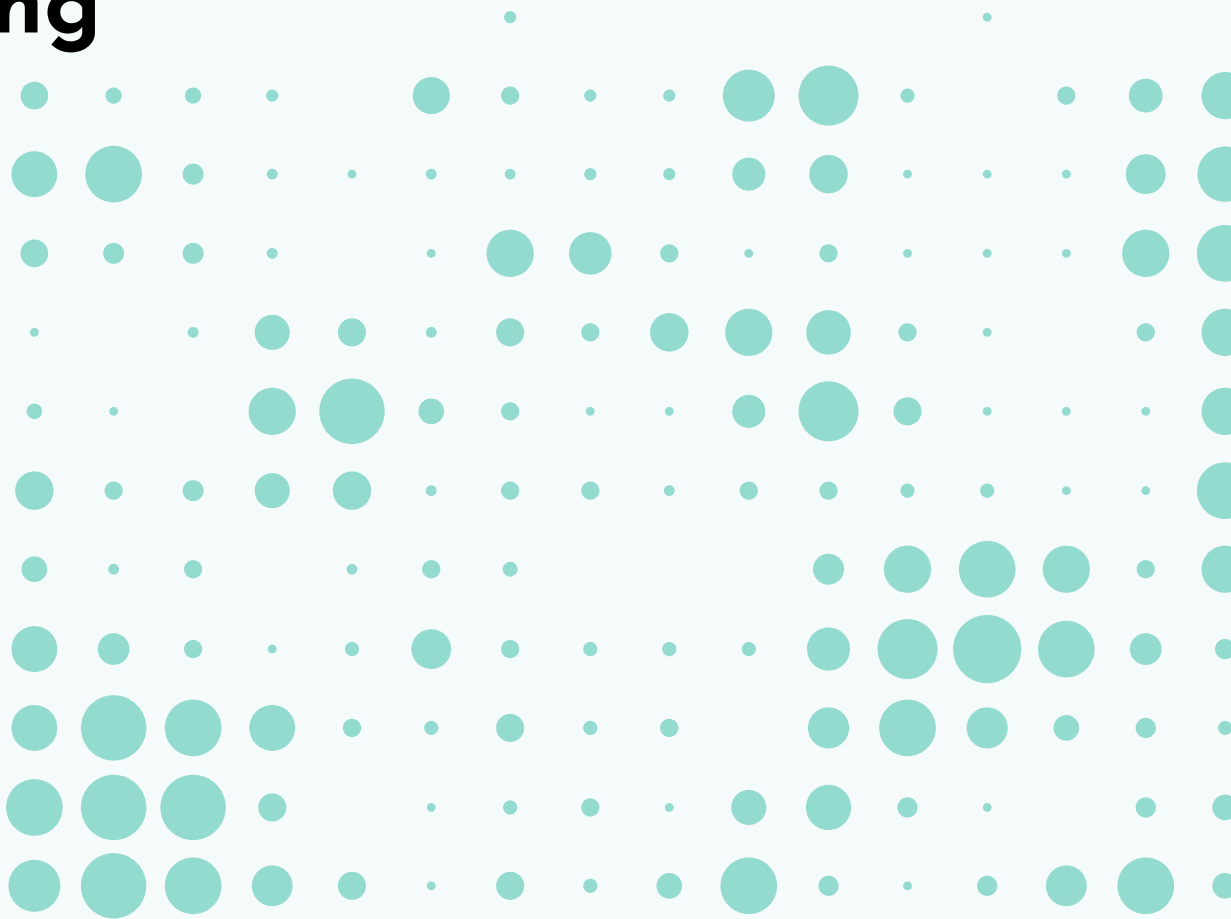


Information management according to BS EN ISO 19650

Guidance Part F

About information delivery planning



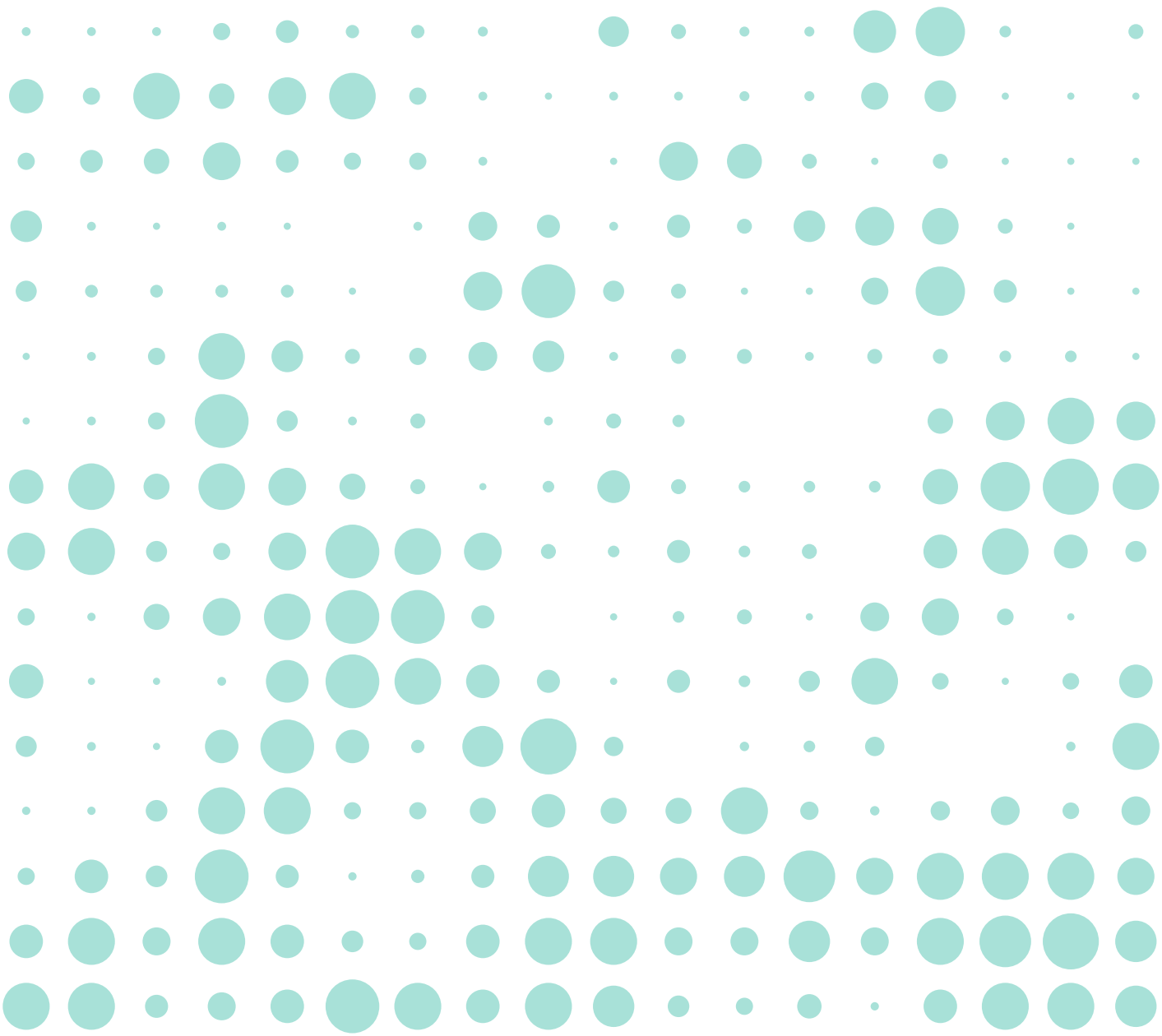
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Message from the UK BIM Alliance Chair

