



INFORMATION MANAGEMENT PLATFORM

GUIDANCE DOCUMENT



Introduction

The many decisions organisations make require managed information of a known quality that is appropriately accessible to the organisation and its supply chain. When this is achieved, organisations are able to understand what information they have and need, where it is located and who has access to it. People can work more efficiently and effectively, and organisations are better able to meet their objectives, including statutory duties, such as their duty of care to staff, building occupiers and the environment.

The ISO 19650 series (Organization and digitization of information about buildings and civil engineering works, including building information modelling) and the supporting guidance provided by the UK BIM Framework both highlight the role of an Asset Information Model (AIM) in delivering reliable digital information management in relation to physical assets.

An AIM is a structured repository for information, consisting of the asset information an organisation needs to support its business functions. Experience within UK government departments and agencies has found a perception that a single technology will provide a solution, but in reality, most organisations need to be able to use an integrated approach to technology, which allows new information about their portfolio of assets to be used alongside information on existing systems.

An Information Management Platform (IMP) enables organisations to develop a portfolio level digital information management strategy that can be progressively assembled from existing, and, if necessary, new enterprise systems, in order to capture and maintain an ISO 19650 compliant AIM for each of its assets.

The diagram below illustrates information supply across a contract line into a client organisation's IMP. It also lists the activity themes supported by an IMP which are set out in more detail in 'What is an IMP' below.

This guidance document sets out:

- what an IMP is;
- the steps for developing an IMP; and
- a summary of the benefits delivered through an IMP.

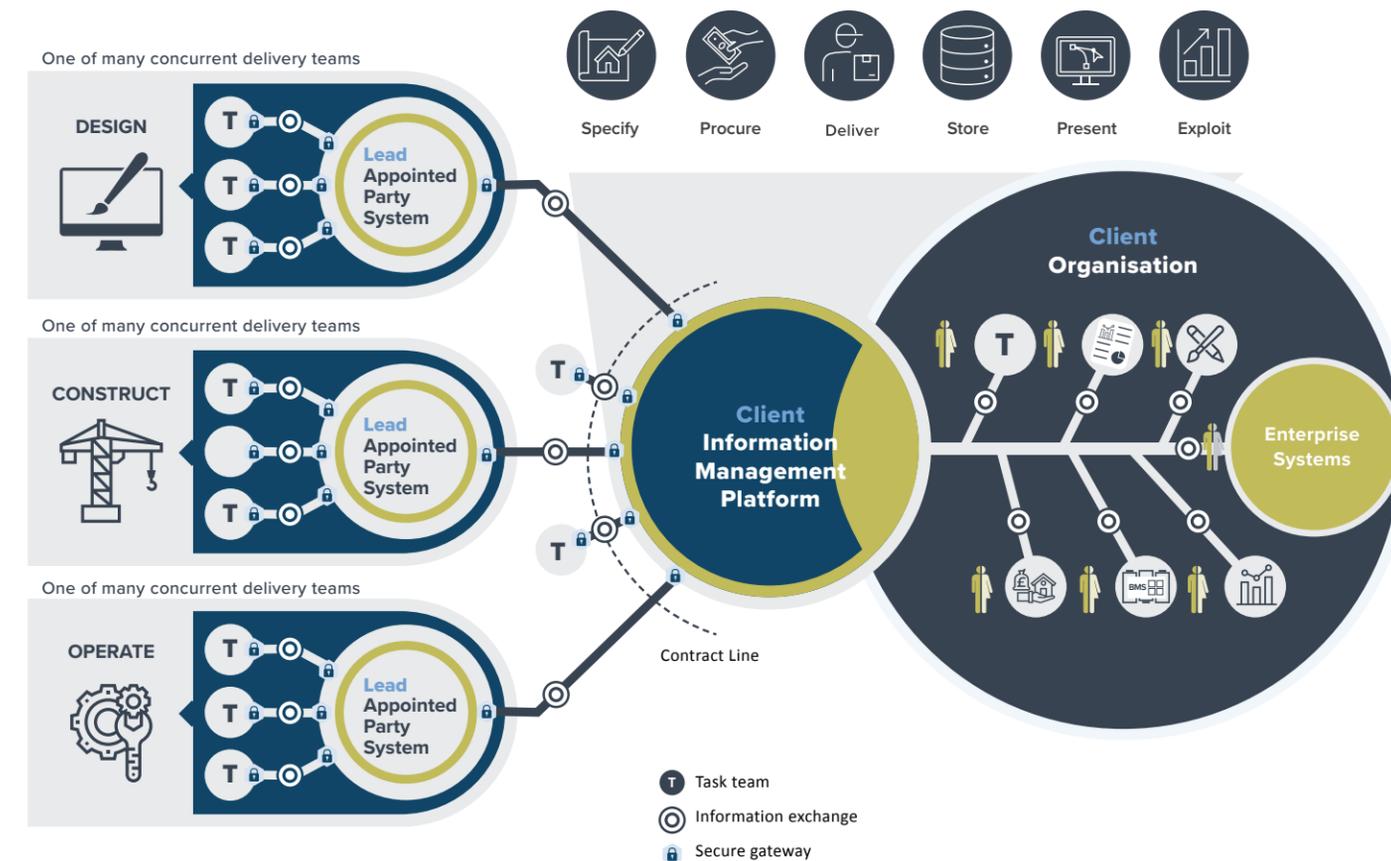
It is supported by a case study describing how the Environment Agency developed its IMP.

