

NHS Scotland Assure Information Management System (AIMS) Guidance

SHTN 01-01

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Disclaimer

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Section Overview

Section 1

Introduction to AIMS

This section explores the key drivers and benefits of the AIMS system to NHS Scotland. It discusses the background to the project and how it aligns with other NHS Scotland initiatives such as BIM and the Digital Estate.

Section 2

The CDE Concept

This section explains the concept of the CDE, how it is a combination of technology and process and acts as an integrator to other sources of information. It considers the different information models such as PIM and AIM and the various points of entry, such as capital investment projects, legacy information and the retained estate.

Section 3

Roles and Responsibilities

This section considers resourcing requirements of AIMS and the various roles and responsibilities Boards need to consider. It outlines the key activities and tasks by roles and project stages and considers the various stakeholders across Boards and the key resources that are required for the successful set up and management of AIMS. Key resources and associated activities are explored for the Board AIMS working groups, Board Administrators, Information Managers and end users. The initial set up procedures for AIMS are discussed along with how success will be measured and the support available to Boards.

Section 4

Implementing AIMS

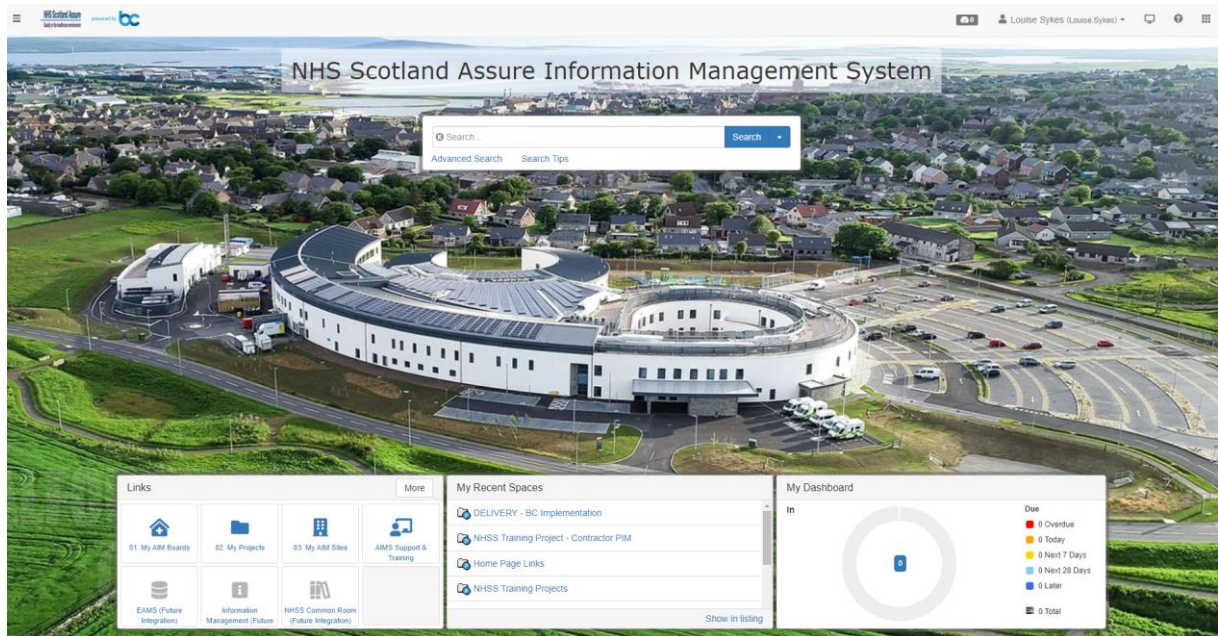
This section explores the implementation of AIMS in both the context of new capital investment and strategic asset management (legacy and retained estate). It considers the AIMS workflow and together with the Information Standard.

1. Introduction to the NHS Scotland Assure Information Management System (AIMS)

About NHS Scotland AIMS

1.1 NHS Scotland, via the NHS Scotland Assure Intelligence service has procured an enterprise asset management system known as the 'NHS Scotland Assure Information Management System (AIMS)'. AIMS is being provided by Bentley and is based upon their 'BCDE' product, which is a cloud-based Common Data Environment (CDE) solution that acts as a central source of information across Boards to enable a more collaborative way of working, and as a key enabler in digitising our existing healthcare estate (image 1.1).

Image 1.1: User Interface of the NHS Scotland AIMS landing page



NHS Scotland AIMS is a highly secure CDE providing a powerful document and information management system in the cloud for both Capital Investment projects and the retained estate across the whole asset lifecycle. It offers an enterprise level source of searchable, reliable information about the Boards assets supporting joined-up decision-making, dynamic insights and ultimately supporting better healthcare outcomes. It allows for better management of information and drives better value for the taxpayer as the right decisions are made on the right data.

Although this is an Asset Information Model (AIM) CDE, it can also be used for project information, with this area of AIMS being used for information developed during the design and construction phases; known as the 'Project Information Model' or PIM area of AIMS. The PIM area of AIMS can also be used on low value projects such as those out with NSS Frameworks where previously such provisions would have been uneconomic.

When information (e.g. such as a work package) achieves a particular suitability code, it transfers into the AIM area of AIMS, which acts as a source of As-Built Information. Furthermore, AIMS is equally applicable at a functional level.

NHS Scotland AIMS is not intended to replace current established national systems (such as the Estate & Asset Management System (EAMS), Statutory Compliance Audit and Risk Tool (SCART) or your Boards Computer Aided Facilities Management (CAFM)); instead, it integrates with them and creates a central place combining information from multiple sources to unlock value.

It is also not the intention of AIMS to replace the PIM CDE's being used by Principal Supply Chain Partners (PSCPs) and their supply chain. A key element of the system is its ability to enable search and unification of built assets and other functional information and data (e.g. infection control) across existing NHS Scotland enterprise systems. A series of integrations are to be undertaken in a systematic and phased approach to support these use cases and link AIMS with relevant national and local systems.

How to use this guidance

- 1.2 The purpose of this guidance is to support Boards in the implementation and use of the NHS Scotland Assure Information Management System (AIMS). The guidance covers the getting started, strategic, managerial, and technical aspects of the system and is non-proprietary and software agnostic meaning that the principles can be applied regardless of any specific CDE software solution.

NHS Scotland AIMS will be used by different stakeholders, both internal across Boards and external to NHS Scotland. These include but are not limited to; End users from Estates Teams, Facilities Teams, Capital Projects, Infection Control, Property & Asset Managers, Operational Teams, Health & Safety Managers, PSCPs, Administrators and Information Managers.

Table 1.1: Stakeholder/Users of the system

Stakeholders/users	Description
Board AIMS Working Group	Each Board is expected to set up an AIMS Working Group at the early stages of mobilisation to ensure implementation is aligned with the Board's digital objectives in terms of prioritising the most important assets for digitisation and ensuring a smooth transition.
Board AIMS Administrators	People responsible for the management of Boards built environment information and the transfer of this information from project to operational colleagues. Administrators will set up and manage projects, sites and users.
Board AIMS Users	People within the Board who can view and download documents and also respond to documents issued from the system (e.g. drawings/documents for review during projects etc.)
Board AIMS Information Managers	The role of the Information Manager includes ensuring AIMS meets functional requirements, assisting and training of AIMS Boards teams and stakeholders, establishing the Board's AIMS and any project level PIM AIMSs, implementing information structure and maintenance standards for the Information Models and maintaining the Information Models and AIM and PIM AIMS processes and procedures to name a few examples.

Note 1.1: While this guidance is aimed at internal NHS Scotland stakeholders, many third parties will also use AIMS. Refer to Appendix 2 for details and guidance specifically aimed at third parties such as PSCPs, supply chain and Local Authorities.

Depending on your level of knowledge and understanding of a CDE, it is recommended that this document is read in a linear order, working your way through the sections to gain a good grounding and overall understanding. Additionally, use the contents page to navigate to a specific section.

The various tasks are also considered within the context of the Scottish Capital Investment Manual (SCIM) and Royal Institute of British Architects (RIBA) stages.

The guidance should be used alongside other AIMS guides and tools available from the NHS Scotland AIMS Implementation and Support Teams channel highlighted in table 1.2. If you do not currently have access to the Teams channel, this can be requested via email to: NSS.DEandAMTeam@nhs.scot.

Table 1.2: Content of the NHS Scotland AIMS Implementation and Support Teams channel

Guidance document or tool	Audience	Purpose
AIMS Board Transition Strategy Intake Triage	Board Working Group	Intake triage tool helps Boards get started with planning for and scoping transition to the AIM CDE. It guides Board's Working Group through getting started activities, also outlines quick wins and medium – long term goals.
AIMS Board Transition Specimen Programme	Board Working Group	Specimen programme is based on the Intake Triage checklist and provides suggested timelines and sequence for implementing them.
AIMS Swimlane Roadmap	Board Working Group	Swimlane diagram expands on getting started activities in the Specimen programme to recommend activities with focus on strategy, process and people to consider in first 2 years of implementation.
AIMS Integration Strategy	Board Working Group	This document discusses planned integrations of AIM CDE, including national systems such as EAMS and SCART in year 1, and potential local Board systems in year 2 including CAFM systems, PIM environments.
Digital Estate Prioritisation Grading Tool	Board Working Group	Prioritisation tool enables Boards to consider complexity and risk of their estates when selecting priority assets for transitioning to the AIM CDE. It helps Boards decide which assets to transition to AIM CDE first.
AIMS Naming Convention	Everyone	This guide sets out NHS Scotland naming conventions (mandatory and optional) for information container metadata that should be applied to information being transitioned to the AIM CDE.
AIMS Common information naming and searching rules	Everyone	This document sets out rules for correctly naming and assigning classifications to the most common NHS Scotland information types in a way to ensure information is easily retrievable in the future.
Videos (AIMS Intro Video & Demonstrations)	Everyone	Various video and demonstrations to assist with AIMS implementation.

Guidance document or tool	Audience	Purpose
NHS Scotland Assure AIMS Newsletters	Everyone	All AIMS newsletters that have been sent to stakeholders.
Sample Board information management duties	Board Working Group	This document contains responsibilities that can be expected from someone starting to use the AIM CDE to upload and manage information.

Note 1.2: The tools and templates provided on the NHS Scotland AIMS Implementation and Support teams channel are provided for guidance only and can be adapted to suit individual Board requirements.

Background to NHS Scotland AIMS

1.3

In 2017, the Scottish Government issued a policy note ([SPPN 01/2017](#)) which sets out how Building Information Modelling (BIM) should be adopted within public sector procurement. BIM is a process, enabled by digital technology that improves the sharing and analysis of data and information within a construction project. BIM aims to unlock savings across the whole project life cycle, including capital expenditure as well as savings across the operational stages, arguably where NHS Scotland spends the majority of its property budget and therefore the area with the most potential.

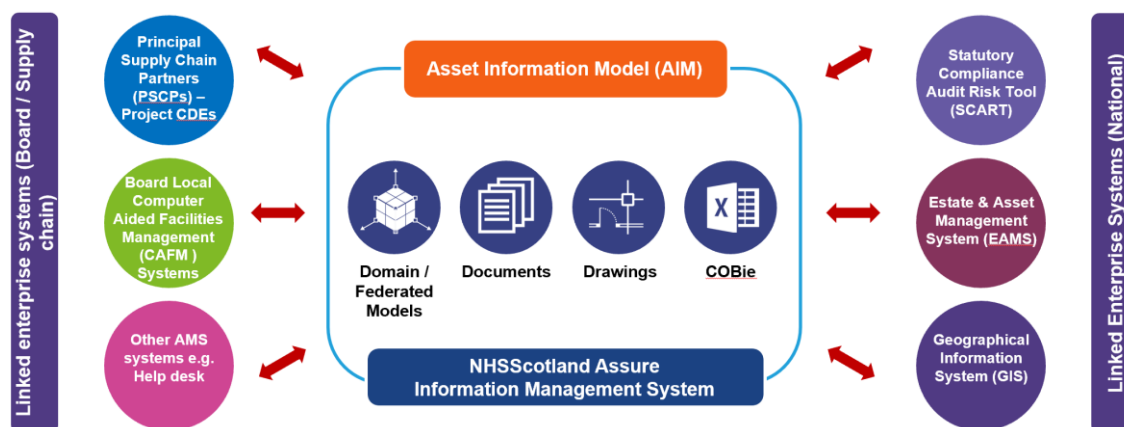
The implementation of NHS Scotland AIMS across Boards will help fulfil the requirements of the BIM policy note, acting as an enabler for collaboration and secure storage of digital information. The system also plays a central role within NHS Scotland’s Digital Estate Framework.

The Scottish National BIM Policy for Construction Projects from 2017 requires all those in scope of the Scottish Public Finance Manual to assess capital investments for BIM and adopt the BIM guidance into their procedures ([SPPN 01/2017](#)). This applies to both new projects, as well as retained estate capital investment projects. The policy states that ‘The introduction of BIM is a key catalyst to improve efficiencies in public sector infrastructure expenditure and support wider productivity within the construction industry.’ Boards must assess projects above £2,000,000 for BIM using the Scottish Futures Trust (SFT) [BIM Grading tool](#) and comply with the results. Where a project is under £2,000,000, Scottish Government and NHS Scotland encourage the use of BIM on all of its projects however the approach is one of proportionality.

Central to BIM and the policy note, is collaborative working and the use of a CDE. BS EN ISO 19650-3:2020, (Organisation and digitisation of information about buildings and civil engineering works, including building information modelling (BIM) — Information management using building information modelling — Part 3: Operational phase of the assets) – is part of an international suite of documents that supports the implementation of BIM, and states that organisations shall consider the establishment of the Asset Information Model (AIM), together with the processes for maintaining it. Specifically, clause 5.1.10 refers to the use of enterprise systems for the storage of asset information and the potential need to establish links between these systems (image 1.2).

BIM uses digital technology and information management workflows to improve the sharing and analysis of data during the construction and operational phase of projects. Successful application of BIM leads improved data management and collaboration within projects and significantly improves efficiency and decision making. As Boards have many existing legacy systems, a well-informed integration strategy is pivotal to the successful deployment of such an AIM AIMS. (Refer to section 2, The CDE Concept)

Image 1.2: NHS Scotland AIMS Integrations with other systems



Note 1.3: Refer to the NHS Scotland Building Information (BIM) Guide for further information on BIM and what Boards need to consider. This can be requested via email to: NSS.DEandAMTeam@nhs.scot.

Following building failures such as falling masonry at Oxbang’s primary school and the Grenfell Tower Fire, the ‘[independent review of building regulations and fire safety](#)’ was published. It found that processes that drove compliance within building safety requirements at the time were weak and complex with poor record keeping and change control. The report recommends the creation of a golden thread of information so that building owners receive the information they need and that there is a clear link between the design construction, occupation and maintenance. The crucial purpose of this golden thread is to safeguard the availability, completeness and correct record of a facility’s construction and its regulatory compliance.

