Information management according to BS EN ISO 19650

Guidance Part A
The information management function and resources
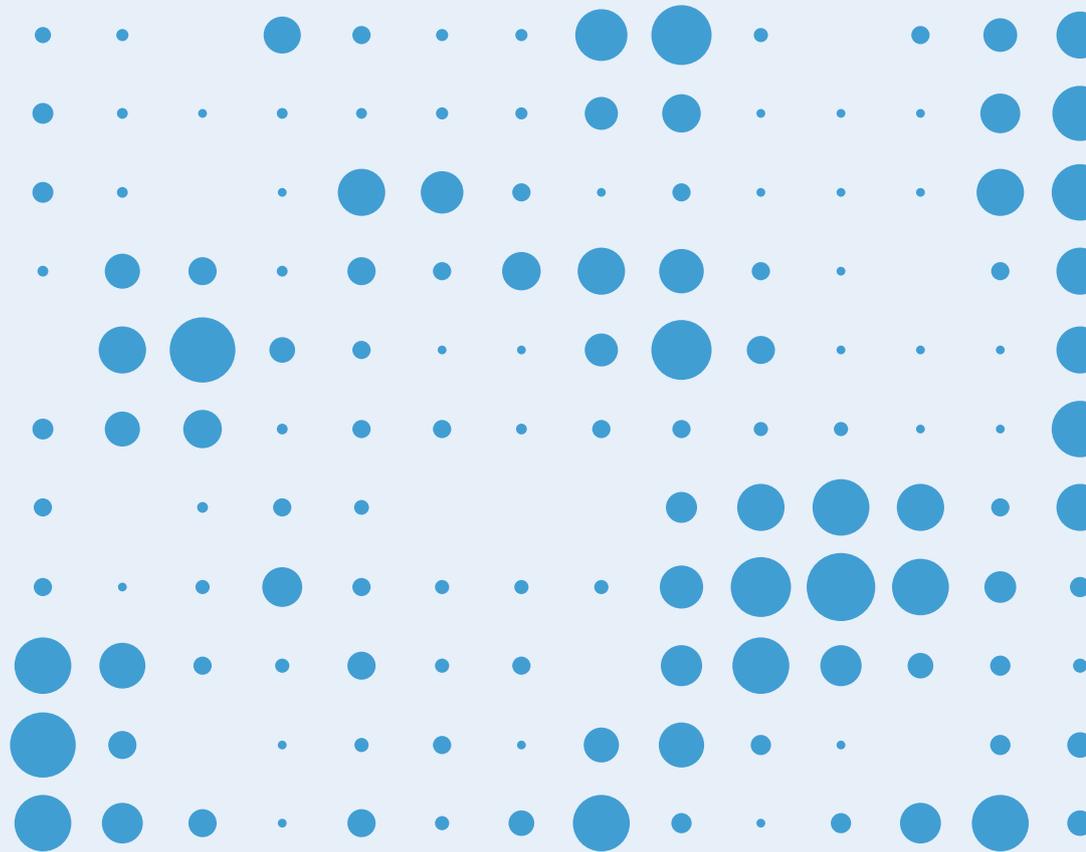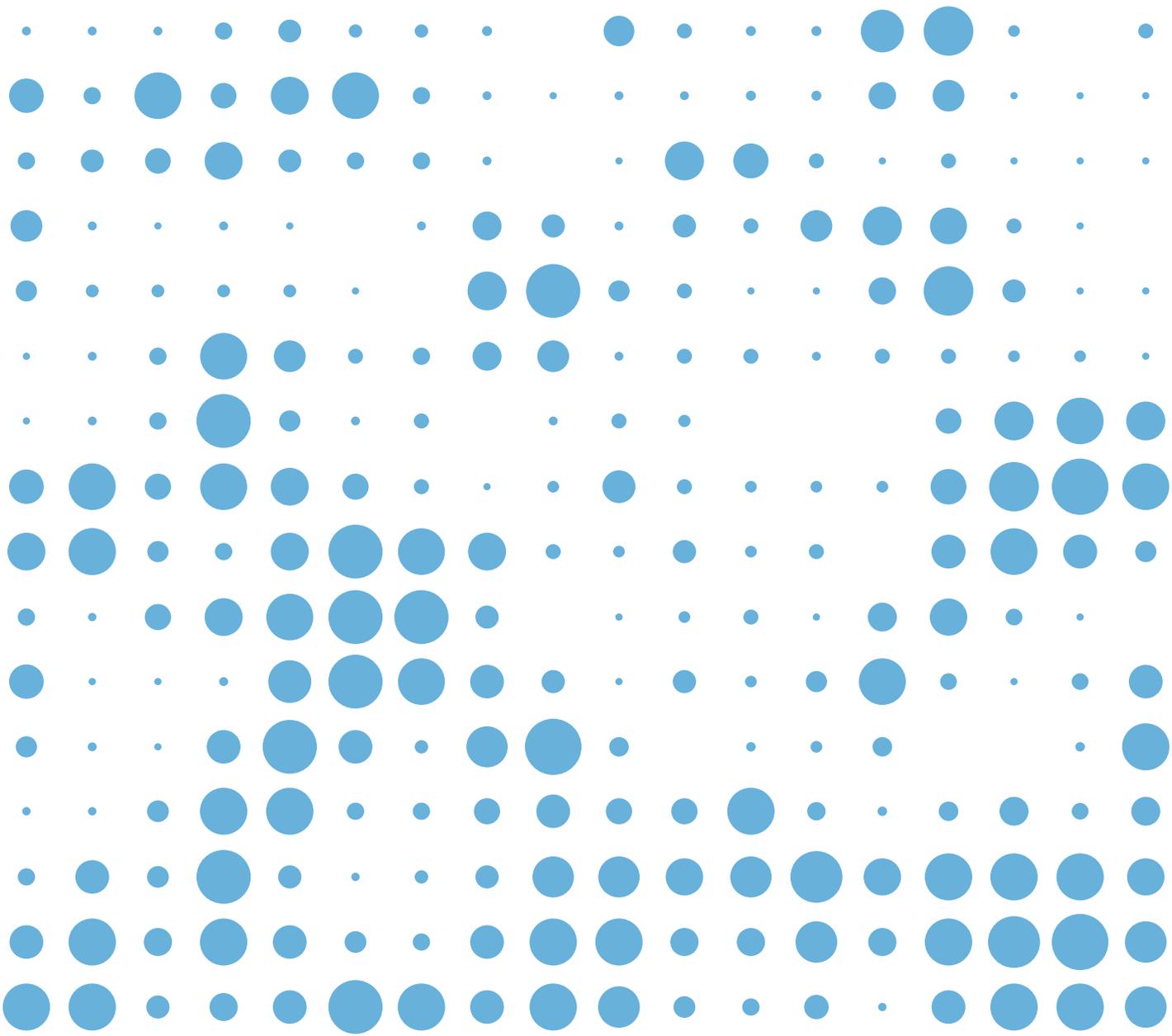
Editions

Edition 1	September 2020	First release as guidance A. Note the resources text first appeared in ISO 19650 Part 2 guidance edition 3

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Message from the UK BIM Alliance Chair

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The UK BIM Framework provides the fundamental step towards digital transformation of the UK's built environment industry. The Framework is based on the ISO 19650 series, which first developed out of the UK's former BIM Level 2, but incorporates and anticipates global and future digital perspectives.