Detailed technical IMP Functional Requirements will be published in spring 2022.

This document is intended to provide a resource for the following roles in organisations who manage large portfolios of assets:

- senior managers / decision makers who are seeking to improve the management of their organisation's asset information;
- those tasked with overseeing the implementation of an IMP; and
- those implementing an IMP.

Although this document will also be of interest to technology providers, the technical document detailing an IMP's Functional Requirements will be of particular importance to them.



Note each party will implement components of an ISO19650 Common Data Environment managed process

1. What is an IMP?

An IMP is a client-operated and maintained process and technology suite. Combined, the process and the technology enable the security-minded specification, procurement, delivery, assurance, storage, presentation and exploitation of information derived internally or from third parties, over the lifecycle of an organisation’s built assets.

The IMP is unlikely to be formed from one system or by one supplier, but from a modular, interoperable, integrated technology set or stack to provide the functionality of an AIM.

Interoperability can be defined as:

*‘the ability of two or more systems to exchange information securely and to use the information that has been exchanged.’*¹

An IMP:

- is scalable – it can be implemented by any size of organisation and will remain applicable as an organisation, and its asset portfolio, either expands or contracts in size; and
- has longevity – it is applicable, adaptable, and updatable, in order to preserve an organisation’s information over time.

By establishing an IMP, an organisation is building the digital foundation for long-term capture, maintenance and reuse of assured information relating to its portfolio of assets. This will help it to achieve better whole-life value from existing assets, and to deliver better outcomes.

The IMP will also assist in an organisation, where relevant, in meeting stated government construction policy aims, namely, those contained in the *Construction Playbook* and *Transforming Infrastructure Performance: Roadmap to 2030*.

Specification	The expertise of appropriate stakeholders is used to fully define the information requirements
Procurement	All information requirements, including the requirements relating to information assurance, are included in contractual documents
Delivery	Appoint competent parties to deliver both the physical asset and the specified information requirements.
Assurance	Information delivered across the contract line is checked against contractually defined standards at the point of delivery
Storage	Information delivered across the contract line is immutably stored, preserving the full transaction history, provenance and audit trail back to the specific exchange and contracted information supplier. This in turn is translated into a separate open standard structured data repository, for use by the organisation.
Presentation	Links to stored information enable that information to be presented and analysed during projects and ongoing operations over the lifecycle of the built asset(s)
Exploitation	Information can be utilised, and existing enterprise systems updated, through automated transfer of assured published information, to improve the quality of the information they store

2. The steps for developing an IMP

There is no ‘one size fits all’ approach to development of an IMP. Client organisations, the age, extent and variety of assets, the processes used to procure, manage and operate an asset portfolio, and the information and technologies deployed to support organisational activities, will all vary. As the Environment Agency case study shows, precise starting points may vary, the anticipated sequence and pace of implementation activities can change, and once initial IMP elements are established, they will continue to evolve.

