



Making the UK BIM Framework Work for Clients and Asset Owners

A workshop delivered at Digital Construction Week 2024

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On behalf of nima
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About the UK BIM Framework

The [UK BIM Framework](#) represents the collection of standards, guidance and additional resources that support organisations to manage information about built assets.

The standards set out the context for information management plus the information management process and the requirements and recommendations within it. The standards include:

- the BS EN ISO 19650 series covering information management using building information modelling (BIM)
- BS 8536 Design, manufacture and construction for operability – code of practice, and
- PAS 1192-6 (until it is superseded by ISO 19650-6) Specification for the collaborative sharing and use of structured health and safety information using BIM.

The standards typically focus on ‘what’ should be done to manage information in the context of the built environment. The UK BIM Framework [guidance](#) covers the ‘why’ and ‘how’ with the [resources](#) offering practical tools that can be used/adopted.

The Information Management Mandate, which is conveyed through the policy paper [Transforming Infrastructure Performance Roadmap to 2030](#), sets out the information management requirements for government clients that will be delivered through the application of the UK BIM Framework. The adoption of the UK BIM Framework is also endorsed through the [Construction Playbook](#) and [Trust and Productivity](#), the private sector construction playbook.

The inclusion of standards within the UK BIM Framework is reviewed periodically and it is possible that more standards will be included over time. The guidance is an evolving resource.

The UK BIM Framework is maintained by [BSI](#) and [nima](#).

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Aim of the activity

This report sets out the findings from a workshop held at **Digital Construction Week 2024**. The workshop was facilitated by David Churcher and Sarah Davidson and participation was voluntary.

The aim of the workshop was to explore the priority tasks set out in the UK BIM Framework that involve project clients and asset owners. The objectives were to:

- Encourage open discussion about information management from the client and asset owner perspective
- Produce a list of tasks that are perceived as a necessary part of information management alongside a rationale for them
- Set out the extent to which the UK BIM Framework captures/supports/underpins these tasks
- Generate a list of priority tasks that are needed for successful information management.

How the activity was operated

The workshop was held during a 45-minute session at the Information Management Exchange at DCW on 5 June 2024 from 13:30 to 14:15. Participants divided themselves into sub-groups by sitting at one of at five separate tables. Each table had approximately 10 people and there was also a sixth ad-hoc overflow group.

After a brief introduction and scene-setting presentation, each group was asked to discuss one of the three questions (see below) and to brainstorm their ideas. Each group was then asked to select its top two priority answers. The priority answers were collected as feedback by the facilitators and typed onto the screen so that everyone could see what was being suggested. This took most of the 45 minutes.

The last few minutes of the session were used by the facilitators to note how the UK BIM Framework supported the suggestions from the participants.

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Who participated and when

A total of 86 individuals were logged by DCW organisers as visiting the Information Exchange between 13:02 and 13:43. As the workshop started at 13:30 and the capacity of the space was about 60 people, some of those logged were not actually participating in the workshop session (or might have left before the workshop began). No formal register was made of those in the workshop groups, but a review of those logged by DCW organisers gave the following rough breakdown:

- 25% client organisations/asset owners
- 20% contractors/specialist installers
- 25% design and cost consultants
- 30% information and other consultants.

If the breakdown of those participating was similar to this, then across the sub-groups there was a good representation of different types of organisation in the workshop. Thank you to all those who took part!

What were the questions asked

The workshop asked participants to consider one of three questions in relation to the information management process laid down in ISO 19650. Each question assumes that clients and asset owners need specific information to successfully design, construct, operate, maintain and/or dispose of a built asset. The questions are:

1. What do clients/asset owners need to do for themselves and why?
2. What do clients/asset owners need to do for their supply chain and why?
3. What do clients/asset owners need their supply chain to do for them and why?

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Observations from the workshop responses

The responses to each of these questions are set out in **Annex A** (the priority issues raised by each tabled are denoted by *). Guidance is provided about how the UK BIM Framework can be used to assist clients and their supply chain to produce, deliver and accept the information that is needed for project, asset or organisational purposes. The following observations were made in the process of reviewing and responding to the workshop outputs:

The **primary** insight is that there is a lack of understanding amongst some clients about the ‘power’ of the information management process to enable them to get what they need. There may also be a lack of understanding from some members of the supply chain about the implications of not implementing the information management process from their side.

