ISO 19650 Guidance E: Tendering and appointments

UK BIM FRAMEWORK HOME

Editions (Guidance E)

Aa Edition	Date of release	Description
Edition 1	September 2020	First release as Guidance E. Note this guidance text first appeared in ISO 19650 Part 2 guidance edition 3.
Edition 2	February 2021	Update to include guidance about the UK BIM Framework Information Protocol Template and the information standard
Edition 3	November 2021	Update to include content covering the information production methods and procedures, development of guidance about the information protocol templates plus more detailed information about the BIM execution plan
Edition 4	November 2022	Updated to include new mobilization planning section. Removed the word ‘Part’ from the title of the document to remove possible confusion with parts of ISO 19650.

Contents

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Abbreviations and acronyms

Refer to Abbreviations and acronyms.

About this guidance (executive summary)

The guidance framework supports the UK implementation of the ISO 19650 series.

This guidance document (guidance E) sits within an overall guidance framework as shown in Figure 1.

Guidance E is written to support the implementation of each published ISO 19650 standard.

Who is this guidance written for?

This guidance is for individuals and teams involved in the tendering and appointment process on behalf of the appointing party, lead appointed party and the appointed parties.

Who is this guidance of particular interest to and why?

This guidance is of interest to the appointing party, the lead appointed party and each of the appointed parties. It explains about the UK BIM Framework Information Protocol Template, the information standard and the BIM execution plan (BEP). This guidance will be updated in due course to consider other tender and appointment resources referred to in the ISO 19650 series.

Key takeaways

- The UK BIM Framework Information Protocol Template provides an example of what could be included in an information protocol to be used when conforming to ISO 19650-2 and/or ISO 19650-5.
- A properly completed information protocol should be included in all appointments (between separate legal entities) where there is a requirement to manage or produce
- Without a correctly incorporated information protocol there is no clear obligation on either party entering into an appointment to comply with ISO 19650-2 or ISO 19650-3.
- The purpose of an information standard is to provide the standards against which the information should be produced and subsequently maintained. It is established by the appointing party (client) and like an information protocol, should be included in all appointments where there is a requirement to manage or produce information.
- The BEP supports the tender, appointment and information delivery activities by providing evidence to the appointing party that the prospective delivery team can manage project information in line with the information requirements.
- The BEP presents one of the tools that the appointed delivery team will use to produce, manage and exchange project information during the appointment alongside other
- In the process of finalizing the appointment for the lead appointed party, the BEP is revisited and updated to ensure it supports production of the detailed responsibility matrix and master information delivery

As with all guidance supporting the UK BIM Framework, we invite comment and feedback on this guidance E at guidancefeedback@ukbimframework.org.

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Figure 1: ISO 19650 guidance framework

1.0 About the information protocol

1.1 Introduction

An information protocol is one of the resources that supports the implementation of information management using building information modelling (BIM). Both ISO 19650-2 and ISO 19650-3 require that the appointing party [1] produces an information protocol and that it forms part of tender and appointment documents. ISO 19650-2 refers to the information protocol as the *project's information protocol* and ISO 19650-3 refers to it as the *asset information protocol.*

Although ISO 19650-2 and ISO 19650-3 address different parts of the asset life-cycle and use a different prefix for the information protocol, the purpose of it is the same; that is to set out the rights and obligations of the two parties entering into an appointment that requires the management or production of information.

ISO 19650-5 does not refer to an information protocol, however it does require that there is provision in all appointment documentation for the requirements set out in ISO 19650-5 clause 9.2. These obligations therefore do need to be considered.

The UK BIM Framework Information Protocol Templates provide examples of what could be included in an information protocol to be used when conforming to ISO 19650-2, ISO 19650-3 and/ or ISO 19650-5 (as applicable) for projects and their appointments to which English law applies. They are not prescriptive but provide a useful starting point for an Information Protocol.

Neither the UK BIM Framework Information Protocol Templates nor this guidance amount to legal advice and you should ensure you always take appropriate professional advice to assist all parties to work in a way which reflects ISO 19650-2, ISO 19650-3 and ISO 19650-5 (as applicable).

[1] The client in respect of ISO 19650-2 and asset owner, asset operator or facility manager for ISO 19650-3

1.2 Production of an information protocol: principles

An information protocol should be established by the appointing party at a project level (ISO 19650-2) or an asset/portfolio management level (for ISO 19650-3). It should be included in invitation to tender information2 and then in appointment documentation for every third party (where the third party is a separate legal entity) that will manage or produce information as part of their activities within that appointment.

The relevant ISO 19650 clauses requiring these actions are set out in Table 2:

Table 2: ISO 19650 requirements for the information protocol

Activity	19650-2 clause	19650-3 clause	Responsibility
Establish the information protocol	5.1.8	5.1.13	Appointing party
Include the information protocol in the invitation to tender or request for a service	5.2.4	5.2.5	Appointing party
Include the information protocol in lead appointed party's appointment documents	5.4.6	5.4.6	Appointing party
Include the information protocol in appointed party's appointment documents	5.4.7	5.4.7	Lead appointed party

1.3 Inclusion of an information protocol in appointments

As noted in the Introduction, ISO19650-2 and ISO 19650-3 envisage that an information protocol is included in completed appointment documents for each lead appointed party and their appointed parties. See Figure 2 for a delivery phase example.

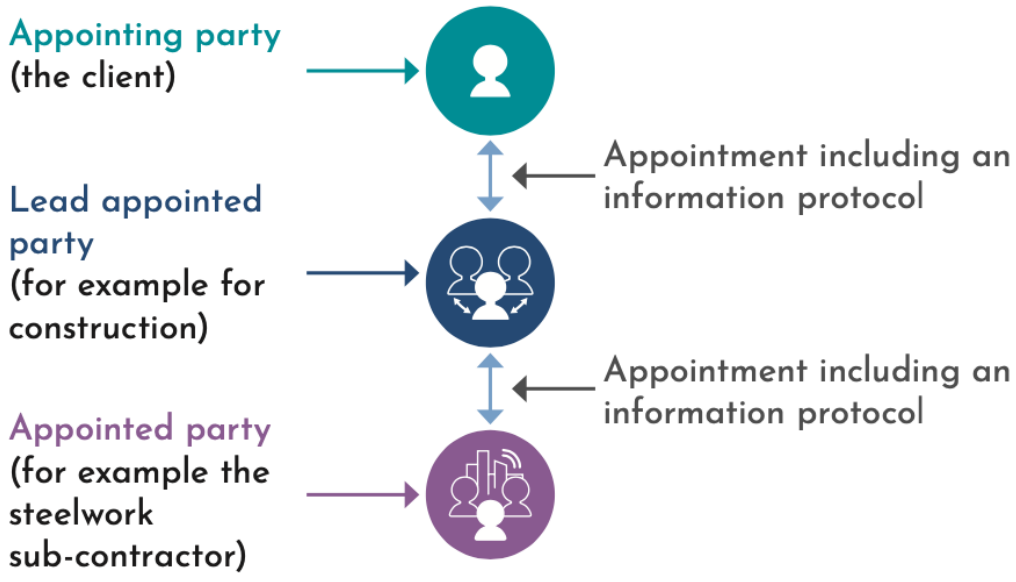


Figure 2: Simple party/appointment relationship; delivery phase example

For different and more complex appointment arrangements please refer to ISO 19650 guidance Parts 2 and 3.

The ISO 19650 series only refers to the tender package for the lead appointed party (in Figure 2, the tender package for the lead appointed party for construction). However, an information protocol will need to be included in any tender package (in Figure 2, the steelwork package) so that every party invited to submit a tender is aware of their obligations should they be appointed. Similarly, the ISO 19650 series does not specifically consider the tender or appointment of sub-parties, but they too will need to enter into an information protocol where they are managing or producing information as part of their scope of works.

1.4 Information Protocol Template » incorporated Information Protocol

There are two information protocols:

1. The information protocol to support ISO 19650-2 and
2. The information protocol to support ISO 19650-3 and the operational phase of assets.

It is important that each information protocol is used at the relevant phase only. Both Protocols include drafting linking the information management process at each phase, helping to create a “golden thread” of information management.

For either Information Protocol Template to become an appointment specific Information Protocol a number of activities are required. These activities are set out in Figure 3 and use the ISO 19650-2 Information Protocol Template as an example.