As a direct response to this, NHS Scotland as a whole had to prove that assets of a certain age actually had wall ties in place. Many Boards did not have the supporting record information available to them to prove this which resulted in Boards having to physically open up walls to gain a visual inspection of them, resulting in considerable cost and time to procure surveys. Where information was available, finding it can be difficult, as information is spread out and contained within multiple systems.

NHS Scotland AIMS is a direct response to the recommendation of building regulations, intended to raise information management standards across the healthcare estate. AIMS is central to this, acting as the integration for a high performing asset system. It also plays a pivotal role in realising the recommendations of the [Scottish Hospitals Inquiry](#). Table 1.3 highlights some of the key findings from the report.

Table 1.3: Scottish Hospitals Inquiry findings in relation to a CDE

Ref	Description
(5.7.1) pg16	There should be greater use of digital technologies to create, log and store project documentation. This would allow relevant information to be shared with project partners. It would also facilitate governance, and review of project activities and decisions.
(5.7.2) pg17	There should be a reliable system of retaining major project records, with greater use of digital technologies to record images and other documents, as evidence of critical 'hold points' for future checking.
(6.7.3) pg17	There should be a transparent approach of presumption of data sharing with stakeholders in a way that fully evidences assurances that internal governance and external authorities seek.
(9.11.1) p23	The documentation and audit trails of key decisions during the time of important projects should be better preserved in order to ensure accountability and clarity of past decision-taking. There should be a review of reasonable timescales for records retention, and this may involve law or regulation to ensure the necessary changes.

Benefits of NHS Scotland AIMS

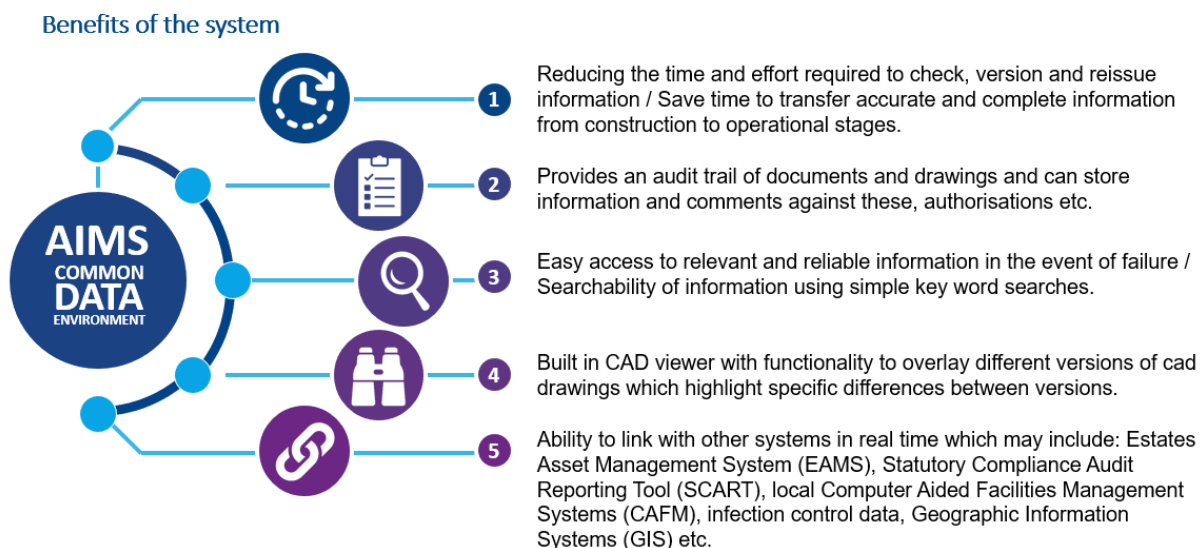
1.4 NHS Scotland AIMS brings many benefits to NHS Scotland by improving information storage and management processes, covering all Boards. While there is a colossal amount of data available to many within NHS estates as well as broader management teams within Boards, much of the data is living in silos, whether it's only available in paper format from the archives, saved on someone's desktop or shared in Microsoft Teams or other similar platforms. This can result in data and information not being centralised or digitised, making searching for data very much a manual and time-consuming process.

With over 2,000 built assets under operation and management, NHS Scotland is one of the largest asset owners in the UK. A significant amount of annual revenue costs are directly associated with property asset ownership. A high proportion of this is Property Maintenance – regular day-to-day maintenance including revenue expenditure on backlog (but excluding major capital expenditure on upgrading/refurbishment and backlog works). This regular renewal and maintenance regime helps to continue adding value to the NHS Scotland estate portfolio.

NHS Scotland AIMS allows Boards to view their information across their entire Board estate and supports processes identified in BS EN ISO 19650-3:2020 for the information management stage during the operational stage. The positive outcomes from using AIMS include the more detailed, complete and faster analysis that contributes to better decision-making within the asset owner/operator organisation and its stakeholders.

For example, for a new capital investment project, the system can be used to effectively manage information during the capital and delivery phases of a project. It can greatly enhance collaboration and increase both the security and availability of data. Moreover, it is not just capital investment projects that benefit from the new system. Image 1.3 highlights some of the wider benefits that the system is bringing to Boards.

Image 1.3: Benefits of NHS Scotland AIMS for Boards



Is use of NHS Scotland AIMS mandated across NHS Scotland?

1.5 At this stage and time, the use of NHS Scotland AIMS is not yet mandated for Boards. As AIMS is being rolled out as an enterprise solution, it is expected that it will become with time, a business-as-usual approach to storing and managing information and will be mandated eventually. AIMS is being procured and provided by the newly launched service with NHS National Services Scotland; [NHS Scotland Assure](#) and is recognised as a tool which will support and improve compliance and assurance within the built environment and should optimise efficiency and effectiveness through better information management.

It should be noted however that projects with a value above £2,000,000 shall use the [SFT BIM Grading tool](#) and comply with the results. The assessment works by asking a series of weighted questions which results in either BIM Level 1 or BIM Level 2 as an outcome, where BIM is to be used throughout the lifecycle of an asset, for both PIM and AIM. In both scenarios a CDE is required to comply with the BIM policy note. Where a project is under £2,000,000, both Scottish Government and NHS Scotland encourage the use of BIM on all of its projects. In addition to new capital investment projects, it is expected that NHS Scotland AIMS will become mandated on legacy information and the retained estate as well.

Alignment with NHS Scotland BIM Strategy and Digital Estate Framework

1.6 Over the last few years Health Facilities Scotland (HFS) has led on the introduction of Building Information Modelling (BIM) across NHS Scotland through a number of pieces of work and the introduction of an NHS Scotland BIM Development Group, which has evolved into the NHS Scotland Digital Estate Group.

More recently, NHS Scotland Assure has developed a Digital Estate (DE) Framework which together with the BIM Guidance is supporting Boards in digitising their existing portfolio of built assets to an appropriate level. The concept and methodology allows

Boards to digitise their portfolio of buildings and offer those that manage and use these built assets the best experience both now and, in the future, offering the potential to change the face of health and social care. The Digital Estate (DE) Framework can be requested via email to: NSS.DEandAMTeam@nhs.scot.

The NHS Scotland Digital Estate covers the whole project life cycle, from design, build, operations through to maintenance. It establishes the high-level principles, methods and the target technology architecture needed to create a digital and connected estate and provides an enterprise level source of searchable reliable information about the Boards assets supporting joined-up decision making, dynamic insights and ultimately supporting better healthcare outcomes. In this context, the digital estate is defined as an 'information management led approach which facilitates the digitisation, integration and curation of appropriate digital models (unifying existing data and records) to enable efficient management of NHS Scotland real-estate portfolios.

Central to enabling the Digital Estate at an enterprise level is the investment in and implementation of NHS Scotland AIMS, as it will be impractical for Boards to meaningfully adopt a scalable digital estate without this technology in place. It is therefore important that this guidance is read in conjunction with the NHS Scotland Digital Estate Framework.

Section Summary

- 1.7 The NHS Scotland Assure Information Management System (AIMS) will provide NHS Scotland with a dynamic and collaborative data repository for the storage, organisation, retrieval, and ongoing use of all asset management, built environment, and infection control data throughout the asset life cycle.

It is a key enabler in digitising our existing healthcare estate and plays a central component within the NHS Scotland Digital Estate Framework and Scottish National BIM Policy note ([SPPN 01/2017](#)).

AIMS supports and improves compliance and assurance within the built environment and should optimise efficiency and effectiveness through better information management.

2. The CDE Concept

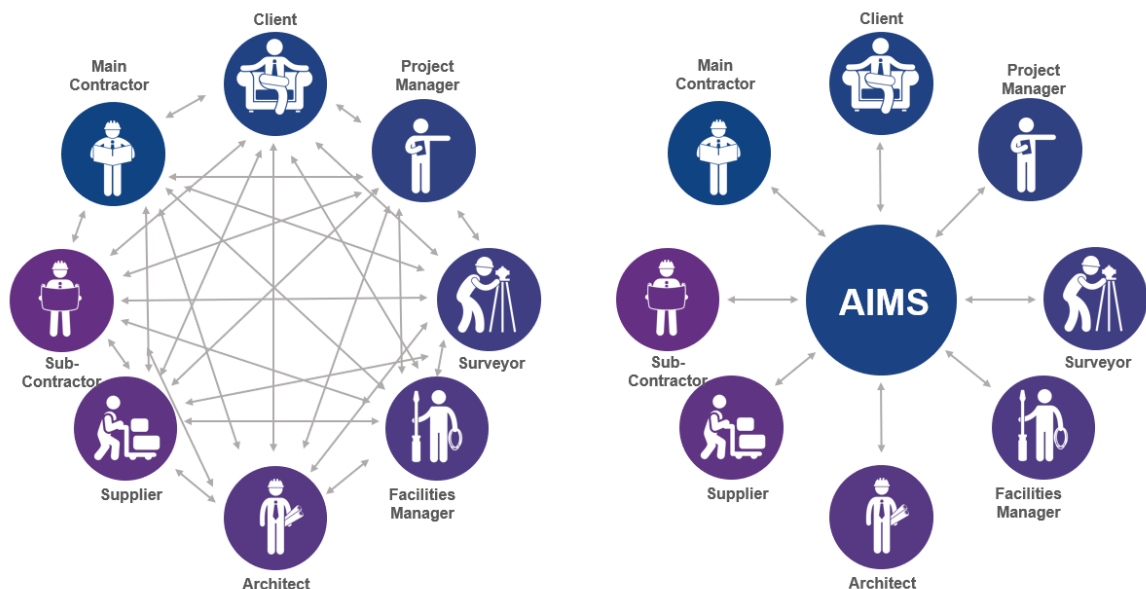
The fundamentals of a CDE

2.1

A Common Data Environment, or CDE, is a digital place in which the information comes together. The fundamental principles of a collaborative process require information to be shared within a CDE together with a suitable information hierarchy to be agreed upon which supports the concept of the CDE and the document repository. There is often a misconception that the CDE is purely a technology solution. While the CDE is enabled by technology, the supporting workflows that describes the processes to be used for collecting, managing and disseminating structured and unstructured information processes are as equally important.

Note 2.1: The term 'CDE System' refers to both the enabling technology and the supporting workflows as a complete solution.

Image 2.1: Traditional Information sharing vs AIMS



There are multiple ways in which a CDE solution can be achieved from a combination of multiple software products (sometimes referred to as a 'technology stack') or a single product. In addition to acting as a data repository, CDE's range in functionality often include other features such as document control and the ability to view 3D models and 2D CAD drawings. Table 2.1 gives an overview of NHS Scotland AIMS functionality.

Table 2.1: NHS Scotland AIMS features

Feature	Description
Collaborate	ISO 19650 Template Project CDE
Model and Data Processing	Normalise 2D Drawing and 3D Models
View and Mark-Up	View 3D Models and Mark-up/View 2D Drawings
Dashboards and Insights	Report on Project Tasks and Performance
Information Delivery Planning	Manage Schedules of Document Deliverables

Feature	Description
Workflow	Submit and Transit for ISO 19650 Workflows
Sync	Easy Publish CDE files from Source (BCDE, PW, Future) to Destination
Manage PIM	Administer Unlimited Projects/Programs/other PIM Workflows
Manage UX	Configure Portlets, Layouts and Views
GeoNavigate	Link Project/Asset Outlines to Projects/Assets
Federate	Federate External Content into Portlets
Web Digital Signatures	Enhanced Audit
Two-Factor Authentication	Enhanced Security
API	Programmatic (REST API) Control of CDE Operations
Manage AIM	Administer (Unlimited) Locations and Assets
Advanced Delivery Planning	Manage and Report on Delivery Plans

What is an Information Model?

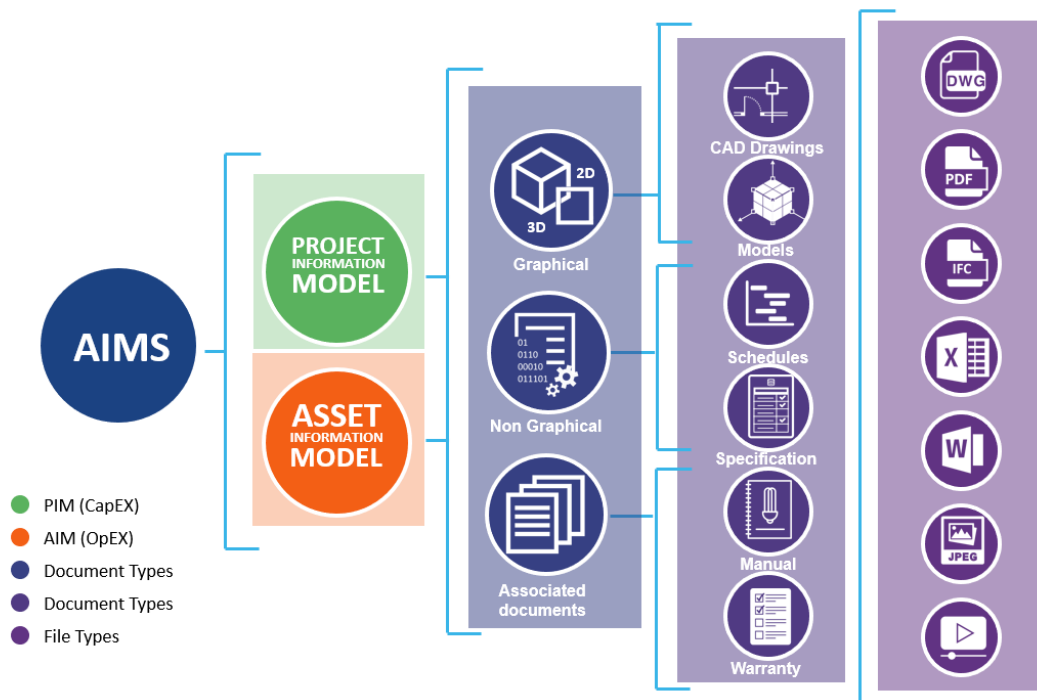
2.2 With vast amounts of digital information being created and shared during a project’s lifecycle, NHS Scotland AIMS becomes an environment in which to promote a collaborative working culture.