The UK BIM Framework embraces and assists in the implementation of the standards for managing information for the whole life of assets of the built environment. The Framework anticipates the potential for integration across portfolios. The Framework provides extensive Guidance which continues to be developed, including the addition of supplementary tools and materials to enable a firm basis for the evolving National Digital Twin Programme.

This Guidance has been developed to help industry to implement the concepts and principles of the ISO 19650 series upon which the UK BIM Framework is based. It has been continually updated to keep track of the publication of the different parts of ISO 19650, and to reflect lessons learnt as further experience is gained in its implementation.

The key parts of ISO 19650 are now all in place, allowing us to realize information management throughout the whole life of built environment assets. It provides for traditional ways of working entailing exchange of information via files, but also caters for shifts towards data exchange. The key is being specific about what information is required and how it is to be delivered. This needs forethought around what should be

the "end in mind" and consideration from an organizational, whole life perspective. This then informs the detailed requirements right down to appointment level.

The work behind developing this Guidance has been considerable. I would like to thank Sarah Davidson and David Churcher for their tireless commitment in continuing to bring this work together – I so enjoy working with you both. Secondly, I would like to thank the many authors who have contributed so generously to the writing of the Guidance – and been so patient in the criticisms and changes that have been required of them. Finally, I would like to thank the many people who have spared time to review and feedback on the Guidance – the Focus Groups in particular, but also those who have contacted us separately. Without this feedback we would not be able to incorporate the wide-ranging experience and testing which is occurring around the industry.

We welcome your continued feedback and shared experiences. You can provide this via guidancefeedback@ukbimframework.org.

Acknowledgments

This guidance represents the collaborative efforts of
the following people and organizations

About BS EN ISO 19650

The BS EN ISO 19650 series of standards (herein after referred to as the ISO 19650 series) is an international standard of good practice. It defines information management principles and requirements within a broader context of digital transformation in the disciplines and sectors of the built environment (including construction and asset management industries). Its implementation in the UK is supported by UK National Forewords in ISO 19650 Parts 1 and 2, and a UK National Annex in ISO 19650 Part 2.

The ISO 19650 series replaces some of the existing British Standards and Publicly Available Specifications relating to information management using building information modelling (BIM). It is part of a landscape, or ecosystem, of national and international standards supporting information management processes and technical solutions. It considers all information whether it is a construction programme, a record of a meeting, a geometrical model or a contract administration certificate.

Building information modelling (BIM) plays a key part in the management of information because it provides a methodology that helps us to structure information so that technology can process it.

Structuring information using industry standards helps to improve interoperability. This means that information can be joined-up by both people and technology, which then enables us to extract more valuable knowledge from it. Using the same information structures throughout industry generates consistency, repetition and predictability. This brings real efficiency gains for businesses and provides the data architecture for the connected future.

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.
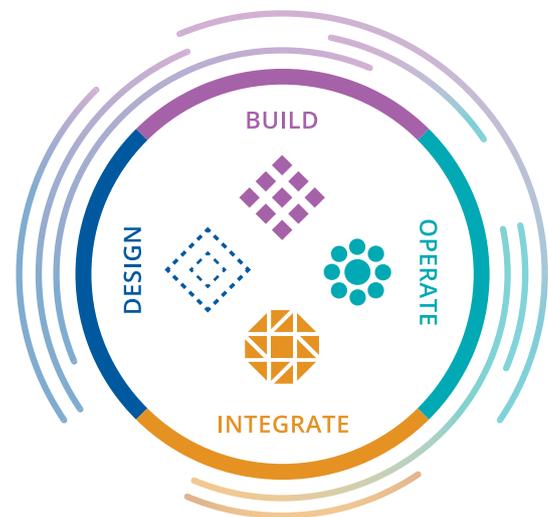
Abbreviations and acronyms

This guidance includes a number of abbreviations and acronyms as set out in Table 1.

Table 1: Abbreviations and acronyms

Abbreviation or acronym	Term
AIR	Asset information requirements
BEP	BIM execution plan
BIM	Building information modelling
COBie	Construction-Operations Building information exchange
IT	Information technology
MIDP	Master information delivery plan
PIR	Project information requirements
RACI	Responsible, accountable, consulted, informed
TIDP	Task information delivery plan

About this guidance document (executive summary)

The guidance framework supports the UK implementation of the ISO 19650 series. This guidance document (guidance A) sits within an overall guidance framework as shown in Figure 1:

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

ISO 19650
Guidance Part 1
Concepts

ISO 19650 Guidance Part 2 Delivery phase	ISO 19650 Guidance Part 3 Operational phase	ISO 19650 Guidance Part 4 (To be confirmed)	ISO 19650 Guidance Part 5 (To be confirmed)

ISO 19650 Guidance A	ISO 19650 Guidance B	ISO 19650 Guidance C	ISO 19650 Guidance D	ISO 19650 Guidance E	ISO 19650 Guidance F
The information management function & resources	Open data, buildingSMART and COBie	Facilitating the CDE (workflow and technical solutions)	Developing information requirements	Tendering and appointments	Information delivery planning

Figure 1: ISO 19650 guidance framework

Who is this guidance written for?

This guidance is for parties, teams and individuals accountable and/or responsible for undertaking the information management function.

Who is this guidance of particular interest to and why?

This guidance considers the information management function and resources needed for successful information management. It is relevant to parties, teams and individuals involved in implementing the ISO 19650 series across a project, within an appointment or within an organization.

Key takeaways

- Information management is the management and execution of tasks relating to the definition of information requirements, information production, and delivery and checking.
- The appointing party has overall accountability for assigning responsibility of information management functions to their appointed parties.
- Every party within the project team has information management functions they will need to fulfill
- The guidance refers to resources and not documents because they do not need to exist in documents and do not need to be standalone.
- Adopting the same information structures throughout industry generates consistency, repetition and predictability, and enables achieving better project outcomes.
- Resources and content created for successful information management should not be created in isolation of other project functions and should be authored with the right level of consideration to how the content cascades through the delivery team.

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

1.0 About the information management function

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1.1 Information management and why it is needed

Information management at its simplest is the management and execution of tasks relating to the definition of information requirements as well as information production, checking and delivery. Everyone making up a project team consequently has an involvement and interaction with information management in varying degrees. It is not a new concept and has existed in some shape or form ever since information production was carried out by hand.