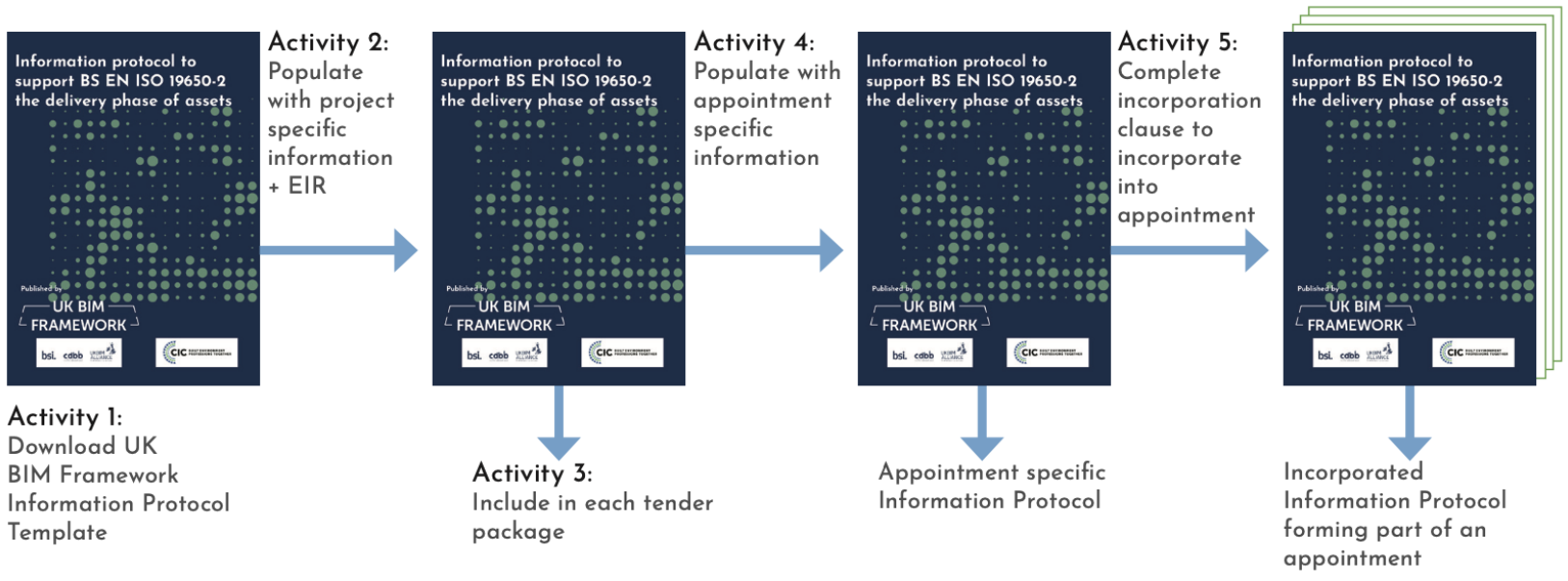


Figure 3: Activities needed to generate an incorporated information protocol

Once the Information Protocol Template has been accessed (**Activity 1**), its contents should be considered at a project level. Its Particulars should be populated with details originating with the appointor to identify project specific requirements such as the identity of the associated information standard, the information production methods and procedures and the exchange information requirements (EIR) (**Activity 2**). The Information Protocol can then be issued as part of a tender package (**Activity 3**).

During the process of confirming an appointment the Information Protocol Particulars should be completed to identify details originating with the appointee (such as the identity of the BIM Execution Plan (BEP) or task information delivery plan (TIDP)) – **Activity 4**.

For the Information Protocol to have contractual effect, an “incorporation clause” has to be included in each contract/ appointment into which it is to be incorporated. The completed protocol should also be included as part of the appointment documents (e.g. in a schedule) – **Activity 5**.

Activities 1 and 2 are carried out at a project related level. Activities 3, 4 and 5 are then carried out for every tender and appointment supporting that project as shown in Figure 4.

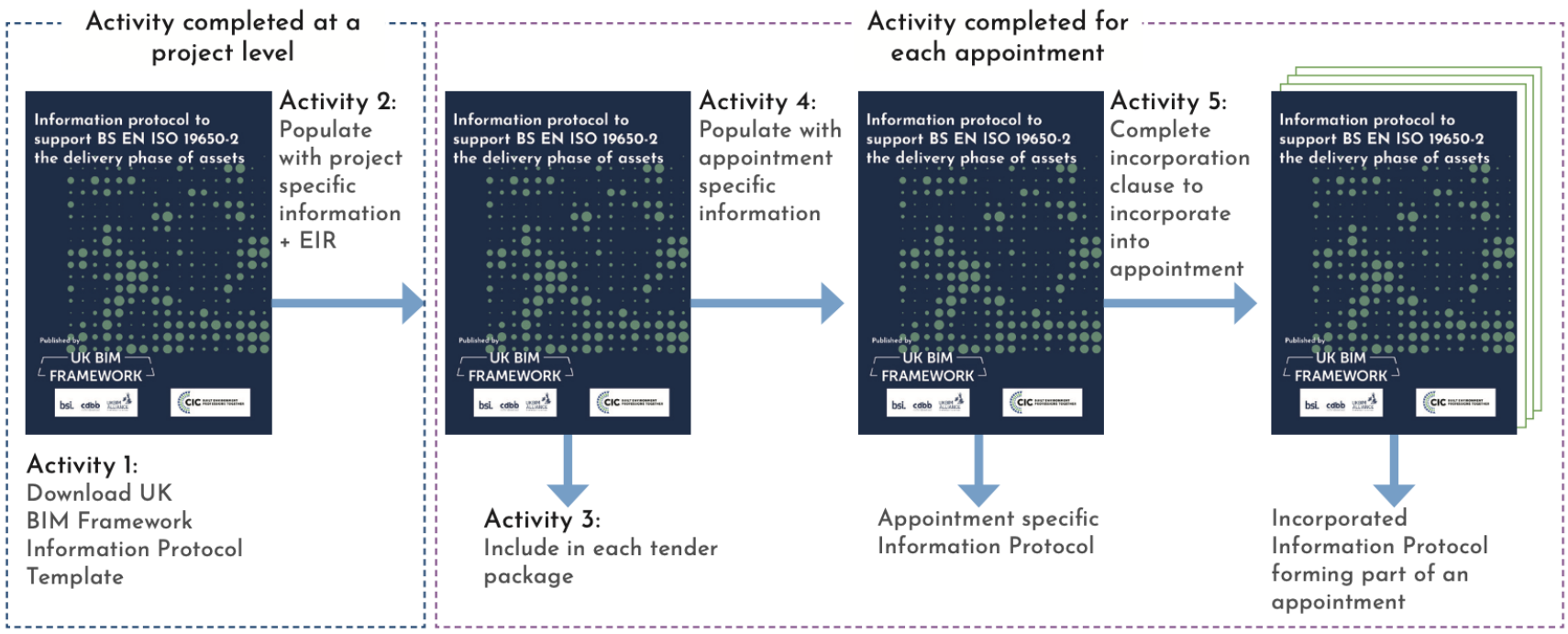


Figure 4: Activities needed to generate an incorporated information protocol at a project and appointment level

1.5 Incorporation into appointments

As noted in Activity 5, for the Information Protocol to have contractual effect, it is essential that an "incorporation clause" is included in each contract/appointment into which it is to be incorporated.

A suggested incorporation clause is as follows: 'The [Appointor] and the [Appointee] shall:

1. *comply with their respective obligations set out in the Protocol at Appendix [X] ("Protocol");*
2. *have the benefit of any rights granted to them in the Protocol; and*
3. *have the benefit of any limitations or exclusions of their liability contained in the Protocol.*

The parties agree that, subject to clause 1.6 of the Protocol, this Appointment shall be amended as set out in the Protocol. In the event of conflict between this Appointment and the Protocol, the parties agree that the terms of the [Appointment/ Protocol] shall take precedence.'

It is suggested that the Information Protocol should be stated to take priority over the Appointment, for the Information Protocol to have its intended effect and to create consistency across the various Appointments that will exist for any single project related activity.

A copy of the Information Protocol with the appointment specific Information Particulars completed should then be appended/annexed to the Appointment in the place referred to in the incorporation clause.

If the Information Particulars are not completed some of the obligations, rights and processes in the intended Information Protocol may not be clear or binding.

See the Glossary in the Information Protocol Template for information which may assist in completing the Information Particulars and for ISO19650 terminology used in the Information Protocol Template.

The impact of the incorporation clause on the rest of the appointment and the relationship between the Information Protocol and the rest of the appointment should be considered for each appointment entered into and legal advice sought. For example, you may need to change the scope of services/works of the delivery team to be consistent with the information management approach.