Project information can be thought of in terms of ‘Data’, ‘information’ and ‘Metadata’. Firstly, the term Data refers to raw unorganised facts that need to be processed (usually data in a tabular form). Data does not have any context and on its own doesn’t mean much, whereas ‘Information’ refers to data that has been processed, organised and structured in a given context to make it useful. A simple analogy being the number ‘30’. This is data, but it is not until it has been processed and given context such as ‘year’ or that this figure refers to a warranty duration for a product that it has meaning.

‘Metadata’ refers to data that provides information about other data. In other words, it is "data about data". A simple analogy being a digital photograph. Metadata embedded within the photograph could relate to the time and date the photograph was taken along with a geolocation.

NHS Scotland AIMS is a place to store a variety of information, referred to as ‘Information Models’. This does not just include graphical (such as drawings and models), but also non-graphical information (such as schedules and specifications), and associated documents (such as manuals and warranties) as shown in image 2.2.

Image 2.2: AIMS Information types



The information model concept encapsulates the idea of having all relevant information types in a single place or, where required for security reasons, in a series of linked files, rather than in separate professional or contractual silos. It is never intended to be a single digital file containing all of the project data, rather a repository of models, analysis and reports. While typically we think of the information model being a 3D geometric model, it can equally include 2D Computer Aided Design (CAD) information.

In most cases the retained estate is unlikely to contain legacy 3D information and will prominently contain 2D CAD information, or even traditional hand drawings. In some instances, the information may not even be in a digital form instead being contained within printed documentation in archives. In this instance, Boards will need to consider a plan for how and when any gaps within existing information and data sets should be captured.

AIMS Workflows and processes

2.2.1 The supporting workflows and processes are as equally important as to the enabling CDE technology. Information within NHS Scotland AIMS follows a defined process as set out in ISO 19650. As information containers develop, they pass through various 'states' (Work In Progress (WIP), Shared, Published and Archived) as illustrated in table 2.2. In addition, each information container gets a suitability code (status and revision) so that it can be identified upon what the information can be relied upon for.

Central to the success of NHS Scotland AIMS is applying a consistent Information Standard with regards to how information containers are named, and information is structured. This ensures that information can be easily retrieved from within AIMS and helps Boards manage data and protect file contents as referenced in section 4.1.

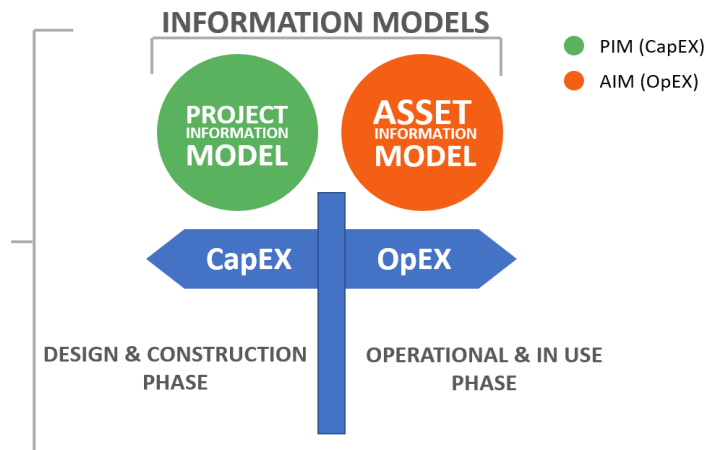
Table 2.2: AIMS States

Feature	Description
Work in Progress	Area of AIMS where a team carries out their own work using their organisation’s software systems. Non-verified design data used by in-house design teams only and is not visible or accessible by anyone else.
Shared	Area of AIMS where the team shares verified design data with other members of the project team and Boards.
Published	Area of AIMS for coordination and validated design output for use by the total project team. Information is used for construction or for asset management.
Archive ‘As-Built’	Area of AIMS for project history maintained for knowledge and regulatory and legal requirements. It is also a repository of the project information for non-asset portfolio employers.

What’s the difference between a Project Information Model (PIM) CDE and an Asset Information Model (AIM) CDE?

2.3 When referring to information models, they form two distinct purposes. Initially the Project Information Model is used to support the delivery of a capital investment such as a new project. During the PIM development there will be a use of both the AIM CDE and PIM CDE(s). During the initial stages of a project the information containers will relate to business case information and other reference documents such as record surveys, drawings and models which will be stored within the Board AIM AIMS for that project.

Image 2.3: PIM vs AIM



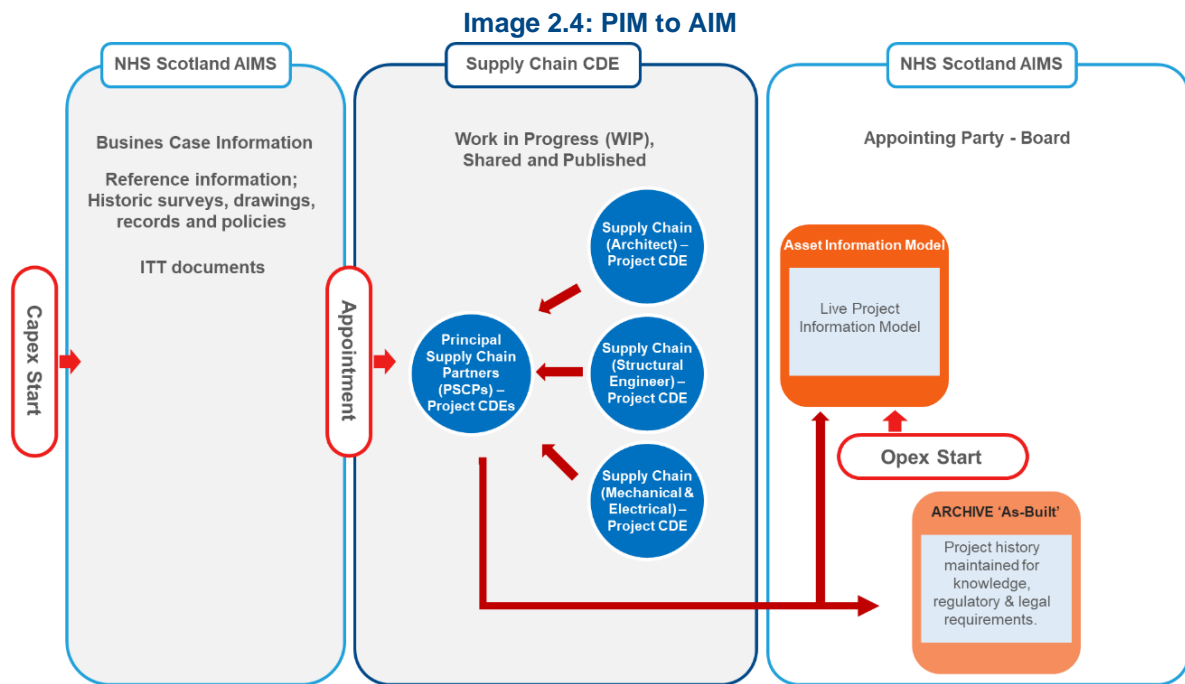
As lead appointed parties such as lead designers and PSCPs are procured, they will typically provide their PIM CDE to support the management of information for their activities. Additionally, their own supply chain e.g. Tier two and three will have their own PIM CDE’s which will exchange information into the lead appointed parties’ environments as required. The NSS [Frameworks Scotland 3](#) states that a PSCP will provide the PIM CDE as part of their scope. This will be used for the management of information that is developed and exchanged with the appointing party throughout the life of the project from each delivery team and is what BS EN ISO 19650-2:2018 refers to as the ‘project CDE’.

As information develops throughout the project lifecycle and moves into a suitability, for example, As-built information for a particular package transfers into the ‘Asset

Information Model' (AIM) where the information is used during the operational and in-use phases. As per above information passes through a number of different 'states' as information containers develop.

The PIM AIMS is used for new capital investment projects predominantly for information that is Work in Progress (WIP) and information that is Shared. (Refer to section 4.2 for detail on status (suitability codes)).

Eventually all information passes through to the AIM in AIMS as shown in image 2.4. The AIM can be held across a combination of new and existing enterprise systems provided that they are appropriately linked, and the contents of the AIM are controlled using a defined AIMS workflow.



Capital Investments VS Legacy Information

- 2.4 Each Board is going to have both the existing healthcare estate with legacy information for the retained estate, as well as ongoing capital investment projects. Each scenario will come with its own related trigger events. NHS Scotland AIMS accommodates both of these scenarios, and below is a summary of how capital investment project information resides in in the PIM area of AIMS, and legacy and As-Built information in the AIM area of AIMS.

Note 2.2: A 'trigger' is a planned or unplanned event that changes an asset or its status. A 'trigger-related event' is a response to a trigger and the reflection of the altered state of the asset in the AIM. It is important that the AIM is updated to reflect any changes so that it represents an accurate and true picture of the asset.

Entry point – Capital Investment

- 2.4.1 It is important that information is constantly fed into NHS Scotland AIMS during a project and that information is not just dumped prior to handover or completion. During a capital investment project, the amount of produced information increases

over time. The information needed at each project stage, trigger point or milestone will be dictated by how much information Boards need to answer a business question at a particular point in time including information needed to answer questions relating to the SCIM process. An information exchange could include a project programme and a 4D animation file to answer a question around a PSCP strategy to deliver within key project milestones.

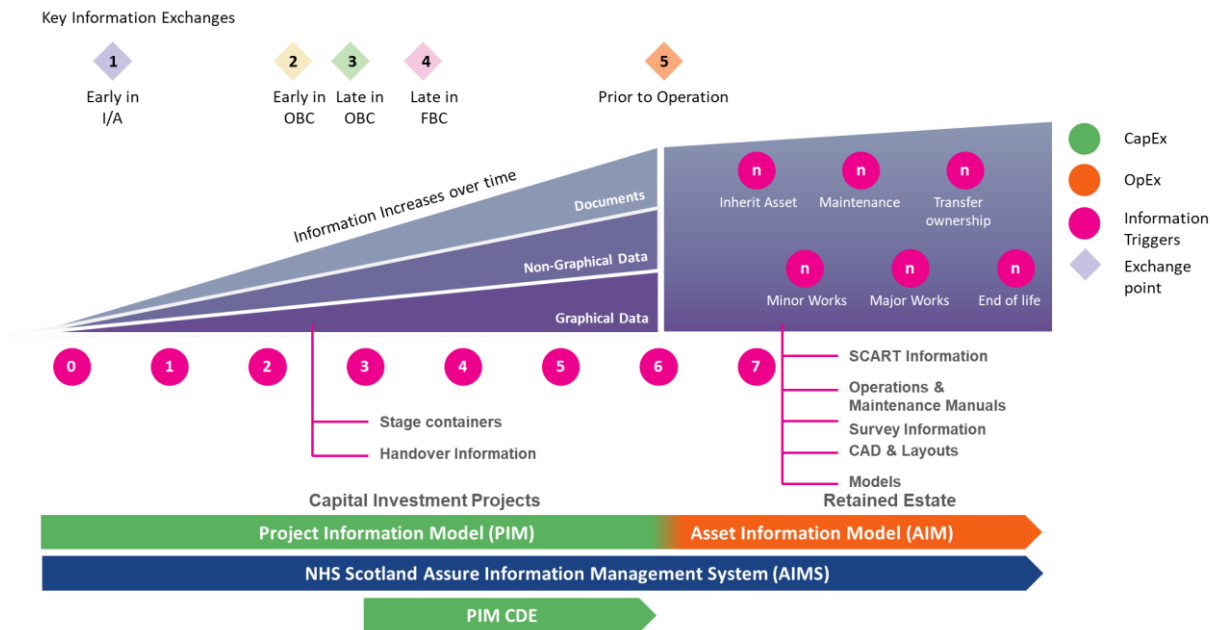
Another example is at the Initial Agreement (IA) SCIM stage where Boards need to consider any indicative costs as part of the SCIM Options Appraisal Guide and will require information to prepare and evaluate indicative costs for each proposed solution (Capital, Whole life capital, Whole life operating).

Boards will also need to understand the requirements for soft landings (SL) and commissioning. This requires information such as a soft landings/commissioning requirement briefs that includes any processes and protocols to be implemented. Once information is approved, it will then transfer to the AIM where you will need to consider and establish the process to maintain it.

NHS Scotland AIMS is used at an enterprise level, not just at a project level and is used by all Boards. Taking a typical project in terms of its lifecycle as an example, during the early stages of a project, (especially when putting together an initial agreement.) Boards can use the AIM area of AIMS to keep and access all reference information. Boards may also be exchanging information both internally or externally with consultants such as an economic study with external consultants and it may contain tender documentation, surveys, utilities and background information etc. What is important is that the AIM AIMS runs right throughout the project, it is not something that just comes on at the beginning or at the point of handover. The idea is information is passing through especially in terms of suitability codes and is continually going into the AIM, rather than one big drop at the end.

Unlike the capital delivery phases which generally follow a typical sequence of trigger events (such as defined project stages), during the operational and in use phases of an asset, trigger events are likely to be a mixture of both planned and unplanned events. These trigger points can occur in any order between the point of asset handover to the assets eventual disposal. For example, a typical trigger event during the operational and in use phases could include planned or reactive maintenance work, a change to a regulation relating to the asset or the decommissioning of an asset as it gets to the end of its useful life. These trigger events and key information exchange points are demonstrated below in image 2.5.

Image 2.5: NHS Scotland AIMS (PIM and AIM AIMS)



Entry point – Legacy information and the retained estate

2.4.2 There is great value in Boards uploading legacy information into NHS Scotland AIMS. It ensures that all appropriate built environment information is available from a single repository and is easier to retrieve in the future. If Boards starting position is for legacy information and the retained estate, the process will look slightly different. In many instances, legacy data and information will already exist in some form and you will have to undertake a process of transferring this information into the AIM. This process provides an ideal opportunity to review any historic data and information and question its purpose before transferring across.

Inevitably, some areas will need to be updated or refreshed so that the data is compliant with NHS Scotland and Boards metadata standards, naming conventions and classification systems as detailed/referenced in sections 4.4 and 4.5.