Additional observations

There is an absolute need for appointing parties (clients/asset owners) to be proactive and take ownership of information management.

Clients expect a lot of help from the supply chain.

The supply chain should recognise that they’re in a good position to understand some of the information the client should have

The critical importance of all the information management resources, not just the information requirements (EIR) and a BIM execution plan (BEP)

There is a lack of understanding of the review, authorise, accept/reject process to ensure delivered information is useable

The need for communication and leadership from clients in terms of the culture they encourage

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Recommendations arising from this workshop

Six main recommendations are proposed following the workshop – nima should explore:

1. Raising awareness amongst clients and asset owners about how the information management process delivers value to their projects and asset management activities
2. Publicising the importance of **all** the information management resources that are specified in the ISO 19650 standards, beyond the EIR and BEP
3. Strengthening its guidance around clients and asset owners communicating their requirements clearly, and providing leadership to their project or asset supply chains
4. Developing its guidance about the information sharing/authorisation/acceptance and rejection process to improve understanding and adoption of this process for the benefit of project and asset teams
5. How to raise awareness amongst the supply chain about the potential use of the information they generate and how to integrate this into information delivery plans
6. Promoting the availability and application of the information protocol templates to assist project and asset teams to appropriately capture information management obligations.

Please continue to provide your feedback on the UK BIM Framework guidance

The UK BIM Framework guidance is an evolving resource. It represents the collaborative effort of experts from across the UK who volunteer their time to support the implementation of information management standards. Your feedback on the [guidance](#) is welcome and this can be provided [here](#). If you would like to contribute to the development of the guidance then please get in touch with either [David Churcher](#) or [Sarah Davidson](#). They would be pleased to hear from you!

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Annex A: Outputs from each discussion point

The following tables set out the responses generated to each of the questions posed at the workshop. Each response has been considered in the context of the UK BIM Framework (referred to as UKBIMF). An asterisk * indicates the responses that each table agreed were a priority.

Question 1 – What do clients/asset owners need to do for themselves and why? (two tables covered this question)		
What	Why	How is this supported through the UK BIM Framework?
Identify the maintained assets for their project *	[To understand the] life cycle of their assets	ISO 19650-3 clause 5.1.3 requires an appointing party to identify the assets for which information needs to be managed.
Set end goals (OIR)	To get value out of the information [they are asking for]	ISO 19650-3 clause 5.1.2, 5.1.4 and ISO 19650-2 clause 5.1.2 require an appointing party to set their high-level requirements and understand why they want information.
Understand what exactly they want from the asset	To reduce unnecessary work	This is not explicitly covered in ISO 19650. But this would be covered in the ISO 55000 standards (asset management system), which are referred to from ISO 19650-1. This topic is also covered in the UK BIM Framework Guidance to ISO 19650-3.
Define information requirements * Need to have clear EIR that comply with the standard [the ISO 19650 series]	To ensure consistent procurement of data that aligns to business requirements for whole life cycle operation and maintenance So that the correct information is obtained	ISO 19650-3 clause 5.1.2, 5.1.4 and ISO 19650-2 clause 5.1.2 require an appointing party to set their high-level requirements and to understand why they want information. ISO 19650-2 clause 5.2.1 and ISO 19650-3 clause 5.2.2 require EIRs to be developed for each appointment. UKBIMF Guidance D gives examples of all types of information requirements.
Embed IM culture and resource appropriately		This is not explicitly covered in UKBIMF. But it can be seen as an important part of the information management function. Guidance A talks briefly about organisations having the necessary behaviours.