It is fundamental to understand that information management applies to ALL information, collectively referred to as an "information model". An information model is a set of structured and/or unstructured information containing any combination of geometrical information, alphanumerical information and documentation

In recent years, the importance of good information management with documented responsibility and accountability for the activities and tasks involved has become vital. A proper focus on information management can help to achieve better project outcomes through, for example:

- Improved coordination and communication
- Better quality information production
- Timely information delivery
- Mitigated rework, unnecessary waste and cost
- Effectively informed decision making
- More accurate audit trails/record keeping.

These enablers demand collaborative working and are reliant on the effective management of information across the whole life of assets to help improve our built environment.

The necessity for good information management is heightened further with the move to digital ways of working. In order to unlock efficiencies and effective use and reuse of information we need to specify, produce, check, approve and exchange information in a consistent and structured manner. While the use of technology brings many benefits, it relies on these consistent and structured approaches. The risks generated by poor procurement and management of information delivered digitally could be considered greater than its analogue predecessor via, for example, inappropriate access or distribution of information and security breaches.

It is essential that the industry focuses on "information as an asset" as much as the physical asset itself. At both a business and project level, outcomes are determined by decisions, and decisions are based on information. We therefore need to make sure that information management is embedded and treated with the same importance as design, project, and asset management.

1.2 The information management function

The information management function encompasses the collective responsibility and authority for the information management process set out in ISO 19650-2.

Clause 5.1.1 specifically covers the appointing party's (client's) project wide assignment of the information management function, with clause 5.3.1 covering the appointment level equivalent across lead appointed party (tier 1) delivery teams. Every clause (activity) from ISO 19650-2 will therefore need to be assigned across the project team appropriately with individuals nominated to fulfil activities and tasks as the project progresses.

The very first step by any party should be to understand the context, purpose and scope of their information management function, and then assign the various responsibilities and accountabilities for the required activities appropriately.

For an appointing party, it is critical that the information management function is clearly assigned prior to engaging any lead appointed parties such as the project manager, cost consultant or design consultants.

The clause activities for the information management process are summarized in ISO 19650-2 Figure 3, and it is important to understand that **most of these activities** are undertaken at an **appointment level**.

Figure 2 below (which is based on ISO 19650-2 Figure 3) shows the clause numbers (activities) making up the information management process, and which of these activities are applicable to each party when performing their information management function. The background colour indicates the predominant party for the clause as a whole (i.e. clause 5.3 = lead appointed party). The sub-clause reference colour indicates the party primarily responsibility for the sub-clause activity (i.e. 5.1.1 = appointing party). We can see that every party has at least one activity to carry out in each of the information procurement, information planning and information production stages of the process.
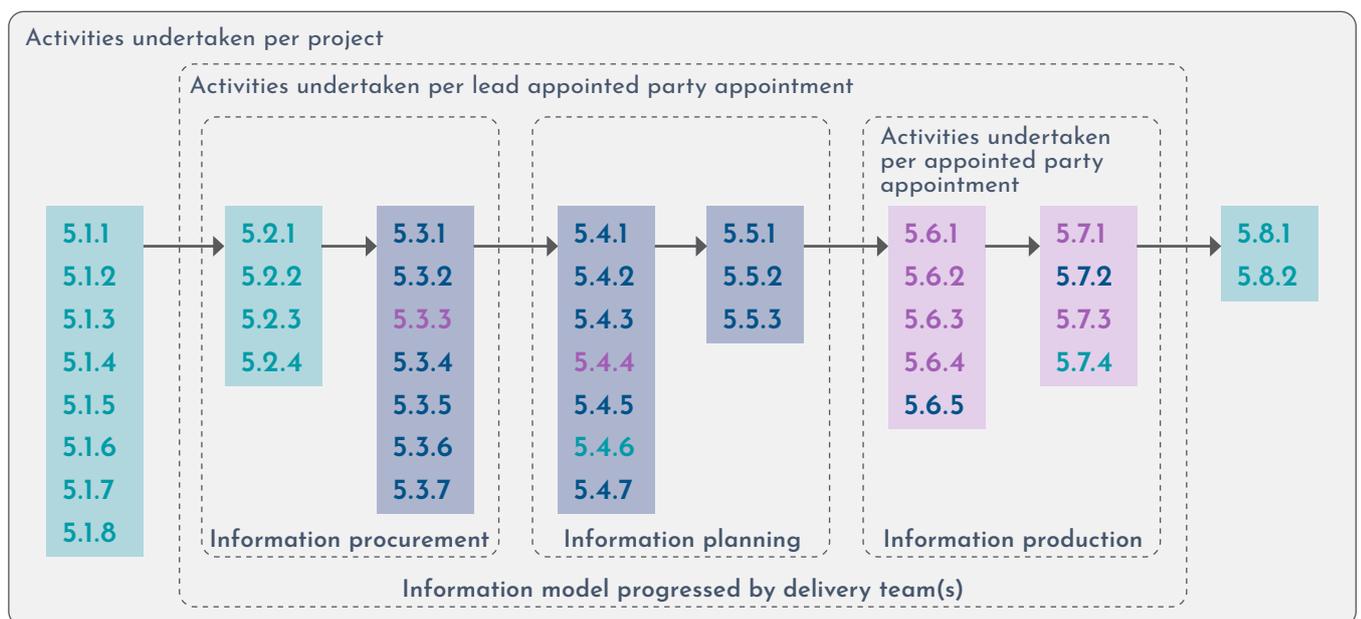
Figure 2: Information management process responsibilities and activities

Every party within the project team has information management functions they will need to fulfil by assigning the associated activities to appropriate individuals within their organization. See <u>section 1.4</u> in this guidance.

Wherever possible it is recommended that individuals within organizations are upskilled for self-delivery and continuous improvement. However, a third party can be appointed under an agreed scope of services to carry out all or some of these information management activities.

Readers familiar with superseded PAS 1192-2:2013 will recall information management responsibilities defined under specific roles assumed by members of the project team (project information manager, task team manager, task information manager etc.). The ISO 19650 series moves away from this approach and intends that the information management function is embedded into existing roles.

Key points to note

- The appointing party (client) has overall accountability for assigning responsibility of information management functions to their lead appointed parties and should be vigilant to these being carried out as required.
- Lead appointed parties could be asked to support and input to appointing party resources (for the purposes of information management) where the client needs assistance but is not willing to formally appoint a third party.
- Individuals in existing roles that are assigned information management activities may consider these secondary in importance to their usual role when particularly busy or under pressure. This risk needs to be recognized and managed.

1.3 The information management function in the context of multiple lead appointed parties

A lead appointed party (tier 1) is any organization that has a direct appointment with the appointing party (client). Therefore, at any one stage in a project there will often be more than one lead appointed party. Even on small projects the client will appoint separate consultants and advisers during the design stage, each will therefore be a lead appointed party. Some lead appointed parties (e.g. client appointed design consultants, main contractor) will appoint other organizations or internal teams, as task teams, to form their delivery teams. Other lead appointed parties (e.g. client's project manager, cost consultant) will be the only organizations in their delivery teams, therefore their information management functions will be proportionally simpler.

