

BIM Toolkit Overview

Guidance

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Executive summary

The BIM Toolkit (Toolkit) was formed to address a knowledge gap observed around the world of having a set of tools for introducing Building Information Modelling (BIM) to public procurement practices and project delivery. It is a set of guidance and template documents, aligned with the ISO 19650 series of standards. The toolkit comprises of a number of key components, supporting implementation of best practice information management processes. These tools are suitable for those at every level of BIM adoption – from the initial to advanced stages of BIM maturity.

The documents that form part of this BIM Toolkit have all been created in alignment with ISO 19650 and industry feedback to shape the development of a suite of artifacts which can be immediately applied to organisations and projects. Each part of the BIM Toolkit has a blank template in addition to a guidance document which explains how to use the tool and what contents should be developed within it. This approach means that the Toolkit can be used by a wide-ranging audience regardless of their level of BIM maturity. The toolkit follows the framework hierarchy on page 3, **Error! Reference source not found.**, which has been identified as best practice for the creation of in-country collaboration frameworks.

The Toolkit was developed under the UK Government's Prosperity Funded Global Infrastructure Programme (GIP), led by the Centre for Digital Built Britain (CDBB) International team, and working with countries in South East Asia and Latin America. This collection of knowledge products is the culmination of input from many contributors over a three year collaboration period.

1 BIM toolkit components

The BIM toolkit has been created to support implementation of the best practice information management processes, for those at the beginning stages of Building Information Modelling (BIM) adoption and for more experienced users.

The BIM toolkit will assist different countries with the creation of their national collaboration framework, which should follow the hierarchical structure of national standards, technical guides and templates and other support resources (**Error! Reference source not found.**). This framework is covered by the BIM toolkit.

The framework hierarchy levels are:

- National regulations/standards: this refers to a set of suggested set actions or principles that provide structure and consistency to information management procedures.
- Technical guides/specifications: these provide insight and further explanation on how to follow the requirements using best practices.
- Templates and other support resources: these comprise documentation that supports the user to understand and fulfill their information management criteria.