Author: Dr Anne Kemp OBE
Chair - UK BIM Alliance



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

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About BS EN ISO 19650

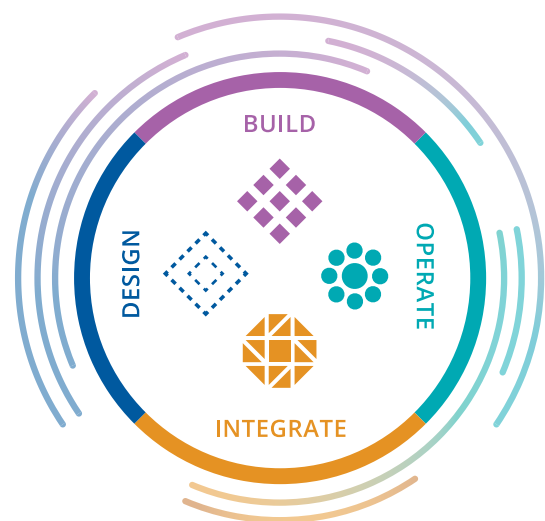
The BS EN ISO 19650 series of standards (herein after referred to as the ISO 19650 series) is an international standard of good practice. It defines information management principles and requirements within a broader context of digital transformation in the disciplines and sectors of the built environment (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



About this guidance document (executive summary)

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

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

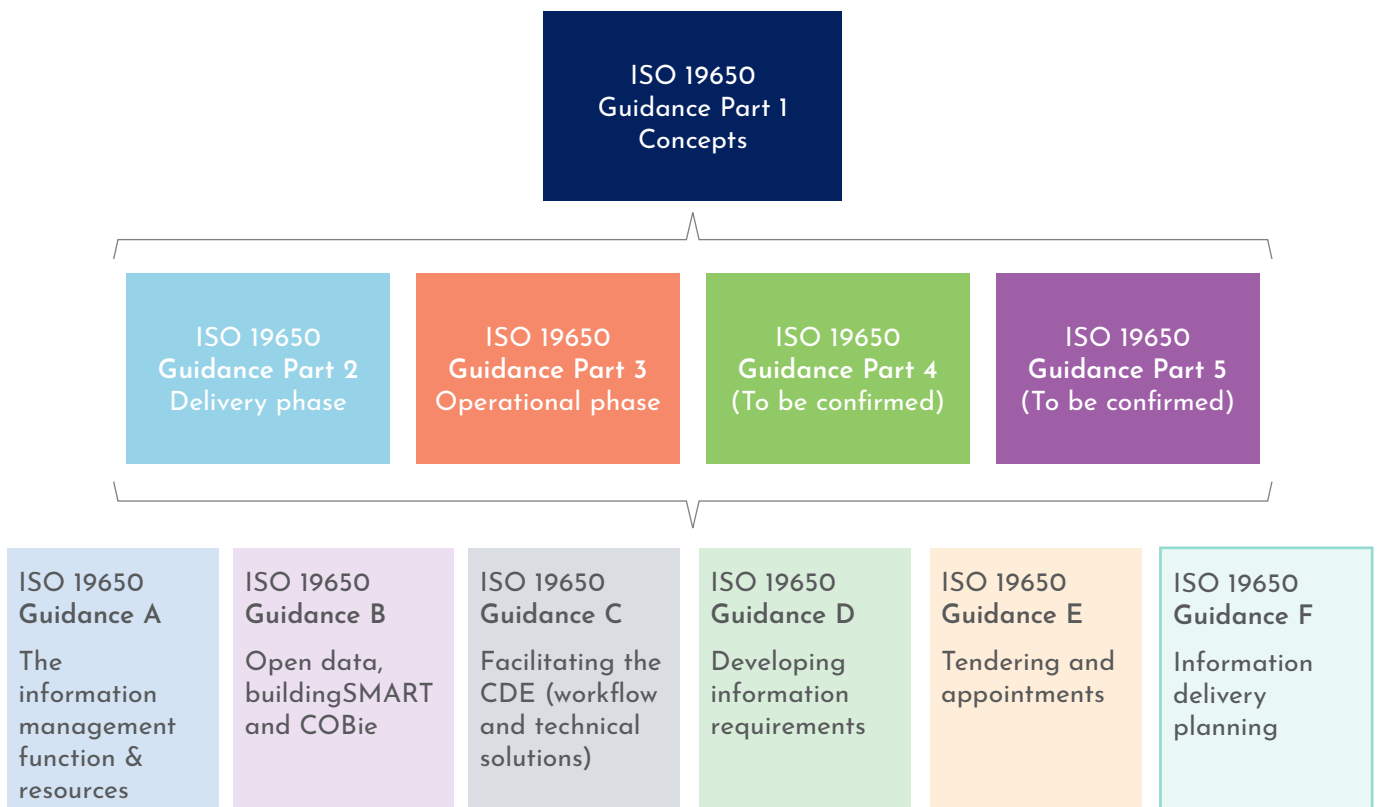


Figure 1: ISO 19650 guidance framework

Who is this guidance written for?

This guidance is for people involved in information delivery planning processes for delivery and task teams.

Who is this guidance of particular interest to and why?

This guidance is of interest to the parties overseeing information delivery planning activities in terms of responsibility matrices and master and task information delivery plans (federation strategy and information container breakdown structure will follow in future guidance)

Key takeaways

- The planning of the delivery of information should be approached in a successive amount of detail. This begins by defining the federation strategy and information container breakdown structures, progresses to high-level and detailed responsibility matrices, and culminates with the creation of the task information delivery plan(s) (TIDP(s)) and the master information delivery plan (MIDP).
- The responsibility matrices build on the high-level information planning to identify what information has to be produced, by who, and when. The responsibility matrix has two development stages: a “high level responsibility matrix” that is developed (as part of the pre-appointment BIM execution plan) before an appointment is made between the appointing party and lead appointed party. This is then refined to become the “detailed responsibility matrix” which then informs a delivery team’s TIDP(s) and MIDP.
- Planning information delivery is the most detailed level of planning specified in the ISO 19650 series. Every task team prepares a TIDP to cover the deliverables they are responsible for. The lead appointed party, who manages the delivery of information across their delivery team, must coordinate and compile each of the TIDPs into an MIDP.

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

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
BIM	Building information modelling
EIR	Exchange information requirements
IFC	Industry foundation classes
MIDP	Master information delivery plan
TIDP	Task information delivery plan

1.0 About information delivery planning

1.1 Introduction

Information delivery planning is one of the fundamental concepts of the ISO 19650 series. This part of the UK BIM Framework guidance brings together three different ways in which delivery of information is planned in successive amounts of detail:

1. The federation strategy and the information container breakdown structure
2. The responsibility matrices
3. The task and master information delivery plans.

Although these topics are addressed separately in both ISO 19650-1 and ISO 19650-2, they are in fact steps on a journey from planning information delivery in very broad terms through to identifying the separate information containers and their interrelationships, see Figure 2.

