Transport Infrastructure Ireland

BIM For Infrastructure

TII standards/guidance

Jansi George, Eugene Sayenko | 04th March 2026

Agenda

PART 1 – Introduction
PART 2 – TII BFI Standards/Guidance

PART 1

1. What is BIM?

2. Why TII BFI guidance documents and benefits?

3. Public Sector BIM Mandate timeline

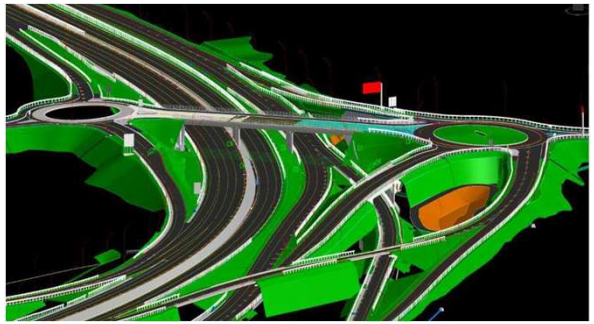
4. CWMF core BIM requirements

5. TII BFI strategic plan

6. How will this affect the projects?

Building Information Modelling (BIM) for Infrastructure projects

Luas Finglas



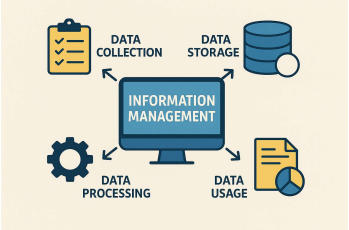
Dunkettle Interchange Upgrade Scheme

MetroLink

Transforming how we design, build, and manage transport infrastructure through digital innovation and collaborative processes

What is BIM/Information Management?

Collaborative Business Process



Lifecyle Management of information and Data

Digital Model

Why TII BIM for Infrastructure Policy/standards?

Comply with Public sector BIM Mandate

Ensuring alignment with government digital construction initiatives and meeting regulatory requirements for public infrastructure projects across Ireland.

Provide guidance and support to Sponsoring Agencies

Establishing clear standards and best practices that enable consistent implementation across all stakeholders in the infrastructure delivery ecosystem.

Rialtas na hÉireann
Government of Ireland

Capital Works Management Framework

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← Previous Next →

BIM requirements in the CWMF from January 2024

4 July 2023

Following the announcement by Ministers Donohoe and Smyth of a package of contract reforms to build confidence in NDP delivery, this information note provides further details about the role of BIM and sustainability in these reforms, and a timeline for Public Sector BIM Adoption

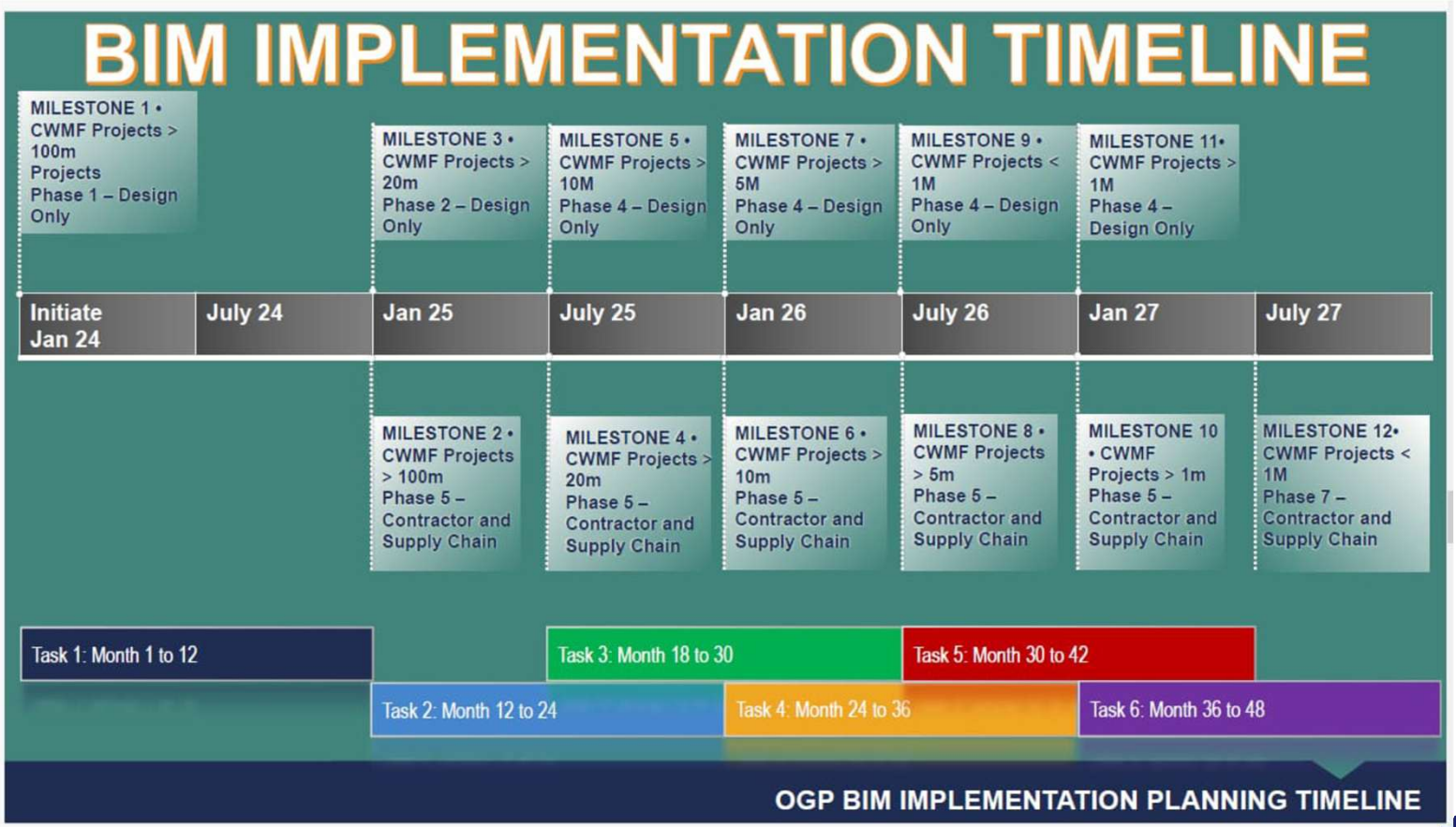
Benefits of TII BIM for Infrastructure Standards/guidance

- No current BIM standards/guidance for Linear Infrastructure projects in Ireland
- Consistent approach in all TII projects and avoid confusion
- Support to implement Public sector BIM mandate
- Guidance to implement International Standard ISO19650

Within Projects,

- Improved collaboration with stakeholders
- Better communication and coordination
- Reduction in design errors
- Decrease in construction-related disputes