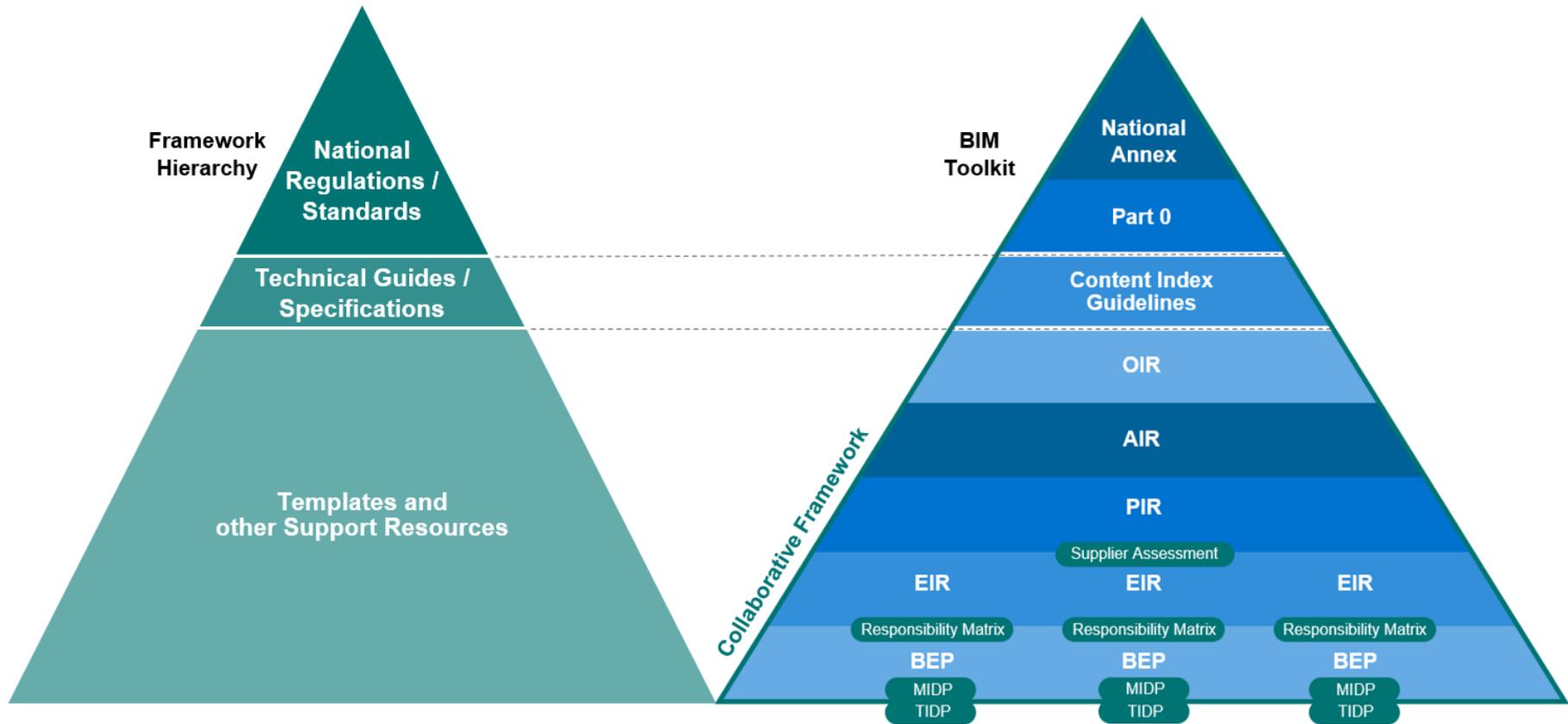


Figure 1.1: Framework hierarchy toolkit mapping

1.1 BIM toolkit documents list

For each level of the framework hierarchy, a set of documents has been created with an intended user and focus in mind. Responsible parties/entities are identified below alongside the document's aim.

1.1.1 National regulations/standards hierarchy

National Annex (NA):

Supports the contextualisation of ISO 19650 series to the country specifications

Responsible: Government/national entities

Part 0:

Provides an introduction to ISO 19650 series through standardisation of the in-country terminology and project life cycle

Responsible: Government/national entities

1.1.2 Technical guides/specifications hierarchy

Content index BIM universal guide:

Provides the minimum content for the creation of the in-country universal BIM guide

Responsible: Government/national entities

Templates and other support resources hierarchy

Organisational information requirements (OIR):

Specifies the information required to achieve organisational strategic objectives

Responsible: Organisation directives/client

Asset information requirements (AIR):

Specifies the information required to successfully operate/maintain an asset, typically focusing on the specific components of an asset

Responsible: Organisation directives/client/asset operation team

Project information requirements (PIR):

Specifies the information required to successfully deliver an asset that meets the organisational information requirements (OIR) and the asset information requirements (AIR), with a focus on the specific project related to an asset

Responsible: Organisation directives/client

Exchange information requirements (EIR), including information standards, information production methods and procedures:

Specifies the information required from each project delivery team appointment, to meet the applicable project information requirements (PIR), including the standards, methodology and procedures that must be adhered to

Responsible: Organisation directives/client, for lead appointed party (tier 1) appointment

Lead appointed party (tier 1), for task team/tier 2 appointment

BIM execution plan (BEP):

The lead appointed party (tier 1) response to the exchange information requirements (EIR), specifying how they will deliver the required information

Responsible: Lead appointed party (tier 1)

Supplementary templates:

Responsibility matrix, master information delivery plan (MIDP) and task information delivery plan (TIDP)

Responsible: Organisation directives/client for initial responsibility matrix

Lead appointed party (tier 1), for all

1.2 BIM toolkit structure

Template:

The template forms the basis of the BIM toolkit. It contains the required content to fulfil the purpose of the document.

Guide:

The guide is a complementary document to the templates. It provides an explanation and examples of how to fill in the template document and refers to other useful guides.

To assist users, each template has a subsequent guidance document that provides an explanation of how to complete the template to suit their needs.

The exchange information requirements (EIR) template has the additional functionality of determining and selecting the minimum content requirements based on the user's familiarity with the ISO 19650 series processes.

2 User's building information modelling (BIM) journey

The BIM toolkit was created to provide a resource that will serve different countries in the creation of their collaborative framework.

The National Annex, Part 0, and Content Index BIM Universal Guide were created for use at a national level for the creation of a collaborative framework, while the remaining BIM toolkit documents are to assist those in project procurement, delivery and operation (client and supplier), to structure their information requirements and delivery strategies.