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Provide IM leadership within the client organisation *	So the supply chain effort isn't wasted and information continues to be maintained [after it is acquired]	Similar to above, leadership is not explicitly mentioned in ISO 19650 or UKBIMF.
Have clear methods of information delivery	To get the information right first time and avoid rework	<p>Methods of delivery are covered by the information standards and the production methods & procedures. There are requirements in ISO 19650-2 clauses 5.1.4 and 5.1.5, and in ISO 19650-3 clauses 5.1.6 and 5.1.7 for appointing parties to start developing these resources.</p> <p>There are then opportunities for lead appointed parties to propose changes as part of their tender response.</p>
Ensure supplier has capacity to deliver	To mitigate against failed delivery	This is covered in the capability and capacity assessment that is done by each delivery team and submitted to the client/asset owner as part of the tender response in clause 5.3 of both ISO 19650-2 and ISO 19650-3. While the standards do not currently require the appointing party to review these assessments as part of tender selection, it is felt many clients would do this as a matter of course.
Communicate the client requirements and organise meeting [to check] whether supply chain has understood	Client needs to understand that supply chain needs time to grasp client information [requirements] and to prepare for qualitative and quantitative response	The UKBIMF concentrates on the appointing party setting out their requirements, not on how they do that or check supplier understanding. Mid-tender meetings are good practice and could cover this aspect.
[Set up an] exchange protocol	To ensure smooth transition from supplier to client in a structured way	This is about exchange of information between lead appointed parties and appointing party. This is a combination of the MIDP (overall timetable of deliverables from each delivery team), the

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		Information Standard/Information Production Methods & Procedures (how information is to be delivered), and the EIRs (containing the timing of each exchange).
[Have an] AIM CDE	To publish data and info to ensure it's retrievable (interoperable)	ISO 19650-3 clause 5.1.9 requires the appointing party to set up the CDE for asset operational information, and clause 5.1.12 requires them to have processes to maintain the AIM. Guidance 3 section 7 gives some guidance on this.
[Have a] robust assurance process	Quality control/data quality	ISO 19650-4 amplifies the requirements in ISO 19650-2 and ISO 19650-3 around reviewing and checking information deliverables. The acceptance criteria in the EIR also play a role here in specifying the client/asset owner's expectations. Although the ISO 8000 standards exist relating to Data quality, there is no direct reference to these standards in the UK BIM Framework.
[Understand the] purpose of the requirements and communicate the intention of the data *	The data is of better use if all parties understand the purpose	Although ISO 19650 asks appointing parties to work out their overall reasons for needing information and what kind, there is no obligation to share this with the supply chain (except as EIRs). It could be seen as good practice to provide suitable background to the EIRs, to help supply chains understand why information is being asked for.

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Question 2 – What do clients/asset owners need to do for their supply chain and why? (one table covered this question)		
What	Why	How is this supported through the UK BIM Framework?
Set clear requirements *	So that the supply chain is able to deliver what the client needs	ISO 19650-3 clauses 5.1.2, 5.1.4 and ISO 19650-2 clause 5.1.2 require an appointing party to set their high-level requirements and understand why they want information. ISO 19650-2 clause 5.2.1 and ISO 19650-3 clause 5.2.2 require EIRs to be developed for each appointment. UKBIMF Guidance D gives examples of all types of information requirements.
Engage early [with the supply chain]	So the supply chain can be proactive and plan, rather than reactive	The ISO 19650 process asks appointing parties to make information management activities part of their tendering and selection processes. It also asks appointing parties to assess their information needs ahead of issuing any tender packages, i.e. to be prepared ahead of going out to tender for any project or asset related service (design, construction, maintenance etc).
Education	So the supply chain understands what the client wants	Education of the supply chain by the appointing party is not explicitly mentioned in ISO 19650. The capability assessment is assumed to provide evidence to support selection, and that any need for education within a delivery team will be addressed in its mobilization plan.
[Have a] collaborative approach *	An open conversation to better understand the right way to do things, and allowing everyone to be proactive rather than reactive	ISO 19650, and therefore the UKBIMF, is presented as a collaborative working approach. This is not explicitly stated in the requirements, but is covered in Guidance 1 (where most but not all the references relate to the CDE).
Standardised template	Consistency across the board in terms of deliverables	Templates are not provided in ISO 19650. But ISO 19650-2 and ISO 19650-3 both mention templates as ways to provide consistent application of the requirements (as shared resources issued by appointing parties). The information management