Lead appointed party information management functions are at an appointment level and on behalf of their delivery team, so each lead appointed party must prepare the resources required as part of their tender response, and if successful the resources required during their appointment, as shown in Table 2.

The project wide information resources (specifically the project's information standard and the project's information production methods and procedures) along with each exchange information requirements (EIR) received by each lead appointed party, should drive consistency when preparing their required resources (see Table 2). This should enable collaborative working practices with commonality across the lead appointed parties and their delivery teams. If lead appointed parties are required to work in very close collaboration (such as client appointed design consultants), it would be considered good practice for the authors of the required resources from each organization to communicate during the information planning stage (especially when developing each delivery team's BIM execution plan). This will drive out potential inconsistencies when finalizing their own resources. This should be done via the project's common data environment.

For example, consider a scenario where there are three lead appointed parties at a particular work stage on a project, as indicated in Figure 3.

Table 2: Resources to be prepared by a lead appointed party

Tender response phase (5.3)	(Pre-appointment) BIM execution plan
	Capability and capacity summary
	Mobilization plan
	Risk register
Appointment phase (5.4)	BIM execution plan
	Detailed responsibility matrix
	Lead appointed party's exchange information requirements
	Master information delivery plan

Main Contractor

Architect

Client

Client's project manager

Key:

- A Appointing Party
- B Lead Appointed Party
- C Appointed Party
- 1 Project Team
- 2 Delivery Team
- 3 Task Team(s)
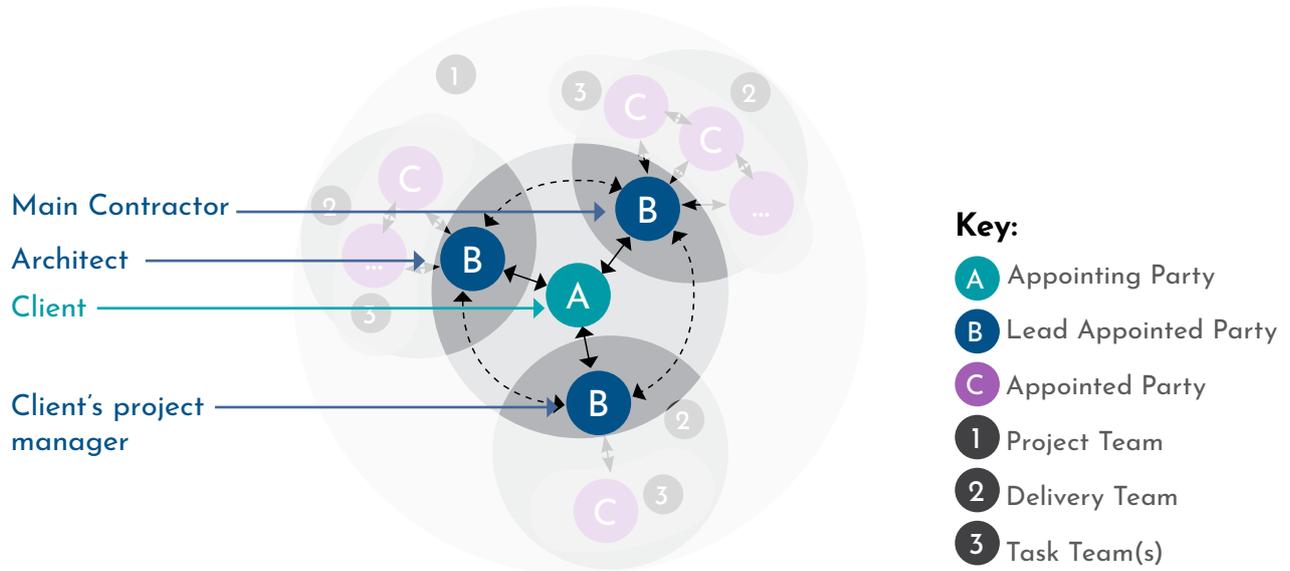
Figure 3: Interfaces between parties and teams

In this **example** the client has appointed an architect and has also engaged a main contractor to provide engineering design and build services. The client has appointed a project manager to ensure the delivery teams and project align to the required delivery outcomes. As lead appointed parties, they are each required to produce the resources as per Table 2 for their tender response and appointment phases.

An example of the high-level scope and structure for these lead appointed parties along with any considerations in terms of the resources required is discussed below:

Architect

This organization has in-house expertise for the required scope of services covering architecture, interior design and landscape architecture. The organization is a lead appointed party with internal task teams, forming a delivery team. All information resources (see Table 2) will be required for the tender response and appointment stage for this lead appointed party.

Main contractor

This organization is a management contractor that will appoint a supply chain to deliver the design and build scope of services required. The organization is a lead appointed party with external task teams, forming a delivery team. All information resources (see Table 2) will be required for the tender response and appointment phase for this lead appointed party.

Client's project manager

This organization is delivering a project management service on behalf of the client. The project manager will typically manage the tender process, be responsible for creating and monitoring the strategic programme of works, maintaining progress trackers, producing stage reports, meeting agendas/minutes etc. In this example, this organization is a lead appointed party with no other appointed parties, and therefore is in itself the delivery team made up of internal task team(s). All information resources (see Table 2) will be required for the tender response and appointment phase, with the exception of the lead appointed party's exchange information requirements (as there is no requirement for any appointed parties).

Note: Even as the client's project manager, this organization is still producing information deliverables in response to information requirements. Therefore, it is correct that a BIM execution plan (essentially a method statement for information delivery) is required as well as a master information delivery plan (essentially a task information delivery plan (TIDP) in this case as the only party in the delivery team). It is acknowledged that the content of these resources is likely to be less detailed compared with the other lead appointed parties who have more extensive exchange information requirements.

Key points to note

- An appointing party with multiple lead appointed parties will need to review multiple BIM execution plans and master information delivery plans (MIDPs). These may be delivered in different structures and formats.

- An appointing party could produce templates as shared resources to drive consistency of structure and format. This could be disruptive for lead appointed parties who have established company-wide templates already approved in their quality management systems.

- If there are any errors contained in shared resources produced by an appointing party intended for use by other parties within the project team, this would introduce an element of risk for consideration. These shared resources should be tested during mobilization where appropriate.

- When there are lead appointed parties with significantly different scopes of work and information deliverables, appointing party template(s) may be inappropriate.

1.4 Developing ISO 19650-2 information management activities into a detailed matrix of tasks

ISO 19650-2 includes an information management assignment matrix in Annex A, as noted in clause 5.1.1. This is a useful resource for an appointing party to use to help form a scope of services when appointing a lead appointed party or third party to carry out all or part of the information management function. It provides a summary of the clause activities involved in the information management process in the form of a RACI (responsible, accountable, consulted, informed) matrix.