Public Sector BIM mandate Timeline



Public Sector BIM mandate Timeline

TII New Projects > €10m – Phase 0 and Phase 5 – Jan 2026

TII New Projects > €5m at Phase 0 - July 2026

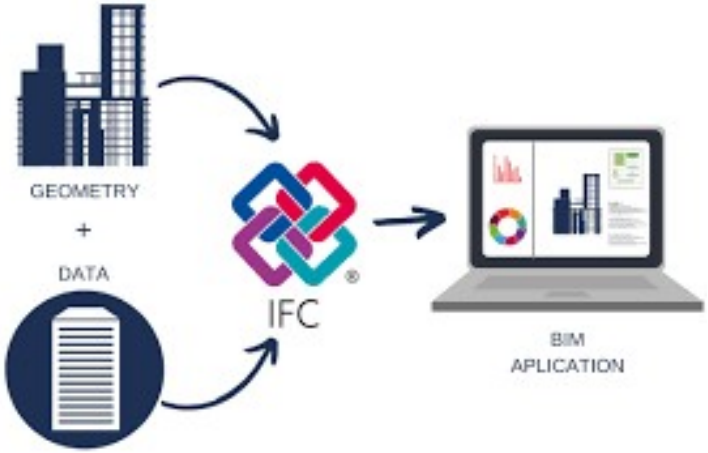
* Implementation of BIM in TII projects < €10m still under consideration

TII Project Management Guidelines for National Roads and Greenways

CWMF Core BIM requirements

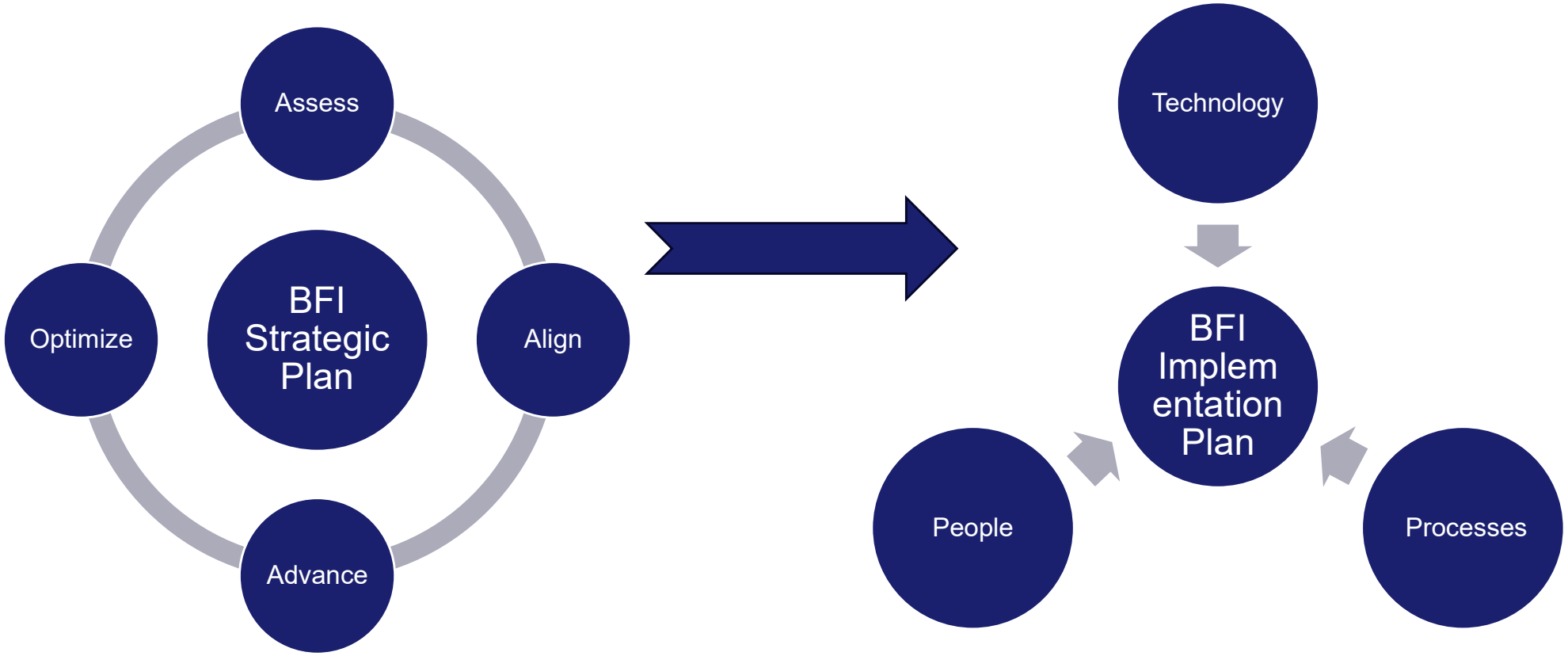
ISO 19650 International Organization for Standardization

uniclass delivered by NBS



ICMS INTERNATIONAL COST MANAGEMENT STANDARD

TII BIM For Infrastructure (BFI) Strategic Framework



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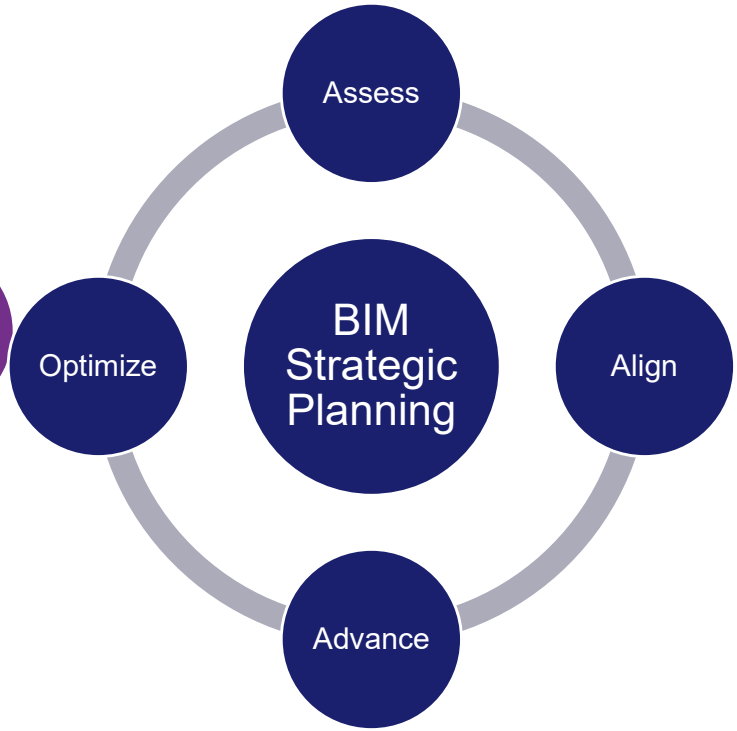
TII BFI Strategic plan



Assess	Align	Advance	Optimize
• Assessed current practices • Determined readiness for the change	• Determined strategic goals and objectives related to BIM • Align with Public Sector mandate timeline and International standards requirements • Established minimum desired level of maturity to which TII will implement BIM	• Developed strategic Road map • Developed Standards/ Guidance for BIM and publish it • Planning the transition process to integrate BIM into TII projects	• Measure the performance • Continuously improve the processes

How will this affect the projects?

Procurement and contracts: BIM requirements to be included in tenders, contracts, and scopes.

Programme impacts during transition: Initial adoption may affect timelines as teams adapt to new workflows.

Increased budget requirements: Additional funding required for CDE procurement and maintenance

Training required: Training and new role such as Information Manager will be required.