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		<p>assignment matrix in ISO 19650-2 Annex A has been developed further in Guidance A and as a standalone UKBIMF Resource.</p> <p>Although not part of the UKBIMF Guidance, there has been some work done in Europe (by CEN) on templates for EIR and BEP.</p>
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Question 3 – What do clients/asset owners need their supply chain to do for them and why? (three tables addressed this question)		
What	Why	How is this supported through the UK BIM Framework?
Support and use information management processes*	So that clients can collate and store long terms information about the assets	The onus is really on the client set up the information management framework for the supply chain by setting out their information needs in tender and contract documents. However, there will be clients who don't have the knowledge/skills/insight needed to understand their information needs or to know how to express them. The ISO 19650 series has no requirement for the supply chain to take the lead on the information management process in such a case. But it would be sensible for them to do so and beneficial to them and the client.
Provide information in an interoperable format*	So that clients can access and use information without being limited by proprietary software	The UKBIMF recognises the benefits of open data, highlighting it first in ISO 19650-2, clause 5.1.6 with the recommendation that reference information and shared resources are provided using open data standards. NA5.1 in the ISO 19650-2 National Annex provides more direction, requiring geometrical models, alphanumerical and documentation to be provided in open data formats. The Notes to this clause provided recommendations for open data formats and the standards that govern them (such as IFC). The requirement to provide information in an open data format should be expressed in the information standard, and acceptance criteria set out in an EIR.
Provide a collated set of useful data	So that it can support the use/operation of their asset	The principle of information exchange and generating an information model is based on a 'collection of useful data'. The

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Hand over comprehensive as-built asset information in a useful format	So that clients have as built asset information that is reliable, accessible and useable.	<p>data might not be held in one file, but in a collection of them that are identifiable through the status code assigned to them.</p> <p>The extent to which data is ‘useful’ comes down to what data is provided and how it is provided. Whilst the UKBIMF requires that a client specifies their information requirements (through an EIR and supporting resources) it is likely that the supply chain will understand what data will be useful, particularly in terms of maintenance and operation of systems. Although the UKBIMF doesn’t recognise this as part of the information management process, supply chain provision of information that is deemed useful and is additional to that set out in an EIR could be expressed in a TIDP and MIDP.</p> <p>The information management process is based on the principle of only providing the information the client requires. But the review, authorise and accept activities set out in both ISO 19650-2 and 3 focus particularly on making sure that information (how it has been produced, how it’s identified and its contents) goes through a checking process before it reaches the client. Then when it reaches the client the checking process is repeated. This should ensure the client receives the information they can use. Instances where data and information hasn’t been provided as required – for example if it is not clear or not structured as it should be can therefore be picked up at three points:</p>
Cover the scope of data needed to support/that is aligned with client FM systems	So that FM systems can be properly populated in a straightforward way	
Contractors to provide as built asset model structured to transfer smoothly into FM teams*	To ensure a successful facility	
Deliver the information the client requires	So that they have information that can be used	
Deliver high quality data and information inline with the IM requirements*	So that clients have information that they require	
Issue verified/checked data and information	So that clients can have confidence the data and information reflect their requirements	
Provide clear and structured information	So that the information is understandable and can be used	
Deliver an as-built AIM with COBie and classification	To enable FM update and to enable clients to get what they asked for and that it works	

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<p>Deliver information/data in the format requested by the owner</p>	<p>So that it meets requirements and presumably can be used</p>	<ol style="list-style-type: none"> 1. Through review prior to sharing (i.e. before one task team shares with another). Done by a task team 2. Through review prior to authorisation (that is authorisation of an information model for delivery to the client). Done by a delivery team 3. The review prior to acceptance by the client. Done by the client
<p>To ensure all information is up to date and delivery is fulfilled</p>	<p>So that asset owners can use the information model practically</p>	
<p>Consultants to provide integrated decision support information at exchanges*</p>	<p>To progress the project</p>	<p>Following on from the response above, it's worth distinguishing between review for sharing and review for authorisation plus information container and information model.</p> <p>An information container is defined in ISO 19650-1 and we can think of an information container as a discrete set of information. An information container could be a single file or a set of files that convey consistent information (such as concrete test results).</p> <p>An information model can be thought of as a set of information containers that are reviewed for authorisation/acceptance at the same time.</p> <p>The information containers and ultimately an information model, respond directly to the information requirements set out by the client.</p>