This activity should not be just about uploading and adding information and data to the AIM AIMS for the sake of it. Before adding legacy information to the AIM AIMS, Boards should firstly question the value of the data that is to be added. Boards should take the opportunity to take stock of their historic and archived information such as CAD files and consider how current the data and information is and also consider its history and provenance.

Note 2.3: Triage and Prioritisation tools available from the NHS Scotland AIMS Implementation and Support Teams channel helps Boards go through this process. Access to the Teams channel can be requested via email to: NSS.DEandAMTeam@nhs.scot.

AIMS data relationships and integrations

2.5 Each Board is likely to have many existing legacy systems in place, both unique to Boards and comprising of national systems (such as EAMS and SCART). It is therefore vital that AIMS integrates with them, in order to unify and search

information across these enterprise systems. Integrations can exist on several levels. In some instances, this may be a 'pull' of data from one system to another or a deeper integration of 'push and pull', where data flows between systems. The first planned integrations are as per table 2.3.

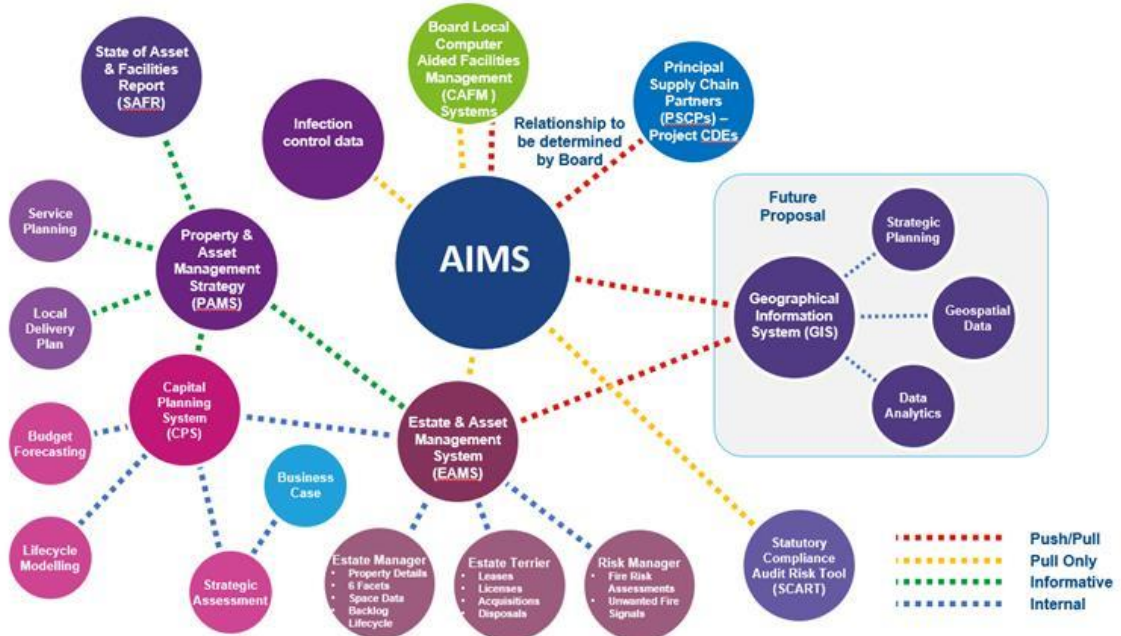
Table 2.3: Initial integrations

System	Description
Estate Asset Management Systems (EAMS)	As a minimum, AIMS shall be integrated to pull data and information from EAMS into AIMS and Boards relevant information containers. This shall include the following: a) Site Information (including address, GIA, Build Years etc.); and b) Block information (including backlog information with associated risk and costs, condition and lifecycle etc.);
Statutory Compliance Audit and Risk Tool (SCART)	Database pulling in high-level dashboard information in relation to levels of compliance by topic headings at Site Level;
The most commonly used Principal Supply Chain Partner (PSCP) PIM CDE	Further discovery sessions will be held to determine integrations with other CDEs.

Note 2.4: EAMS and SCART integrations will be carried out across two phases.

Understanding and having a strategic direction of possible integrations should be a key consideration for Boards as shown below in image 2.6. Additional reference can be made to the Integration Strategy on the NHS Scotland AIMS Implementation and Support Teams Channel which can be accessed by email request to: NSS.DEandAMTeam@nhs.scot.

Image 2.6: AIMS Data Relationships



The appraisal of the NHS estate in Scotland generates a significant volume of survey data and to enable analysis at a variety of levels, it is therefore necessary for the survey information to be structured logically. NHS Scotland AIMS uses the hierarchy set out in the [NHSScotland Property Appraisal Manual](#) and is currently used within EAMS as it is a well-established structure that is familiar to Boards. Where Boards

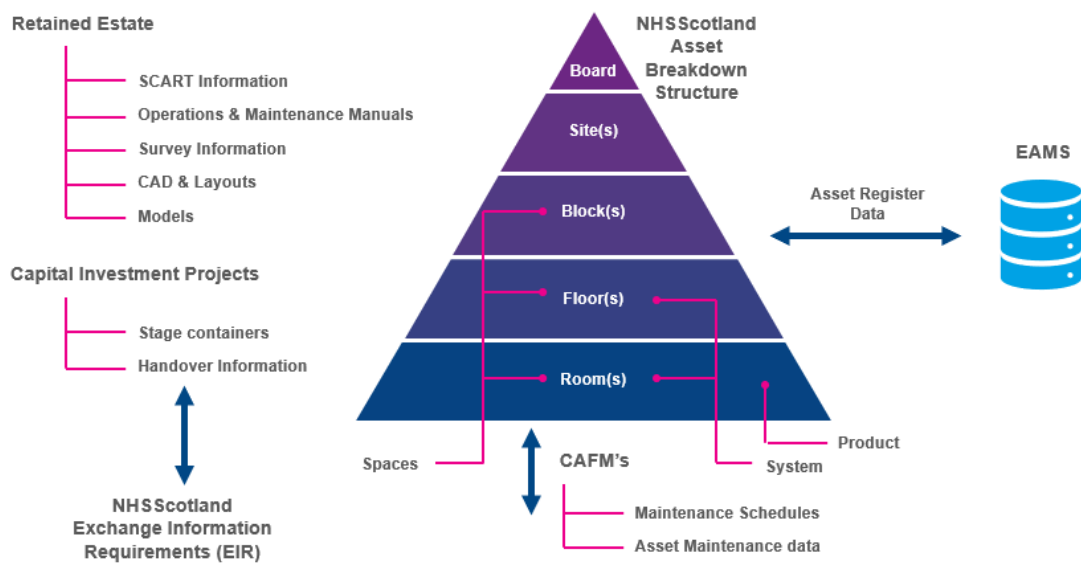
wish to utilise an alternative structure, consideration should be given to the wider impact on integrations with EAMS and would need to be consistent with other Boards in accordance with the manual.

For new capital projects that are following the SCIM process, an Information Container (folder) hierarchy structure that should be adopted by Boards (refer to Teams channel). The structure is based on the Uniclass 2015 Project Management (PM) table, and helps Boards to clearly articulate to the PSCP, the approach to information storage and transfer during the project delivery process. These information exchanges and requirements are articulated using an Exchange Information Requirement (EIR) as a vehicle for all relevant appointments.

Note 2.5: The Uniclass 2015 classification can be accessed via the National Building Specification (NBS) Website, where tables can be viewed or downloaded to a spreadsheet format.

Further information on Uniclass 2015 is also available via the NBS website: [Uniclass](#)

Image 2.7: NHS Scotland Information Container Hierarchy



Section Summary

2.6

AIMS is a combination of technology supported by workflows. Central to the success of NHS Scotland AIMS is applying a consistent Information Standard with regards to how information containers are named, and information is structured.

NHS Scotland AIMS acts as an integrator to other existing Board legacy systems, unlocking the potential to unify and search information across these enterprise systems.

NHS Scotland AIMS supports both the Project Information Model (PIM) and Asset Information (AIM) areas of AIMS and is equally applicable to new capital investments as well as legacy information and the retained estate.

3. Roles and responsibilities

Resourcing AIMS

3.1

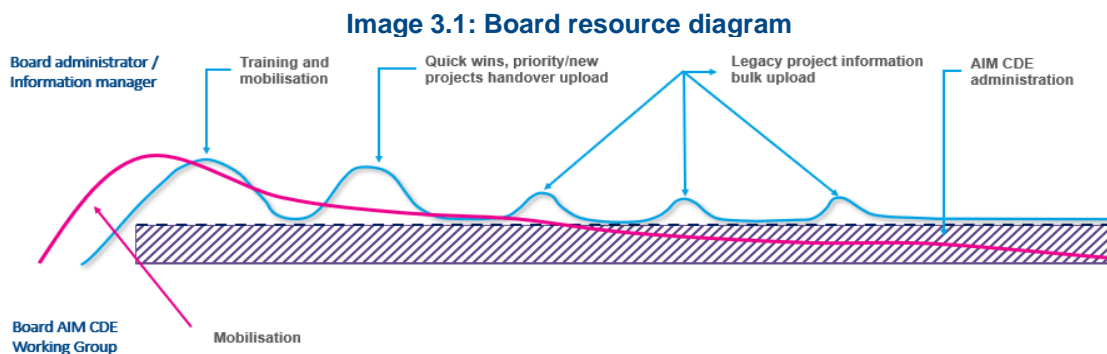
Transitioning to NHS Scotland AIMS is a new process that will take time and planning. It will eventually change how all Boards across NHS Scotland store and manage information about their built assets. Exactly how much time, effort and resources are required to get NHS Scotland AIMS up and running at a Board level will be dependent upon their individual circumstances, such as number of assets, blocks and sites, resource availability, information quality and availability.

This section is intended to recommend roles and responsibilities to enable Boards to mobilise and carry out a smooth transition to NHS Scotland AIMS in an effective and informed manner. Roles have been categorised as following:

- Board AIMS Working Group;
- Board administrator;
- Information manager; and
- End user.

Image 3.1 shows the expected effort predicted for various NHS Scotland AIMS roles for mobilisation activities from the start of the transition journey, and towards the system becoming business as usual.

The pink line represents the expected effort requirements for the Boards AIMS Working Group, where initially, mobilisation activities would take some effort, which would decrease over time as strategic objectives are defined, priority blocks identified, administrator and/or information managers on boarded and trained, and the first few projects get transitioned to capture the lessons learnt. The blue line represents the expected effort of Board administrators and/or information managers, who are also predicted to be required to put some effort in during the early training and mobilisation stages, with effort reducing going forward. It is expected that information bulk uploads will be trigger events requiring administrators and/or information managers to carry out data search and audit, application of naming conventions, and upload itself. Once most legacy asset information is moved to AIMS, there would only be a requirement to bulk upload capital project information which shouldn't be as resource intensive.



It is acknowledged that some of the smaller Boards that have only one or a few assets and blocks can expect to have fewer peaks of effort and time required to set up Board environments and transition information on their built assets.

Board AIMS Working Group

- 3.1.1 The purpose of the Board AIMS Working Group is to set the strategic direction for implementation of the system and ensure it is aligned with existing Board strategies. The AIMS transition strategy requires incorporation of the functional goals and requirements of various personas within the organisation from estates teams to functional users e.g. infection control. It is therefore recommended that a Board level AIMS Working Group be formed to ensure that a collegiate approach is formed which brings in the voice of all user groups.

The AIMS Working Group can be formed from the attendees of the Healthy Start meeting, Board administrators and your team members that are likely to be closely involved in uploading and managing information for your Board. It is recommended that the group gain Senior Responsible Officer (SRO) approval to ensure Board buy in to the system and approve implementation.

Several documents and tools as listed in section 1.2, table 1.2 are available to help your Board AIMS Working group establish the strategic direction for the transition and manage the process effectively. These can be accessed from the NHS Scotland AIMS Implementation and Support Teams channel to which access can be requested via email to: NSS.DEandAMTeam@nhs.scot.

For example, the Intake Triage tool helps Boards get started with planning for and scoping transition to AIMS. By providing checklists, it guides the Working Group through getting started activities and also outlines quick wins and medium to long term goals. As part of this process, Boards should also develop a Board transition programme. Using the specimen programme and swimlane roadmap, the Working Group should develop a Board specific timeline of mobilisation and transition activities.

Main responsibilities of the Board AIMS Working Group are:

- set out and implement an AIMS transition strategy;
- carry out mobilisation activities, such as identifying and nominating Board administrators and/or information managers;
- correspond and engage with HFS on a regular basis, share quarterly progress against KPIs as per the KPIs reporting protocol available on the Teams channel.

Board Administrator

- 3.1.2 The Board Administrator is the person (or persons) that will be a dedicated resource responsible for the set up and management of your Board's AIMS environment. Board administrator's responsibilities include:

- set up and management of projects, blocks, sites on AIMS;
- set up and management of AIMS users;

- should Board administrator also take on the information manager role, then their responsibilities include uploading and managing information and transmittal of information.

It is advised that Board's current system resource managers undertake the role of Board administrator. It is important Board administrators are selected early and enrolled onto the administrator online modules, followed by an interactive training session. The AIMS e-learning platform contains multiple training modules for both users and administrators, covering best practice workflows for uploading, transmitting, managing and archiving information. To access the e-learning platform and/or get enrolled in an interactive training session, please contact NHS Scotland Assure via email to: NSS.DEandAMTeam@nhs.scot and they will assist.

Board AIMS environments only becomes available to Boards for use once at least one of their Board administrators completes both online modules as well as the interactive session.

There is support and guidance available for AIMS Board administrators. These tools are listed in table 1.2 in section 1.2. For example, the License management strategy sets out the strategy for tracking, managing and governing user licenses of the AIMS system. The Naming conventions guide sets out NHS Scotland's naming conventions (mandatory and optional) for information container metadata that should be applied to information being transitioned to AIMS.

Note 3.1: It is important that the Board administrator is given the appropriate authorisation and authority by the Board to make changes to the AIMS system.

Information Manager

- 3.1.3 Another key resource for the successful implementation of AIMS is the role of the Information manager. Information managers have a range of responsibilities covering the processes of uploading, managing and issuing of information from the system. This role may not necessarily be a completely new role or a new resource; rather it might be incorporated into an existing role, such as knowledge manager, document controller or librarian; or a role that currently manages property data for EAMS and Board CAFM systems. In some cases, the Board administrator and Information manager may be the same person/team carrying out the duties.