Part 2 - Agenda

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Transport Infrastructure Ireland

01 BIM Framework Documentation

02 BIM Statement of Intent

03 BIM Road Map

04 BIM Implementation Guidelines

05 BIM Templates & Other Supporting Resources

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Purpose & Context

Context:

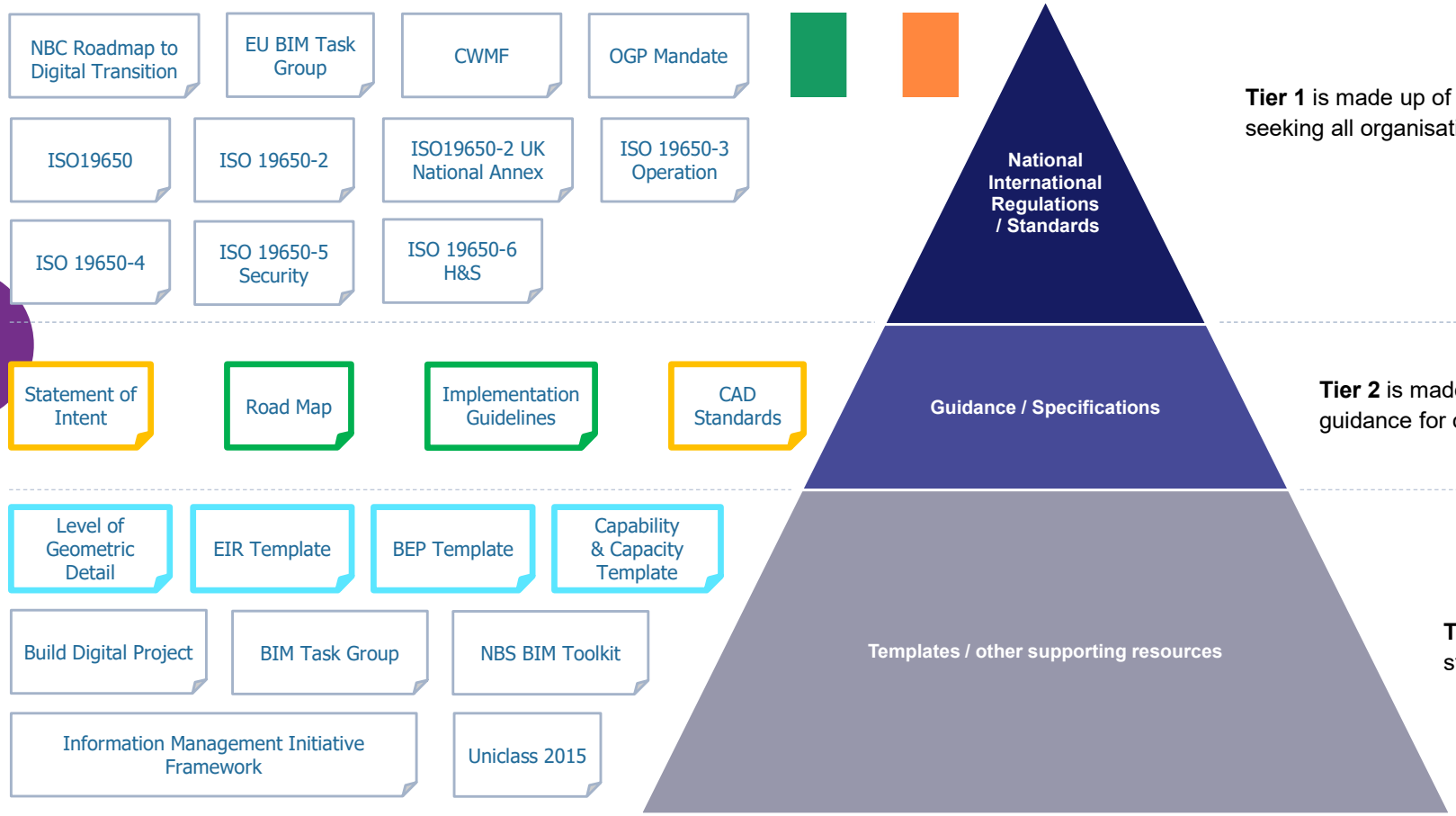
In 2025 TII commissioned the development of new **Information management and BIM standards guidance and templates**

To ensure adoption of these, stakeholders need to understand their purpose, and how and when to use them

This presentation focuses on:

Introducing the framework of BIM and IM documents.

Information Management/BIM Framework



Tier 1 is made up of the key policies that the government are seeking all organisations, assets and projects to follow..

Tier 2 is made up other supporting standards and the key guidance for organisations, assets and projects to follow.

Tier 3 contains supportive material aligned to the standard.

Legend: Technical Guidance | Standards | Supplementary Information

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TII IM/BIM Publications

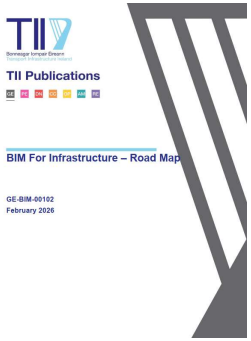
GE-BIM-00101

Defines TII's commitment to implementing Information Management and BIM across the asset lifecycle in response to the OGP mandate.

GE-BIM-00103

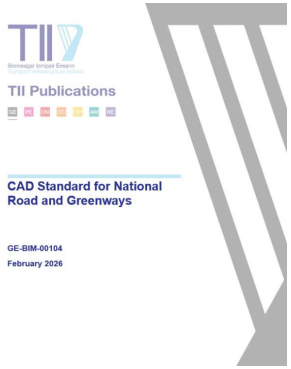
Provides practical guidance for applying TII's Information Management requirements on projects.

GE-BIM-00102



Sets out TII's phased strategy for implementing Information Management across projects, aligned with ISO 19650.

GE-BIM-00104



Standardises CAD conventions to ensure consistency, interoperability, and quality of project information.