When using the Information Protocol to support ISO19650-3 the operational phase of assets, the way in which the Information Protocol is incorporated should be considered particularly carefully. For example, consideration should be given as to how the Information Protocol fits in with a long term service agreement, individual purchase orders and contracts for significant maintenance work.

1.6 Key considerations

1.6.1 Terminology

The ISO 19650 series uses the terms "appointing party", "lead appointed party" and "appointed party". The main distinction is that the lead appointed party is the appointed party appointed by the appointing party (see Figure 2).

As noted previously, there are two Information Protocol templates and they both use the neutral terms:

- "Appointor" to refer to the party **doing the appointing** for each contract/ appointment, and

- “Appointee” to refer to the party **being appointed**.

It also contains some specific obligations for the Appointing Party and the Lead Appointed Party, which are only relevant if the Appointor or Appointee are one of these parties.

For example:

An appointment may be between an Appointing Party (party A) a client, and a Lead Appointed (party B) for construction as shown in Figure 5. In this arrangement:

1. All the terms applying to the ‘Appointor’ and the ‘Appointing Party’ will apply to the Appointing Party (party A)

2. All the terms applying to the ‘Appointee’ and the ‘Lead Appointed Party’ will apply to the Lead Appointed Party (party B).

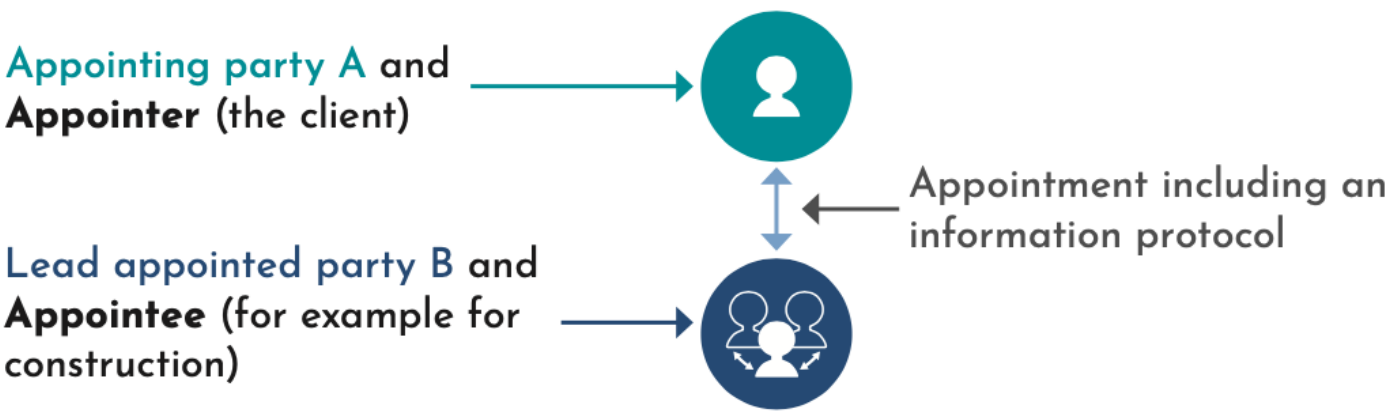


Figure 5: Appointment between an Appointing Party and a Lead Appointed Party

Alternatively, an appointment may be between a Lead Appointed Party (party A) and an Appointed Party (party B). In this arrangement:

1. All the terms applying to the ‘Appointor’ will apply to Party A

2. All the terms applying to the ‘Appointee’ will apply to Party B

3. The terms applying to an “Appointing Party” and “Lead Appointed Party will not apply to either of them (although in this example, party A is a Lead Appointed Party this is not relevant to this particular appointment scenario)

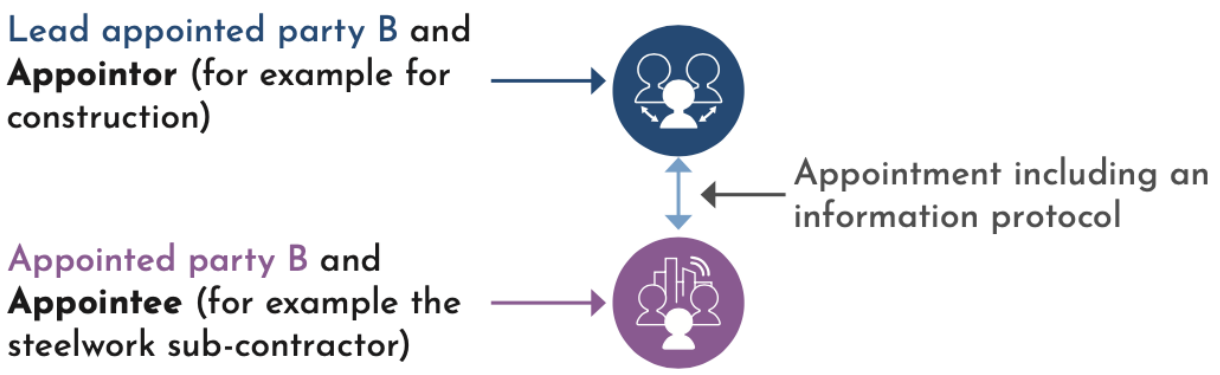


Figure 6: Appointment between a Lead Appointed Party and an Appointed Party

To summarize the terminology:

1. If you are a client/asset owner entering into an appointment then in terms of the protocol you are an **Appointor** and an **Appointing Party**
2. If you are a consultant or contractor entering into an appointment with a client/ asset owner then you are an **Appointee** and a **Lead Appointed Party**
3. If you are a consultant or contractor appointing another party then you are an **Appointor** and references in the Information Protocol to **Appointing Party** and **Lead Appointed Party** are not applicable
4. If you are a consultant or contractor being appointed by another consultant or contractor then you are an **Appointee** and references in the Information Protocol to **Appointing Party** and **Lead Appointed Party** are not applicable.

1.6.2 Completion of the Information Protocol Template

The Information Protocol Template is drafted to be as easy to use as possible, with minimal need to delete irrelevant clauses or to produce, attach or complete additional documents. Relevant documents are instead listed in the Information Particulars.

The Information Protocol Template enables the key information management resources and documents to be identified in the Information Particulars on the front page. This gives certainty on where to refer for the parties' duties and rights, whilst still providing flexibility on the terms of the Appointment and these documents, some of which may continue to be updated, enabling compliance with ISO 19650-2.

As noted in Activity 5 the legal and contractual effect of the Information Protocol therefore depends upon the completion of the Information Particulars on the front page and its correct incorporation into appointments and contracts.

The Information Particulars lists **all documents** relevant to an appointment to ensure compliance with the requirements/ obligations of ISO 19650-2. Documents listed include, for example, the mobilization plan, the master information delivery plan (MIDP) and the TIDP. However not all of these documents will be relevant to each and every appointment, for example:

- Reference to the TIDP will not be relevant to any appointment between an appointing party (client) and a lead appointed party (such as a contractor)
- Reference to the mobilization plan and MIDP will not be relevant to any appointment between a lead appointed party (such as a contractor) and an appointed party (steelwork contractor).

The Information Particulars for the ISO 19650-2 Information Protocol and the ISO19650-3 Information Protocol are generally very similar given the similarities between the two standards. The few key differences are:

1. The ISO 19650-2 Information Protocol allows the Works to which the appointment relates to be identified, whereas under the ISO 19650-3 Information Protocol it is the assets to which the appointment relates which should be identified (the Relevant Asset); and
2. The ISO 19650-3 Information Protocol refers to a Trigger Event Schedule (see comments elsewhere in this guidance).

Those documents that are not relevant to an appointment should be listed as "Not Applicable"

The Information Protocol Template has been prepared on the basis that it could be incorporated into any appointment at any level in the supply chain, whether the appointment is between:

1. An Appointing Party and a Lead Appointed Party (i.e. tier one contract);
2. A Lead Appointed Party and an Appointed Party (i.e. a sub-contract); and
3. An Appointed Party and a "Sub" Appointed Party (i.e. a sub-subcontract).