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		<p>‘Review for sharing’ is done at the information container level to check that each information container meets the client’s and supply chain requirements.</p> <p>The ‘review for authorisation’ is done at the information model level and this review necessary requires the considered of integrated information.</p> <p>In summary the UKBIMF addresses this requirement through the information model review process (see ISO 19650-2 and –3 clauses 5.6 and 5.7)</p>
<p>Contribute digitally all information to the health and safety file</p>	<p>To have confidence in access to and content of the health and safety file</p>	<p>The way in which information is to be provided (i.e. hard copy, or digitally) should be expressed by the client in the information production methods and procedures and information standard. Then these resources can be referred to stipulate acceptance criteria for each information deliverable that is set out in an EIR.</p> <p>The process of review, accept, authorise (see above) the gives both the supply chain and the client the ability to accept or reject information if it isn’t as it should be.</p> <p>Both ISO 19650-2 and 3 provide the client with the levers necessary to require the provision of information in a specific way – but they must be explicit about the requirement rather than have an unwritten expectation.</p>

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<p>Consider and maintain a risk register as part of their appointment</p>	<p>So that risks are effectively identified, evaluated and addressed</p>	<p>The requirement to create a risk register that covers information risks is set out in clause 5.3.6 in both ISO 19650-2 and 3. The note to this clause suggests than a risk register covering the information risks can be incorporated into a broader project risk register. Taking this approach would improve how information management is embedded into projects and it would retain the same focus on information-based risks as on other project risks.</p>
<p>Help clients to manage the physical and virtual asset data using digital twin methodologies</p>		<p>The use of data and information and the requirements for one party to assist another in terms of digital twin methodologies are outside the scope of the UKBIMF. Tackling this ‘ask’ would need to be addressed through specific contracts/appointments.</p>
<p>Populate and share TIDPs</p>	<p>So that clients know what information is to be produced and when</p>	<p>A TIDP is an appointment resource according to both ISO 19650-2 and 3 and incorporating a TIDP provides the mechanism to ensure that it is populated. But it works hand in hand with an EIR and the EIR is needed to provide the first steer on what information is to be produced and when it’s to be exchanged.</p>
<p>Educate clients (about data and information processes) *</p>	<p>Because clients don’t know what they don’t know</p>	<p>This is an important point that isn’t explicitly covered by the ISO 19650 series. But there is a practical aspect in that the supply chain is likely to understand the operational and maintenance requirements of the systems they install as well as, if not better than the client. Supply chain provision of information that is deemed useful and is additional to that set out in an EIR could be expressed in a TIDP and MIDP. Just because an information deliverable isn’t listed in an EIR, it doesn’t mean it shouldn’t be provided if there is good reason for doing so.</p>

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		SD note: this doesn't fully answer the question
Complete capability assessments and nominate responsible persons	So that suitably capable people/organisations are appointed	This is part of the information management process and is covered by tender response activities set out in both ISO 19650-2 and 3. Making the provision of capability assessments and identification of responsible people (in terms of information management) part of the tender evaluation process (ISO 19650-2 clause 5.2.3 and ISO 19650-3 clause 5.2.4) should encourage the supply chain to complete this activity.
Classify their information deliverables	To enable them [clients] to sort, retrieve and use the information To unlock its value 'in use'	In terms of classification, the UKBIMF supports this in three ways:
Deliver an as-built AIM with COBie and classification	To enable FM update and to enable clients to get what they asked for and that it works	<ol style="list-style-type: none"> 1. It requires that a common data environment enables information containers to be assigned metadata in the form of 'classification'. This is set out in ISO 19650-2 clause 5.1.7 and ISO 19650-3 clause 5.1.9. 2. It advocates for the required classification approach to be set out in the information standard produced by the client (ISO 19650-2 clause 5.1.4; ISO 19650-3 clause 5.1.6) 3. It requires an information review is carried out as part of authorising information to be exchanged with the client. This review should consider if the information has been classified as set out in the information standard. If it hasn't then the information shouldn't be authorised. If information hasn't had classification assigned but nevertheless slips through the authorisation process, the client can reject the