Some clause activities from ISO 19650-2 may cover one task, for example preparing exchange information requirements. Other activities may involve many tasks, for example the activity of generating information could include tasks such as producing models, drawings, schedules, clash detection procedures, programme simulations and COBie.

Any party may choose to develop a more detailed information management function assignment matrix based on Annex A (although this is not a requirement of ISO 19650 specifically). This may help identify and assign the specific tasks making up activities that are relevant to them. This expanded approach can be used by the organization to allocate or identify responsibility, accountability, consulted, informed (RACI) to individuals within their internal team, and to indicate RACI for other organizations engaged in the project team.

Any activities associated with clause 5.6.2 'Generate information' should be dealt with through the responsibility matrices and information delivery plans. Refer to ISO 19650 guidance F Information delivery planning.

An example of how a lead appointed party such as a main contractor might approach a more detailed information management function assignment matrix is shown in Figure 4. This example shows how a list of tasks might be developed under the activity clause 5.4 from ISO 19650-2.

An example of how an appointed party such as a building services sub-contractor might approach a more detailed information management function assignment matrix is shown in Figure 5. This example shows how a list of tasks might be developed under ISO 19650-2 activity clauses 5.3, 5.4, 5.6 and 5.7 2. Clause 5.6.2 (generate information) is not included as assigning tasks associated with this clause should be via the responsibility matrices and the TIDPs and MIDP.

Figure 4: Example approach for a main contractor - expanded information management function assignment matrix

Information management function assignment matrix: **Main contractor** (lead appointed party)

Key:
R Responsible for undertaking activity/task
A Accountable for activity/task completion
C Consulted during activity/task
I Informed following activity/task completion

ID	Activity/task	Appointing party		Lead appointed party												Appointed party	
		Client	Third party information manager	Bid manager	Design manager	Project manager	Site manager	Estimator	Quantity surveyor	Planner	SHE manager	Quality manager	Temporary works advisor	Document controller	BIM / Digital specialist	Consultants	Sub-contractors
5.4	**Information management process - Appointment**																
5.4.1	**Establish the delivery team's BIM execution plan**																
1	Develop the delivery team's BIM execution plan in agreement with the supply chain, including:														A/R	C	C
2	Confirm the names of the individual(s) who will undertake the information management function			C	C	C								C	A/R	C	C
3	Update the delivery team's information delivery strategy (as required)														A/R	C	C
4	Update the delivery team's high-level responsibility matrix (as required)														A/R	C	C
5	Confirm and document the delivery team's proposed information production methods and procedures														A/R	C	C
6	Agree with the client any additions or amendments to the project's information standard	C	C		C										A/R	C	C
7	Confirm the schedule of software, hardware and IT infrastructure the delivery team will use				C	C			C	C	C	C		C	A/R	C	C
5.4.2	**Establish the delivery team's detailed responsibility matrix**																
1	Refine the high-level responsibility matrix to establish the detailed responsibility matrix			C	A/R	C			I						R		
2	Share the detailed responsibility matrix to the common data environment for supply chain review and comment				A/R	I			I					R	R	C	C
5.4.3	**Establish the lead appointed party's exchange information requirements**																
1	Filter client's exchange information requirements to be relevant for each supply chain appointment				R	I			I						A/R		
2	Include any specific main contractor exchange information requirements				R	R			R						A/R		
5.4.4	**Establish the task information delivery plan(s)**																
1	Share task information delivery plan (TIDP) template to the common data environment as a shared resource for supply chain external task team use				R	I						I		R	A/R		
2	Establish and maintain a task information delivery plan for each internal task team				R	C		C	C	C	C			R	C	A/R	
3	Ensure each task team (internal and external) has completed and uploaded a task information delivery plan (TIDP) to the common data environment				R	I								A/R	R	R	R
5.4.5	**Establish the master information delivery plan**																
1	Aggregate task information delivery plans from each task team to establish the delivery team's master information delivery plan (MIDP)	I	I		R	I				I	I				A/R		
2	Baseline deliverables and dates within the master information delivery plan				R	R			A/R				I		C	I	I
3	Inform each task team and notify if any changes are required to the task information delivery plan				R	R			A/R			I	I		C	I	I
4	Inform the client of any risks or issues which could impact on the project delivery milestones				R	R			A/R			I			R	I	I
5.4.6	**Complete lead appointed party's appointment documents**																
1	Client to establish appointment documents for agreement with main contractor	A/R			I				C						I		
2	Ensure client has included appropriate documentation within main contractor appointment			I	R	I			R						A/R		
3	Manage change control process associated to main contractor appointment documentation	A/R			C	I			R						C		
5.4.7	**Complete appointed party's appointment documents**																
1	Ensure supply chain appointments include relevant exchange information requirements				R				A/R						C	I	I
2	Ensure supply chain appointments include project's information standard				R				A/R						C	I	I
3	Ensure supply chain appointments include project's information protocol				R				A/R						C	I	I
4	Ensure supply chain appointments include delivery team's BIM execution plan				R				A/R						C	I	I
5	Ensure each supply chain appointment includes the agreed task information delivery plan				R				A/R						C	I	I
6	Manage change control process associated to consultant/sub-contractor appointment documentation				C				A/R						C	I	I

Information management function assignment matrix:
Building services sub-contractor (appointed party)

Key:
R Responsible for undertaking activity/task
A Accountable for activity/task completion
C Consulted during activity/task
I Informed following activity/task completion

ID	Activity/task	Appointing party		Lead appointed party		Appointed party								Appointed party		
		Client	Third party information manager	Main Contractor	Third party information manager	Design manager	Project manager	Mechanical engineer	Electrical engineer	Quantity surveyor	Document controller	CAD technician(s)	BIM / Digital specialist	Ductwork subcontractor	Controls subcontractor	Lagging subcontractor
5.3	Information management process - Tender response															
5.3.3	Assess task team capability and capacity															
1	Assess and confirm team(s) capability and capacity based on information requirements and delivery team's proposed (pre-appointment) BIM execution plan				/	R	R	C	C	C	C	R	A/R	C	C	C
5.4	Information management process - Appointment															
5.4.4	Establish the task information delivery plan(s)															
1	Establish and maintain the mechanical services task information delivery plan				/	A	I	R		I	C	C	I	C		C
2	Establish and maintain the electrical services task information delivery plan				/	A	I		R	I	C	C	I		C	
3	Establish and maintain the public health services task information delivery plan				/	A	I	R		I	C	C	I			C
5.6	Information management process - Collaborative production of information															
5.6.1	Check availability of reference information and shared resources															
1	Retrieve any reference information and shared resources from the common data environment and review with task team(s)				/	R	I	I	I	I	A/R	R	R	I	I	I
5.6.3	Undertake quality assurance check															
1	Check each information container against the project's information standard for compliance when ready for sharing to the common data environment				/						A/R		C			
2	Notify information author(s) of either acceptance/rejection				/	I		I	I		A/R	I	I	I	I	I
5.6.4	Review information and approve for sharing															
1	Review the content within information containers in accordance with the project's information production methods and procedures				/	I	I	R	R		A	R	C	R	R	R
2	Approve or reject information container (if approved assign appropriate status code for sharing to the common data environment)	A/R			/	I	I	R	R		A	R	C	R	R	R
5.6.5	Information model review															
1	Review the information model in accordance with the project's information production methods and procedures to facilitate continuous coordination			A/R	/	R	I				I	C	R	R	R	R
2	Consider checks against the client's information requirements and acceptance criteria, as well as the master information delivery plan			A/R	/	R	I				I	C	R	I	I	I
5.7	Information management process - Information model delivery															
5.7.1	Submit information model for lead appointed party authorization															
1	Submit information for main contractor authorization by assigning information containers with the applicable status code within the common data environment			I	/	R	R	C	C		A/R	I	R	I	I	I
5.7.3	Submit information model for appointing party acceptance															
1	Submit information for client acceptance by assigning information containers with the applicable status code within the common data environment	I	I	I	/	R	R	C	C		A/R	I	R	I	I	I