Information Manager typical duties:

- Managing Aims
 - establish the Board's AIM Information Management System and any project level PIM Information Management Systems including processes and procedures to enable reliable information exchange between Project Team Members, the Employer and other parties;
 - establish, agree and implement the information structure and maintenance standards for the Information Models;
 - receive information into the Information Model in compliance with agreed processes and procedures. Validate compliance with information requirements and advise on non-compliance;

- maintain the Information Models to meet integrity and security standards in compliance with the employer’s information requirement;
- manage AIM and PIM Information Management System processes and procedures, validate compliance with them and advise on non-compliance;
- produce any dashboards or reports from AIMS as required;
- ensure that AIMS meets functional requirements;
- training of AIMS to Board teams and stakeholders.
- Project Information Management
 - initiate, agree and implement the Project Information Plan and Asset Information Plan covering: information structure across roles e.g. software platforms (all levels of supply chain) appropriate to meet Employer requirements and Project Team resources;
 - responsibility for provision of information at each stage;
 - level of detail of information required for specific Project Outputs e.g. Planning, Procurement, FM Procurement;
 - process for incorporating as-constructed, testing, validation and commissioning information;
 - enable integration of information within the Project Team and co-ordination of information by Design Lead;
 - agree formats for Project Outputs;
 - assist Project Team Members in assembling information for Project Outputs.

End user

3.1.4 Once Board’s AIMS environment becomes set up with blocks and projects, and information is uploaded, it will be the right time to start extending access rights to the system to more users across the Board. End users will be expected to complete online training modules on the e-learning portal to get familiarised with system functionalities. Access to the online training modules can be requested via email to: NSS.DEandAMTeam@nhs.scot.

System access

3.1.5 NHS Scotland AIMS is divided into four areas. These are System, AIM, PIM and Additional Areas. Each area provides distinct functions and is used to store and control access to information as shown in table 3.1. Further information can be found in the Bentley NHS Scotland Administrator Protocol Document which can be accessed through email request to: NSS.DEandAMTeam@nhs.scot.

Table 3.1: NHS Scotland AIMS Areas

Area	Description
System	The System area is used to control and manage items and areas that are server wide. The NHS Scotland AIMS Hierarchy is contained in this area. Access to this area is restricted to Bentley System Administrators and NHS Scotland System Administrators
AIM	The AIM area is used to store as built Asset information and is structured in Regional, Board, Site and Block levels. Board Users and

Area	Description
	Administrators only have access to their specific Board hierarchy. NHS Scotland System Administrators have access to the Regional level in the hierarchy.
PIM	The PIM area is used to store information generated during the operation of a Project and is structured in Regional and Board levels. Board Users and Administrators only have access to their specific Board hierarchy. NHS Scotland System Administrators have access to the Regional level in the hierarchy.
Additional Areas	Additional areas exist for specific functions – AIMS Support and Training, NHS Scotland Common Room and System Management. AIMS Support and Training gives access to Bentley eLearning and Protocol documentation, the NHS Scotland Common Room has not been created as part of the initial implementation (will be developed at a later date) and the System Management area collects Membership Groups, News Item Creation, Training links and Delivery Documentation into a unified view.

Support

3.1.6 If you require any support with mobilisation activities in relation to AIMS, then your first port of call should be searching this guide or accessing the NHS Scotland AIMS Implementation and Support Teams channel which comprises of several documents and tools to aid your implementation. Access to the Teams channel can be requested via email to: NSS.DEandAMTeam@nhs.scot.

To assist Boards there are three channels of support as illustrated in table 3.2.

Table 3.2: AIMS support channels

Support Channel	What can they assist me with?	Who do I contact
NHS Scotland Assure - Health Facilities Scotland (HFS)	Support initial user onboarding, Arrange administrator training, Set up of initial AIMS environments at site and block level, Provide guidance on related templates, best practice and knowledge networks, Custodians of central AIMS registers e.g. originator and function codes.	NSS.DEandAMTeam@nhs.scot
External consultant	Support Board transition and implementation strategy and planning, Information management process refresh strategies, Project handover and information exchange advisory support.	NSS.DEandAMTeam@nhs.scot
Bentley	On-Demand training available via system, Knowledge Base/FAQs available via system Helpdesk available via system or as above	support@groupbc.com Or (0)118 214 2500

Measuring success

3.2 To ensure that NHS Scotland gets the best value from the investment in NHS Scotland AIMS, a number of Key Performance Indicators (KPIs) have been established. A regular, quarterly KPIs reporting approach is being introduced for Boards in order to monitor the speed of adoption of AIMS, and to be able to identify and mitigate any potential implementation issues.

There are thirteen KPIs that have been identified and agreed with the NHS Scotland AIMS Steering Group. Please refer to the AIMS KPIs Reporting Protocol for further details. The protocol explains what the KPIs are, how they are collected and subsequently reported.

Setting up AIMS

3.3 Each Board within NHS Scotland has their own dedicated AIMS environment within NHS Scotland AIMS provided as a cloud-based system to host both the PIM and AIM areas of AIMS.

Refer to the Bentley User Protocol for details on logging in to the system for the first time. Access to the Bentley User Protocol can be requested via email to: NSS.DEandAMTeam@nhs.scot.

The system can be accessed from the following web address, [AIMS](#)

Note 3.2: Where a Board does not have AIMS in place or is currently transitioning to AIMS, there are still a number of interim steps that you can take to work towards the future. This may include following the NHS Scotland Information Standard for coding, naming and status conventions so that everyone is clear what the information contains and what it can be used for. Establishing and using a common approach such as this will put you in good stead for when you do implement AIMS. Access the NHS Scotland Information Standard can be requested via email to: NSS.DEandAMTeam@nhs.scot.

Image 3.2: NHS Scotland AIMS Landing page



Note 3.3: A specific Bentley NHS Scotland User Protocol Document is available within the support and training section of NHS Scotland AIMS. Access can be requested via email to: NSS.DEandAMTeam@nhs.scot.

The dedicated Board AIMS environment becomes open and available to Boards following completion of the interactive administrator training with Bentley. Any end user who requires access to the system should contact their Board administrators or NHS Scotland Assure – Health Facilities Scotland by emailing NSS.DEandAMTeam@nhs.scot.

Section Summary

3.4 The transition to NHS Scotland AIMS will involve a number of stakeholders across Boards from different backgrounds that have different information needs and requirements.

Fundamental to a successful implementation and ongoing governance of the system is the establishment of the Board AIMS Working Group. There are several documents and tools available to the group to be equipped to fulfil responsibilities needed to successfully prepare for and implement the system.

Resourcing each Board with system administrators is critical to successful set up and management of AIMS. Board administrators have a number of roles and are expected to support the Board AIMS Working Group closely during system set up and mobilisation. Other key resources, such as the Information manager will need to be considered. This role may be an augmentation to an existing role, such as knowledge manager, document controller or librarian.

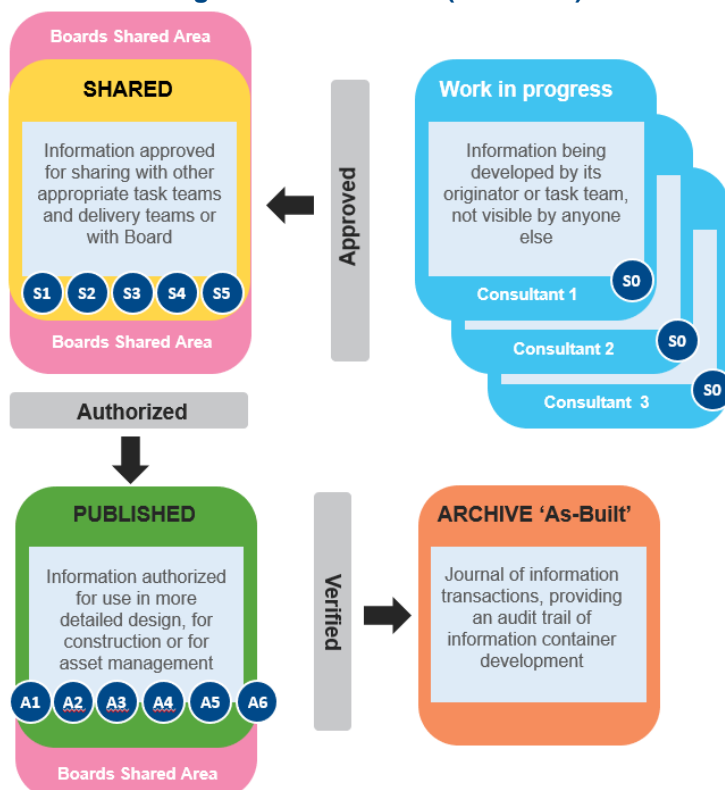
4. Implementing AIMS

AIMS Workflow

4.1 NHS Scotland AIMS follows a defined workflow, where information moves through various states. While image 4.1 shows a linear flow from Work in Progress (WIP) through to Archive, in practice, information will be constantly passing through these states during the course of the project. It is important that Boards do not wait until the project is complete before transferring information to the Archived state, rather it should be a constant drip feed of information. It is essential that information containers have the appropriate suitability code assigned to it, so that Boards know what it can be relied upon for and what state it relates to.

During a project, information is exchanged between the delivery team and Boards at decision points. For a typical capital investment project, these decision points and gateways are likely to be aligned to the projects Plan of work such as [RIBA 2020](#) or [SCIM](#). For the legacy and retained estate, decision points are unlikely to follow such a sequence as defined by a project stage and are likely to align to trigger events that are planned and unplanned such as planned or reactive maintenance or change in ownership of an asset for example.

Image 4.1: AIMS States (Workflow)



At this juncture in a Boards journey plan, the focus is now on implementation and using NHS Scotland AIMS to meet Boards critical success factors for both new capital investments and Boards strategic asset management (legacy information and the retained estate).

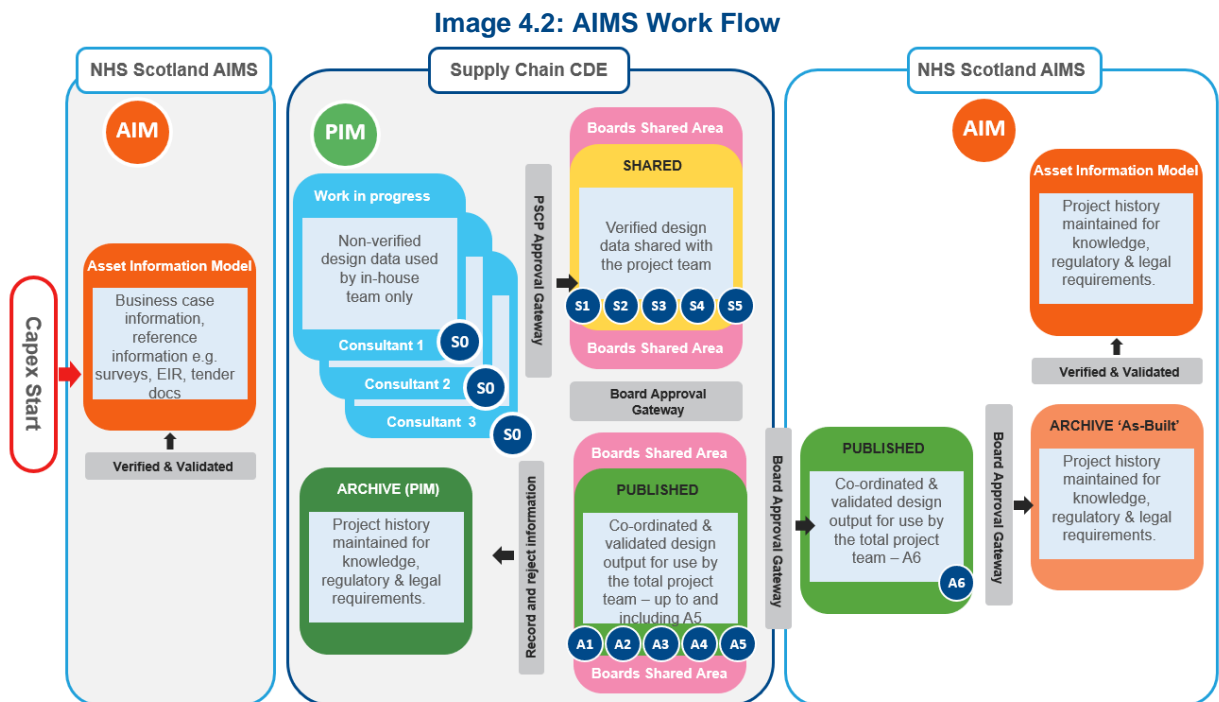
This section is subdivided to help you with the implementation in both scenarios. Certain aspects such as the Information Standard are common to both instances.

New Capital Investment Projects

4.2

The following section explores the typical workflow for a Capital Investment project. Image 4.2 illustrates how both the AIM and PIM sections work and how information moves between the supply chains, CDE and NHS Scotland AIMS. There is a benefit in the PSCP and supply chain still having their own PIM as they are likely to have established templates and protocols already built in. It is important to establish a project environment on the AIM AIMS as early as possible in your investment lifecycle. There are standard templates which can be utilised on the NHS Scotland AIMS Implementation & Support Teams channel to make this process as easy as possible which includes a standard folder structure. Access to this Teams channel can also be requested via email to: NSS.DEandAMTeam@nhs.scot.

It is vitally important that any information you generate follows a consistent Information Standard, in particular document naming which should not just be left to the supply chain. This is essential if information is to be searchable at an enterprise level.



Note 4.1: For the specific workflow within NHS Scotland AIMS refer to the Bentley NHS Scotland User Protocol Document. Access can be requested via email to: NSS.DEandAMTeam@nhs.scot.

The starting point for a Capital Investment project is the AIM section of NHS Scotland AIMS. At the start of a project, various information and data relevant to it may be sourced from existing assets or the Boards existing estate. For example, this could include information to support the Business Case, or to issue a tender. Information required at an early stage may also include, for example, any existing site survey information or utilities information. In the case of a refurbishment or extension, it may

also include existing plans, models or structural surveys. This information will be accessed from the AIM and will form the basis to initially populate the PIM. It is important the information within the AIM is updated to reflect the new project.

Capital Investment workflow

4.2.1 The Capital Investment workflow is detailed throughout this section:

Work in Progress (Supply Chain CDE) – S0

The Work in Progress (WIP) area of the CDE represented by suitability code 'S0' is used to hold unapproved information for each organisational role, typically external consultants or PSCPs. This information is likely to be held within the supply chains PIM CDE solution. Before information can pass through to the next state (SHARED), it shall pass an approval gate where a check, review and approval process will need to be carried out before it can proceed to the next CDE State. As information moves from WIP to the SHARED area, this is likely to include the following:

- Model suitability check;
- Standard Methods and Procedures (SMP) check;
- Technical content check;
- COBie completeness check;
- Drawings extract checks along with any additional documentation that is shared as a co-ordinated package of information; and
- Approval by the task team member.