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		information when they are reviewing it as part of their acceptance process. This is set out in clause 5.6 and 5.7 of both ISO 19650-2 and ISO 19650-3.
Deliver information by the given time	So that the information is available for use	This really comes down to two issues, both covered by the UKBIMF:
Deliver [to the] PIR on time to required level of information need	To support client decisions	<ol style="list-style-type: none"> 1. The timing of information delivery. ISO 19650-2, clause 5.2.1 gives the client the ability to specify a key date for the delivery of each aspect of information. Key dates are set out in EIR (rather than PIR, noting that PIR do not need to be shared with the supply chain according to the ISO 19650 series). A key date might not be specific (dd/mm/yyyy), it can be relative (for example relative to a stage or gateway). ISO 19650-3 clause 5.2.2 refers to EIR setting out the timing and frequency of information exchange rather than 'key dates' but the intention is the same. 2. The requirement to deliver to time. The existence of an EIR isn't enough to create the obligation to deliver information at certain timescales. An EIR, alongside all other information management resources needs to be bound to a contract or an appointment and this can be done by incorporating them through an information management protocol. The UKBIMF provides easy to use (free!) information management protocol templates – one to support ISO 19650-2 and the other for ISO 19650-3.

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		<p>Each TIDP should also identify the delivery milestone for an information deliverable (ISO 19650-2 and ISO 19650-3 clause 5.4.4).</p>
<p>Provide their BEP/TIDP/MIDP</p>		<p>The UKBIMF address this requirement in multiple ways:</p> <ol style="list-style-type: none"> 1. To produce a BEP, TIDP and MIDP, supply chain need to have something to respond to. It's difficult (although not impossible) for the supply chain to provide a BEP and their information delivery plans if they don't know what information is to be delivered in the first place. This is why the information standard, the information production methods and procedures and EIR are so important. 2. The client requiring that the provision of a BEP forms part of tender evaluation and that it is allocated a sufficient weighting to make it of significance (see ISO 19650-2 clause 5.2.3 and ISO 19650-3 clause 5.2.4 about tender evaluation criteria and clause 5.3 about tender response activities). 3. Binding these resources into appointment and contract documents through an information management protocol (see the preceding response). Both ISO 19650-2 and -3 refer to these resources being appointment ones in clause 5.4.6 and 5.4.7. The resource table and map in UKBIMF Guidance A also shows how the different resources come together along with their status.

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<p>Have clear responsibilities between design team/contractor/sub-contractors to ensure all information is fed back</p>	<p>To improve information exchange</p>	<p>The information production methods and procedures and information standard are project or asset wide, because ideally the same information-ways of working will apply to a project or asset management activity. This should result in consistency of approach within and across teams.</p> <p>But EIR (that must be read alongside these other resources) are specific to each party. The EIR create the obligation to deliver specific information. ISO 19650-2 and 3 communicate this by setting EIR at an ‘appointment’ level, not a project or asset level (see ISO 19650-2 clause 5.2.1 and 5.4.3 and ISO 19650-3 clauses 5.2.2 and 5.4.3).</p> <p>If the information management process as set out in ISO 19650-2 and 3 is followed, then there will be clear ‘information-based’ obligations. Capturing these obligations via an information management protocol will also be helpful (see UKBIMF resources for information management protocol templates).</p> <p>It is likely that one party’s obligation to provide information may depend on another party’s, for example an architect providing a general arrangement plan and a structural engineer providing a structural layout. Both have got to be coordinated. ISO 19650 series doesn’t address this specifically, because the scope of coordination will be project or asset specific. But the general process of continuous coordination of information is covered (ISO 19650-2 and -3 clause 5.6.5).</p>
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		ISO 19650 (clause 5.4.5 in ISO 19650-2 and -3 also tackles this through the MIDP requirements where dependencies and predecessors should be considered.
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