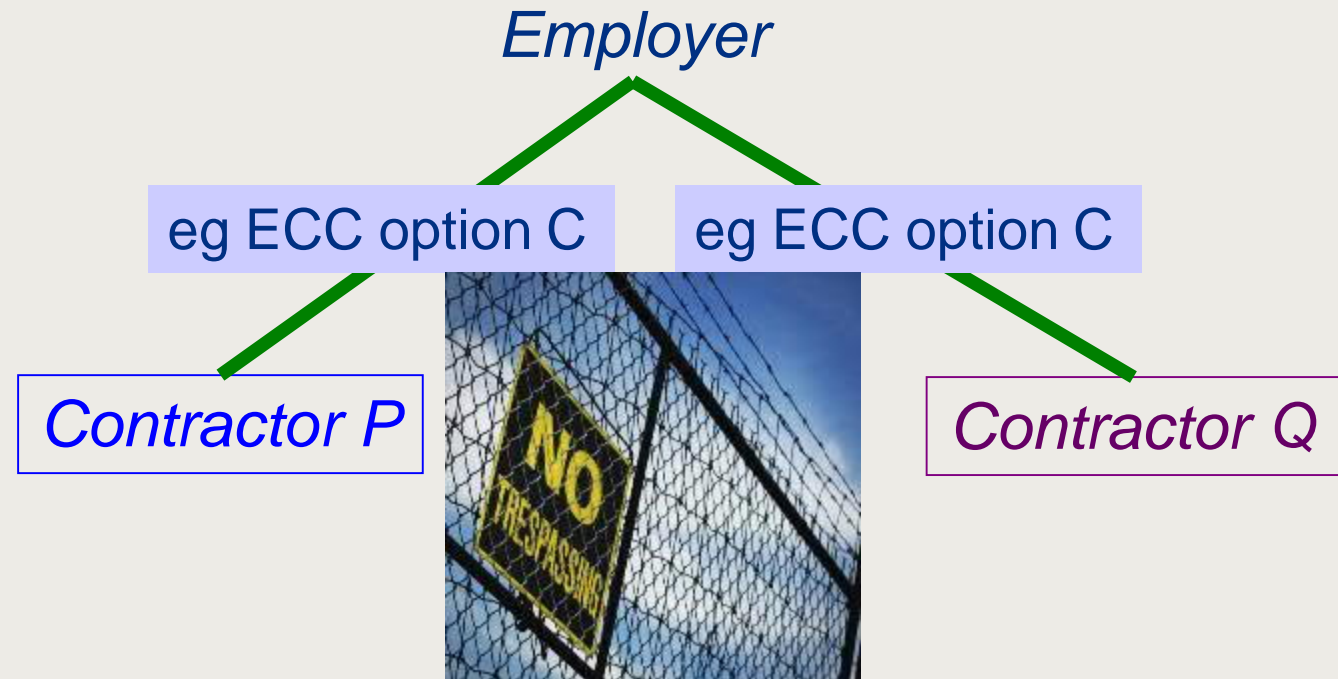
Contracts set up fences

Eg total forecast project cost



Employer incentivised to collaborate with P and Q but.....