SHARED and Board SHARED (Supply Chain CDE) – S1 to S5

The SHARED section of the CDE represented by suitability codes S1, S2, S3, S4 and S5' is used to hold approved information for sharing with other organisations to use as reference material, for their own design development. Once all design has been completed, information is then placed for authorisation in the Boards shared area.

Typical checks should include:

- Model suitability check;
- Technical content check;
- COBie completeness check;
- Information exchange;
- Drawings extract checks along with additional documentation that is shared as a co-ordinated package of information.

Information should be checked for authorisation and should include checking for compliance against the deliverables set out in the Exchange Information Requirements (EIR).

PUBLISHED (Supply Chain CDE) – A1 to A5

The PUBLISHED Board Shared Area represented by suitability codes A1, A2, A3, A4 and A5 is used to hold co-ordinated and validated design outputs for use by the project team. Checks for authorisation should include validation and verification for compliance with the Asset Information Requirements (AIR) deliverables.

Information that is rejected at this stage transfers to the ARCHIVE (PIM) area. This ensures that Boards have a full project/asset information history. As part of this process, a Red Amber Green (RAG) validation report should be produced and passed to the CLIENT SHARED area. RAG status reporting is used to give an indication of how well a project is doing using traffic lights. Red indicates a problem; amber indicates everything is OK and green indicates things are going well. Details of information or data rejected at this stage should be passed back to the PSCP.

PUBLISHED (NHS Scotland AIMS) – A6

The PUBLISHED area within NHS Scotland AIMS signifies information that is suitable for A6 and has been accepted into the Boards AIM.

ARCHIVE ‘As Built’

The ARCHIVE area within the AIM contains inactive or superseded material. It acts as the Boards record of all progress through each information exchange as well as holding a record of all transactions and change orders. This information can then be used as an audit trail in the event of a dispute or trigger event. The ARCHIVE ‘As-Built’ area should also contain the ARCHIVE information from the PIM area. It is important that information produced during the briefing, design and construction phases are made available to Boards. Although this information may not be required for the daily operations of the asset, it could be invaluable in the future, in the event of asset failure or any performance issues.

Note 4.2: As information Containers move from PIM to AIM, the ‘Project Code’ within the naming convention should be replaced by 6 (six) X characters to denote that it is an As-Built document within the AIM. The NHS Scotland User Protocol document give specific guidance on how to undertake this process within NHS Scotland AIMS.

Articulating Information Standards in tenders and appointments

4.2.2 In order to obtain good quality structured information from the supply chain, this relies upon Boards clearly articulating their information requirements. The Exchange Information requirements (EIR - Formally known as the Employers Information Requirements) is one vehicle in which to convey to the supply chain what information is required, for what purpose, along with when the Board requires it and to what level of detail and format.

The EIR should also articulate the Information Standards, such as naming conventions, classification systems and information container hierarchy structure that the supply chain is to follow.

The EIR is also the mechanism to communicate a number of other project and Asset Information Requirements (AIR).

Asset Information Requirements (AIR)

AIRs help to support a Boards portfolio by defining what data and information is required throughout the asset lifecycle. When assessing a Boards AIRs it is important that they are cross-referenced against any existing historical data and information to determine any gaps that require filling. This will provide a basis for formulating a clear plan of any required data and information for each asset that may need to be obtained or procured.

AIRs will include data and information relating to statutory requirements, such as buildings regulations and Health & Safety files, information needed to populate a Boards CAFM system and for EAMS.

While EAMS is a national system, there is no single CAFM solution across Boards. However, regardless of CAFM system, information must be to a sufficient level of detail in order to answer key questions at each stage of the asset lifecycle.

You need to consider the trigger events that might require the retrieval of this data. These may include:

- receiving information during major works project;
- evaluating performance of an asset;
- planned or reactive maintenance work;
- minor works (repairs, component replacements);
- end-of-life works (decommissioning, mothballing);
- change in regulations relating to the asset;
- change in organisational requirements for the asset;
- change in owner, operator or maintainer.

It is likely that the AIR will be similar for buildings of a comparable type, for instance, an acute hospital or a children’s hospital. Typical AIRs for Boards to consider are contained within Appendix 1. These sample AIRs have been structured into eleven maturity levels as illustrated in table 4.1.

Table 4.1: AIR Maturity Levels

Maturity Level	AIR Set
1A	Asset register data level one – general information at Board level
1B	Asset register data level two – general information at site level
1C	Asset register data level three – general information at block level
1D	Asset register data level four – general information at floor level
1E	Asset register data level four – general information at room level
2	Statutory compliance information
3	CAD and layout drawings and information
4	Survey and GIS information
5	Technical data and information
6	Lifecycle data and information

Maturity Level	AIR Set
7	Building Information Models
8	Telemetry and IoT
9	Board enterprise systems
10	External open data

Legacy information and the retained estate

4.3 The following section explores the typical workflow for legacy information and the retained estate.

Taking the AIMS prioritisation grading tool, Boards should undertake a prioritisation review to help categorise and consider which facilities they should consider digitising foremost. The tool enables Boards to consider complexity and risk of their estates when selecting priority assets for transitioning to AIMS. The tool is intended as guidance and the criteria and values can be amended to suit Board requirements.

With an understanding of which facilities to focus on first, now consider what information is available. Consider the type (drawings, reports etc.) and volume of existing data sets, together with what form these are in. Legacy information may exist in a variety of formats, from a database, digital media (such as flash drives and CDs) through to hardcopy formats (such as printed drawings and ring binders). In some instances, a strategy will be required to digitise existing information such as scanning, indexing to transition key paper documents to NHS Scotland AIMS. This may include simple techniques from scanning paper document (using Optical Character Recognition (OCR) technology that converts printed or handwritten text characters such as on a scanned document into computer readable text) through to the procurement of digital laser scanning of existing assets. It is important to consider the provenance of any data that is to be transferred and the value that it will add to the digital estate.

Boards should consider their main information sets and which are most aligned with the transition to AIMS. Examples of typical information sets could be centred around:

- Asset information, such as scanned PDFs and JPGs;
- Financial Plans, such as 5-10 year plans, 10 years plus;
- Resources, such as service contracts;
- Capital Projects;
- Performance information, such as environmental;
- Equipping, such as property, vehicles and I.T;
- Clinical demographics such as populations and wellness data.

Boards should also consider which data sets are held in other local and national systems to avoid duplication.

It is likely that existing information will not conform to the current NHS Scotland Information standards and naming conventions. Boards should review their existing

Board Information management processes and workflows and assess how these compare to current conventions. Following this, Boards should update their Standard Operating Procedure (SOP) for Information Management and communicate this to the rest of the Board.

Ideally, when information is uploaded into NHS Scotland AIMS the new information standards should be applied to it. In instances where it is not viable to do this due to the amount of information and resource required, information can still be uploaded as a 'dump' into the system. While it may be possible to carry out basic searches upon this information, the system will only be able to draw information from the file name and therefore searching for information will be difficult.

When creating a transition plan, consider what data or key information sets Boards will upload. In the first instance, Boards should also undertake a gap analysis and quality audit of existing data sets.

Maintaining AIM

- 4.3.1 With considerable investment in both time, money and resources to create and establish the AIM, it is vital that it is maintained to ensure it continues to reflect the state of the physical asset. Boards should first decide and agree what is an acceptable time lag before changes in the physical assets are then reflected in the AIM. This may look different depending upon different assets or even different parts of the asset and should be driven by the Boards asset priorities.

The AIM should be maintained for as long as is appropriate and while the Board has an interest in the asset. This timeframe may be to reflect an expected period of Board ownership of the asset or the length of the Boards occupancy or operating agreements. It is important to take into consideration any legislation (such as legal regulatory, health and safety, environmental etc.) that may affect the length of time.

Information Standard

- 4.4 Central to the success of AIMS is applying a consistent Information Standard with regards to how information containers are named and information is structured. This applies to both new capital investments and strategic asset management (legacy and retained estate). This ensures that information can be easily retrieved from within AIMS and helps Boards manage data and protect file contents. The use of information containers is an important aspect of NHS Scotland AIMS with unique IDs to help Boards better index, search and retrieve information. Within AIMS there are many ways in which information can be searched for. This may be by SCIM stage, by status or by originator of information just as an example. This relies on correctly naming and tagging information in the first place.

The Information Standard covers the following:

- Information Hierarchy Container structure;
- Information Container Naming convention;
- Information Container Meta data;
- Last exchange.

Note 4.3: For specific steps on how to apply the naming convention and meta data within the system, including using placeholders refer to the Bentley User Protocol. Access can be requested via email to: NSS.DEandAMTeam@nhs.scot.

Information Hierarchy Container Structure

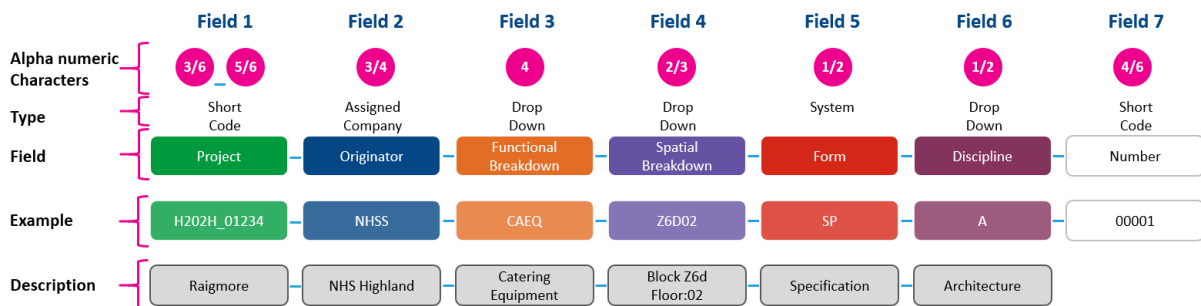
4.4.1 The Information Hierarchy Container Structure, based on the Uniclass 2015 Project Management (PM) table, allows Boards to specify a structured approach to information storage and transfer during the project delivery process. The Information Container Structure should be articulated to the supply chain via the EIR to communicate to appointing parties how information should be delivered and structured to Boards. A copy of the Information Container Hierarchy Structure can be requested via email to: NSS.DEandAMTeam@nhs.scot.

Information Container Naming convention

4.4.2 Boards must use the agreed NHS Scotland naming convention and create and maintain project codes. The naming guide, which is available from the support Teams channel sets out the naming conventions (both mandatory and optional fields) for information container metadata that should be applied to information being transitioned to AIMS. A copy of the Naming Convention document can be requested via email to: NSS.DEandAMTeam@nhs.scot.

The NHS Scotland naming convention is based upon BS EN ISO 19650:2 National Annex, which sets out how information containers within AIMS should be defined. Information containers should be defined using all the fields illustrated in image 4.3 and table 4.2 in the order shown, coded according to the NHS Scotland Information Standard, separated by a delimiter, and used in its entirety as a single unique string.

Image 4.3: NHS Scotland Naming convention



Note 4.4: Room level spatial breakdown can be accommodated in the room metadata.

Table 4.2: Descriptions of fields within the file information container ID

Field	Summary	Example
1 - Project	What project does this information container relate to?	H202H_01234
2 - Originator	Which party is responsible for producing this information container?	NHSS
3 – Functional Breakdown	Which functional aspect of the project does this information container relate to? – e.g. system	CAEQ

Field	Summary	Example
4 – Spatial Breakdown	Which spatial aspect of the project does this information container relate to? For example location and floor level.	Z6D02
5 - Form	What is the nature of this information container?	SP
6 - Discipline	Which (technical) branch is responsible for producing this information? e.g., architectural/HAI	A
7 - Number	Sequential/grouped number to make the ID unique when all other fields are taken into account	00001

A Board's instance within NHS Scotland AIMS shall enable each field to be assigned a value from an agreed and documented codification standard. Codification for each field should follow the codifications defined in the NHS Scotland naming convention document. Specific requirements should be documented by the appointing party in the project's information standard and agreed with each lead appointed party during the appointment process. Field codes should be used consistently across the asset lifecycle. Field codes within the file information container ID should be formed using only alphanumeric characters (capital and lower-case letters A–Z and digits 0–9).

Note 4.5: A standard delimiter of Hyphen-Minus should be used between fields to ensure correct interpretation of the information container ID by software applications.

The following section explores the different fields and corresponding values. Partial lists are given by way of examples, and Boards should refer to the latest NHS Scotland Naming convention document for a complete and updated list.

Table 4.3: Naming convention and metadata

Unique ID	Metadata		
	Status	Revision	Classification
H202H_01234-NHSS-XX-XX-R-A-00001	S1	P01	PM_50_30_10

In the above example, the Unique ID is the document name. The documents status, revision and classification are all pieces of metadata that are assigned to the document. Refer to Section 4.5. Information Container Metadata for more information.

Field 1: Project

This mandatory field relates to a built asset at a site level and can also be used to identify any project related information by extending the code. A single common project identifier should be defined in the Board/Project Information standard.

Within a project string (PIM) the EAMS site code should be combined with an alphanumeric code of four characters.

Table 4.4: Example site codes

Code	Description
H202H	Raigmore
X043A	National Distribution Centre

Example: A new build Extension at Raigmore may include a unique project code of 05BT in the project string: H202H_05BT

Note 4.6: The _(underscore) acts as a delimiter in the project code.

Note 4.7: It is important that the Project Code is fixed from the outset and is usually defined and articulated to the supply chain via the EIR.

Field 2: Originator

A unique identifier should be defined for each organisation on joining the project, to identify the organisation responsible for producing the information within the information container. This unique identifier should be fixed within the project’s information standard. This field identifies the organisation of the information author and should be between 3 – 5 alphanumeric characters. Table 4.5 illustrates a partial list of organisations by way of example. Boards should refer to the latest NHS Scotland naming convention document for a complete up to date list. NHS Scotland Assure will manage a central register of Originator codes to avoid duplication. Where Boards require to add an organisation that is not already listed, please contact the NHS Scotland Assure team via email at: NSS.DEandAMTeam@nhs.scot.

Table 4.5: Partial list of organisations by way of example

Code	Supply Chain Partner: Consultant, PSCP etc
ABCC	Aberdeen City Council
AECO	AECOM Professional Services
AGGR	Aggreko
AIEU	Airwave Europe
ALGE	AIGECO
ALHA	Allan & Hanel

Note 4.8: The code ‘NHSS’ is always the default code no matter what your specific Board. All Board specific codes are managed through metadata.

Field 3: Functional Breakdown

A unique identifier should be defined for the functional aspects of the information container breakdown structure. This can be based on physical subdivision such as major design elements or systems. Table 4.6 illustrates a partial list of functional breakdown codes by way of example. Values are selected from a drop-down list within NHS Scotland AIMS.