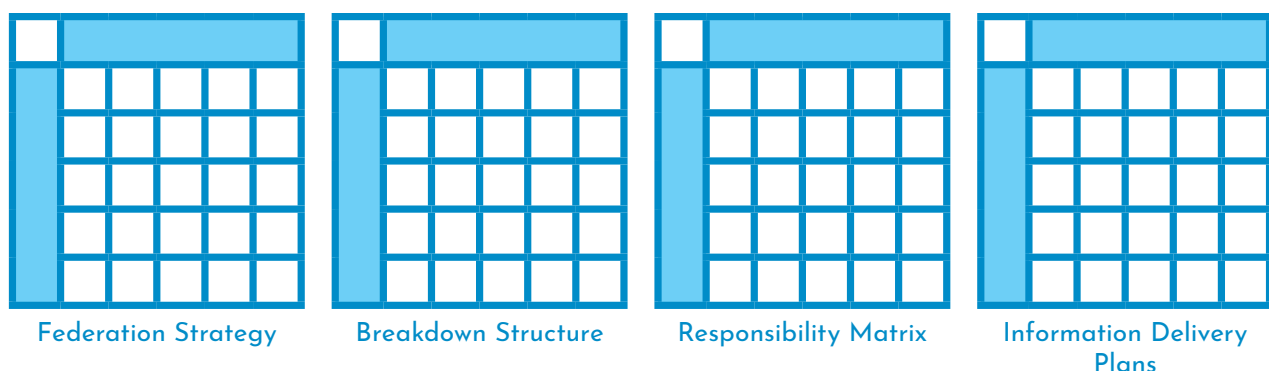


Figure 2: Information delivery planning process tools

This part of the guidance is structured into three main sections, to reflect the three broad topics above. However, for this edition the first section on federation strategy and information container breakdown structure has not yet been drafted. An empty section has been included as a placeholder and this is expected to be filled at the next edition.

2.0 Federation strategy and information container breakdown structure

This section of the guidance will be populated in a future edition

3.0 Responsibility matrices

3.1 Introduction

The responsibility matrices are one of the key components of the information delivery planning process, see Figure 3. The responsibility matrices build on the high-level information planning that has been expressed through the federation strategy, setting out how different information models relate to each other, and the information container breakdown structure, which sets out how information containers are grouped together in a hierarchy.

The responsibility matrices are then used to develop the more detailed task information delivery plans (TIDPs), which are then combined into the master information delivery plan (MIDP) for a particular delivery team.

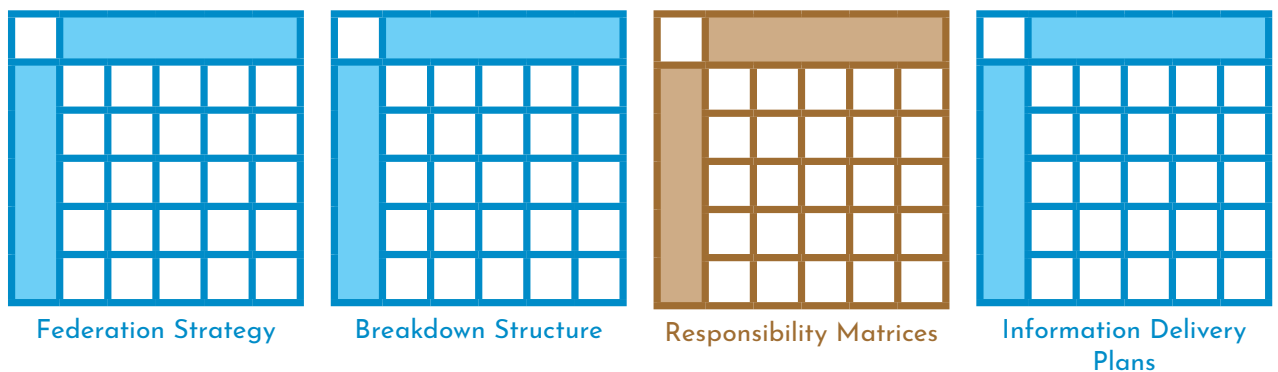


Figure 3: The responsibility matrices in the suite of information delivery planning tools

A responsibility matrix (defined in ISO 19650-1 clause 3.1.1 and explained in clause 10.3) should have two critical axes as a minimum as illustrated by Figure 4:

1. Information management functions
2. Project/Asset Information Management Tasks or Deliverables

		Axis 1 Information Management Functions				
		Function 1	Function 2	Function 3	Function 4	Function 5
Axis 2 Tasks or Deliverables	Task/Deliverable 1					
	Task/Deliverable 2					
	Task/Deliverable 3					
	Task/Deliverable 4					
	Task/Deliverable 5					
	Task/Deliverable 6					
	Task/Deliverable 7					

Figure 4: Illustration of a matrix using two axes

ISO 19650-2 clauses 5.3.2 and 5.4.2 make it clear that responsibilities for tasks or deliverables should be defined by the lead appointed party in the form of a matrix.

The responsibility matrix has two development stages: a "high level responsibility matrix" that is developed (as part of the pre-appointment BIM execution plan) before an appointment is made between the appointing party and lead appointed party. This is then refined to become the "detailed responsibility matrix" as part of confirming the appointment. However, ISO 19650-2 does not identify the detailed responsibility matrix as an appointment resource. The detailed responsibility matrix is not referenced as an appointment resource because the contractual requirements are fulfilled by the high-level responsibility matrix and the MIDP or TIDP. It acts as an intermediate step in developing the TIDPs and MIDP.

3.2 Format of the responsibility matrices

The responsibility matrices may take any form so long as they satisfy the requirements of ISO 19650-2. However, a common structure is typically that of a tabulated form as illustrated by Figure 4.

3.3 High level responsibility matrix contents

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

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

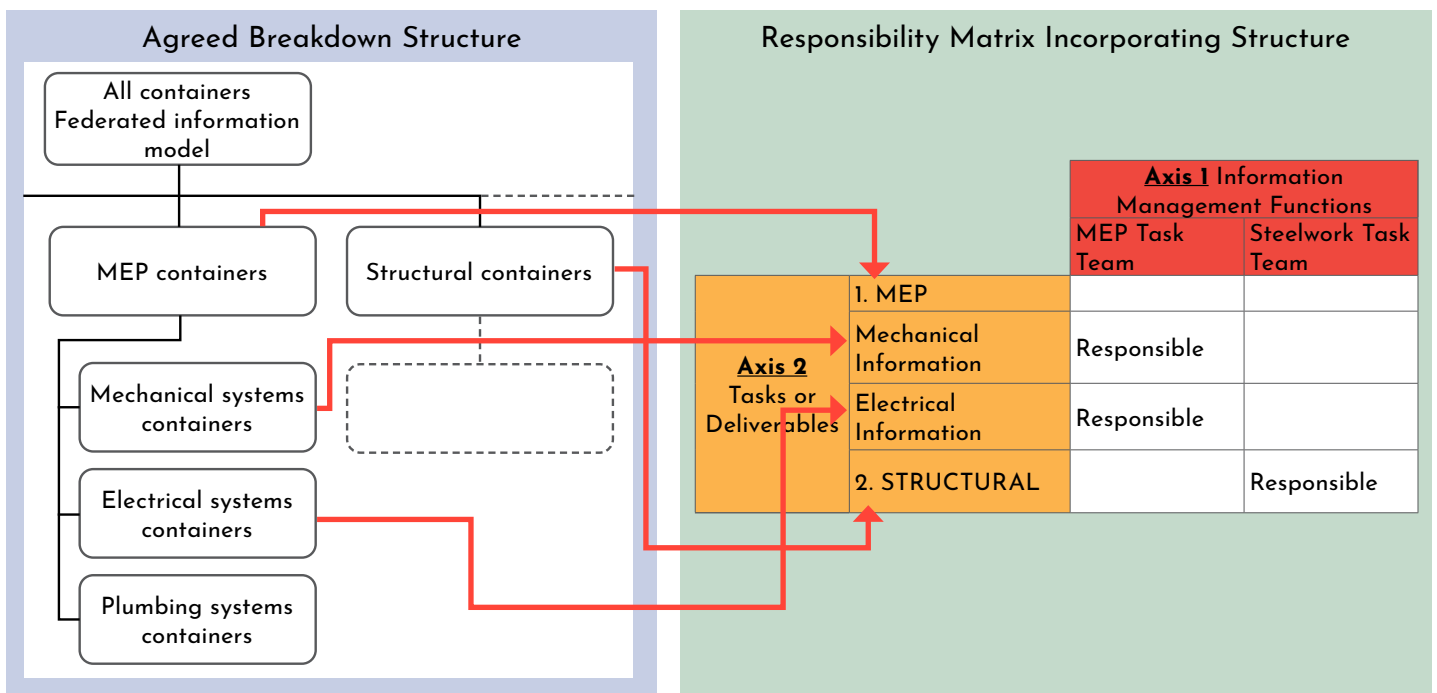


Figure 5: Example of a high-level responsibility matrix incorporating agreed breakdown structure

Figure 5 illustrates one example of some high-level tasks and deliverables. It only defines the high-level deliverables such as "mechanical information" and does not define more specific deliverables such as "air conditioning information" or "gas distribution information". Following selection, these more specific deliverables would be developed as part of the detailed responsibility matrix and information delivery plans.