Figure 5: Example approach for a building services sub-contractor - expanded information management function assignment matrix

Some tasks may be required that are not explicitly covered by the clause activities within the ISO 19650-2 information management process. For example, the review of tender responses is not specifically covered but this is a necessary activity to move from the tender response stage to the appointment stage.

Key points to note

- Time and effort may be required to schedule out tasks and agree responsibility and accountability. However, this should pay-off by helping individuals to clearly understand their required input into to their organization's information management function.
- Assigning activities and tasks across the delivery team should reduce dependence on the BIM/digital specialist and help to embed and upskill information management capabilities to existing job roles appropriately.

1.5 What are the competencies that need considering?

It is important to ensure that individuals have the necessary skills and behaviours to fulfil the activities and tasks they have been allocated as part of the information management function. Competencies of individuals across a task team should be considered to ensure the most appropriate individual(s) is selected when allocating specific activities and tasks.

The following competencies may be required to support the activities and tasks as part of the information management function:

Technical

- Project delivery experience of projects of a similar scale and complexity including understanding of typical roles and responsibilities and understanding of contracts
- Understanding and application of appropriate national and international standards related to information management and BIM
- Software skills (appropriate to the information management activities and tasks).

Non-technical

- Resilience (to engage with and encourage behavioural change)
- Planning and organization
- Research and investigating
- Analysis and problem solving
- Initiative/independence
- Results driven/quality orientation.

It is vital that individuals possess good communication skills and understand the importance of teamwork to improve collaborative working.

1.6 Delegating the information management function

1.6.1 Delegation of authority in ISO 19650-2 clauses 5.1.1 and 5.3.1

Under clause 5.1.1 the appointing party can delegate the responsibility for all or part of the information management function to the prospective lead appointed party or a third party. Similarly, clause 5.3.1 allows a prospective lead appointed party to delegate their responsibility to a prospective appointed party or third party. Responsibility can be delegated, **but accountability remains with the party identified in each clause from ISO 19650-2** (refer to guidance Figure 2).

An *accountable* organization is the organization who is ultimately answerable for the activity. This includes "yes" or "no" authority and veto power. Only one accountable organization can be assigned to an activity.

The *responsible* organization is the organization who completes the activity or task. The responsible organization is responsible for action/implementation of activities and tasks that have been delegated to them.

The authority will typically be delegated where the appointing party or lead appointed party do not have sufficient capability or capacity to carry out specific tasks.

1.6.2 Probity arrangements

Probity is *"the quality of having strong moral principles; honesty and decency"*[1].

Probity arrangements are specifically noted under ISO 19650-2 clause 5.3.1 (lead appointed party information management function) but not under clause 5.1.1 (appointing party). However, probity arrangements may be applicable to either the appointing party or lead appointed party.

In practical terms, probity arrangements mean ensuring that any potential conflicts of interest are identified and managed.

For example, on project X the review and acceptance of the information model is carried out on behalf of the appointing party by a lead appointed party who is the architect on the project. This means that the architect is responsible for both producing information and for reporting to the appointing party on compliance with the prescribed information requirements. To avoid any potential conflict, it may be necessary to identify different individuals within the architect's organization to carry out the required functions. Individuals within the same organization would always therefore need to maintain honesty and decency to avoid any potential conflicts of interest.

Where the appointing party or lead appointed party requires a third party to carry out all or part of the information management function on their behalf they might require the prospective third party to demonstrate how they will deal with any possible conflicts of interest as part of their tender response. This could be, for example, by confirming membership of a professional body that includes the need to maintain honesty and decency. Or the third party may be asked to provide a statement, organization structure or plan on how conflicts will be managed within their organization.

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1 Oxford English Dictionary

1.7 Engaging a third party to undertake the information management function

1.7.1 Principles

Where an organization requires assistance with all or part of their information management function, they may choose to engage a third party to assist. In this situation, the third party will be **responsible** for completing agreed tasks on behalf of the appointing organization. However, as noted earlier the organization appointing the third party still retains the **accountability** to satisfy the information management functions identified by ISO 19650.

Where a third party is engaged, they are effectively a lead appointed party under the ISO 19650 series. However, they would not be expected to submit a tender response containing the same information resources that other lead appointed parties would provide (i.e. they would not need to provide the resources identified in Table 2). This is because they are carrying out activities on behalf of the appointing party and are not an information provider in the same context as a delivery team lead appointed party.

1.7.2 Information to be provided to the third party

In order to appoint a third party, it is important to provide sufficient information about the project at the invitation to tender stage to enable a comprehensive proposal to be returned by the prospective third party. This should include general project information along with an anticipated project duration and the procurement methodology (if known).

In terms of delivery of the information management activities, it is also important to share details of any other parties involved in the project and their capabilities (if known), any existing processes and any specific technology being used or intending to be used. This is so that the third party fulfilling the information management activities and tasks can consider the delivery strategy as part of their own appointment.

Where a third party is being appointed by a lead appointed party, the lead appointed party will need to include all relevant information management resources including the appointing party's exchange information requirements, the project's information standard and so on.

It is important to identify what activities and tasks will be performed by all parties across a project when establishing a proposed scope of services for a third party. This will help ensure that there are no gaps in the information management function across the project team (refer to examples of the detailed RACI matrices provided earlier).

1.7.3 A proposed structure for an invitation to tender when appointing a third party

Clause 5.1.1 of ISO 19650-2 requires the appointing party to establish a scope of services where they wish to appoint a lead appointed party or third party to undertake all or part of the information management function. Likewise, clause 5.3.1 requires a prospective lead appointed party to establish a scope of services where they wish to appoint a prospective appointed party or third party to undertake all or part of the information management function.