1.6.3 Trigger event guidance

One of the central concepts in ISO 19650-3 is the Trigger Event. This is defined in ISO 19650-1 and also at paragraph [13.38] of the Information Management Protocol for use with ISO 19650-3. "Trigger Event", as set out in the Information Protocol, is an event which takes place during the operational phase of the asset when new or updated information concerning that asset is generated or is required. A Trigger Event could for example be planned maintenance or refurbishment or an unexpected event such as rectification works carried out after a fire.
The ISO and therefore the Protocol has to cater for these Trigger Events. The protocol seeks to address this by, first, asking the parties using the Protocol to add into a Trigger Event Schedule any Foreseeable Trigger Events that they can anticipate will take

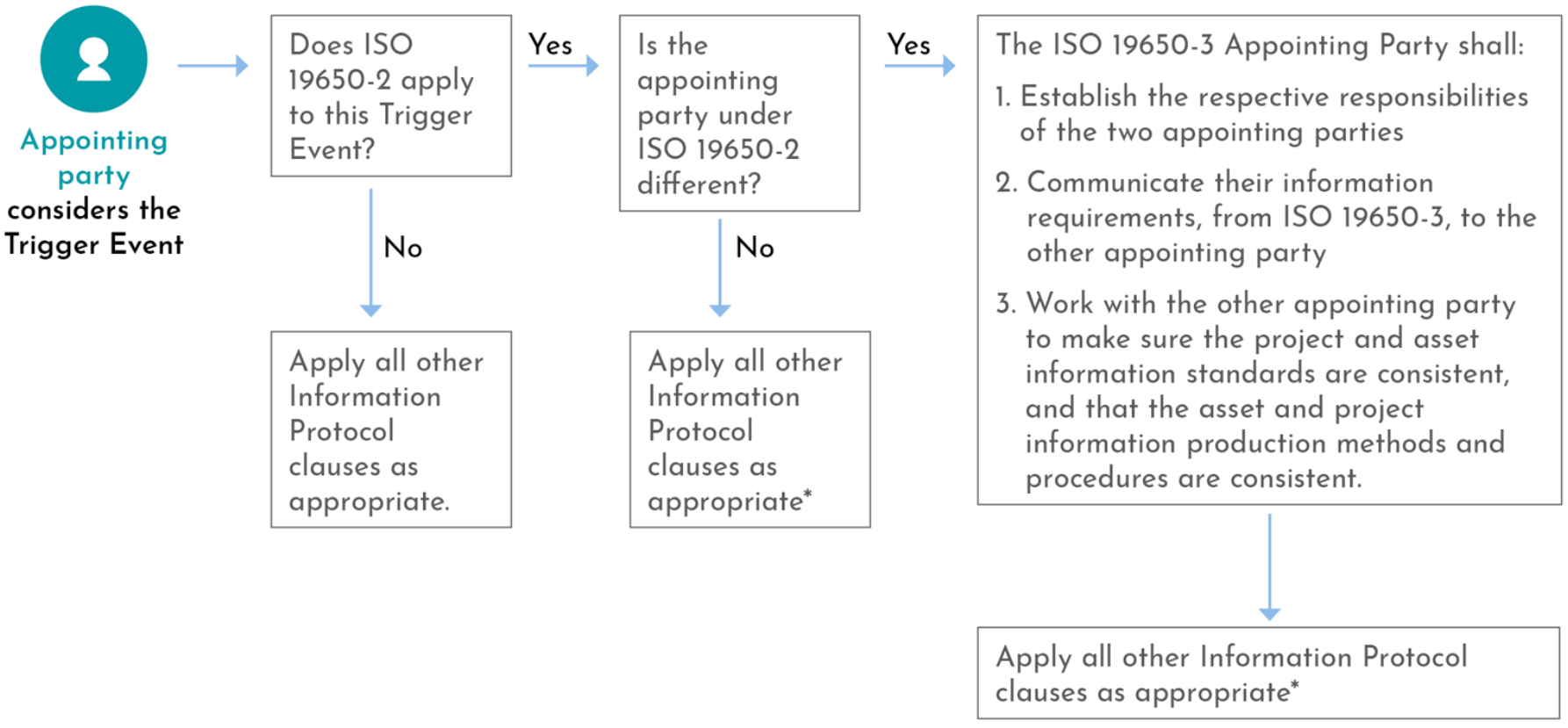
place during the operational phase of the asset. The Trigger Event Schedule is one of the documents referred to in the Information Particulars at the beginning of the Protocol.

Trigger Events themselves are dealt with in clauses 3.2 to 3.4 of the Protocol. Clause 3.2 requires the Appointing Party to complete the Trigger Event Schedule as far as possible. Clause 3.3 requires the Appointing Party to decide what to do when a Trigger Event occurs.

Clause 3.4 deals with what happens if the Appointing Party decides that the response to a Trigger Event needs to be undertaken as a separate project rather than using the arrangements already established under ISO 19650-3; for example, the major refurbishment of a block of flats following a fire. In those circumstances, the response can be organised using ISO 19650-2.

It may be that the Appointing Party under this separate project is not the same as the Appointing Party under ISO 19650-3. For example, the owner of the block of flats may ask the building management company to appoint a contractor to carry out the refurbishment works using ISO 19650-2. In those circumstances the building management company is likely to be the Appointing Party for the purposes of the separate Part 2 project whereas the owner of the building will remain the Appointing Party for the purposes of Part 3.

Clause 3.4 therefore deals with the flow of information and the alignment of duties and activities between the two Protocols and the various sets of contractual arrangements that would be entered into. There are equivalent flow down provisions which are being added to the existing Part 2 Protocol template and which mirror the obligations set out in clause 3.4.



* This refers to the clauses in the ISO 19650-3 Information Protocol.
The same parties may also be subject, separately, contractually to the ISO 19650-2 Information Protocol.

Figure 7: Flowchart of ISO 19650-3 Information Protocol clauses 3.3 and 3.4

1.7 Important points to note

1. Without an information protocol there is no clear obligation on either party entering into an appointment to comply with ISO 19650-2 or ISO 19650-3, even if other ISO 19650 resources (such as an EIR) have been produced
2. If the Information Particulars of the Information Protocol are not properly completed, a number of the obligations, rights and processes under the Protocol will be unclear and the application of ISO 19650-2 to the appointment will be uncertain
3. If the Information Protocol is not incorporated in an appointment it will not have contractual effect for either party entering into the appointment
4. The Information Protocol will only be as effective as the documents referred to within it. For example, a comprehensively populated and properly incorporated Information Protocol will not compensate for an insubstantial information standard
5. Some of the documents listed in the Information Protocol are ‘live’ documents that are likely to be subject to change and update over time (for example, the BEP). This means that:

i. Parties should determine how to list the location of the relevant documents within the Information Particulars with their professional advisors, so the parties to the Protocol always refer to the latest version of the document and the impact of changes on rights to additional time and fees is mitigated, and

ii. The implications of changes to the Parties' rights and obligations under the Appointment, arising because of a change in the content of a live document, including the variation or change control mechanism, must be considered carefully

6. A properly completed Information Protocol should be included in all appointments (between separate legal entities) where there is a requirement to manage or produce information, no matter how deep or complex the delivery team is. A break in this chain will create a risk that the lead appointed party will not be able to fulfil their obligations under the Information Protocol and will therefore be in breach of their contract. This may be of consequence not just to the lead appointed party's delivery team but to the wider project or asset-related activities
7. If Parties are at maintenance and operational phase (ISO19650-3), the Information Protocol to support ISO 19650-3 the Operational phase of the asset, should be used to govern the relationships between the parties.

2.0 About the information standard

2.1 Introduction

To satisfy the requirements of both **ISO 19650-2** and **ISO 19650-3** an information standard is established by an appointing party to outline the standards to be followed when managing information in relation to a project and/or asset/portfolio (see ISO 19650- 2 clause 5.1.4 and ISO 19650-3 clause 5.1.6 respectively).

While the information standard is established at the project and/or asset/portfolio level, it is important that it reflects, and is mutually consistent with, internal organizational standards, methods and procedures. This is to ensure that the delivered information is useable throughout the asset's lifecycle and consistent with other information relating to an asset.

The information standard is one of several resources which are compiled together to form the appointing party's tender information (see ISO 19650-2, 5.2.4 and ISO 19650-3, 5.2.5 plus the resource map in ISO 19650 Guidance A).

A unique characteristic of the information standard is the ability for a lead appointed party to suggest additions or amendments as part of their tender response. If applicable, these should be articulated as a contract negotiation so that any additions or amendments are made known to all bidders to ensure a fair and transparent tendering process.

Typically read in conjunction with the information production methods and procedures, the information standard is used during the production of information to support the generation, approval, authorization, and acceptance of information (see ISO 19650-2, 5.6 and ISO 19650-3, 5.6).

2.1 Purpose of an information standard

The purpose of an information standard is to provide the standards against which information shall be produced and subsequently maintained. Depending on the context, this may be at an organizational level, managing the information across its whole portfolio of assets, or it may be at a project level. To achieve this, the information standard is established at the project and/ or asset/portfolio level so that all appointed delivery teams deliver project or asset information consistently with each other, regardless of their contractual relationships. This is because while the information standard is produced once, it will not only form part of the appointment documentation for each lead appointed party and their respective sub-consultants and sub-contractors, but will also be the basis for rigorous and consistent maintenance of information through the whole life of the asset/portfolio in question.