Note that the high-level responsibility matrix may also include information management tasks. For example, the lead appointed party can use this matrix to identify who will deploy and manage the common data environment solution being adopted by their delivery team or who will be managing information related to compliance with the CDM regulations.

3.4 Detailed responsibility matrix

3.4.1 Expectation

It is at the detailed responsibility matrix level where considerable thought must be given towards the correct allocation of tasks and responsibilities. ISO 19650-2, clause 5.4.2 requires the following components to be identified by the detailed responsibility matrix:

- WHAT information is to be produced
- WHEN the information is to be exchanged with whom (i.e. information dependencies)
- WHO (which task team) is responsible for its production.

The detailed responsibility matrix is the stepping-stone between the high-level responsibility matrix and the delivery plans. Depending on the nature of the appointment, the extent to which it is necessary to define information dependencies may vary and the detailed responsibility matrix should not duplicate the purpose of the MIDP.

3.4.2 Background context

It is important to remember that projects have always needed to understand what information is required from members of the project team so that tasks can be completed; the detailed responsibility matrix is nothing new and has been around for a long time. The ISO 19650-2 description of the detailed responsibility matrix is very similar to existing industry tools such as the “design responsibility matrix” shown in Figure 6. ISO 19650-2 simply standardizes the approach to this type of responsibility matrix and applies a neutral name for the tool, one reason being that the concept applies to all information at all stages, not just design information.

In Figure 6, the three key components of WHAT, WHEN and WHO are highlighted in red. It is possible for the design responsibility matrix, once developed by the lead appointed party, to be reviewed and then used by the task team(s) to inform their TIDP(s).

Task/Deliverable	WHO					WHEN					
	Author Task Team					Stage for exchange with Lead Appointed Party for Review					
	1	2	3	4		1	2	3	4	5	6
Legend: R = Responsibility # = Input 1,2,3 = Party/provider											
WHAT	AAA	BBB	CCC	GGG	Other input						
GENERAL											
BREEAM (Energy Efficiency evaluation) Information	#	#	#		14	12	12	12	12	12	12
Building Area Management Information	R					1	1	1	1	1	1
Building Maintenance / Cleaning Information	R	#	#		11		1	1	1	1	1
Building setting out; co-ordination; grids; dimensions & level Info	R	#	#			1	1	1	1	1	
CFD modelling for Natural Ventilation Information	#		R				3	3	3		
Checking s/c drawings	R	#	#	#	ALL				1	1	1
Coordination of Design whole design information	R	#	#	#		1	1	1	1	1	1
DOORS											
External security door information	R	#			38		1	1	1	38	38
Metal doors, shutters, hatch information	R	#			40		1	1	1	40	40
Ironmongery information	R				40		1	1	1	1	1
ELECTRICAL SERVICES											
Access control system information	#		P	DC		3	3	3	4	4	
Etc Etc	#		P	DC		3	3	3	4	4	
FIRE ENGINEERING SERVICES											
Etc Etc											
DRAINAGE											
Etc Etc	#	R	#					2	2	2	2
EARTHWORKS											
Etc Etc		R						2	2	2	2
ENVELOPE: GENERAL											
Etc Etc	#	R			37,38				2	2	2
ENVELOPE: CLADDING											

Figure 6: Example of an existing design responsibility matrix that predates 1192 and 19650 standards

3.4.3 Modern approach

Although the example provided in Figure 6 can satisfy the detailed responsibility matrix requirements defined in ISO 19650-2, it does not exploit the information modelling tools or the information management standards now available to the industry to their full potential. Figure 7 shows an approach using the following two examples.

Example 1: Semantic approach (shown in Figure 7 as apricot shading)

Industry standard groupings and descriptions of objects, systems or elements could be used to help improve the structuring, understanding and cross-referencing for each task or deliverable. Using the IFC schema published by buildingSmart International the sub heading of "metal doors" under the main heading of "doors" in Figure 3 would be re-identified as IFCDoor, as shown in Figure 7. IFC is not the only resource available when considering structured approaches. Uniclass 2015 could also be used with "metal doors" re-identified as "Pr_30_59_24_52 : Metal doorsets". The use of semantic approaches provides direct links between shared resources such as between the responsibility matrix and the MIDP. Links can also be created between these resources and the modelling process. This can take the form of alignment in naming or classifying objects or as a way of visually interrogating or filtering the information model.

Example 2: Extra level of detail (shown in Figure 7 as blue shading)

When defining specific responsibilities at the modelled object property definition level in the form of alphanumerical data, further levels of detail could be introduced to the detailed responsibility matrix. Using the door example, further breakdown could be introduced by identifying that the "fire rating" property comes from Task Team 1 at stage 3 and the "manufacturer" property comes from Task Team 2 at stage 4. This level of detail within the responsibility matrix is important if alphanumerical data in the form of structured information containers are a key output for the project. The lead appointed party will want to ensure that specific data properties are captured in alphanumeric form within schedules or geometrical models. This is a significant step forward compared to just being recorded in unstructured information containers such as pdf documents.

It is important that the detailed responsibility matrix is as simple and proportionate to the project's needs as possible. The amount of work by the lead appointed party to compile this extra level of detail and structuring, as well as the extra work by appointed parties to review and use it to inform their TIDP(s), should be taken into account.

Task/Deliverable	Author Task Team					Stage for exchange with Lead Appointed Party for Review					
	1	2	3	4		1	2	3	4	5	6
Legend: R = Responsibility # = Input 1,2,3 = Party/provider	AAA	BBB	CCC	GGG	Other input						
DOORS (IFCDoor)											
1. Internal Door Geometry Information (IFCDoor_DOOR)	R	#			38		1	1	1	38	38
1.1 Required Door Attributes via COBie SpeadsheetML	R	#			40		1	1	1	40	40
1.1.1 All standard properties of MVD 2.4	1	#			40		1	1	1	40	40
1.1.2 <Minus> "SerialNumber"											
1.1.2 <Plus> "FireRating"	R	#			40		1	1	1	1	1
1.1.3 <Plus> "AcousticRating"	R	#			40		1	1	1	1	1
1.1.4 <Plus> "FireExit"	R	#			40		1	1	1	1	1
1.2 Required Door Properties via IFC Step	R	#			40		1	1	1	1	1
1.2.1 All standard properties of MVD RV 1.2	R	#			40		1	1	1	1	1
2. Access Hatch Geometrical Information (IFCDoor_TRAPDOOR)	R				40		1	1	1	1	1
2.1 Required Door Attributes via COBie SpeadsheetML	R	#			40		1	1	1	40	40
2.1.1 All standard properties of MVD 2.4	1	#			40		1	1	1	40	40
2.1.2 <Minus> "SerialNumber"											
Metal Doors (IFCDoor)											

Figure 7: An improved approach to the design responsibility matrix

3.4.4 Process

It is important to have a clear understanding of the distinction between the detailed responsibility matrix, information container breakdown structure and the information delivery plans. Figure 8 illustrates the connection between them.