TII IM/BIM Supporting Information

Bonneagar Iompair Éireann
Transport Infrastructure Ireland

LOD Catalogue

Model Element	Element	LOD 0-100		LOD 200		LOD 300-350		LOD 400	
		Type	Definition	Type	Definition	Type	Definition	Type	Definition
Road Components	Corridor Object	N/A	N/A	N/A	N/A	Corridor Object	Accurate line and levels of the road geometry from which the below subsets are derived	N/A	N/A
	Centreline	2D Object- polyline or equivalent	Accurate line of the centreline (master string). Min chainage interval: 10m or less as suitable for purpose	N/A	N/A	3D Polyline	Accurate line and levels of the centreline (master string). Min chainage interval: 10m or less as suitable for purpose	N/A	N/A
	Edge of Carriageway	2D Object- polyline or equivalent	Accurate line of carriageways, including widening, corners and nosing	N/A	N/A	3D Polyline	Accurate line and level of carriageways, including widening, corners, flowing, and superelevation. Min chainage interval: 10m or less as suitable for purpose	N/A	N/A
	Lane Line/Keep Marking	2D Object- polyline or equivalent	Accurate line at lane lines or markings centreline	N/A	N/A	3D Polyline	Accurate line and levels at lane lines or markings centreline. Min chainage interval: 10m or less as suitable for purpose	N/A	N/A
	Hard Strip	2D Object- polyline or equivalent	Accurate line, including widening and tapers	N/A	N/A	3D Polyline	Accurate line and levels, including widening and tapers. Min chainage interval: 10m or less as suitable for purpose	N/A	N/A
	Back of Verge	2D Object- polyline or equivalent	Accurate line including applicable crosshalls and required widening	N/A	N/A	3D Polyline	Accurate line and levels including applicable crosshalls and required widening (e.g. SSD). Min chainage interval: 10m or less as suitable for purpose	N/A	N/A
	Back of Kerb	2D Object- polyline or equivalent	Generic line for back of kerbs	N/A	N/A	3D Polyline	Generic line and levels for back of kerbs with full upstand. Levels do not need to reflect details such as different kerb types, dropped kerbs or quadrants. Min chainage interval: 10m or less as suitable for purpose	N/A	N/A
	Footway/Cycleway	2D Object- polyline or equivalent	Accurate line for footways, footpaths and cycleways	N/A	N/A	3D Polyline	Accurate line and levels for footways, footpaths and cycleways, including appropriate widths, crosshalls and longitudinal slopes. Min chainage interval: 10m or less as suitable for purpose	N/A	N/A
	Earthworks	2D Object- polyline or equivalent	Accurate line for top of cuttings, bottom of embankments and other edges that illustrate the finished earthworks: slope profile (e.g. slope steepening, berms, etc.). Formation/sub-formation earthworks and topsoil not required. Min chainage interval: 10m or less as suitable for purpose	N/A	N/A	3D Polyline	Accurate line and levels for top of cuttings, bottom of embankments and other edges that illustrate the finished earthworks: slope profile (e.g. slope steepening, berms, etc.). Formation/sub-formation earthworks and topsoil not required. Min chainage interval: 10m or less as suitable for purpose	N/A	N/A
	Earthworks Tadpoles	N/A	N/A	N/A	N/A	3D Block	Tadpole symbols illustrating the general location of standard cut and fill slopes	N/A	N/A
	Earthworks Slope Signatures	N/A	N/A	N/A	N/A	3D Polyline	Slope signature symbols illustrating the general location of non-standard cut and fill slopes	N/A	N/A
	Edge of Drainage Ditch	2D Object- polyline or equivalent	Accurate line representing the drainage ditches	N/A	N/A	3D Polyline	Accurate line and levels for top and bottom edges of drainage ditches. Min chainage interval: 10m or less as suitable for purpose	N/A	N/A

CAC Template

CAC – Capability & Capacity Assessment Template

February 2026

Assesses the Appointed Party's capability and capacity to meet the EIR requirements.

EIR Template

Exchange Information Requirements (EIR) Template

February 2026

Defines the Appointing Party's information requirements in alignment with ISO 19650 and TII standards.

BEP Template

Pre-Appointment BIM Execution Plan Template

February 2026

Sets out how the Appointed Parties will meet the EIR and manage Information Management processes.

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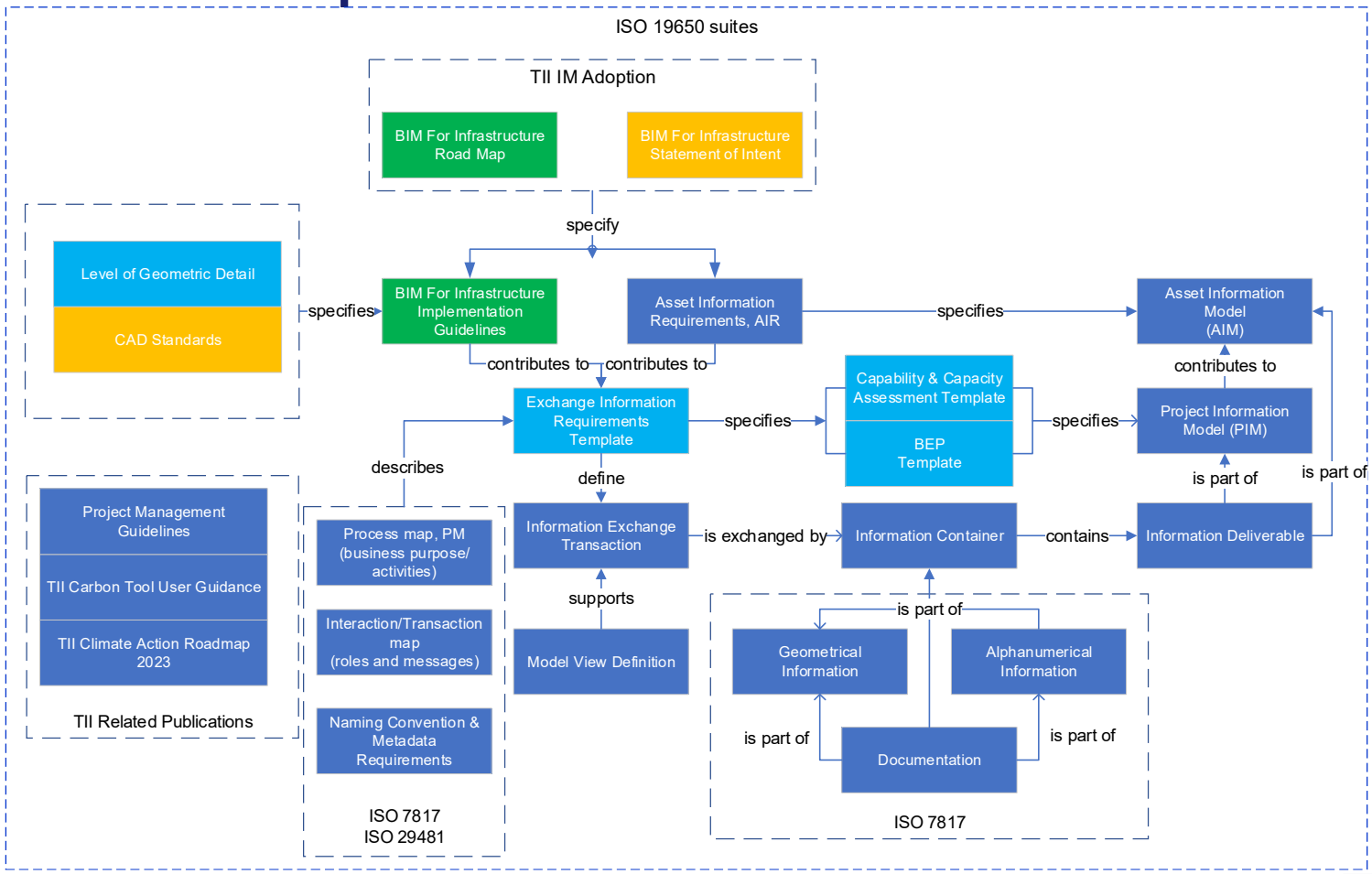
Standards Relationship



Legend: Technical Guidance Standards Supplementary Information

TII IM Commitments

GE-BIM-00101: Statement of Intent

Alignment with OGP BIM Mandate across public-sector projects

Provision of guidance on TII Information Requirements

Adherence to ISO 19650

Robust management of information, data, knowledge and records

Commitment to continual improvement

TII IM Objectives

GE-BIM-00101: Statement of Intent

Strategic

- Data-Centric organisation
- Drive improvements in sustainability
- Information consistency and Interoperability
- Operational Improvements

Operational

- Better decisions
- Safety enhancement
- Waste reduction
- Improved cost certainty
- Optimised planning & simulation