The following structure could be used to form the basis for an invitation to tender to appoint a third party to carry out all or part the information management function for either an appointing party or prospective lead appointed party:

A. **Record of issue / document control**

B. **Introduction**

C. **Project details** *(to communicate sufficient understanding of the project for the third party to be able to submit a tender response)*

    a. Key project information (including project name, project description, project value and procurement route (if known))

    b. Programme (if known)

    c. Team (if known)

    d. Relevant technology solutions (if known)

D. **Supporting information**

E. **Tasks***

F. **Terms and conditions**

G. **Authority**

H. **Required competency**

I. **Probity requirements (if applicable)**

I. **Tender response requirements**

    a. Fee proposal (against tasks)

    b. Fee drawdown (against programme)

    c. Charge out rates (i.e. day rate(s)) and costs (including travel/expenses))

    d. Capability and competency

        i. Demonstration of capability (i.e. case studies including references)

        ii. Demonstration of competency (i.e. CVs)

    e. Proposed delivery methodology

    f. Assumptions

    g. Exclusions

    h. Probity arrangements (if applicable)

    i. Observations on supporting information provided (if applicable)

    j. Other supporting information relevant to the commission

J. **Tender return procedures** (including return date, person(s) to return tender to)

K. **Tender evaluation criteria**

L. **Appointment** (proposed date for confirmation of successful/unsuccessful tenderer and feedback to unsuccessful tendering organizations).

* Including required tasks and allowing the third party to add any additional services or costs (such as technology costs) that may be required to manage the information activities and tasks effectively.

1.8 Conclusion

Information management is a critical component of successful project delivery and asset operation. The information we produce during the lifecycle of an asset informs decision making throughout; we therefore need to treat information with the same importance as the physical asset(s) it represents.

In terms of the ISO 19650 series, the information management function should be the very first consideration for ANY organization engaged in either project delivery or asset operation. Assigning responsibility and authority for the activities making up the information management process will help individuals to ensure the best possible information outcomes.

Individuals fulfilling information management function activities should have the required competencies. Where there are identified shortfalls of competencies and experience, these should be addressed by upskilling individuals, or by appointing a third-party specialist. Discharging the responsibility for information management function activities to a prospective lead appointed/appointed party is permitted but probity arrangements should be carefully considered.

2.0 About ISO 19650 resources

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2.1 ISO 19650 resources

The ISO 19650 series references resources and content that should be created for successful information management (using building information modelling).

This guidance refers to these as resources and not documents because:

- They do not need to exist as documents – their content could be referenced via a system
- They do not need to stand alone – their content might be combined with other content
- The emphasis is on the existence of content, not how the content is transported.

The ISO 19650 series also refers to "shared resources". Shared resources can take many forms, such as document templates, 3D object libraries or custom line styles and ISO 19650-2 clause 5.1.6 provides examples. Shared resources are one type of resource that are produced during the information management process

In terms of the resources referenced in ISO 19650- 2, it is possible for resource content to be combined with other design and construction project content. However, care should be taken to ensure that resources:

- Are not incorrectly promoted as appointment (and therefore contractual) resources and equally are not demoted from being appointment resources
- Are authored at the right level (project or appointment). An appointment level resource should not contain project wide content that is not relevant to the appointment.

Consideration should also be given to how resource content cascades through the delivery team. Combining content could potentially either aid or complicate this.

Note 1: Table 3 and Figure 6 list and illustrate all the compulsory resources from ISO 19650-2 and 3. There could also be further resources depending on the approach taken to the information management function and provision of the common data environment, but these are not identified here.

Note 2: Table 3 and Figure 6 will be updated as standards within the ISO 19650 series are released.

Table 3: ISO 19650-2 resources

Resource/content	Created by	Resource		ISO 19650 Part	Originating clause	
		Level	Status			
Organizational information requirements	Appointing party	Organization	For information	3	5.1.2	Establish the organizational information requirements
Asset information requirements	Appointing party	Asset	For information	3	5.1.4	Establish the asset information requirements
Project's information requirements	Appointing party	Project	For information	2	5.1.2	Establish the project's information requirements
Project's information delivery milestones	Appointing party	Project	For information	2	5.1.3	Establish the project's information delivery milestones
Project's information standard	Appointing party	Project	Appointment	2	5.1.4	Establish the project's information standard
Project's information production methods and procedures	Appointing party	Project	Appointment	2	5.1.5	Establish the project's information production methods and procedures
Reference information	Appointing party	Project	Appointment	2	5.1.6	Establish the project's reference information and shared resources
Shared resources	Appointing party	Project	Appointment	2	5.1.6	
Project's information protocol	Appointing party	Project	Appointment	2	5.1.8	Establish the project's information protocol
Exchange information requirements	Appointing party	Appointment	Appointment	2	5.2.1	Establish the appointing party's exchange information requirements
Tender response requirements	Appointing party	Appointment	For information	2	5.2.3	Establish tender response requirements and evaluation criteria
Tender evaluation criteria	Appointing party	Appointment	For information	2	5.2.3	Establish tender response requirements and evaluation criteria
(Pre-appointment) BIM execution plan	Lead appointed party	Appointment	For information	2	5.3.2	Establish the delivery team's (pre-appointment) BIM execution plan
High level responsibility matrix	Lead appointed party	Appointment	For information	2	5.3.2	Establish the delivery team's (pre-appointment) BIM execution plan
Proposed information delivery strategy	Lead appointed party	Appointment	For information	2	5.3.2	Establish the delivery team's (pre-appointment) BIM execution plan
Proposed federation strategy	Lead appointed party	Appointment	For information	2	5.3.2	Establish the delivery team's (pre-appointment) BIM execution plan
Proposed schedule of software, hardware and IT infrastructure	Lead appointed party	Appointment	For information	2	5.3.2	Establish the delivery team's (pre-appointment) BIM execution plan
Assessment of task team capability and capacity	Appointed party	Task team	For information	2	5.3.3	Assess task team capability and capacity

Resource/content	Created by	Resource		ISO 19650 Part	Originating clause	
		Level	Status			
Summary of the delivery team's capability and capacity	Lead appointed party	Appointment	For information	2	5.3.4	Establish the delivery team's capability and capacity
Proposed mobilization plan	Lead appointed party	Appointment	For information	2	5.3.5	Establish the delivery team's mobilization plan
Risk register	Lead appointed party	Appointment	For information	2	5.3.6	Establish the delivery team's risk register
Delivery team's BIM execution plan	Lead appointed party	Appointment	Appointment	2	5.4.1	Confirm the delivery team's BIM execution plan
Detailed responsibility matrix	Lead appointed party	Appointment	For information	2	5.4.2	Establish the delivery team's detailed responsibility matrix
Information delivery strategy	Lead appointed party	Appointment	Appointment	2	5.4.1	Confirm the delivery team's BIM execution plan
Schedule of software, hardware and IT infrastructure	Lead appointed party	Appointment	Appointment	2	5.4.1	Confirm the delivery team's BIM execution plan
Lead appointed party's exchange information requirements	Lead appointed party	Appointed party appointment	Appointment	2	5.4.3	Establish the lead appointed party's exchange information requirements
Task information delivery plan	Appointed party	Task team	Appointment	2	5.4.4	Establish the task information delivery plan(s)
Master information delivery plan	Lead appointed party	Appointment	Appointment	2	5.4.5	Establish the master information delivery plan
Lessons learned	Appointing party	Appointment	For information	2	7.8.2	Capture lessons learned for future projects