Table 4.6: Partial list of Functional Breakdown codes by way of example

Unique Identifier	Level 2 and 3 – Elements & Sub Elements	Unique Identifier	Level 4 and 5 - Components	Code
3.3.3	Demountable suspended ceilings		(Includes Level 5 components 1-7)	
		3.3.3.1	Demountable suspended ceiling	DSCE
		3.3.3.1.1	Proprietary suspended ceiling systems	PSCS
		3.3.3.3	Access hatches and the like	ACSC
		4.1.1.3.14	Hand held fire fighting equipment e.g. extinguisher, fire blankets	HHFF

Note 4.9: Where multiple subdivisions apply to the information container use 'ZZ'. Where no subdivision is applicable to the information container use 'XX'.

Field 4: Spatial Breakdown

Each Board should establish within their own information standard a spatial subdivision that aligns with the breakdown, most likely dictated by the CAFM system. Table 4.7 illustrates examples of spatial codes while table 4.8 illustrates example floor/location codes. Values are selected from a drop-down list within NHS Scotland AIMS.

Table 4.7: Spatial code examples

Code	Description
ZZ	Multiple spatial subdivisions are applicable
XX	No spatial subdivision is applicable
UG	Underground utilities/services
EW	External works
SL	Soft landings
Z6d02	Example: Block Z6d Floor:02

Table 4.8: Floor/Level code examples

Code	Description
GF	Ground Floor
01	Floor level 01
02	Floor level 02
03	Floor level 03
04	Floor level 04
05	Floor level 05
06	Floor level 06
07	Floor level 07
08	Floor level 08
09	Floor level 09
10	Floor level 10
11	Floor level 11
12	Floor level 12
13	Floor level 13
14	Floor level 14
HP	Helicopter pad
B1	Basement level 01
B2	Basement level 02
Rf	Roof level

Note 4.10: Alternatively, a Board may use optional metadata to manage spatial subdivisions such as a room.

Field 5: Form

A unique identifier should be defined for each form of information held within the information containers. Table 4.9 offers a partial list of codes by way of example, however reference can be made to the NHS Scotland Naming convention document for the full list. This list can be expanded with project-specific codes, which can extend the standard codes with additional characters as suffixes. Values are selected from a drop-down list within NHS Scotland AIMS.

Table 4.9: Partial list of Form codes by way of example

Code	File type	Description
AF	Animation file	
BQ	Bill of Quantities	
CA	Calculations	
CE	COBie	
CM	Combined model	Federated, multidisciplinary model
CO	Correspondence	
CP	Cost plan	
CR	Clash rendition	
D	Drawing	Information in the form of a graphical depiction of shape, size, etc., of a physical part or assembly, usually to scale

Note 4.11: Within NHS Scotland AIMS 'Form' is referred to as 'Type'.

Field 6: Discipline

A unique identifier should be defined for each discipline held within the information containers and based upon table 4.10. The list, derived from ISO 19650 has been expanded upon to feature NHS Scotland specific disciplines for example, HA – HLIP advisors, HI - HAI Team, SR – Senior Responsible Officer and ST – SCART advisor. Values are selected from a drop-down list within NHS Scotland AIMS.

Table 4.10: Partial list of Discipline codes by way of example

Code	Description
A	Architecture
B	Building surveying
C	Civil engineering
D	Demolition/dismantling
E	Electrical engineering
F	Facilities/asset management
G	Ground engineering
H	Highways and transport engineering
L	Landscape architecture
M	Mechanical engineering

Field 7: Number

When an information container ID is not unique using all the other fields, then this should be achieved using a sequential number, which could be within a series/grouping.

A sequential number of between four and six digits shall be used. The numbers must be sequential with no special characters like dashes or brackets interrupting the numbers. Each number shall be unique when the information container is not distinguished by any other of the fields.

Information Container Metadata

4.5 In addition to the naming convention fields, the NHS Scotland naming convention also requires the use of the following attributes (metadata) assigned:

- Status (suitability);
- Revision;
- Classification;
- NHS Scotland Asset Hierarchy; and
- Document SCIM Stage.

In addition to the mandatory meta data fields, the following optional fields can be used:

- Room;
- Information Classification; and
- Description.

Note 4.12: Regional metadata will be generated automatically. Boards may also have unique metadata to meet their needs e.g. a project code for a capital project.

Mandatory Metadata

4.5.1 The mandatory metadata is detailed throughout this section.

Status (Suitability) – Mandatory

The status codes allow stakeholders to easily identify what the information can be relied upon for. Status codes for information containers should be applied according to table 4.11.

Table 4.11: Status (Suitability) codes

Code	Description	Description
	Work in progress	
S0	WIP - Information container being developed within a task team	Preliminary revision and version
	Shared (non-contractual)	

Code	Description	Description
S1	Information containers that are suitable for geometrical and/or non-geometrical coordination within a delivery team	Preliminary revision
S2	Information containers that are suitable for information/reference by other task teams within a delivery team	Preliminary revision
S3	Information containers that are suitable for review and comment within a delivery team	Preliminary revision
S4	Information containers that are suitable for review and authorization by a lead appointed party	Preliminary revision
S5	Information containers suitable for review and acceptance by an appointing party	Preliminary revision
	Published (Contractual)	
A1	Authorise and accept for Stage 1	Contractual revision
A2	Authorise and accept for Stage 2	Contractual revision
A3	Authorise and accept for Stage 3	Contractual revision
A4	Authorise and accept for Stage 4	Contractual revision
A5	Authorise and accept for Stage 5	Contractual revision
A6	Authorise and accept for Stage 6 - AIM AIMS Acceptance	Contractual revision
B1	Partial sign off with comments for Stage 1	Preliminary revision
B2	Partial sign off with comments for Stage 2	Preliminary revision
B3	Partial sign off with comments for Stage 3	Preliminary revision
B4	Partial sign off with comments for Stage 4	Preliminary revision
B5	Partial sign off with comments for Stage 5	Preliminary revision
B6	Partial sign off with comments for Stage 6	Preliminary revision

Revision – Mandatory

Preliminary revisions of information containers should be two integers, prefixed with the letter 'P'. Preliminary revisions of information containers in a 'work in progress' state should also have a two-integer suffix to identify the version of the preliminary revision – for example P02.05.

Table 4.12: Revision codes

Revision type	Revision Code Description	Example
WIP Preliminary Revision	As shared, but suffixed to identify version	P01.01
Shared Preliminary Revision	Two integers, prefixed with the letter P	P01
Contractual Revision	Two integers, prefixed with the letter C	C01

Note 4.13: It is important to keep track of 'work in progress' versions of information containers that are shared by a task team with the rest of their delivery team by using this methodology.

Classification – Mandatory

Classification for information containers should be in accordance with Uniclass 2015. Data classification systems are essential for co-ordinated construction project information, as they allow information to be recognised, differentiated and

understood. They enable data to be indexed and structured, so everyone can find the information they are looking for.

One such classification system is Uniclass 2015, described as a unified classification system for the construction industry. It is unified in the sense that it covers all construction sectors including buildings, landscape and infrastructure. Uniclass 2015 works by way of a hierarchical suite of tables allowing information about a project to be defined from the broadest view of it to the most detailed, from a hospital complex to a Ward, to a hospital bed screen. There are tables within the classification that cover different classes of information and deal with different scales of information. The Project Management 'PM' table includes classification codes for information for use throughout the life cycle of a project.

The appropriate classification table and corresponding code is selected from a predefined dropdown list within NHS Scotland AIMS (image 4.4).

























Image 4.4: Example of Uniclass 2015 drop down codes within NHS Scotland AIMS

- ▶ ▶ Ac - Activities
- ▶ ▶ Co - Complexes
- ▶ ▶ EF - Elements / functions
- ▶ ▶ En - Entities
- ▶ ▶ FI - Form of Information
- ▼ ▶ PM - Project Management
 - ▼ ▶ PM_10 - Project information
 - ▼ ▶ PM_10_10 - Project
 - ▶ ▶ PM_10_10_60 - Project description
 - ▶ ▶ PM_10_20 - Client requirements
 - ▶ ▶ PM_10_80 - Space management requirements
 - ▶ ▶ PM_30 - Site, ground and environmental information
 - ▶ ▶ PM_35 - Project performance requirements
 - ▶ ▶ PM_40 - Design and approvals information
 - ▶ ▶ PM_50 - Financial and commercial information
 - ▶ ▶ PM_55 - Contract information
 - ▶ ▶ PM_60 - Construction management information
 - ▶ ▶ PM_70 - Testing, commissioning and completion information
 - ▶ ▶ PM_80 - Asset management information
- ▶ ▶ SL - Spaces/ Locations
- ▶ ▶ Ss - Systems
- ▶ ▶ TE - Tools and Equipment
- ▶ ▶ Zz - CAD

NHS Scotland Asset Hierarchy - Mandatory

The appropriate NHS Scotland Asset Hierarchy code should be selected via the drop down list. The list within AIMS is structured via National Region, West Region, East Region and North Region (image 4.5).

Image 4.5: Example of NHSScotland Asset Hierarchy drop down codes within NHS Scotland AIMS

- ▼  National Region
 - ▶  National Services Scotland
 - ▶  National Waiting Times Centre Board
 - ▶  NHS 24
 - ▶  NHS Education in Scotland
 - ▶  NHS Health Scotland
 - ▶  Scottish Ambulance Service
 - ▶  The State Hospitals Board for Scotland
- ▼  West Region
 - ▶  NHS Ayrshire & Arran
 - ▶  NHS Dumfries & Galloway
 - ▶  NHS Forth Valley
 - ▶  NHS Greater Glasgow & Clyde
 - ▶  NHS Lanarkshire
- ▼  East Region
 - ▼  NHS Borders
 - ▼  B0004B - Greenlaw Surgery Health Centre
 -  00 - Site & External Areas
 -  01 - Health Centre
 - ▶  B002B - Stow Health Centre
 - ▶  B004A - Newstead Offices
 - ▶  B010B - Dr. R. D. McDonald & Partners (Eildon Surgery)
 - ▶  B040F - Huntlyburn Cottages
 - ▶  B050F - Huntlyburn Stable Block

Document SCIM/RIBA Stage – Mandatory

The appropriate SCIM or RIBA Stage should be selected via the Drop-down list within AIMS:

- SA - Strategic Assessment
- IA - Initial Agreement
- OBC - Outline Business Case
- FBC - Full Business Case
- PME - Project Monitoring & Evaluation

- 0 - Strategic Definition
- 1 - Preparation & Brief
- 2 - Concept Design
- 3 - Developed Design
- 4 - Technical Design
- 5 - Manufacturing and Construction
- 6 - Handover
- 7 - In Use

Optional Metadata

4.5.2 In addition to the mandatory meta data fields, the following optional fields can be used.

Room

If appropriate, space specific identifier by room level by text field.

Information Classification

Information security status can be classified via the drop-down list within AIMS:

- Confidential
- Internal Use Only
- Public

Description

A short text description of what the information relates to, for example, 'Ground floor plan', or 'weekly status report'.

Privacy

Privacy can be classified via the drop-down list within AIMS:

- Owners and Issued
- Owners plus their Company and issued
- Everyone

This field ensures that documents can only be accessed by the people that need to access them.

'Owners' in general, means the person that uploaded the document. 'Their company' means anyone in the same company or organisation as the person that uploaded the document. 'Issued' means anyone that you send the document to outside of your company or organisation.

Appendix 1: Exemplar data and information sets

General Information at Board Level (level one A – asset register)

A1.1 The following data and information sets are an exemplar requirement for each NHS Scotland Board at a headline level to identify:

- Population data;
- Geographical coverage;
- Which Local Authority the Board covers.

General information at site level (level one B – asset register)

A1.2 The following data and information sets are an exemplar for each NHS Scotland Board at site level to identify all land and sites:

- Site Reference Number (SRN) based on existing national code;
- Name of NHS Board;
- Site name;
- Site address;
- Town;
- Postcode;
- Contact name;
- Contact number;
- Contact email;
- Site status; and Requirement of site (essential/non-essential);
- Requirement of site (essential/non-essential);
- Quantitative data for sites;
- Land / Site area;
- Valuation of sites (recorded against block).

General information at block (building) level (level one C – asset register)

A1.3 The following data and information sets are an exemplar for each NHS Scotland Board at site level to identify all blocks and buildings:

- Site name and address;
- Block name and address;
- Block number;

- Block use;
- Type of block (code);
- Gross internal area;
- Gross external area;
- Gross external area;
- Number of floors;
- Heated volume;
- Number of car parking spaces: staff, visitor, disabled;
- Tenure of blocks;
- Status of blocks;
- Requirements of blocks (essential/non-essential);
- Historic listing; and
- Age band of blocks;
- Six facet ranking;
 - facet 1: physical condition (of each element and sub-element);
 - facet 2: statutory compliance;
 - facet 3: environmental management;
 - facet 4: space utilisation;
 - facet 5: functional suitability;
 - facet 6: quality;
- Access to existing reports;
- Condition survey;
- Representative photographs in a digital format;
- Contact names and numbers of key estates personnel to arrange access (at site and block levels).

General information at floor level (level one D – asset register)

A1.4 The following data and information sets are an exemplar for each NHS Scotland Board at a floor-by-floor level:

- Site Code;
- Block number;
- Floor level;
- Floor code;
- Floor description;
- Gross internal area.

General information at room level (level one E – asset register)

A1.5 The following data and information sets are an exemplar for each NHS Scotland Board at a room by room level:

- Site Code;
- Block number;
- Floor level;
- Room number;
- Zone name;
- Room description;
- Room area;
- Space utilisation;
- Functional suitability;
- Quality.