The following steps provide an indicative approach:

Step 1: Collate your asset hierarchy, identification and classification standards

The collation of an organisation’s asset hierarchy, identification and classification standards enables that organisation to identify its real-world assets in a structured way that all stakeholders can understand and refer to. This enables an organisation to consistently relate information to the assets it manages, operates and maintains. It can then specify, capture, share and exploit standard information for defined standard asset types.

Step 2: Build your Reference Data Library (RDL)

A RDL comprises a curated and appropriately accessible collection of reference data standards and data sets which should be used throughout the organisation, whether that information is externally or internally authored. Reference data provides the records of classes, properties, units of measure that help define the sets of values that should be used to populate other data sets.

It is recommended that an IMP uses Uniclass 2015 classification. This provides an ISO and UK BIM Framework compliant unified classification system, allowing items to be identified using the same language across the construction industry. It also enables sorting, filtering, grouping and coordination of items.

Step 3: Establish what asset information you have

Asset information may be drawn from structured data stores, linked file stores and/or existing enterprise systems, and may consist of data and/or files, including documents, drawings and models.



Asset information should be related to the asset hierarchy to help stakeholders understand how the information relates to assets in the real world.

The IMP allows information related to the organisation's standard asset types to be presented in a standard way in order that stakeholders can exchange information that can be consistently understood. It also provides version-controlled presentations to enable the organisation to manage and record changes to its information.

Step 4: Define your information requirements

BS EN ISO 19650-1:2018 outlines a clear responsibility for an appointing party, such as a client organisation (including public sector organisations), to understand and specify what project and whole-life asset related information they require from the project outset.

The information requirements capture these so that supplier organisations (appointed parties) can understand what information is required and when, what it is required for, and who needs it. Broadly, these cover:

- **Organisational Information Requirements (OIR)** – information needed by an organisation to satisfy its business objectives.
- **Asset Information Requirements (AIR)** – information requirements relating to managerial, commercial and technical aspects of asset operation.
- **Security Information Requirements** (where applicable) – information which shall be regarded as sensitive and the policies and processes for its creation, distribution, use, storage, disposal and destruction.
- **Project Information Requirements (PIR)** – Information requirements in relation to the delivery of a defined project.
- **Exchange Information Requirements (EIR)** – Requirements relating to an appointment, usually specifying managerial, commercial and technical aspects concerning the production of project or contract information.

The IMP allows these requirements to be communicated effectively with numerous contracted partners, at framework and at project level, as appropriate, in a standard and machine-readable format. Any changes to the information requirements must be controlled so they can be understood by both your organisation and your stakeholders.

Step 5: Undertake a review of your existing information management related technologies

Undertaking a review of existing technologies that your organisation uses to generate, process and store your information, will allow you to identify whether there are any gaps, or whether updates are needed to help achieve a fully functioning IMP capable of supporting long-term asset management needs.

Multiple technologies may need to be coordinated to enable the interoperable management of information across an organisation, and with external stakeholders.

This review should use the IMP Functional Requirements

to assess suitability and functional capability.