Enablers

- Skills & training
- Technology guidance
- Supply chain readiness
- Secure digital delivery

GE-BIM-00102: Implementation Roadmap

ISO Stages	Level 0 Low Collaboration	Level 1 Partial Collaboration		Level 2 Full Collaboration	Level 3 Full Integration (iBIM)
TII Stages	TII Current Position	TII IM Stage 1	TII IM Stage 2	TII IM Stage 3	TII IM Stage 4 Beyond Excellence
Overwiew of requirements – PEOPLE	Varying but limited levels of IM experience. Recognise the need for training and potentially new hires to fully implement IM	Minimum requirement: Appoint Information Manager for the project. This could be a consultant. Consider training project team on BIM.	Minimum requirement: Appoint Information Manager and other IM roles and responsibilities within the project team defined in RACI.	Minimum requirement: Develop inhouse expertise on BIM. Appoint Information Manager for the project. This could be a consultant too. Consider training project team on BIM.	Establish an IM Centre of Excellence to drive innovation and optimise project delivery.
Overwiew of requirements – PROCESS	IM is implemented at a lower level. There's an improvement in processes and document sharing where IM is used, but full compliance with ISO19650 is not yet achieved	Set project specific BIM goals and follow the ISO 19650 workflow.	Set project specific BIM goals. Follow ISO 19650 and TII BIM standards like CAD stds, naming convention. Use TII BEP and EIR templates	Set project specific BIM goals. Follow ISO 19650 and TII BIM standards like CAD stds, naming convention, Use TII BEP and EIR templates, LOIN reflecting AIR, BIM Deliverables as per TII BIM standards for each phase.	Optimise IM processes, improve performance, and explore emerging technologies to maximise the benefits of IM.
Overwiew of requirements – TECHNOLOGY	Variation in technology used. CAD is universally used, BIM 360 is used on some projects mainly by contractors, and CDE is partially used with ownership varying between projects.	Establish a CDE and implement basic data management, implement 2D/3D modeling processes; Implement basic security measures to protect data and network infrastructure.	Enhance the CDE, integrate data, and implement Time analysis (i.e. Asset-rich 3D and 4D) capabilities. Strengthen cybersecurity measures, protect data privacy, and implement robust access controls.	In Addition to Stage 2 requirements. Use 3D Models to implement smart Cost analysis (i.e. 5D capabilities), Carbon Management, Health & Safety Management ; Establish the GIS implementation strategy.	Migrate to a cloud-based CDE, utilise advanced data analytics, and explore digital twin implementation. Prioritise cloud security, IoT security, and data encryption, and develop a comprehensive security strategy.

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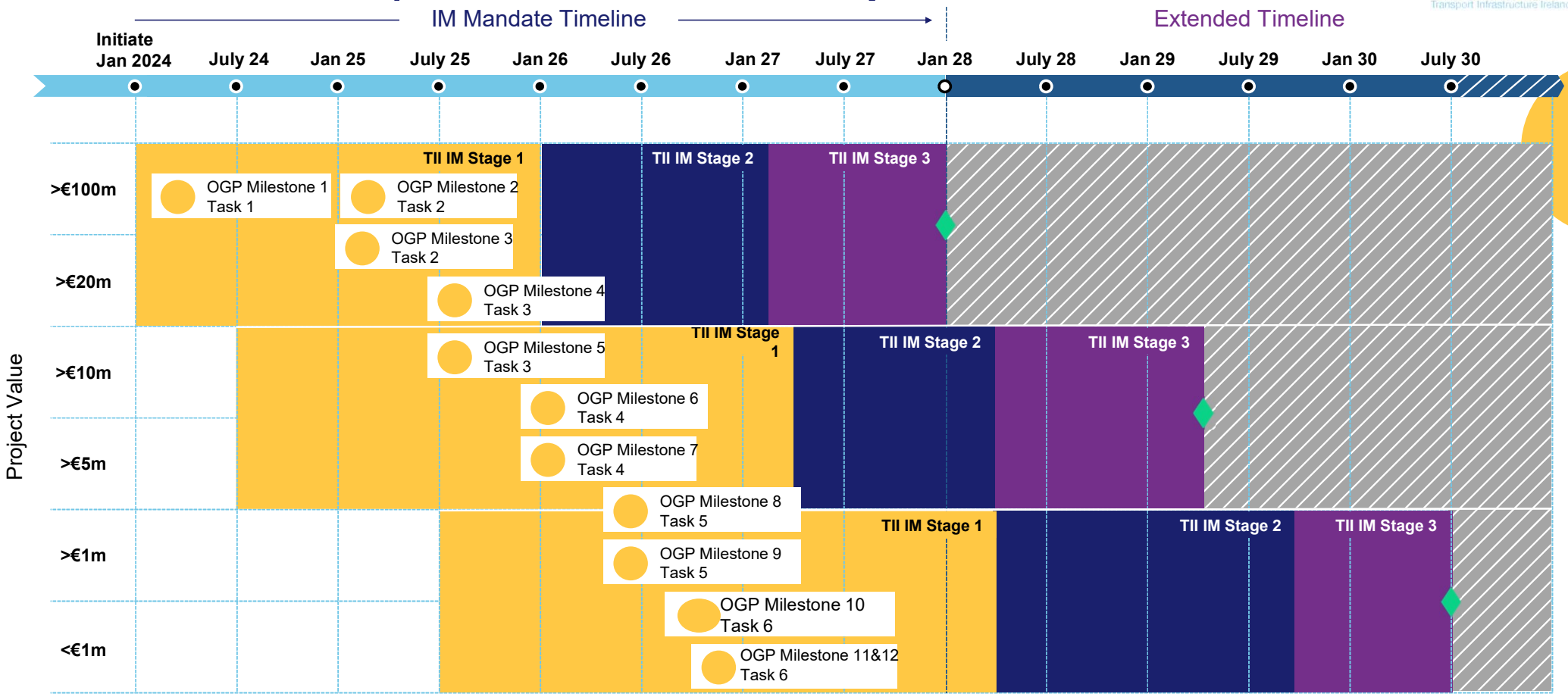
GE-BIM-00102: Implementation Roadmap



Legend: ISO 19650 compliant **TII IM Stage 4 - Beyond Excellence (Aspirational, To be reviewed)**

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GE-BIM-00102: Implementation Roadmap TII Stages 1-3

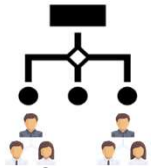
	TII IM Stage 1 Key : RACI · EIR · BEP	**TII IM Stage 2** Key : refined RACI · updated BEP · QA/LOIN	**TII IM Stage 3** Key : IM policy · LAMP · knowledge mgmt
PEOPLE	• Appoint Information Manager • IM awareness & training (ISO 19650) • Define IM roles & responsibilities (RACI)	• Expand IM roles (e.g., modeller/analyst) • Advanced training (modelling, data analysis) • Refine responsibilities (updated RACI)	• Establish in house expertise • Knowledge management & lessons learnt • Internal BIM/IM experts network
PROCESS	• Follow ISO 19650 workflow • Set BIM goals (planning, design, construction, hand over) • Create Exchange Information Requirements (EIR) /BIM Execution Plan and key policies	• Apply TII IM standards & templates • Enhanced BIM goals (clash, cost, sustainability) • QA procedures & align LOIN to needs	• Standardise IM processes across organisation • Advanced BIM goals (AR/VR, reality capture) • IM policy & lifecycle asset management
TECHNO-LOGY	• Common Data Environment (CDE) • Data migration & workflow • Security foundations (access, backups)	• Enhanced CDE & data integration • Analytics tools; cloud CDE • Security & incident response planning	• 4D rehearsals, 5D cost, carbon & H&S integration • GIS implementation strategy • Advanced analytics & visualisation

GE-BIM-00103: BIM Implementation Guidelines

Implementation Guidelines GE-BIM-00103

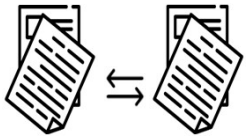
BIM Implementation Guidelines

Introduction to Information Management and BIM



TII Strategic Purpose

Procurement Guidelines: NEC4, PWCF.