2.1 National-level focus – creation of collaborative framework

National regulations

- National Annex (NA)
- Part 0 Toolkit

Technical guides

- Content Index BIM Universal Guide

2.2 Organisation and project-level focus – information requirements progression

Figure 2.1 (below) has been created to demonstrate the various potential ways that building information modelling (BIM) could be implemented by an organisation, using a step-by-step approach. The figure provides examples of the different sequential implementation methods that could be adopted based on users' current familiarity with the ISO 19650 series principles.

The starting points are captured under 'Entry points 00', while 'Progression Steps 05' provides an explanation of the activities relating to the BIM toolkit that can be undertaken to assist with building information modelling (BIM) implementation. It is important to note that these are just recommendations for how the BIM toolkit could be applied to achieve the most appropriate progressive implementation

Templates and other support resources hierarchy:

- Organisational information requirements (OIR)
- Asset information requirements (AIR)
- Project information requirements (PIR)
- Exchange information requirements (EIR), including information standards, information production methods and procedures
- Pre-appointment BIM execution plan (BEP)
- BIM execution plan (BEP)
- BIM complementary templates

methodology. For better alignment of user adoption, the progression steps would need to be aligned with the organisation's BIM adoption strategy.

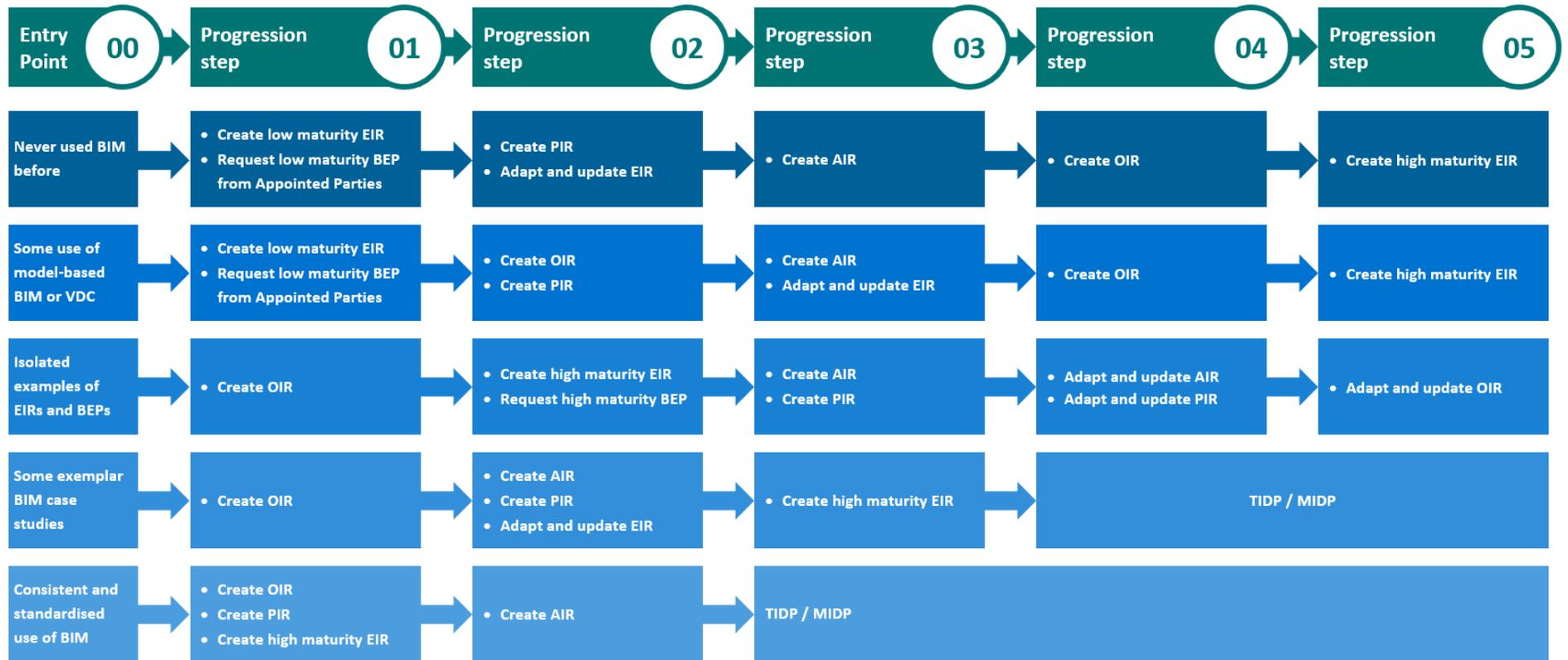


Figure 2.1: BIM Toolkit user journey examples

3 BIM toolkit guide

To assist users to complete the relevant documents within the BIM toolkit, this section provides step-by-step instructions on how to complete a template to the user's specific requirements using the respective guidance.