The information container breakdown structure informs how the detailed responsibility matrix may be structured to ensure all important aspects of the information model are assigned. The detailed responsibility matrix sets out the WHAT, WHEN and WHO of tasks or deliverables. In response, task teams will compile their detailed task information delivery plans setting out exactly how the information will be delivered through an appropriate set of information containers. The lead appointed party will then compile the TIDPs to represent the entire delivery team's master information delivery plan.

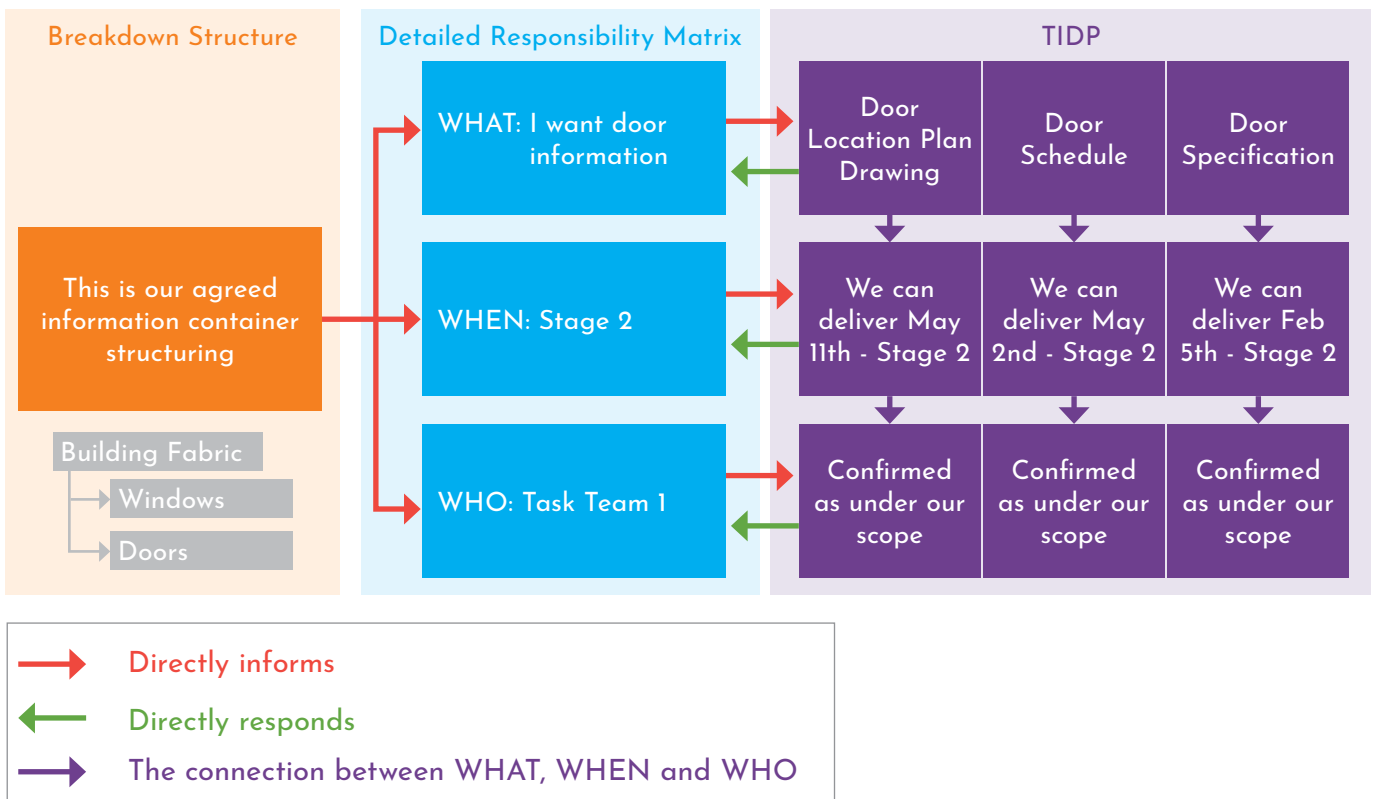


Figure 8: Process of information delivery planning

3.5 Misconceptions

3.5.1 Assignment matrix vs responsibility matrix

A common misconception is that the responsibility matrices are the same as that described in ISO 19650 Part 2 Annex A "Information Management Assignment Matrix". This is not the case as the assignment matrix is a tool for assigning ISO 19650-2 clause tasks whereas the responsibility matrices are tools for assigning delivery team tasks and information deliverables. ISO 19650-2 Table A.1 should not be used in the place of either of the responsibility matrices.

3.5.2 Master information delivery plan vs detailed responsibility matrix

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

For example, a detailed responsibility matrix may define that the "above ground drainage" information is the responsibility of the drainage contractor but the "below ground drainage" is the responsibility of a civil engineer. This communicates to the drainage contractor that their scope is above ground drainage only. When this drainage contractor develops their TIDP to detail out the specific deliverables such as "drainage layout plans", they will be doing this just for above ground drainage. The MIDP compiled by the lead appointed party will then define exactly what deliverables (such as drawings, schedules and models) will be produced by the civil engineer for below ground and the drainage contractor for above ground drainage.

3.5.3 Information container breakdown structure vs responsibility matrices

The information container breakdown structure is a pre-cursor to and provides the foundation for the responsibility matrices. It will dictate the approach to the responsibility matrices and will inform the information delivery plans. For example, if the chosen breakdown structure is similar to that illustrated in ISO 19650-1 Figure A.3, it will have an impact upon how the responsibility matrix will be defined (see guidance Figure 6). ISO 19650-1 Figure A.3 provides the WHAT by breaking down a building project into information containers. This strategy can then be adapted to support the responsibility matrix by adding the additional requirements needed of the responsibility matrix, the WHO and WHEN as illustrated in guidance Figures 7 and 8.

4.0 Information delivery plans

4.1 Introduction

Preparing the information delivery plans on projects is essential, as every task on a project is supported by some form of information. This is the most detailed level of planning specified in ISO 19650, following on from the federation strategy, information container breakdown structure and the responsibility matrices, as shown in Figure 9.

Before any planning can take place, there must be clear information requirements to begin with so that all variables can be considered. ISO 19650 Part 1 illustrates this defining of requirements and delivery planning process using a simple diagram shown in Figure 10 below.

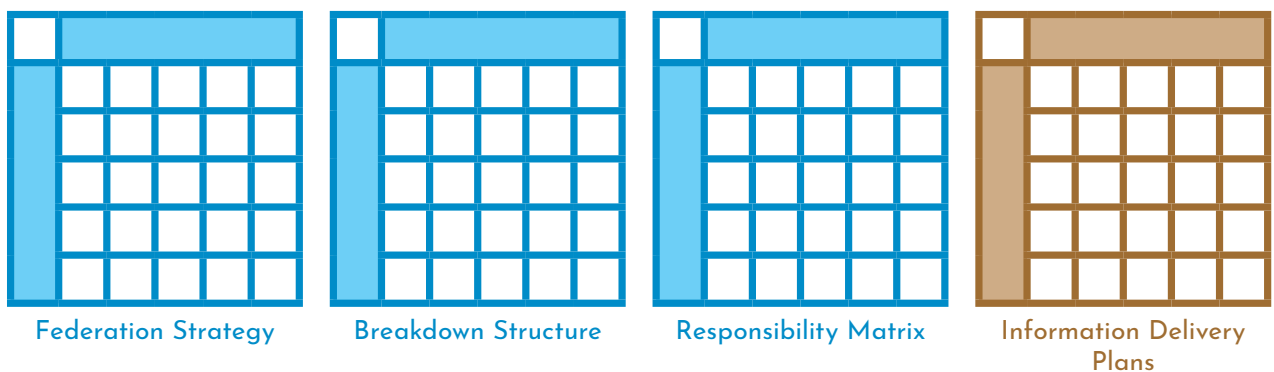


Figure 9: The information delivery plans in the suite of information delivery planning tools