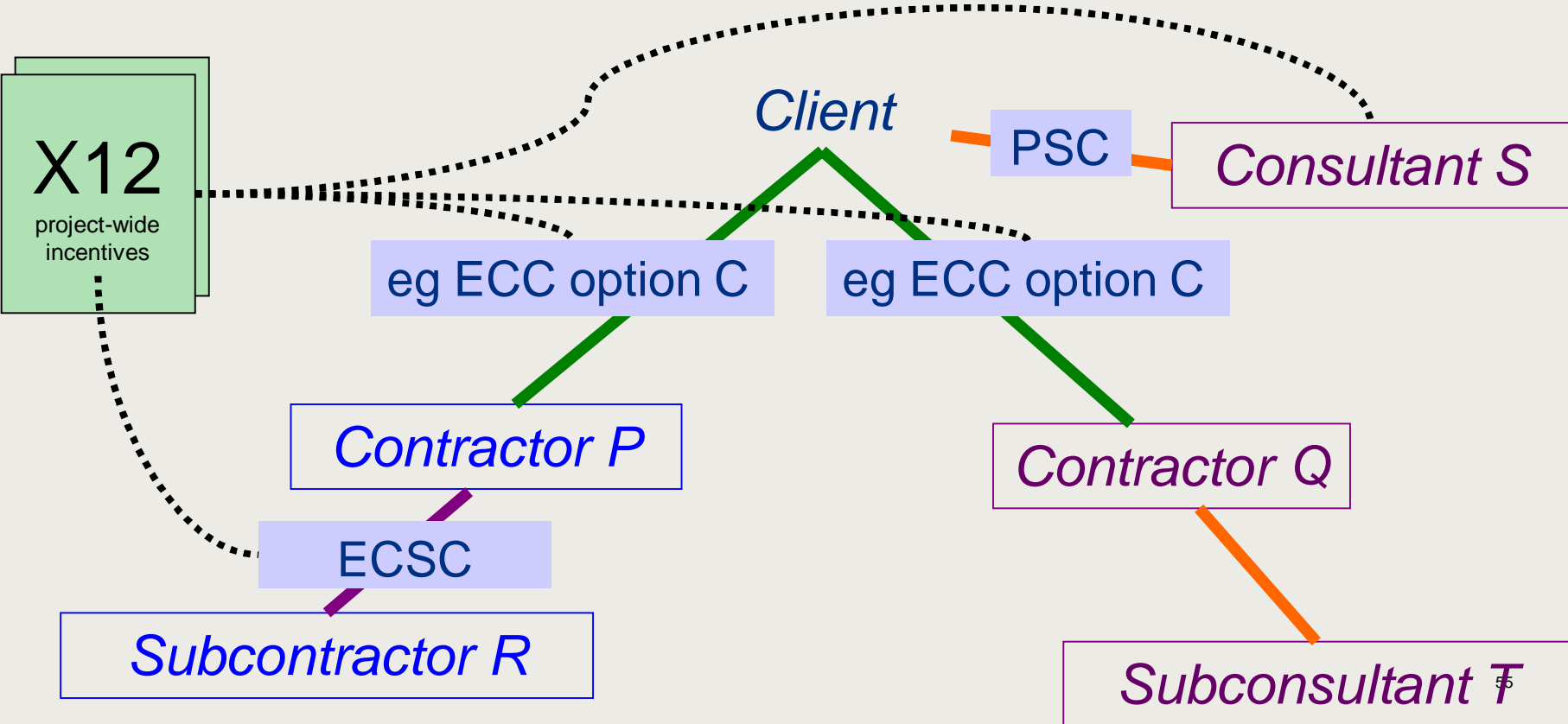
.....sometimes the line becomes a fence



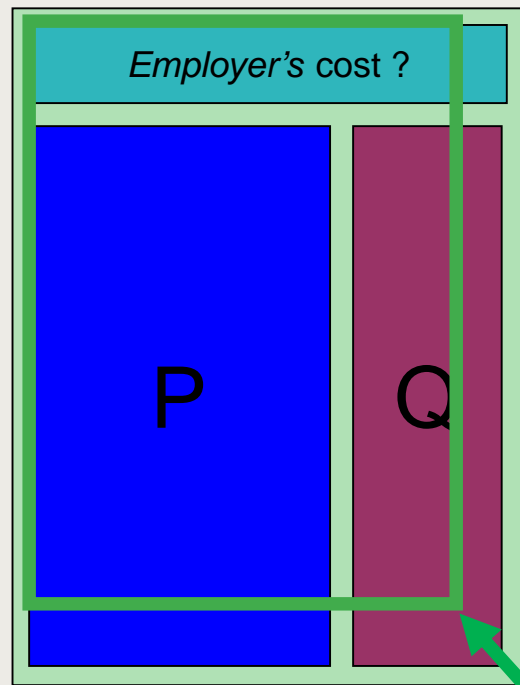
NEC Option X12 Multi-party collaboration

- Like the Protocol, same words in each contract
- Multiple bi-party contracts, each with the same X12
- NOT a multiparty contract
- X12 brings:
 - *Client's* objective
 - Core Group
 - Partnering Information
 - Schedule of Partners including
 - project wide incentives

X12 – joined up thinking; joined up procurement



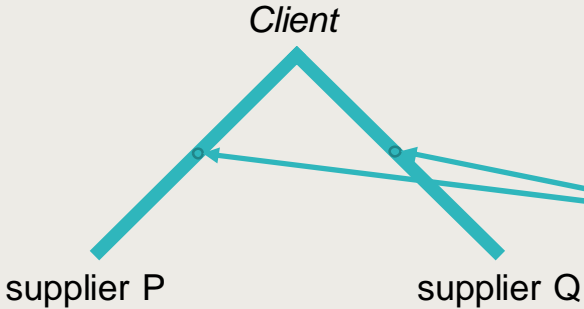
Eg an incentive could be to bring down overall project cost