Statutory Compliance data and information (Level 2)

A1.6 The following data and information sets are an exemplar requirement for each NHS Scotland Board to support the demonstration of statutory compliance:

- SCART assessments
 - Risk assessments: floor surfaces and stairwells
 - Training plans for statutory and mandatory themes
 - Pressure Systems 2014
 - Evidence of appointed person / acceptance
 - Written scheme of examination
 - List of component parts
 - Inspection reports
 - Safe operating procedures
 - Maintenance records
 - Instructions for control of contractors
 - Certification records
 - Operation and maintenance guidance
 - Manufacturer records
- Infection Control
 - Audit reports
- Washer Disinfectors
 - Test and maintenance records

- Lifting Operations & Lifting Equipment (LOLER) Regulations 1998 (Incorp. SHTM 2024 (Lifts))
 - Lift inspection certificates
 - Operational plan
- Electrical – Electrical services supply and distribution 2014
 - Inspection and maintenance records
 - Logbooks
 - Documented Electromagnetic Compatibility (EMC) audits
 - Risk Assessments
 - Planned preventative maintenance strategy including standard operating procedures, method, statements, permits to work.
- Contingency Planning (Civil Contingencies Act 2004) for failure of systems and supplies
 - electrical supply contingency plan
 - medical gases contingency plan
 - water supply contingency plan
 - heating systems contingency plan
 - steam supply contingency plan
 - patient call systems contingency plan
- Window security risk assessment
Decontamination of equipment permit system
Control of Substances Hazardous to Health (COSHH) Regulations 2002
 - Record of annual performance check for Local Exhaust Ventilation (LEV)
 - Maintenance register of LEV's
 - Risk assessment register for all hazardous substances (including product data sheets)
- Working at Height Regulations 2005
 - Register of all access equipment
 - Record of inspections
- Electrical - Electrical safety guidance for low voltage systems 2014
 - Maintenance records and logbooks
 - Permit to work books
 - Operational procedures manuals
 - Operational and maintenance manuals
- Electrical - Electrical safety guidance for high voltage systems 2014
 - Maintenance records and logbooks

- Permit to work books
- Operational procedures manuals
- Operational and maintenance manuals
- Electrical - Bedhead services 2014
- Maintenance records and logbooks
- Permit to work books
- Operational procedures manuals
- Operational and maintenance manuals
- Medical Gases 2014
 - MGPS “as fitted drawings”
 - Permit to work books
 - Maintenance reports
 - MGPS Training Records
 - Record of liquid oxygen supplies
 - Operations & Maintenance Manual with all plant and system components technically detailed with fault conditions identified
 - Written Scheme of Examination in line with the Pressure Systems Safety Regulations 2000
 - Compliance surveys
 - Design Review, Installation, Validation & Verification Documentation
- Asbestos 2014
 - Asbestos Management Plan
 - Asbestos Register
- Gas Safety (Inst & Use) Regulations 1998
 - Register of gas burning appliances
 - Risk assessments
 - Maintenance records
 - Safety inspections and certificates
- Dangerous Substances and Explosive Atmospheres Regulations 2002
 - Survey of locations of dangerous substances
 - Risk assessments
- Contractors (control of) - (The Management of Health & Safety at Work Regulations 1999)
 - Approved contractors register
 - Quality checks
- Firecode - General (incorporating SHTM80-86 bar 82)

- Fire risk assessment
- Fire engineering report
- Portable fire extinguisher test certificates
- hot work permits
- Workplace (Health, Safety and Welfare) Regulations 1992
 - Maintenance records for relevant equipment
 - Site risk assessments
- Heating and Ventilation 2014
 - Records and log books
 - Inspection records for ventilation systems serving critical areas
 - Records regarding system plant performance
 - Training records
 - Permits to work
 - Records validating performance of Ultra Clean Ventilation (UCV) theatres
- Firecode, Alarm and Detection Systems (incorporating SHTM 82)
 - Test records
- Noise at Work Regulations (Incorporating SHTM 2045) Acoustics
 - Noise assessments
 - Acoustic report
- Water 2014
 - Records and log books
 - Water quality test certificates
 - Water and surface temperature test certificates
 - Legionella risk assessments
 - Action plan linked to risk assessment
 - Written Scheme (Operational Procedures) in use for Control of Legionella in each Domestic Water System
 - 'As-Fitted' drawings of all the Domestic Water Systems
 - Water safety plan
- Lifting Operations and Lifting Equipment (LOLER) Regulations 1998 - (Lifting Equipment)
 - Test certificates for lifting equipment held on record.
- Management of Health & Safety at Work Regulations 1999 (Incorporating SHTM 2050)
 - Estates Dept Health & Safety manual which details safe working practices
 - Estates risk register

- Energy Performance Certificate
- Fire (General)
 - Fire risk assessment and management plan
 - Fire action plan
 - Fire and emergency file
- Disability Discrimination Act (DDA)
 - Checklist of DDA compliance
- Electrical (General)
 - Electrical portable appliance (PAT) test records
 - Certificates of testing for all fixed wiring and distribution boards
 - Certificates of testing for emergency lighting
 - Lighting protection risk assessment
 - Standby generation test certificates
 - UPS test certificates
 - System commission data and logs
 - Report evidencing that all electrical installations within radiography, diagnostic and imaging facilities comply with the recommendations contained within the medicines and healthcare products regulatory agency (MHRA) document entitled “medical electrical installation guidance notes (MEIGaN)
- Statutory Applications and Consents
 - Planning approvals
 - Building warrants
 - Road consents

Survey and GIS data and information (Level 3)

A1.7 The following data and information sets are an exemplar requirement for survey and GIS data:

- Boundary identification survey
- Site topographic (feature and level) survey
- Floor level datums
- Measured survey of as built (which might include a LiDAR)
- Utilities survey data and drawings
- GIS data
- Survey control network information
- Post occupancy evaluation (POE) surveys
- Condition survey data as per: Estates Asset Management: Property Appraisal Manual

CAD and Layout drawing information (Level 4)

A1.8 The suggested minimum information set for site level drawings is:

- SCART assessments
 - Block distribution on the site
 - Block numbers (to be agreed with NHS Board)
 - Site boundary – polyline to provide GEA (m²) of site
 - Note: On the larger more complex sites, it will be beneficial for the NHS Boards to show the boundaries of individual blocks, particularly where there are several within a physical building.
- Block level drawings - Building plans, zones and elevations at block level
 - The CAD drawings should have industry standard layering and consist of:
 - Walls (external and internal)
 - Doors
 - Windows
 - Sanitary fittings
 - Fixed furniture
 - m² per room – with polyline
 - overall GIFA m² of block – with polyline
- “as fitted” drawings
 - Medical gases drawings
 - Domestic Water Systems drawings
- Other optional suggested information sets
 - Optional Block Level Drawing:
 - Building sections
 - Details of through wall construction
 - Optional “as fitted” information set:
 - Electrical services
 - Building management systems and controls
 - Security systems
 - Mechanical systems
 - Plumbing and drainage systems
 - Lifts and elevators
 - Catering systems
 - Furniture, fittings and equipment
 - Patient bedheads

- Foundations and retaining walls
- Structural Frame
- Room Level drawings:
- Room elevation c-sheets and linked room data sheets

Technical data and information (Level 5)

A1.9 The suggested minimum data and information set is:

- Unique asset identification numbers
- Descriptions of assets and the asset systems they serve
- Engineering data and design parameters
- Functions of assets, including any interdependencies to the activities that require them
- Vendor data (details of the organisation that supplied the asset) including asset lead time
- Asset manufacturer and model reference
- Asset specification
- Locations of the assets, possibly using spatial referencing or geographical information systems;
- Commissioning data and test certificates
- Access planning
- Spatial data relating to assets, for example pavement areas, room sizes
- Warranties and guarantee periods
- Operation and maintenance information
- Recycling and disposal information

Lifecycle data and information (Level 6)

A1.10 The suggested minimum data and information set is:

- Purchase cost data (including land, finance and fees)
- Construction cost data
- Rent and rates data
- Operation and occupancy data
- Energy and utility cost data
- Maintenance costs (Hard FM) data
- Lifecycle replacement cost data
- Projected disposal cost data
- Income data

- Academic lifecycle models
- Lifecycle period data for elements and sub elements
- Replacement costs data for elements and sub elements
- Asset, element financial impact of unavailability data
- Key performance indicator data
- Planned maintenance task cost data
- Total cost to occupy data

Building Information Modelling (Level 7)

A1.11 The suggested minimum data and information set is:

- BIM Level 1
 - Organisational Information Requirements (OIRs)
 - Asset Information Requirements (AIRs)
 - Record of project BIM Level 1 Employers Information Requirements (EIRs)
 - Built Asset Security Strategy (BASS)
 - Built Asset Security Management (BASMP)
 - Built Asset Security Information Requirements (BSAIR)
 - As-Built CAD files in a native file format
 - As-Built non-graphical data in an agreed file format eg. Excel
- BIM Level 2
 - Organisational Information Requirements (OIRs)
 - Asset Information Requirements (AIRs)
 - Record of project Employers Information Requirements (EIRs)
 - Built Asset Security Strategy (BASS)
 - Built Asset Security Management (BASMP)
 - Built Asset Security Information Requirements (BSAIR)
 - As-Built domain models in a native file format
 - As-Built federated models
 - As-Built 2D PDFs cut from models
 - As-Built non-graphical data in an agreed file format eg. COBie
 - Records: BIM Protocols, BEPs, MIDPs, BIM assessments, Soft Landings plan

IoT and Telemetry Data (Level 8)

A1.12 Potential data sets may include:

- Occupancy level data – building and room level (motion, velocity and displacement)
- Building visitor data – overall and per hour of day
- Smartcard swipes – building and department level
- Average energy use data
- Average energy consumption data
- Temperature data
- Humidity and moisture data
- System flow data
- Leak data
- Chemical and gas data
- Acoustic, sound and vibration data
- Current car park availability data
- Building control and management system data
- Lift and escalator management data
- SCADA data
- Incident services data
- CCTV feed
- Security data
- Access control data
- Position, presence and proximity data
- Public information data

NHS Scotland Board enterprises systems (Level 9)

A1.13 Integration with other enterprise systems may include the undernoted databases:

- Asset Information Model (AIM) CDE
- Asset register database (EAMS)
- Computer assisted facilities management (CAFM) database
- Admin and room booking databases
- Financial and ERP databases
- Historian and OPC servers
- Help desk databases
- Inventory databases
- GIS database
- Field device database

External Open Data (Level 10)

A1.14 Integration with external databases may include:

- Meteorological
- Communications
- Demographics
- Transport / Including Ticketing
- Power
- Water
- Scottish Government open data
- UK Government open data
- Scottish remote sensing portal
- Ordnance survey data

Appendix 2: Third Parties - PSCPs, supply chain and Local Authorities

While this guidance is aimed at internal NHS Scotland stakeholders, many third parties will also use the AIMS, such as PSCPs, supply chain and Local Authorities.

It is important to note that in many cases, the supply chain will still be using their own CDE solutions, in particular for WIP and shared document. There are many valid reasons for this approach, such as the supply chain being familiar with their own CDE solutions and also that many organisations will already have templates, and workflows built into their solution. Therefore, it is very much business as usual. However, there are a few critical aspects that the supply chain will need to consider, such as the NHS Scotland Information Standard, and the last exchange as information moves from PIM to AIM (refer to section 2.3).

The Information Standard covers the following:

- Information Hierarchy Container structure
- Information Container Naming convention
- Information Container Meta data
- Last exchange

The Information Naming conventions are based upon [BS EN ISO 19650-2:2018](#), specifically the February revision to the National Annex and therefore the supply chain will be familiar with the naming fields and meta-data.

As information containers move from PIM to AIM, the 'Project Code' within the naming convention should be replaced by 6 (six) X characters to denote that it is an As-Built document within the AIM. The NHS Scotland User Protocol document gives specific guidance on how to undertake this process within NHS Scotland AIMS.

Note A2.1: Guidance on the transfer from PSCPs CDE environments to AIMS will be further defined once systems have been integrated.

Appendix 3: Common Terms

Asset Information Model (AIM) – Information model relating to the operational phase (ISO 19650).

BCDE – The proprietary name of the CDE provided by Bentley Systems (formerly known as Business Collaborator).

Building Information Modelling (BIM) – Use of a shared digital representation of a built asset to facilitate design, construction and operation processes to form a reliable basis for decisions. (ISO 19650).

Construction Operations Building Information Exchange (COBie) – is a non-proprietary data format for the publication of a subset of building information models (BIM) focused on delivering asset data as distinct from geometric information.

Computer Aided Facilities Management (CAFM) – Is a technology solution used by Estates & Facilities Managers for the operational management and maintenance of assets.

Common Data Environment (CDE) – Agreed source of information for any given project or asset, for collecting, managing and disseminating each information container through a managed process. Note: A CDE workflow describes the processes to be used and a CDE solution can provide the technology to support those processes. (ISO 19650).

Digital Estate (DE) – Provides a reliable source of searchable information about the Boards assets. It supports joined-up decision-making, dynamic insights and lead to better healthcare outcomes.

Estate & Asset Management System (EAMS) – Is the national strategic asset management system currently used by NHS Scotland and is split into three separate modules; Estate Manager is the core module which used to record information on property assets including condition, backlog maintenance (costs and risk), lifecycle etc; Estate Terrier which is used to manage property transactions such as leases, licenses, acquisitions and disposals and; Risk Manager which is a tool used to record fire risk assessments and unwanted fire signals.

Exchange Information Requirements (EIR) – Defines the information that is required by Boards from both their internal team as well as from the supply chain for the development of their project and the execution of the completed built asset.

Information Container – Named persistent set of information retrievable from within a file, system or application storage hierarchy. (ISO 19650).

Information Model – Set of structured and unstructured information containers.

Metadata – Metadata is one or more pieces of data that describes and gives information about a piece of data. For example, a document could have metadata for “author’s name” or “file type” or “date created”.

NHS Scotland Assure Information Management System (AIMS) – The internal NHS Scotland name for the CDE system.

Project Information Model (PIM) – Information model relating to the delivery phase. (ISO 19650).

Statutory Compliance Audit and Risk Tool (SCART) – Is the national system currently used by NHS Scotland to measure and manage levels of compliance with legal and best practice guidance.

Scottish Capital Investment Manual (SCIM) – Provides guidance in a NHS context on the strategic and investment planning processes to be followed from identification of the need and case for investment through to the practical elements necessary for delivering a successful infrastructure project.

Scottish Futures Trust (SFT) – Established by Scottish Government as a centre of infrastructure expertise.

Senior Responsible Officer (SRO) – Visible owner responsible for an overall business change and is accountable for its successful delivery.

Status Code – Metadata describing the suitability of the content of an information container.

Appendix 4: Acronyms

AIM	Asset Information Model
AIMS	NHS Scotland Assure Information Management System
API	Application Programming Interface
BIM	Building Information Modelling
BS	British Standard
CAD	Computer Aided Design
CAFM	Computer Aided Facilities Management
CDE	Common Data Environment
DE	Digital Estate
EAMS	Estate & Asset Management System
EIR	Exchange Information Requirements
HFS	Health Facilities Scotland
KPI	Key Performance Indicator
LiDAR	Light Detection and Ranging
OCR	Optical Character Recognition
PDF	Portable Document Format
PIM	Project Information Model
PM	Project Management
PSCP	Principal Supply Chain Partner
RAG	Red Amber Green
RIBA	Royal Institute of British Architects
SCART	Statutory Compliance Audit and Risk Tool
SCIM	Scottish Capital Investment Manual
SFT	Scottish Futures Trust
SMP	Standard Methods and Procedures
SOP	Standard Operating Procedure

SRO Senior Responsible Officer

WIP Work in Progress