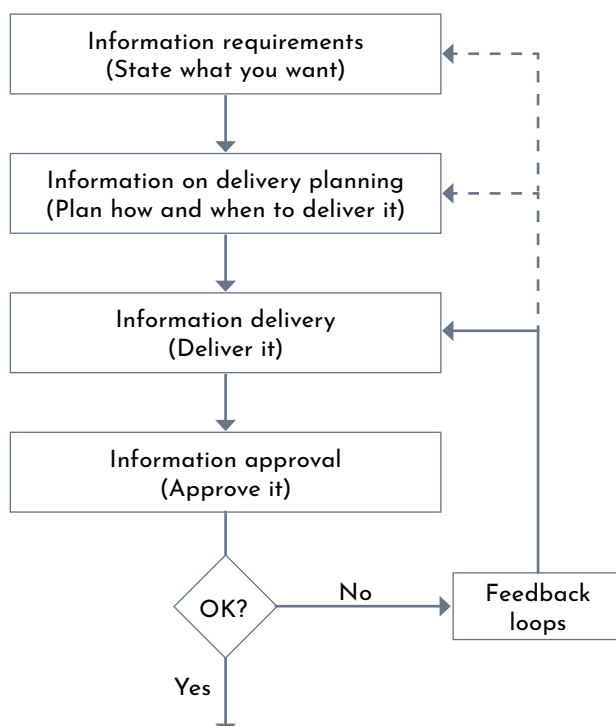


Figure 10: Information delivery process (ISO 19650-1 Figure 4)

The ISO 19650 series demonstrates that the planning of information delivery becomes the responsibility of each lead appointed party and appointed party (see ISO 19650 -1 clause 10.1 and ISO 19650-2 clause 5.4). This is noted as the second process step in Figure 10 and comes after requirements have been defined.

The output from an information delivery planning exercise for each appointed party is the production of a task information delivery plan (TIDP). This is because each appointed party has tasks to perform, which must be reflected in the TIDP for each task team (see ISO 19650-2 clause 5.4.4). To understand the relationship between appointed parties and task teams, refer to [ISO 19650 guidance part 2, section 1.1](#). The lead appointed party, who manages the delivery of information across their delivery team, must coordinate and compile each of the TIDPs into a master information delivery plan (MIDP).

The following section describes the information delivery planning process in more detail, including the TIDP and MIDP outputs, to give you a better understanding of its purpose and benefits.

4.2 Background context

It is important to remember that projects have always needed to understand what information is required from members of the project team so that tasks can be completed. The information delivery planning process and the outputs often take the form of tangible plans; they are nothing new.

Did you know the use of co-ordinated project information being a contractual requirement was a recommendation of the 1994 report, *Constructing the Team*, by Sir Michael Latham? This requirement was included in the form of the information release schedule, in the JCT 1998 Design and Build form of construction contract¹.

The information release schedule has many of the characteristics of the TIDP and MIDP outputs, as defined in ISO 19650-2. Table 2 is an example of an information release schedule - an early form of information delivery plan. You will note that the schedule defines:

- The name of the information to be released/ issued
- The author of the information
- The dates for when the information is to be released
- Some key milestones that also contain a note of level of information need.

Table 2: A condensed example of an information release schedule; early form of information delivery plan

Information Release Schedule				
Works Information	Responsibility	Issued for Contractor Procurement	Issued for Client Submission	Issued for Construction
Substructure				
Piling Layout Plans (1:100)	Structural Eng	06 June 2008	02 August 2008	16 August 2008
Piling Schedule	Structural Eng	06 June 2008	02 August 2008	16 August 2008
Ground Bearing Slab Plans and Details	Structural Eng	24 May 2008	02 August 2008	16 August 2008
Superstructure				
Rebar Schedule	Structural Eng	06 June 2008	09 July 2008	23 July 2008
Precast Frames	Structural Eng	06 June 2008	09 July 2008	23 July 2008
Slab and Details Level 1	Structural Eng	24 May 2008	09 July 2008	23 July 2008
Slab and Details Level 2	Structural Eng	24 May 2008	09 July 2008	23 July 2008
Slab and Details Level 3	Structural Eng	24 May 2008	09 July 2008	23 July 2008
Slab and Details Level 4	Structural Eng	24 May 2008	09 July 2008	23 July 2008
Stair Lift Core 1	Structural Eng	15 April 2008	02 July 2008	16 July 2008
Stair Lift Core 2	Structural Eng	15 April 2008	02 July 2008	16 July 2008
Site				
Site Location Plan	Architect	14 January 2008	21 January 2008	04 February 2008
Existing Site Plan	Architect	14 January 2008	21 January 2008	04 February 2008
Proposed Site Plan	Architect	14 January 2008	21 January 2008	04 February 2008

4.3 Modern ISO 19650 approach

From the UK's perspective, the ISO 19650 series builds on the concept of the information release schedule by providing consistency of approach and terminology for information delivery planning. Specifically, ISO 19650-2 identifies:

- When the information delivery planning process should start
- Who is involved, and
- What outputs are expected.

The two primary outputs of the information delivery planning process for each delivery team are a set of TIDPs and their corresponding MIDP. The ISO 19650 series also states a minimum requirement for these outputs to ensure the points listed above are included consistently in each plan.

4.4 Task information delivery plan (TIDP)

4.4.1 Expectation

ISO 19650-2 clause 5.4.4 states that every team responsible for a task (a task team) must produce a delivery plan for the information relating to their respective works. This plan is referred to as the TIDP. Clause 5.4.4 also defines what the task team must consider when developing their TIDP. Considerations include the information requirements assigned to them, their defined responsibilities and timescales.

According to clause 5.4.4, the TIDP must then schedule out an agreed list of information containers to be delivered, identifying for each one its:

- Name and title
- Predecessors or dependencies
- Level of information need
- Estimated time required for production
- Author
- Delivery milestones.

4.4.2 Format

4.4.2.1 Form and function

ISO 19650-2 does not mandate a template approach for presentation of TIDPs. It is left open to the delivery team to define how the TIDPs are developed to enable them to facilitate compilation of the MIDP by the lead appointed party. Furthermore, ISO 19650-2 does not identify the TIDP as a document; rather it is a resource that could be provided using various solutions such as: spreadsheets; project management programme tools; and/or other digital management tools.

It is possible to produce a TIDP collaboratively between the task team and the lead appointed party. This may be in the form of a meeting, capturing the agreed outcomes in a schedule that all parties are happy with. This can be better than simply asking a task team to produce a TIDP in isolation. Such an approach without a mutual collaborative involvement could result in a poor, non-specific delivery plan.

As noted in [section 4.2](#), it is sensible to review traditional processes and tools like the information release schedule to build on and improve what is already established and understood by the delivery team. This can help the team's acceptance of the ISO 19650-2 process and minimize disruption, while ensuring compliance with ISO 19650-2 clause 5.4.4.

Figure 11 illustrates two approaches (a and b) for how information containers could be listed in a TIDP. The figures adopt a colour-coded key to illustrate the alignment of each aspect of the TIDPs with the ISO 19650-2 requirements noted in section 4.4.1.

Figure 11a illustrates a tabulated approach, Figure 11b a Gantt chart approach. These are for illustration purposes only (reflecting just two ways to approach a TIDP), and each delivery team should develop its own approach appropriate to its appointment.