For example: Delivery teams which need to work sequentially when servicing an asset or concurrently when delivering a large/complex project.

2.3 Developing an information standard

Regardless as to whether it is being produced to support the delivery of a project or the servicing of an asset, an information standard is developed in the same manner.

As a technical resource, an information standard should include information relating to the information standard in the form of a document header or a title block.

BS EN ISO 7200 provides a schedule of fields to be included when producing technical documentation such as: Title, Author and Approver.

2.4 Format of the information standard

While ISO 19650-2 and ISO 19650-3 do not specify a set structure for an information standard, **PD ISO/TS 12911** (Framework for building information modelling (BIM) guidance) provides a formalized structure which could be adopted.

As a minimum, a clause-based structure should be adopted to enable anyone from the delivery team to reference specific elements of the information standard with ease.

2.5 Contents of the information standard

The information standard should include the standards to be considered when structuring, classifying, and exchanging information. In determining these standards, the appointing party should consider any asset-related, or organizational-related activities that information may be required for throughout the asset's lifecycle.

For example: An information standard relating to the delivery phase of an asset should consider relevant standards relating to the use of the information during an asset's operational phase.

In addition, any standards identified during the establishment of the security management plan should also be considered for inclusion within the information standard (refer to ISO 19650-5 clause 7 and 9.2).

The content within the information standard may be the standard itself or in the form of references to an external source, such as a British Standard or an online tool.

For example: The national annex to ISO 19650-2 recommends that the permitted values for information container ID convention, status codes and revision codes are recorded within the information standard. The information standard should therefore set out a project identifier, record originator codes and other specific codes needed to generate an information container unique ID. Examples of other content that might be included in an information standard include:

- The level of information need framework
- Which classification system(s) should be adopted and where
- Requirements for the designation of internal and external spaces.

2.6 Amendments and additions to the information standard

When responding to an invitation to tender, a prospective lead appointed party (such as a consultant or a contractor) is able to suggest amendments and additions to the information standard.

While the original resource may capture the standards that support an appointing party and any previously appointed lead appointed parties, it is vital that any standards that are clearly justified and needed to support any incoming lead appointed parties are also captured so that they are considered and enacted during the generation, approval, authorization, and acceptance of information (see ISO 19650-2, 5.6 and ISO 19650-3, 5.6).

Note: While additions may be welcomed without issue, amendments will need to be considered carefully. This is because these amendments may impact on other delivery teams who are producing and managing information concurrently as well as potentially conflicting with information produced based on the pre-amended information standard, resulting in inconsistent asset information.

3.0 About the information production methods and procedures

3.1 Introduction

To satisfy the requirements of both **ISO 19650-2** and **ISO 19650-3** information production methods and procedures are established by an appointing party to outline the methods and procedures to be followed when managing information in relation to a project and/or asset/portfolio (see ISO 19650-2 clause 5.1.5 and ISO 19650-3 clause 5.1.7 respectively).

While the information production methods and procedures are established at the project and/or asset/portfolio level, it is important that they reflect, and are mutually consistent with, internal organizational standards, methods and procedures. This is to ensure that the delivered information is useable throughout the asset's life cycle and consistent with other information relating to an asset.

The information production methods and procedures are part of the resources which are compiled to form the appointing party's tender information (see ISO 19650-2, 5.2.4 and ISO 19650-3, 5.2.5 plus the resource map in Guidance Part A).

A characteristic of the information production methods and procedures is the ability for a lead appointed party to suggest additions or amendments as part of their tender response. If applicable, these should be articulated as a contract negotiation so that any additions or amendments are made known to all bidders to ensure a fair and transparent tendering process.

Typically read in conjunction with the information standard, the information production methods and procedures are used during the production of information to support the generation, approval, authorization, and acceptance of information (see ISO 19650-2, 5.6

and ISO 19650-3, 5.6).

3.2 Purpose of the information production methods and procedures

The purpose of the information production methods and procedures is to provide the methods and procedures against which information shall be produced and subsequently maintained. Depending on the context, this may be at an organizational level, managing the information across its whole portfolio of assets, or it may be at a project level. To achieve this, the information production methods and procedures are established at the project and/or asset/portfolio level so that all appointed delivery teams deliver project or asset information consistently with each other, regardless of their contractual relationships. This is because while the information production methods and procedures resource is produced once, it will not only form part of the contract documentation for each lead appointed party and their respective sub-consultants and sub-contractors, but will also be the basis for rigorous and consistent maintenance of information through the whole life of the asset/portfolio in question.

For example: Delivery teams which need to work sequentially when servicing an asset or concurrently when delivering a large/complex project.

3.3 Developing the information production methods and procedures

Regardless as to whether being produced to support the delivery of a project or the servicing of an asset, information production methods and procedures are developed in the same manner.

As a technical resource, the information production methods and procedures should include information relating to the information production methods and procedures themselves in the form of a document header or a title block. **BS EN ISO 7200** provides a schedule of fields to be included when producing technical documentation such as: Title, Author and Approver.

3.5 Format of the information production methods and procedures

While ISO 19650-2 and ISO 19650-3 do not specify a set structure for the information production methods and procedures, **PD ISO/TS 12911** (Framework for building information modelling (BIM) guidance) provides a formalized structure which could be adopted.

As a minimum, a clause-based structure should be adopted to enable anyone from the delivery team to reference specific elements of the information production methods and procedures with ease.

In addition, many of these methods and procedures could be captured using information delivery manuals as specified within ISO 29481-1 (Building information models – Information delivery manual – Part 1: Methodology and format.

3.6 Contents of the information production methods and procedures

The information production methods and procedures should include the methods and procedures relating to the capture of existing information, the generation and approval of new information, as well as any methods and procedures relating to security and delivery. In determining these methods and procedures, the appointing party should consider any asset-related, or organizational-related activities for which information may be required for throughout the asset’s life cycle.

For example: The information production methods and procedures relating to the approval of new information should reflect the requirements for the information management process (see ISO 19650-2, clause 5.6 and ISO 19650-3, clause 5.6).

In addition, any methods and procedures identified during the establishment of the security management plan should also be considered for inclusion within the information production methods and procedures (refer to ISO 19650-5 clause 7 and 9.2).

The content within the information production methods and procedures may be the methods or procedures themselves or in the form of references to one or more external sources, such as a British Standard or an online tool.

For example: The information production methods and procedures may describe the process of preparing deliverables (such as drawings, models, other deliverables) prior to their use in an activity such as spatial coordination, quantity take-off by the lead appointed party, or review and acceptance by the appointing party.

3.7 Amendments and additions to the information production methods and procedures

When responding to an invitation to tender, a prospective lead appointed party (such as a consultant or a contractor) is able to suggest amendments and additions to the information production methods and procedures.

While the original resource may capture the methods and procedures that support an appointing party and any previously appointed lead appointed parties, it is vital that any methods and procedures that are clearly justified and needed to support any

incoming lead appointed parties are also captured so that they are considered and enacted during the generation, approval, authorization, and acceptance of information (see ISO 19650-2, 5.6 and ISO 19650-3, 5.6).

Note: While additions may be welcomed without issue, amendments will need to be considered carefully. This is because these amendments may impact on other delivery teams who are producing and managing information concurrently as well as potentially conflict with information produced based on the pre-amended information production methods and procedures; resulting in inconsistent asset information.

3.8 Access to the information production methods and procedures

Prior to the production of information, the appointing party should enable access to the information production methods and procedures via the project's or asset common data environment.

Note: It is likely that the information production methods and procedures will have been revised either during the appointment process or by a previous lead appointed party. As such, it is unlikely that the information production methods and procedures for later appointments would remain on its first revision.

Note: Whilst not explicitly stated in ISO 19650-2 5.4.6, ISO 19650-3 5.4.6 confirms that the information production methods and procedures should be included as an appointment document subject to change control alongside the information standard. It is expected that ISO 19650-2 will be updated to reflect this in a future revision.

4.0 About the BIM execution plan

4.1 Introduction

To satisfy the requirements of ISO 19650 a BIM execution plan (BEP) must be provided by a prospective lead appointed party in their tender response (see ISO 19650-2 clause 5.3.2 and ISO 19650-3 clause 5.3.2). In accordance with ISO 19650, the BEP is one of several resources developed by each lead appointed party on behalf of their delivery team to convey the team's information management approach. This applies in both delivery and operational phases of the asset lifecycle.