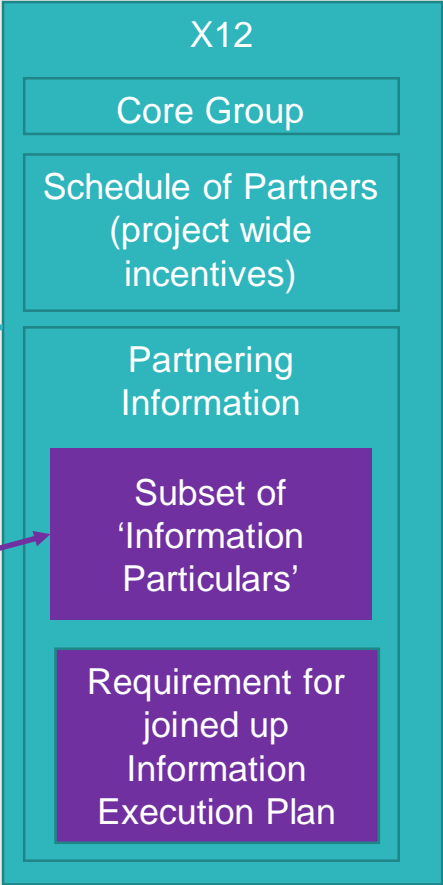
X10 and X12 together?

- Scope entry for ISO Protocol instead in X12's 'Partnering Information' and so explicitly the same in the contracts of all Project Team Members
- Partnering Information to perhaps require 'joined up' Information Execution Plan
- Carefully design the X12 joint 'Key Performance Indicators' to drive the collaboration required by BIM

What does that look like?



ISO Protocol with its 'Information Particulars'



contract

X10 with no Protocol? From the NEC practice note:

- NEC4 contracts contain secondary Option X10, which has been designed to work on a protocol independent basis. That is, **there is no requirement to include a particular protocol such as the Protocol**;
- the requirements for information modelling can all be included in the **Client's Information Model Requirements** ...and the **Contractor's Information Execution Plan**. The Protocol includes a number of other provisions and mechanisms which users may wish to build into their Information Model Requirements.

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What next?



Going forward

- 'Digital Build Britain'
- More on whole life cost and facilities management
- More 'design build operate' contracts?
 - **NEC4 DBO contract**
- Must surely be more multiparty contracts?
 - 'Construction Excellence Project Team Agreement'
 - PPC 2000
 - **NEC Alliance Contract**

Moving forward...

- ‘The only way you can go forward on serious BIM levels is some sort of alliancing’
 - (interviewee for Winfield Rock Report)
 - X12 or even the NEC4 Alliance Contract, April 2018



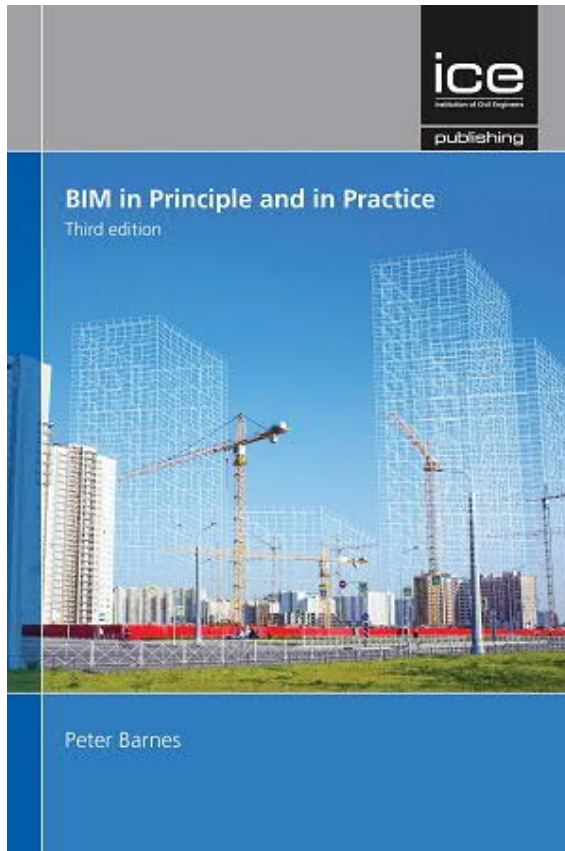
See also – BIM

- UK BIM Framework, <https://ukbimframework.org/>
- UK BIM Alliance, <https://www.ukbimalliance.org/>
- Enabling BIM through Contracts and Procurement, Kings College London, www.kcl.sc.uk/law/research/centres/construction/enabling-bim/ebimtpac-form.aspx
- Winfield Rock Report, Feb 2018, UK BIM Alliance – with excellent bibliography
- B1M, <https://www.theb1m.com/about>

Perhaps join ‘BIM4Legal’?

Summary

- It's all moving as we learn
- You now know more about NEC and BIM than most in the industry!
- Tell us how you have made it work!



BIM in Principle and in Practice, Third edition

- Includes core concepts, benefits of using BIM, examples of BIM in practice, design liability, ownership, collaboration and contracts.
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