Task	Team	Date Agreed	Version
Structural Engineering	Smart Structures Ltd	1/01/20	C01

Name	Title	Potential Assigned ID	Dependant on	Level of information need (information container)			
				Form/Type	Scale	Format	Notes
Piling Layout	Piling Layout Plan 1 of 2	HC101-SSI-11-SL-DR-X-0001	Architectural Site Information	Drawing	1:100	PDF	Pile types to be noted
Piling Layout	Piling Layout Plan 2 of 2	HC101-SSI-11-SL-DR-X-0002	Architectural Site Information	Drawing	1:100	PDF	Pile types to be noted

continued...

Name	Title	Production Duration	Delivery Milestones						
			Late Dependency Risk	S3	S4	A2	A3	A4	A5
Piling Layout	Piling Layout Plan 1 of 2	At least 28 days delay	1/01/20	1/02/20	1/03/20	1/04/20	1/05/20	1/06/20	1/07/20
Piling Layout	Piling Layout Plan 2 of 2	At least 28 days delay	1/01/20	1/02/20	1/03/20	1/04/20	1/05/20	1/06/20	1/07/20

Figure 11a: Tabulated approach

Name/Title	Author	Level of information need (information container)				Week 1		Week 2		Week 3		Week 4		Week 5												
		Form/Type	Scale	Format	Notes	M	T	W	T	F	M	T	W	T	F	M	T	W	T	F	M	T	W	T	F	
Architectural Site Plan	Architects R Us	n/a	n/a	n/a	n/a																					
Piling Layout Plan 1 of 2	Smart Structures Ltd	Drawing	1:100	PDF	Pile types to be noted																					
Piling Layout Plan 2 of 2	Smart Structures Ltd	Drawing	1:100	PDF	Pile types to be noted																					

Figure 11b: Gantt chart approach

Key

A. The name and title of each container
B. Predecessors or dependencies
C. Level of information need
D. Estimated production duration
E. Responsible Information production author
F. Delivery milestones

Figure 11: Examples of inclusion of information containers in TIDPs

4.4.2.2 Format challenges

When considering an ISO 19650-2 TIDP approach, there are some challenges or common pitfalls to be considered.

ISO 19650-2 requires that the TIDP lists information containers to be generated by each task team. However, the definition of "Information container" tends to be misunderstood, and wrongly associated only with files. "Information container" is defined in ISO 19650-1 clause 3.3.12 as a "...set of information retrievable from within a file, system or application storage hierarchy." It is also noted that an information container can take the form of a sub-directory, a file or a distinct subset of a file such as a chapter, section layer or symbol.

Understanding this distinction is important because it will influence your approach to the TIDP. Two approaches are described, as follows.

TIDP approach 1: Focus on files

This approach considers information containers as files only and therefore lists the drawings, documents and other files that the task team expects to issue. Because the files are the focus, IDs are often predicted using the ISO 19650-2 National Annex clause NA.2, as shown in Figure 12.

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

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

This file-based approach is challenging because it is difficult to plan the extent of files to be generated at the outset of an appointment.

It forces a focus on the presentation of the information, not the information itself. For example, that a wall interface detail will be presented as a single drawing, without understanding either the scope or complexity of the information actually required. It is entirely possible that this interface detail has to be conveyed in several drawings to aid construction understanding. In this scenario, the TIDP would have to be updated via a change control process. This creates two issues:

1. The maintenance of unique IDs because they will need to be added, withdrawn or re-assigned
2. The volume of change control. This scenario is likely to repeat dozens, if not hundreds, of times.

Both of these create a significant administrative burden.

TIDP approach 2: Focus on information production tasks

This second approach, illustrated by Figure 13, concentrates on the information needed, rather than the specific file/presentation format (it does not necessarily focus on the type of file to be produced or the number of files to be produced). It therefore does not require every predicted file to be listed and consequently will not result in changes to the TIDP if one file needs to become six, or if six need to become one.

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

Figure 13: Non-file-based TIDP approach

This alternate approach is looser but it still acts as a clear guide to what is expected, with a clear name and description. In Figure 13 it is evident that a party wall interface detail must be created, but there is no definition of the presentation form it may take at this point, whether this is one or more drawings.

With both TIDP approaches, the lead appointed party has the same job to do. They must ensure that what they receive contains the relevant party wall detail information they expected and that they will receive it at the intended point in time.

Both TIDP approaches have their advantages and disadvantages and both should be considered (alongside others) to ensure the adopted approach is efficient and practical and retains a focus on what is needed, keeping the process as lean as possible.

4.4.3 Process

The principle purpose of the TIDP is to define clearly what each task team, and the authors within it, will produce, and when, noting that the TIDP will form part of the appointment between the lead appointed party and appointed party (see ISO 19650-2 clause 5.4.7). It is therefore important to remember that planning information deliverables is a collaborative effort.

A number of key components must be integrated into the TIDP production process, as follows:

4.4.3.1 Name and title

The name and title of an information container (which has to be stated in accordance with ISO 19650-2 clause 5.4.4) is not necessarily the same as its unique ID (ISO 19650-2 National Annex clause NA.2).

ISO 19650-2 is explicit that each planned information container must be recorded along with its name and title as part of the TIDP. The name and title should be clear so as to define what the output shall be from the task team.

4.4.3.2 Dependencies and predecessors

To agree delivery milestones and production durations, as required by ISO 19650 and as noted in section 4.4.1, the task team and lead appointed party must be aware of other dependency and predecessor information agreed with other task teams.

Figure 11 (a and b) illustrates two ways in which a dependency can be recorded in a TIDP. In Figure 11a (tabulated format), the “piling task team” identified that architectural site information was required but did not note when they would receive the information. The Gantt chart example (Figure 11b) also indicates a dependency on a specific architectural deliverable, but in addition shows the date it will be received. This indicates that the “piling task team” either:

- Coordinated with the lead appointed party to confirm a delivery date, or
- Highlighted via a placeholder in their programme, when they needed the information to arrive.

This shows they have allowed five days for review before sharing their first piling layout plan.

4.4.3.3 Level of information need

ISO 19650-2 clause 5.4.4 states that the TIDP must also record level of information need for each information container. The purpose of this is to define the scope of contents of the information container.

One example could be in relation to a piling layout, as illustrated in Figure 11b, whereby the pile types are a mandatory prerequisite of the issue, potentially determined by the exchange information requirements (EIR) that formed part of the author’s piling requirements.

Another example could be in reference to a door schedule, whereby the author defines the scope of the door schedule key contents at the point of issue, which may include “Fire Ratings”. Another common example could be in relation to an equipment schedule used in operation and maintenance submittals. The TIDP may reference a specification that defines the contents.

The primary benefit for the task team in defining the level of information need in the TIDP is to make it clear what will and will not be included within the information container at its various milestones.

4.4.3.4 Production durations

It is important to identify information production duration in the TIDP. This is particularly relevant if there are dependencies, such as information that is needed from, or by, another task team or allowing for a review period.

4.4.3.5 Author

There are a few ways to approach the “information author” content in the TIDP.

- Depending on the organizational structure of the task team or the approach to the TIDP, it may be sufficient to define the whole authoring organization as the key author for all deliverables
- If a task team has a complex structure, for example, it has two distinct disciplines, it may be pragmatic to list the discipline leads specifically
- If the TIDP contains listed dependencies from other task teams, it may be advisable to list these under a dedicated author, as illustrated in Figure 11b.

4.4.3.6 Milestones

It is important to consider all milestones when producing the TIDP. Milestones include those identified in the appointment EIR, as well as those determined by the task team. A milestone could be based on the purpose for issue such as, for comment with status S3 or when published within stage 4 with the status A4.