Figure 6: ISO 19650-2 resources map

Organizational information requirements

Asset information requirements*

Project's information requirements

Project's information delivery milestones

Invitation to tender resources

Exchange information requirements

Project's information standard

Project's information production methods and procedures

Project's reference information

Project's shared resources

Project's information protocol

Tender response requirements

Tender evaluation criteria

1. The appointing party generates and issues the invitation to tender resources

Prospective lead appointed party tender response

Delivery team's (pre-appointment) BEP considering:

Details of individuals undertaking the information management function	Proposed information delivery strategy
Proposed federation strategy	High level responsibility matrix
Proposed adds/amends to project's information production methods and procedures	Proposed adds/amends to project's information standard

Proposed schedule of software, hardware and IT infrastructure

Summary of the prospective delivery team's capability + capacity

Proposed mobilization plan

Risk register

2. The prospective lead appointed party submits their tender response

Resource generated to support the tender response

Assessment of task team capability and capacity

3. The appointment resources are completed for the lead appointed party. Appointment resources are then completed for each appointed party as they join the delivery team.

Lead appointed party appointment resources

Exchange information requirements

Agreed project's information standard

Agreed project's information production methods and procedures

Project's reference information

Project's shared resources

Project's information protocol

Delivery team's BEP including:

| Details of individuals undertaking the information management function | Information delivery strategy (updated as required) |
| | Federation strategy (updated as required) |

High level responsibility matrix (updated as required)

Confirmed schedule of software, hardware and IT infrastructure

Master information delivery plan (MIDP)

Resource generated to support appointment resources

Detailed responsibility matrix

Appointed party appointment resources

Lead appointed party's exchange information requirements

Agreed project's information standard

Agreed project's information production methods and procedures

Project's reference information

Project's shared resources

Project's information protocol

Delivery team's BEP

Task information delivery plan (TIDP)

Key:

Created by the appointing party

Created by the (prospective) lead appointed party. Resources progress to become appointment resources

Created by the lead appointed party and inform project level resources

Created by the (prospective) lead appointed party. Resources do not progress to become appointment resources

Created by the (prospective) appointed party

⟶ To indicate how one resource informs another

- - - → To indicate static resources

3.0 Summary

ISO 19650 guidance A has provided further insight into the information management function and information management resources.

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.

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.
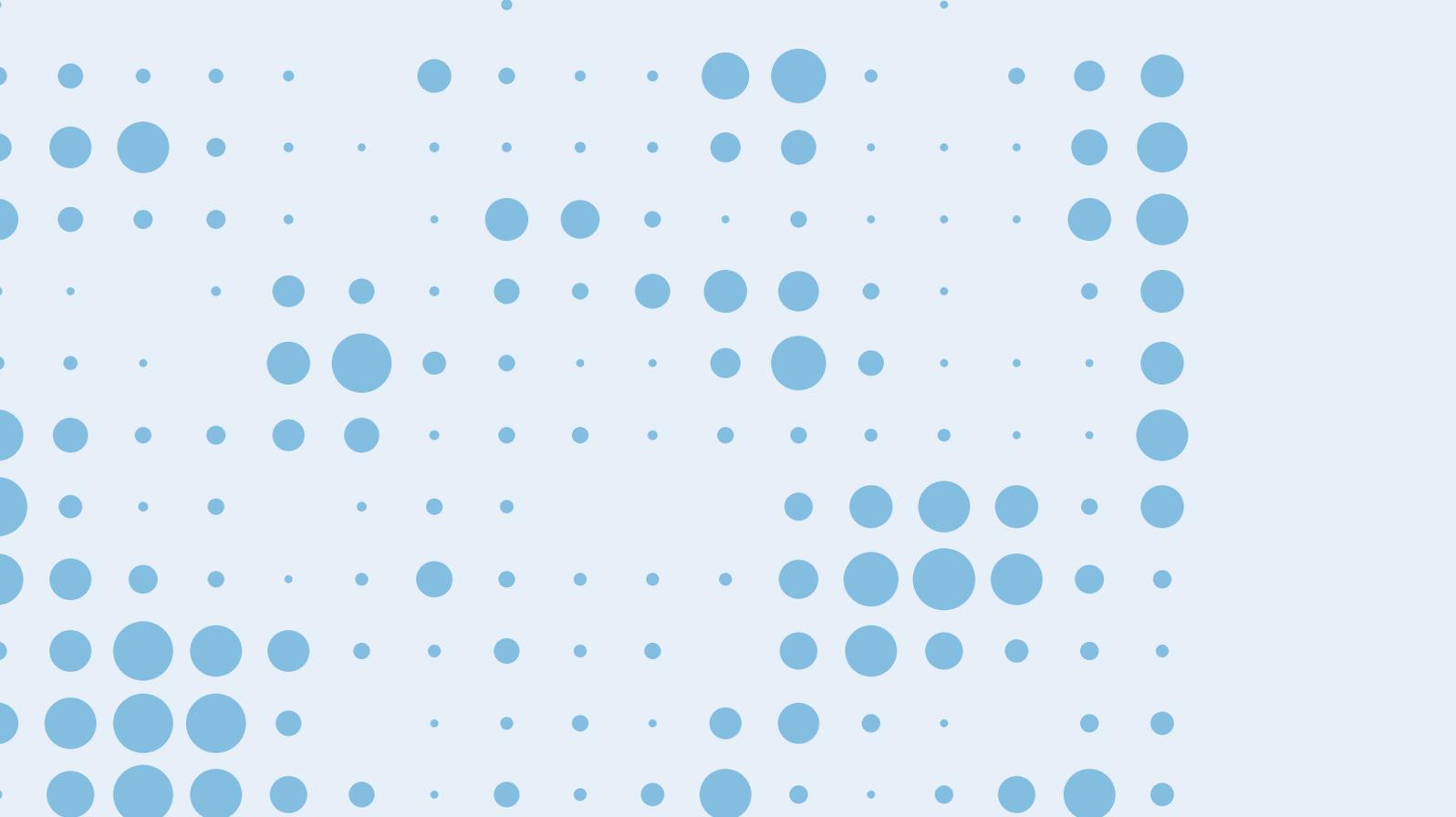
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