Information Exchange Process & Format
In context of PE-PMG-02041

Information management Deliverables

Container Naming Standards
UK Annex to ISO 19650 -2

CAD Standards
GE-BIM-00104

Level of Information Need

CDE and Collaboration

Cyber and Information Security

Training and Competence
GE-BIM-00105

Health & Safety Management

4D- Digital Rehearsals

5D- Cost Estimating

Carbon Management
In alignment with TII Climate Action Roadmap

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Roles and Responsibilities

GE-BIM-00103: Implementation Guidelines

CLIENT IM MANAGER

- Develop, maintain and issue Exchange Information Requirements
- Establish Common Data Environment
- Accepting, archiving, and retaining project information

PROJECT IM MANAGER

- Develop and maintain IM Documentation
- Prepare and assign resources within the Delivery Team.
- Manage and supervise the progress of the project information model by delivery team
- Assess Capability and Capacity of the Supply Chain
- Review and Assure Information Quality
- Manage Information Risks and Lessons Learned

DOCUMENT CONTROLLER(S)

- Submit information deliverables to project stakeholders
- Manage formal information exchanges
- Maintain project information submission records

IM COORDINATOR (S)

- Ensure information is developed in accordance with BEP
- Validate levels of information development
- Implement clash coordination and resolution

MODEL AUTHOR(S)

- Develop discipline information in accordance with BEP
- Resolve discipline information issues

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Information Management / BIM

GE-BIM-00103: Implementation Guidelines

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Key Documents to be Included in Contract

GE-BIM-00103: Implementation Guidelines

TII IM Procurement Documents

Project Tender Documents

Scope of Services

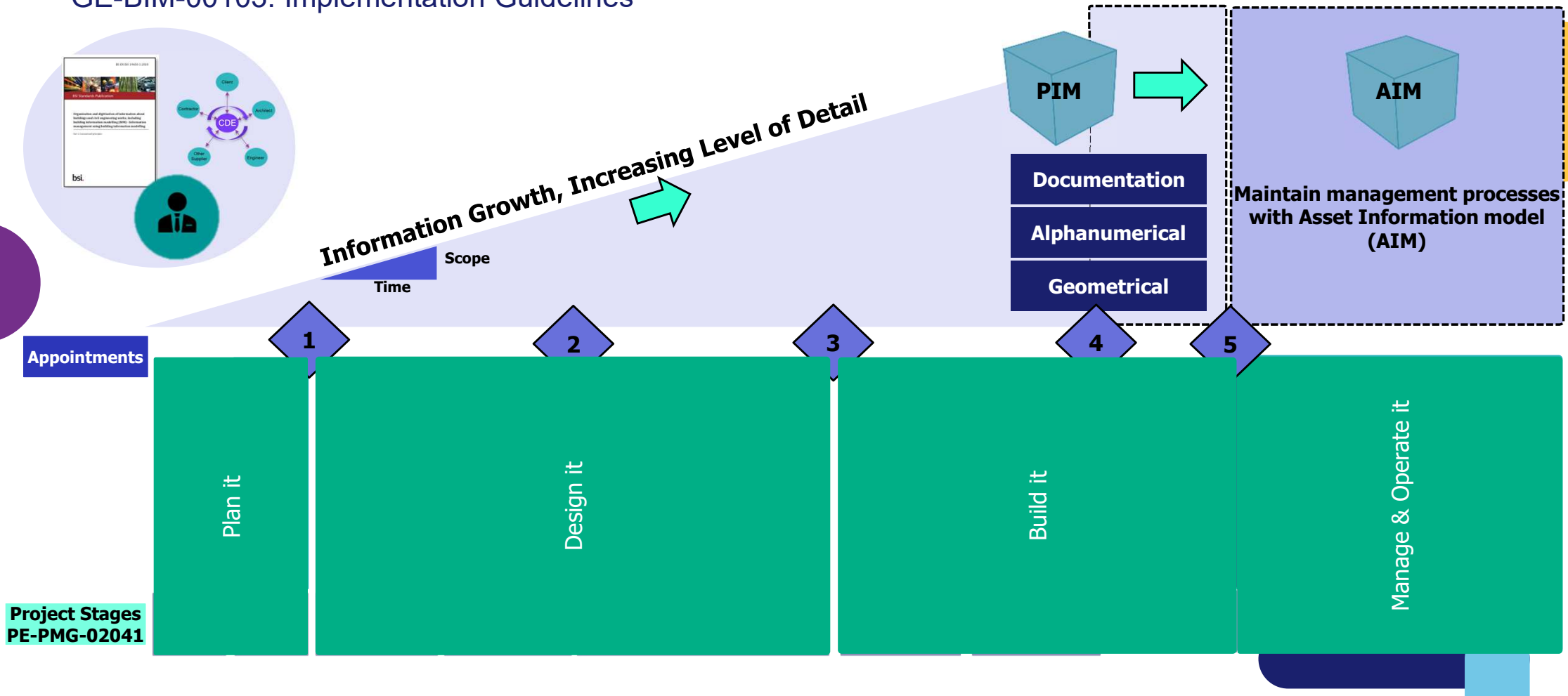
- Exchange Information Requirements (EIR)
- Evaluation Criteria
- Capability and Capacity Template
  Pre-Appointment BEP template

Tender Response by Supplier

- Pre-appointment BEP
- Capability and Capacity Assessment
- Mobilisation Plan
- Information Delivery Risk Assessment