Step 6: Addressing the technology gaps

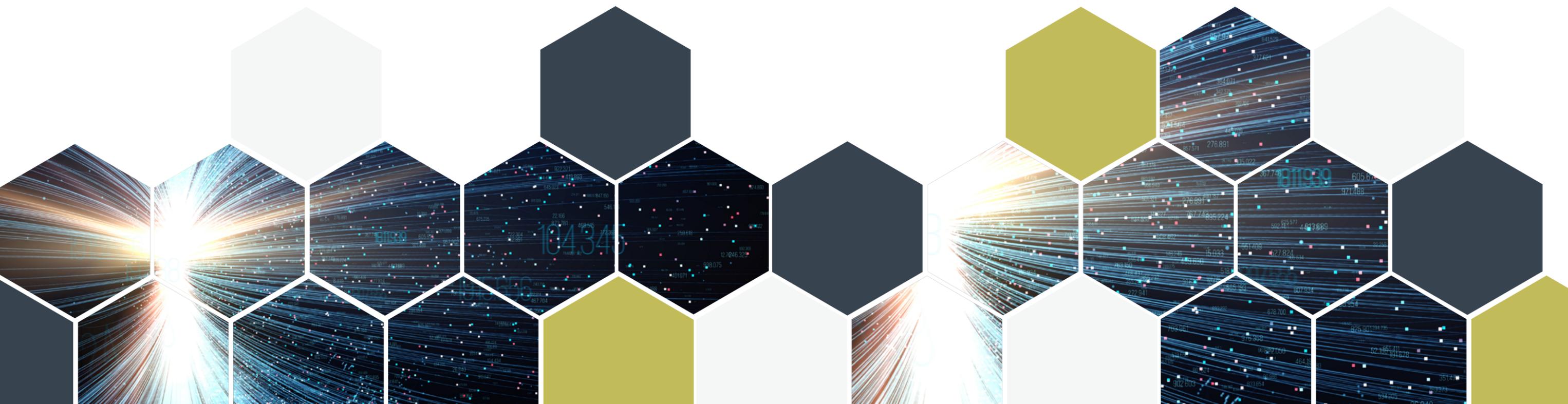
Once the existing technology has been mapped against the IMP Functional Requirements, a strategy can be developed to fill in the gaps with complementary technologies. Some existing capability may be suitable for upgrade or repurposing, and some new technologies may be needed.

Further Steps

Steps 1-6 above give an indication of the first strategic steps which will be required for developing an IMP. More detail on the following technical steps will be set out in the IMP Function Requirements which will be published early in 2022.

Step 7: Create a version-controlled structured repository for your information requirements

The repository enables you to easily, and appropriately, share your information requirement with external



stakeholders when you need to communicate what you require for a specific contract engagement.

Step 8: Create an immutable container store

The container stores project-based information to allow assurance activities to be undertaken. Once information has been assured by rules-based processes, and any inspections by subject matter experts undertaken, it can be accepted into your organisation.

Step 9: Create an assured structured data store

Once your organisation can specify, procure and assure its information, the assured structured data store can be populated with the records held in the immutable container store. This assured structured data will then allow people

to explore, query and cross-reference information using information visualisation and analytics tools.

Step 10: Control of system-to-system integrations

These integrations are a key aspect of the IMP. Interoperability and automation accelerate the assimilation of new information by your organisation, but controlling information quality has to be paramount. Automating updates to information held in existing enterprise systems delivers a substantial saving in time and effort, as well as significant improvements in information quality, completeness and timeliness.

3. The benefits delivered through an IMP

An IMP will also allow your organisation to benefit from increasingly mature digital adoption and information management, supporting it in being able to:

- take a security-minded approach to information access based on criteria maintained in the information management standards and requirements;
- understand what information was specified and what information was accepted;
- access updated information, and also understand its full provenance based on the immutable container store history;
- automate approval, control and movement of information using rules-based technologies; and
- present information of a known, controlled quality to stakeholders.

In turn, these have the potential to bring a number of benefits to your organisation, including:

- continuous improvements to the organisation's information management standards and requirements, as these are regularly checked against organisational need and benefit;
- improved quality and timeliness of information delivery from the supply chain, mitigating potential

information gaps in event of supplier failure;

- more complete incorporation of capital project information into the organisation's asset management and operational systems, with a consequent reduction in re-survey costs;
- increased information-driven approaches to asset operation, through the provision of timely reliable information;
- resource efficiencies through the automation of previously manual information selection and upload processes;
- better information audit trails to help meet statutory requirements, including the improved provenance of whole-life asset information; and
- the ability to exploit trusted, assured information.

However, these benefits will not be delivered unless procurement contracts correctly address the ability to ensure that any component part of an IMP is delivered correctly and in full; therefore, the need to bring procurers into an IMP development is essential.

Delivery of an IMP is also more than just development of technology. You will also need to consider appropriate change management and process adaptation, so that the IMP strategy becomes embedded in your organisation's ways of working.





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