With ISO 19650, delivery team capability and capacity, mobilization planning, risk assessment and information delivery planning are dealt with as separate resources, rather than forming part of a BEP. How all of this information is presented to the appointing party is up to the lead appointed party, unless the appointing party has given any firm instructions.

The BEP is a succinct resource that is supplemented by additional resources to be used by the prospective delivery team if appointed.

Readers familiar with PAS 1192-2 will understand that the BEP related to a project under that standard was a single document that included all resources mentioned above.

4.2 Purposes of the BIM execution plan

A BEP has two different purposes in supporting the tender, appointment and information delivery activities:

1. To provide **evidence** to the appointing party that the prospective delivery team can manage information in line with any information requirements provided to them. This is referred to in both ISO 19650-2 and ISO 19650-3 as a ‘‘(pre-appointment) BEP’’.
2. To provide a **delivery tool** that the appointed delivery team will use to produce, manage and exchange information during the appointment alongside other resources.

4.3 The BIM execution plan in ISO 19650-3

Although the BEP started as a resource to support information management in projects, it is also included in the information management process for the asset operation phase. In ISO 19650-3 it is an appointment-level resource (as it is in ISO 19650-2) and each BEP follows the same pattern of development as in ISO 19650-2, starting as a (pre-appointment) BEP, being confirmed by a lead appointed party once they have been selected and then being updated as necessary during an appointment.

In ISO 19650-3 the BEP is defined in less detail than in ISO 19650-2 but covers the same key topics of explaining the resources in the team, responding to the appointing party's exchange information requirements (EIR), federating information and explaining how the team might change during the course of the appointment. This is a deliberate approach in ISO 19650-3 to simplify the production of BEPs for the short, small-scale appointments that are often required during asset maintenance and operation.

However, there is flexibility in ISO 19650-3 for a BEP to include as much detail as necessary. For long-term or complex appointments, the BEP might be developed in as much detail as for a project and thereby resemble the BEP defined in ISO 19650-2.

The rest of this section of Guidance E covers the development of a BEP for ISO 19650-2 and can also be interpreted as the guideline for complex BEPs under ISO 19650-3.

4.4 Changes to BIM execution plan (from PAS 1192-2 to ISO 19650-2)

It is important to note that the BEP has changed significantly when comparing the requirements of ISO 19650-2 to PAS 1192-2. Key differences include:

1. In ISO 19650-2 the BEP is a response to the tender package assembled by the appointing party. The tender package brings together the appointment level EIR and the appointing party's project-wide strategies for information. management. A BEP therefore outlines how each prospective lead appointed party will manage information in accordance with the appointing party's requirements and strategies.
2. In PAS 1192-2 the BEP was arguably the **key** resource for projects whereas in ISO 19650-2 each BEP will serve alongside several other key resources produced by a prospective lead appointed party (such as a mobilization plan, risk register, team capability assessment and detailed responsibility matrix).
3. In PAS 1192-2 the terms pre-contract and post-contract BIM Execution Plan were used. In ISO 19650-2 this has transitioned to a (pre-appointment) BIM Execution Plan and a BIM execution plan. There are two key distinctions here. The first distinction is that a BEP is an appointment level resource rather than a project level resource. The second is removing the clear distinction between a pre-contract and post-contract BEP. The reason for this is that it is viewed as a single resource that must be updated and confirmed for appointment. It is then updated as appropriate throughout the appointment. The purpose of the BEP remains consistent but the content of it may evolve.

Although there is only one BEP for each delivery team there may be two early versions of it. The first version being the (pre-appointment) BEP and the second version offering an update so that it can fulfil its purposes as an appointment resource and one of the delivery team's tools for information

4.5 Commencing the development of a BIM execution plan

In developing the (pre-appointment) BEP the prospective lead appointed party should be aware of three different scenarios:

1. A template is provided by the appointing party as a shared resource (see ISO 19650-2 clause 5.1.6 b) to support the tender and appointment process
2. There is no template BEP provided but the appointing party indicates the contents required to support its evaluation criteria - see ISO 19650-2 clause 5.2.3
3. The appointing party is silent concerning the BEP and therefore the prospective lead appointed party has to respond with a (pre-appointment) BEP in accordance with ISO 19650-2 clause 5.3.2.

The appointing party may choose to adopt scenario 1 or 2 so that they can better assess and compare prospective delivery teams' proposals.

It is recognised that the scenario may exist where the appointing party does not issue EIR or other information management resources thereby contravening ISO 19650. In this scenario it is advised that the prospective lead appointed party considers developing a BEP which anticipates the EIR (or other information management resources) that would support a positive outcome for the project and appointing party.

It should be emphasised to the appointing party that in doing so the project is not following ISO 19650 and that action should be taken to resolve this in collaboration with the delivery team.

4.5.1 (Pre-appointment) BEP process

A simplified illustration of the (pre-appointment) BEP is included as part of Figure 7

Figure 8: Simplified process leading up to the (pre-appointment) BIM execution plan

Refer to the resource map in ISO 19650 Guidance Part A to see the relationship between all resources.

NOTE: The same lead appointed party may be appointed multiple times throughout the life of a project (for example, in a 2-stage design and build scenario or where a single organisation is appointed for differing scopes of services). In any of these scenarios the pre-appointment BEP activity will be repeated but this should be proportionate to the changes necessary to reflect the different nature of the appointments.

4.5.2 Format of the (pre-appointment) BEP

ISO 19650-2 is not prescriptive about the format of the BEP and therefore it could take the form of a single word-based document or a web-based tool. The same document or tool could include several tender response resources alongside the (pre-appointment) BEP.

This format may be pre-determined by the appointing party. This may come in the form of a template which would be an example of a shared resource (ISO 19650-2 clause 5.1.6) or as a list of headings.

If no requirement has been set by the appointing party, then it is up to each prospective lead appointed party to determine the format, ideally in collaboration with their delivery team.

4.5.3 Contents and example of a (pre-appointment) BIM execution plan

ISO 19650-2 recommends the contents of the (pre-appointment) BEP in clause 5.3.2 and sets out the key considerations in establishing a delivery team's BEP. This is done using the term 'shall consider' whereas ISO 19650-2 clause 5.4.1 stipulates the contents of a BEP contained in an appointment using the instruction 'shall'.

In responding to ISO 19650-2 clause 5.3.2 a (pre-appointment) BEP may comprise several different aspects as indicated in the blue and green shading in the figure below:

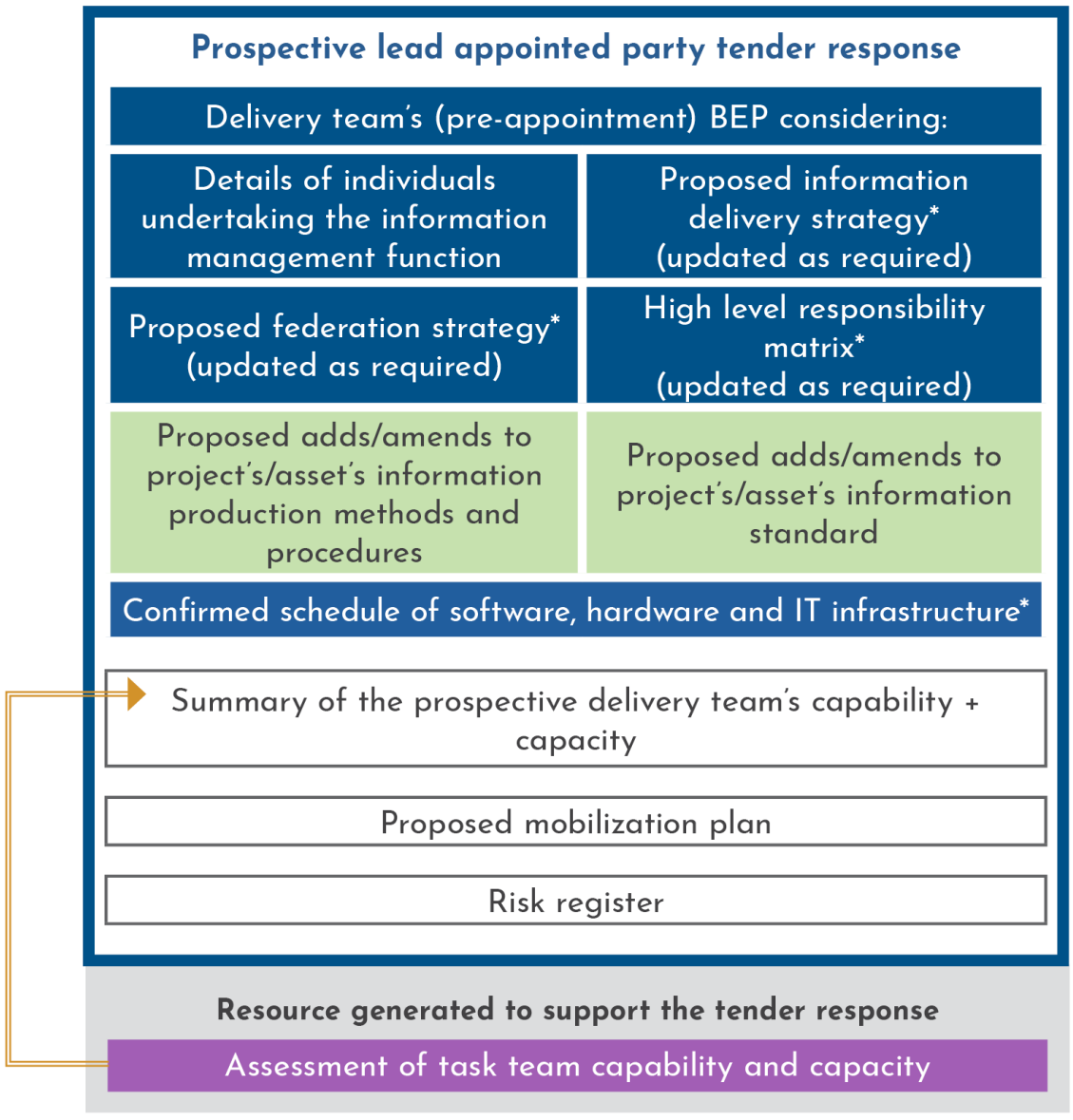


Figure 9: Extract from ISO 19650 Guidance Part A resources map showing the tender response resources

Each aspect of a BEP is considered in further detail as follows. Note that, the example provided here shows what a BEP could look like, and the contents are for illustrative purposes only. The intention of the example is to explain how a BEP is created. It should not be considered as a template and should not be copied verbatim.

Provide the details of individuals undertaking the information management function.

When considering the individual(s) who will undertake the information management function, each prospective lead appointed party should consider individuals in their organisation and their likely task teams (a task team can be internal or external to the prospective lead appointed party organization). This is to offer assurance that the function will be fulfilled through adequately competent people. Once the activities of the information management function have been assigned (see ISO 19650 Guidance Part A), a (pre-appointment) BEP should record information about individuals undertaking that function. Information that should be recorded includes:

Table 3: Individuals that will undertake the information management function

Organization name	Scope of	Information management	Professional experience *

	appointment	function delivered by	
Project Management Consultants Limited	Project Management	Barbra Munchin	4 years of experience in delivering information management function activities for commercial fit-out projects.
	Quantity Surveying	Robert White	2 years of experience in delivering information management function activities.

* This can be complemented by resumes that highlight and detail the experience.

It is important to note that anecdotally organisations may have previously included “roles" such as “BIM manager” within this table. One of the key shifts in ISO 19650-2 is the focus on assigning responsibility and accountability for information management tasks, rather than asking individuals to fulfil loosely defined information management roles.

Proposed Information delivery Strategy

In establishing a delivery team’s (pre-appointment) BEP, a prospective lead appointed party should consider their information delivery strategy. The purpose of this is to:

- Set out the delivery team’s approach to meeting the appointing party’s EIR. In doing this the prospective lead appointed party should consider and work through each information requirement and respond to the level of information need, acceptance criteria and delivery dates set by the appointing party in accordance with ISO 19650-2 clause 5.2.1
- Provide a set of objectives/goals for the collaborative production of information. For instance, this can be to ensure the smooth hand-over of information to the asset operator or to enable environmental and cost-impact analysis of design)
- Provide an overview of the delivery team’s organizational structure and commercial relationships, and to
- Provide an overview of the delivery team’s composition, in the form of one or more task teams. For example, the relationship between appointed parties and task teams might be a straightforward one-to-one, or might be more complicated (multiple appointed parties forming a multi-disciplinary task team, or one appointed party engaging in several task teams). For more information, refer to Figure 2 in ISO 19650 Guidance Part 2 for project delivery.

Proposed Federation Strategy

The proposed federation strategy should consider the scope of the appointment and the information to be delivered. This can be considered in two parts.

Part one involves defining the strategy, including why information should be federated and which information should be federated.

Table 4: Federation purpose and category

Federation purpose	Federation category
Security mindedness: Assure security around the production and coordination of information	Sensitive information
	Public information
	etc.
Asset Handover: Assure the availability of information for asset operators	Spatial information
	System information
	Product information
	etc.
Net-Zero assessment: Assure the availability of information to assess carbon impact	Material information
	Supply chain and logistics information
	etc.

Part two involves defining an appropriate breakdown structure to enable the federation of information, as considered further in the delivery team’s high level responsibility matrix.

The delivery team’s high-level responsibility matrix

A BEP should include a high-level responsibility matrix (see Guidance Part F for more information about this). Below is an example of a delivery team’s high-level responsibility matrix, containing the allocated responsibility for each element of the information model and the key deliverables associated to each element.

Table 5: Example high-level responsibility matrix

Information model element/deliverables	Project Management	Quantity Surveying

Project's management plan	Responsible and Accountable	
Order of cost estimate	Informed	Responsible and Accountable
Cost plan 1	Informed	Responsible and Accountable
Cost plan 2	Informed	Responsible and Accountable
Risk analysis	Responsible and Accountable	Consulted
etc.		

Proposed additions/amendments to the project's information production methods and procedures (if there are any).

The project's information production methods and procedures should be defined by the appointing party where they have specific requirements. Then, the prospective lead appointed party should review and propose amendments and additions to the information production methods and procedures where necessary. While the proposed additions/amendments should be welcomed by the appointing party they do not have to be accepted. If a prospective lead appointed party has their own more detailed information production methods and procedures in a separate resource, reference can be made to this. (Refer to section 3.0 in Guidance Part E for more information on this topic)

Proposed additions/amendments to the project's information standard (if there are any).

The project's information standard should be defined by the appointing party. However, the prospective lead appointed party should review and propose amendments and additions to the project's information standard where necessary. While the proposed additions/amendments should be welcomed by the appointing party they do not have to be accepted. For further information about the project's information standard, refer to Section 2.0 in Guidance Part E.

Proposed schedule of software, hardware and IT infrastructure

The delivery team should detail the software, hardware and IT infrastructure that will be used throughout its appointment. This information is important so that the client has a project wide understanding of systems in use. This also enables the prospective lead appointed party to identify and manage any potential systems alignment issues.

The schedule could be presented in two parts. One that outlines the software and another that outlines hardware and infrastructure. Examples are as follows.

Table 6: Sample software schedule

Software purpose	Organization Name (Used by)	Software Name	Software Version	Build/Release Code/Service Pack *
Design Authoring	ABC Consultants	Autodesk Revit	2018	Service Pack 2
Costing and quantification	ABC Consultants	iTwo CostX	6.9	n/a
Carbon analysis	ABC Consultants	One Click LCA	n/a	n/a

* Completing the information about the Build/Release Code/Service Pack will help to ensure that all members of a delivery team have access to the required software updates. This can help resolve software-based issues.

Table 7: Sample hardware schedule

Hardware purpose	Organization Name (Used by)	Hardware Type	Hardware Description
Design Authoring	ABC Consultants	Laptop	[Insert description]
Field Management	ABC Consultants	Tablet	[Insert description]

4.6 The delivery team's BIM execution plan

In the process of finalizing the appointment for each lead appointed party their (pre-appointment) BEP is revisited and updated as required to address the contents set out in ISO 19650-2 clause 5.4.1.

Any agreed alterations to the project's information standard should now be reflected in that project wide resource. The proposed federation strategy should now be captured in the master information delivery plan.

There may be delivery team information production methods and procedures which are consistent with but go beyond the project wide information production methods and procedures which need to be set out in the delivery team's BEP.

The BEP should be updated to confirm:

- The responsibility and the names of individuals who will undertake the information management function.
- The schedule of software, hardware and IT infrastructure that the delivery team will use.
- The delivery team's information delivery strategy (as required)

- The delivery team's high-level responsibility matrix (as required). Note that ISO 19650-2 clause 5.4.2 requires that the high-level responsibility matrix is further refined and developed into a detailed responsibility matrix to identify what information is to be produced, when and by whom (i.e. which task team). This detailed responsibility matrix is as a separate resource that does not form part of the appointment documents. Refer to Guidance Part F for further details.

These BEP updates may be necessary for several reasons such as time elapsed to complete the tendering process or appointment as well as the progressive understanding of delivery team and task team composition.