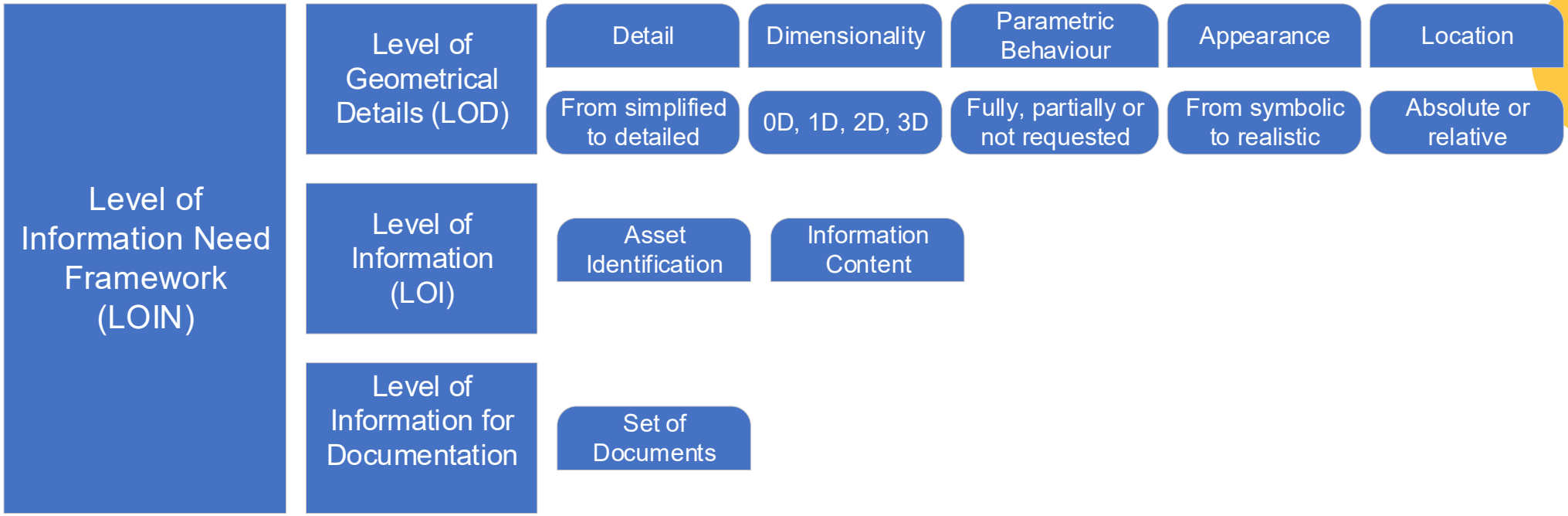
Asset Lyfe Cycle

GE-BIM-00103: Implementation Guidelines



Level of Information Need (LOIN)

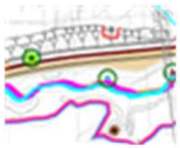
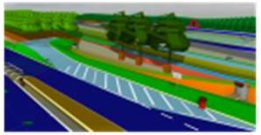
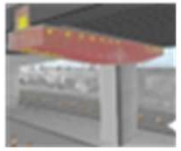
GE-BIM-00103: Implementation Guidelines



Level of Information Need: Graphical Level of Detail (LOD)

GE-BIM-00103: Implementation Guidelines

Project Management Guidelines PE-PMG-02041

	Planning and Design					Construction/Implementation		
	Phase 0 Scope and Pre-Appraisal	Phase 1 Concept and feasibility	Phase 2 Option Selection	Phase 3 Design and Environmental Evaluation	Phase 4 Statutory Processes	Phase 5 Enabling and Procurement	Phase 6 Construction and Implementation	Phase 7 Close Out and review
LOD	0	100	100-200	200-300		300-400		500
Definition	Brief	Concept	Definition	Design: Geometry and Interface		Construction and Assembly		As built; Operation
Graphical Illustration								

Information container identification (ID) – UK Annex

GE-BIM-00103: Implementation Guidelines

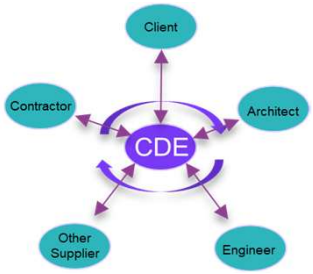
Project	Originator	Functional Breakdown	Spatial Breakdown	Form	Discipline	Number
TII project reporting system (PRS)	Defines the company or organisation which has initially produced the information.	3 characters in length. Derived from DMRB GG184 Codes	Location Identifier	Type of File	The role the originator company or organisation is playing in the creation of this specific file	A sequential number