4.4.4 Appointment significance

ISO 19650-2 clause 5.4.7 requires that each appointed party appointment includes the relevant TIDP(s) – see [ISO 19650 guidance part 2 sections 1.4 and 1.5](#). This ensures a contractual obligation to deliver the required information. Updates to the TIDP following appointment should comply with agreed change control procedures.

4.5 Master information delivery plan (MIDP)

4.5.1 Expectation

ISO 19650-2 clause 5.4.5 states that the lead appointed party shall aggregate their appointed parties' TIDPs to form the delivery team's MIDP. Clause 5.4.5 defines what the lead appointed party shall consider when developing this aggregated plan, including:

- The assigned responsibilities within the detailed responsibility matrix
- Predecessor and dependency between the task teams
- Appointing party and lead appointed party review durations.

Once the TIDPs have been aggregated, and taking the above into consideration, the lead appointed party must:

- Baseline the deliverables and dates within the MIDP
- Notify each task team of changes
- Inform the appointing party of any risks.

4.5.2 Format

ISO 19650-2 does not mandate a template approach for presentation of the delivery team's MIDP. It is left to the lead appointed party to determine this. If the appointing party does have a specific template to be adopted, then this would take the form of a shared resource. Furthermore, ISO 19650-2 does not identify the MIDP as a document, rather, it identifies it as a resource that could be provided using various solutions such as: spreadsheets; project management programme tools; and/or other digital management tools.

As noted in section 4.2, it is sensible to review traditional processes and tools used by lead appointed parties to build on and improve what is already established and understood by the lead appointed party organization. This can help their acceptance of the ISO 19650-2 process and minimize disruption, while ensuring compliance with ISO 19650-2 clause 5.4.5.

4.5.3 Process

The principal purpose of the MIDP is to define clearly what information the delivery team expects to deliver. This should be set against a coordinated programme that takes account of predecessors, dependencies, specific responsibilities and review and sign-off durations that the lead appointed party is responsible for managing on behalf of their delivery team.

The following three actions must be performed once the TIDPs have been aggregated, as defined in ISO 19650-2, clause 5.4.5:

1. Baseline the deliverables and dates

Projects are governed by scope and deadlines, and each information container to be delivered must be recorded according to a programme to measure the delivery team's progress and the overall performance.

This baselined MIDP should be shared, understood and agreed by the whole delivery team so that the lead appointed party can be confident in meeting its appointment obligations.

2. TIDP feedback

Projects are rarely static, with change being commonplace. Change may be minor, ranging from a few additional information deliverables being required, to significant change. Whenever there is a change to the scope of the lead appointed party's appointment, information deliverables and TIDPs should be reviewed. Any likely changes must be collaboratively approached to ensure that amended TIDPs are coordinated with one another and reflected in the lead appointed party's MIDP.

3. Risk management

ISO 19650-2 clause 5.3.6 states that a risk register must be established by the lead appointed party. Any risks that impact information delivery and information delivery milestones should be recorded in this risk register.

Unrealistic deadlines, resource issues or even concerns outside the lead appointed party's control (for example, milestones that the lead appointed party and their delivery team cannot meet without reference information from the appointing party) should be considered and reported. This gives all parties oversight of the risks and creates a mechanism to implement appropriate risk-mitigation measures.

Although it is not expressly stated in ISO 19650-2, it would be good practice for the lead appointed party to cross-check the MIDP against the EIR received from the appointing party. This is to make sure that the EIR, including delivery dates, will be met in full. Where there are deliverables missing or not indicated to be delivered at the required time then these issues need to be discussed with the task team(s) and then with the appointing party (client). Items that remain unresolved should be recorded in the risk register (item 3, above).

4.5.4 Appointment significance

ISO 19650-2 clause 5.4.6 requires that each lead appointed party appointment includes the relevant MIDP. This ensures a contractual obligation to deliver the required information. Updates to the MIDP following appointment should comply with agreed change control procedures.

5.0 Summary

ISO 19650 guidance F has provided further insight into information delivery planning.

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.

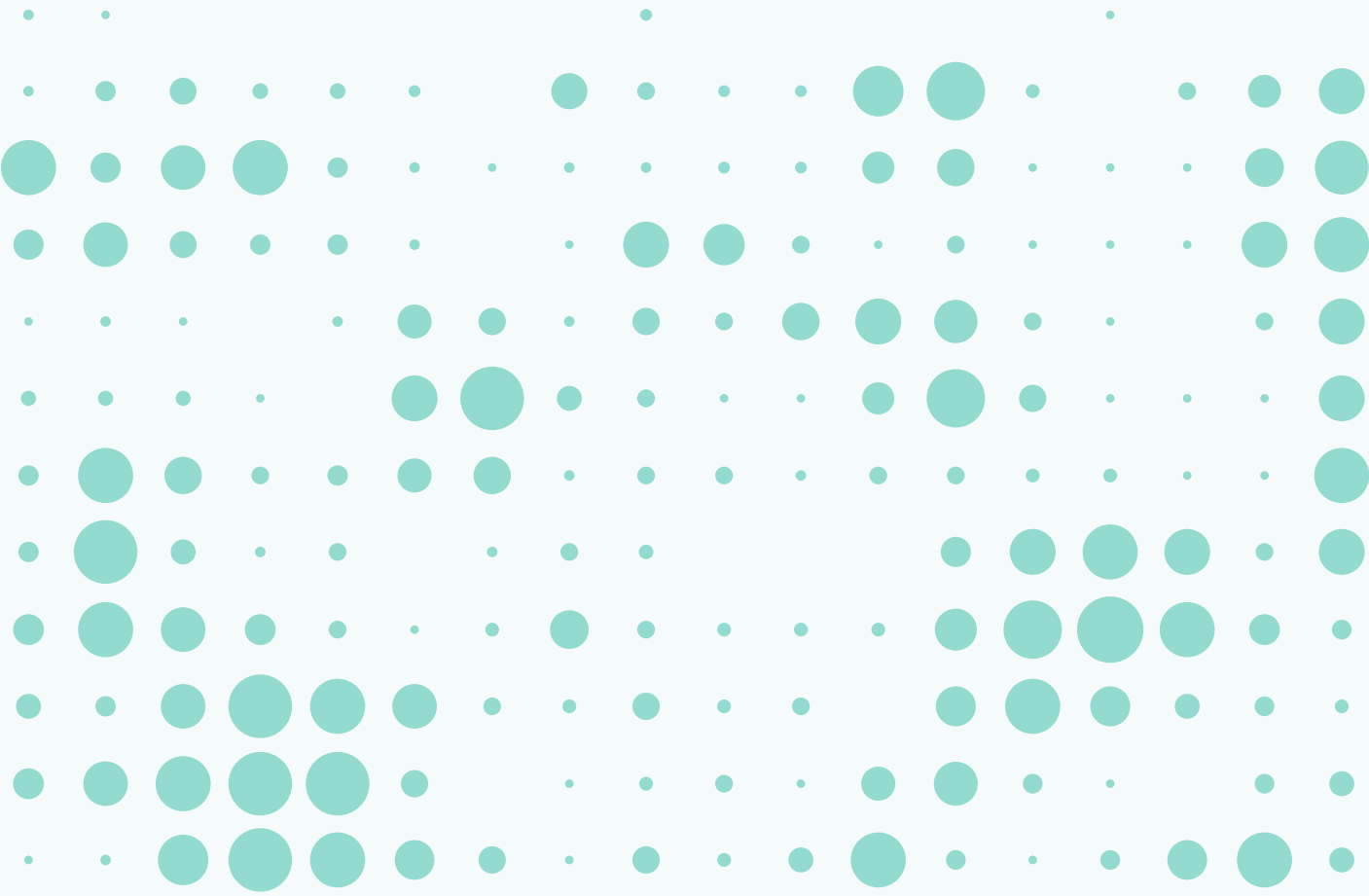
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