Each delivery team BEP must be confirmed between:

- The appointing party and the lead appointed party (ISO 19650-2 clause 5.4.6)
- The appropriate lead appointed party and each of their appointed parties (ISO 19650-2 clause 5.4.7)

As the BEP is a formal appointment resource it will need to be subject to a change management process throughout the duration of the appointment. For example, as more appointed parties join the delivery team the responsibilities and names of individuals as well as the software, hardware and IT infrastructure should be updated.

4.7 Checklist of actions/ key points to consider

- The BEP is developed by the lead appointed party on behalf of its delivery team and ideally in collaboration with its delivery team.
- If you are a prospective lead appointed party, develop the (pre-appointment) BEP as part of your tender response
- If you are a prospective appointed party brought on board during the lead appointed party's tender period, contribute your ideas and knowledge to the development of the (pre-appointment) BEP
- Consider the points a) to g) in ISO 19650-2 clause 5.3.2. Additional considerations for your BEP can be included – these might be stipulated by the appointing party, the nature of the project or by your own corporate policies and procedures
- Review and confirm the BEP during the period between your appointment being indicated by the appointing party and the contract being signed and ensure that it meets the requirements of ISO 19650-2 clause 5.4.1
- Keep your delivery team's BEP up to date throughout your appointment, using change management processes.

5.0 Mobilization planning

5.1 Introduction

Parts 2 and 3 of the ISO 19650 series introduce a formal requirement to plan for, and subsequently execute the mobilization activities for information management for each lead appointed party appointment. ISO 19650-4 also covers mobilization and testing prior to information exchange, with a particular emphasis on software.

Some of the drivers for establishing a mobilization plan are to:

- Demonstrate to the appointing party (client/asset owner) that a prospective lead appointed party has considered all tasks required to effectively mobilize their appointment and that the plan, if effective, can reduce risks and delays to the programme. For example, the appointing party may have experienced delays previously due to poor mobilization, meaning a robust plan will be well received.
- Help a lead appointed party consider what is required to effectively get their appointment started – the very act of devising a plan will mean delivery team members consider the tasks and responsibilities needed to fulfil their appointment.
- Ensure all members of a delivery team understand what is expected of them prior to work starting, allowing them time to plan for mobilization activities. For example, if a task team recognises the need for additional resources to deliver against the information requirements, time to recruit those team members can be added to the mobilization plan.

As the use of digital tools and systems increases across all aspects of design, construction and operation, mobilization activities may involve a broader range of supporting roles from across the various parties. For example, testing the common data environment (CDE) implemented by the appointing party could fall to their in-house information and communication technology team, whereas testing the exchange from a lead appointed party to the CDE could be done by their document control function, as they have the day to day experience.

5.2 Mobilization Stages

There are two distinct mobilization stages set out in the ISO 19650 series – Clause 5.3.5 for creating a plan, and clause 5.5 where the plan is executed. It's worth noting that the clause numbers are the same in both ISO 19650-2 and ISO 19650-3.

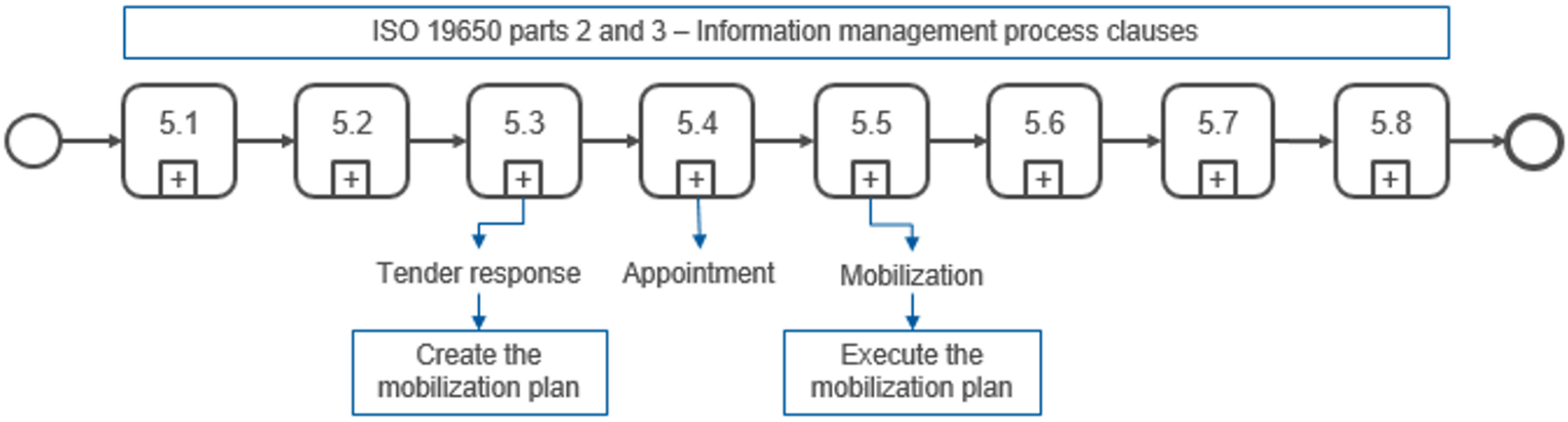


Figure 10: Mobilization stages

Ideally, the appointing party will articulate their requirements for a delivery team's mobilization plan, as indicated in ISO 19650-2 clause 5.2.3, which covers tender response and evaluation criteria.

5.2.1 Pre-appointment stage (clause 5.3.5)

A prospective lead appointed party, in conjunction with their proposed appointed parties (i.e. their delivery team) considers mobilization tasks needed to meet the appointing party's requirements. As well as considering the appointing party's requirements, a prospective lead appointed party will include their own delivery team's mobilization requirements.

Both ISO 19650 parts 2 and 3 provide for a logical workflow through pre-appointment clause 5.3 as follows:

- A pre-appointment BIM execution plan (BEP) is created based on the client/asset owner's invitation to tender (5.3.2), then
- Prospective task teams are considered, based on their capability and capacity to deliver the appointing party's information requirements (5.3.3), next
- A plan is created to record the mobilization activities identified (5.3.5), and then
- Any risks identified in completing these tasks are assessed (5.3.6).

The mobilization plan and risk register are closely linked at this stage, as some risks could be mitigated or managed by adding activities to the mobilization plan.

For instance, if a risk is identified relating to a software application used during the appointment that is unfamiliar to one or more task teams, then the mitigation would be to include training and awareness sessions for these teams as activities in the mobilization plan.

From the appointing party's perspective, this process provides reassurance that mobilization, and associated risks, are being considered by every prospective lead appointed party.

5.2.2 Mobilization stage – Implementing the plan (ISO 19650 parts 2 and 3, clause 5.5)

The mobilization plan established at the pre-appointment stage should now be executed during the mobilization stage itself. Remember the mobilization plan is one of the tender response deliverables, and must be shared by each lead appointed party for their task teams to follow.

A lead appointed party can, of course, add activities to their mobilization plan, and remove those that may no longer be required. For the latter, the lead appointed party should consult with the appointing party and their delivery team **before** any task is removed.

Where the plan identifies training requirements, these should be delivered with time to spare, allowing task teams to distribute this training through their own internal operations.

In mobilizing for asset management activities, according to ISO 19650-3, there is an additional task to maintain the team's mobilization between trigger events. This will be relevant for regular call-off activities such as system inspections across an estate.

Finally, implementing the mobilization plan isn't necessarily a discrete activity:

1. Mobilization may span a long period of time if appointed parties don’t all join a delivery team at the same time
2. Mobilization for reasons other than information management may also be taking place (for example, site establishment for a contractor). In this case information management mobilization might be combined with other mobilization activities.

6.0 Summary

ISO 19650 Guidance E has provided further insight into the UK BIM Framework Information Protocol Template, the information standard and the BIM execution plan. These are all resources that form part of the tender and appointment documents.

It should be referred to by practitioners and those implementing the ISO 19650 series across a project, within an appointment or within an organization.

Please note that the ISO 19650 series is still new, albeit based on former UK standards. As experience of implementing the ISO 19650 series is gained over the coming months and years, this guidance will be updated to reflect both this experience and any comments/ feedback received from users. It will also be updated to include guidance about additional resources such as the information production methods and procedures.

Please do let us have your feedback by emailing us at guidancefeedback@ukbimframework.org.

Please also remember that standards within the ISO 19650 series are available at www.bsigroup.com.

Visit www.ukbimframework.org to see how the ISO 19650 standards plus other standards within the UK BIM Framework map to the design, build, operate and integrate process.

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