Source: BS ISO 19650-2 UK NA.2, 2018

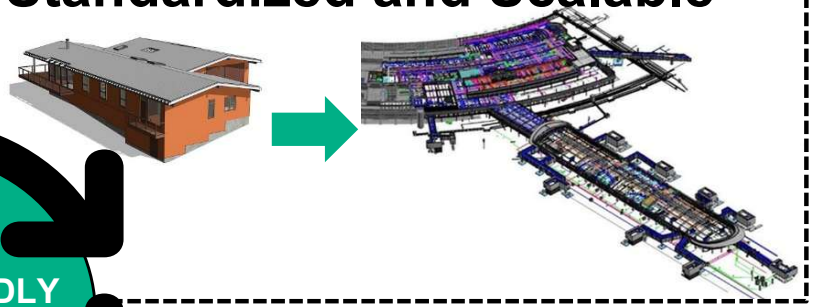
CDE Development Goals

GE-BIM-00103: Implementation Guidelines

Accessible

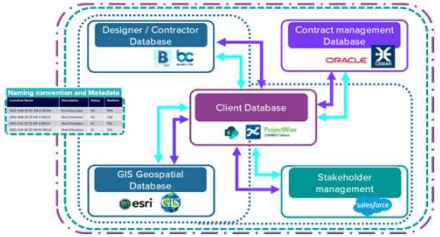


Standardized and Scalable



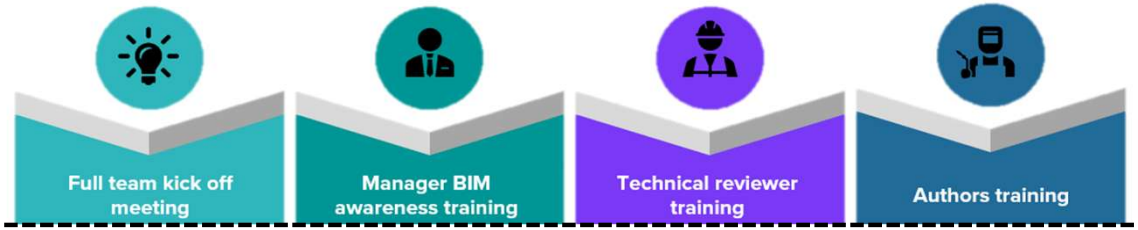
USER-FRIENDLY AND EASY TO USE

Integrated



Secure

Trained Users



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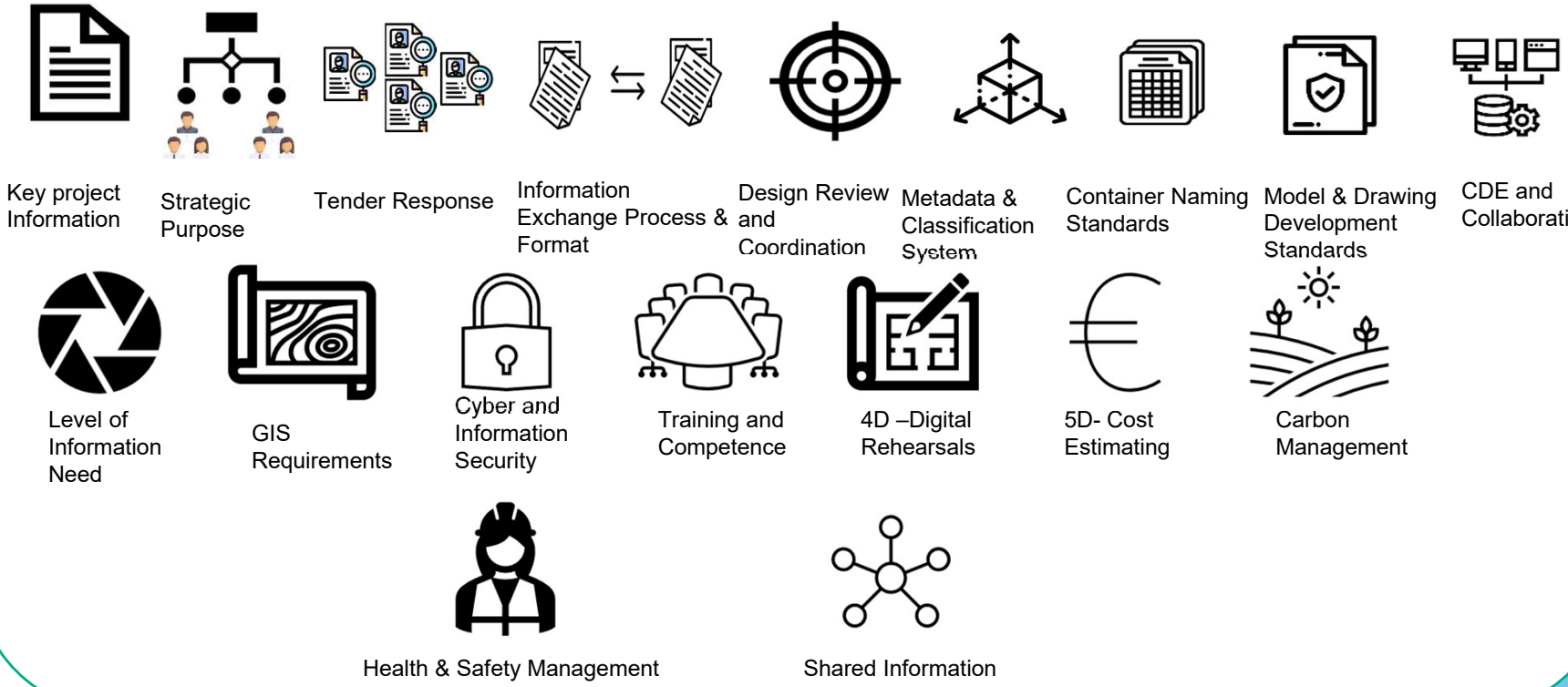
Exchange Information Requirements

EIR – GE-BIM-00106

Exchange Information Requirements



BIM Execution Plan and Capability & Competency Assessment

Pre-Appointment BEP
GE-BIM-00108

Capability & Capacity Assessments
GE-BIM-00107

Content of the Pre-Appointment BEP

- Executive Summary
- Org. chart
- Delivery team Resumes
- Information delivery strategy to respond to EIR
- Project Objectives & Aims
- Mobilisation Plan
- High-level Responsibility Matrix
- Project Standards, Procedures and Methods
- Proposed Software, hardware IT Infrastructure

Content of the C&C Assessments

- BIM Assessment form
- Resource Assessment Form
- IT Assessment Form

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Thank you

Presenter

Eugene Sayenko
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Divider Title

Subtitle

Bonneagar Iompair Éireann
Transport Infrastructure Ireland

Jacobs

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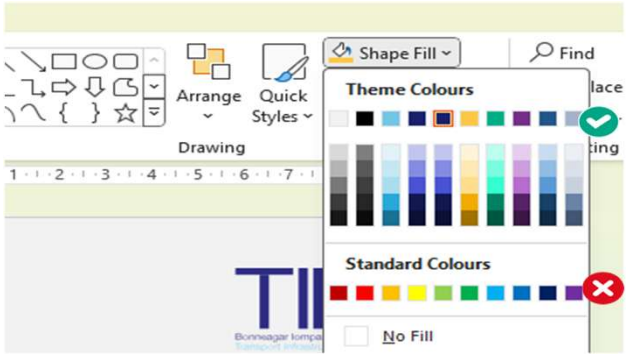
Tips and Tricks: user guide

Brand Colours

Our brand colours should be used throughout our documents.

These are built into this template, see below. Use theme colours only, do not use standard colours..



Typography

Arial is our primary typeface and is used across all our communications, for both headlines and body copy.

Only regular, bold, italic and bold italic weights should be used. Do not use narrow or black.

Typography and use of colour

In terms of accessibility, colour contrast is very important to ensure that content is readable by everyone, including those with visual impairments.

Having good colour contrast throughout our collateral benefits all users, but it is particularly beneficial to users with certain types of colour blindness and other similar conditions, who experience low contrast, and have trouble differentiating between similar colours.

We have tested our brand colours and have outlined the correct use of colour and text here.

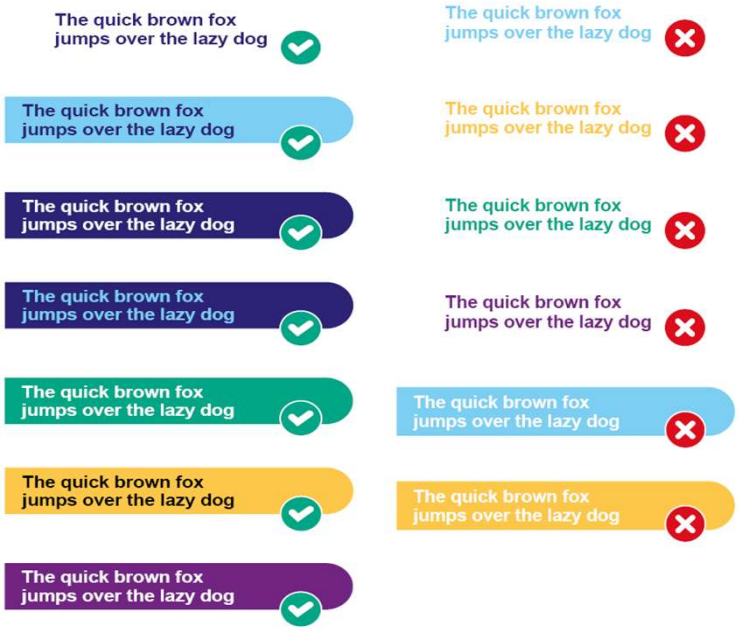
Some additional useful notes:

Black should be used for all body text.

Our light blue should **not be used for text** or for a flooded background with white text.

The secondary and tertiary colour palettes should not be used for text.

Our yellow should not be used for a flooded background with white text.

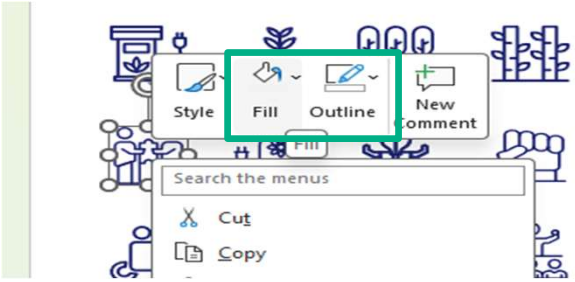


Iconography

Icons help engage audiences with key messages, themes and topics. Be thoughtful when using the icons on report coves, do not have too many on one cover. Take care to balance the icons and the title of the document visually. If in doubt, please check with our graphic designer.

Do not use photography and icons together.

To change the colour of the icons, select the icon, right click, choose “fill” and outline colours from the menu, see below.



Icons and visual elements