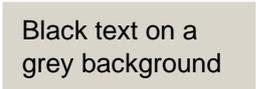
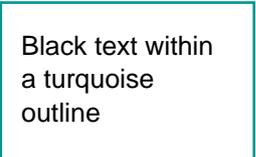
Each template has a corresponding guidance document that provides the user with an understanding of the subject covered, as well as advice on how to complete each section. This includes some examples that could be modified and adopted or simply used for reference purposes.

The following steps are the suggested sequence for filling in each section of a template.

3.1 BIM toolkit key

To aid document navigation and comprehension, the following steps should be followed:

1. Locate the relevant template and corresponding guidance document within the BIM toolkit.
2. In the template, read the instruction/description within the **<angle brackets>** under the heading of the section that you are progressing.
 - a. Any **<black text within angle brackets>** provides a short instruction/description of how to complete the section.
3. Before you begin to fill in the section, refer to the corresponding section within the guidance document.
4. In the guidance document each section will contain some of the following subdivisions. Their explanations and the order in which they should be read are as follows:

- a.  This section provides a plain language explanation overview of what the corresponding section should contain.
- b.  This section provides a written example of how the corresponding template section could be started and/or completed (depending on the section). If applicable, this text could be copied and pasted directly into the template.
- c. **<Black text within angle brackets>** Provides a description of how to complete the section. In the guidance documents this may also include an explanation of a detailed example that is provided, including how it could be adapted or replaced to suit the user's requirements.

- d. Plain text
Expands on the example within the turquoise outline (item b), providing a more detailed sample of the section's potential content. This will include a working example, which demonstrates how it has been adopted within the United Kingdom. If applicable, this example could be copied and pasted directly into the template.
- 5. Throughout the guidance document there will be section examples that require specific customisation if they are to be copied verbatim into the template. All required customisations will be identified by **{green text in open/closed brace brackets}** containing the customisation instruction.
- 6. Once the template has been completed, ensure that all text within the **<angle brackets>** is deleted and refresh the contents page.

4 Glossary

Term/abbreviation	Title	Description
AIM	Asset information model	The information collated from the PIM, to manage the operation of an asset/facility.
AIR	Asset information requirements	The information required for the AIM, relating to the operation of an asset.
Appointing party		This refers to whoever is appointing another party to provide project information. Typically, this refers to the project client.
Appointed party		A team appointed/employed to supply information.
BIM	Building information modelling	Process of creating and managing information relating to an asset, throughout its life cycle.
BEP	BIM execution plan	A plan that outlines how a project delivery team will meet the information management aspects of their appointment, contained within the EIR.
CAFM	Computer aided facilities management	A digital platform that is used to support facilities management activities.
CDE	Common data environment	A single source of information for a project or asset. It is used for the collation, management and distribution of information.
Delivery team		The lead appointed party and their appointed task teams.
EIR	Exchange information requirement	These are the information requirements of an appointment. This can be for any appointment.
Federation strategy		The method of dividing the PIM, the information container breakdown structure, to allow collaborative working.
IFC	Industry format classification	An open standard for data exchanges.
Information container		Refers to a receptacle of information, which could be a schedule, component, drawing, etc.
Lead appointing party		This refers to the appointed party who has been identified to 'lead' a project delivery team.
LOD	Level of detail	The agreed amount of geometrical detail within the model (including 2D and 3D outputs).
LOIN	Level of information need	An umbrella term for both the LOD and LOI.
LOI	Level of information	The agreed amount of information/data associated with an element or information container.
Responsibility matrix		A matrix identifying who is responsible for each information management activity.
PIM	Project information model	Information related to the delivery phase of an asset. This typically refers to the information submitted and/or approved for each information delivery milestone.