

# Crossrail Operations and Maintenance Information Guide

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# Operations & Maintenance Overview

For the efficient operations and maintenance of the Elizabeth Line, it is essential that all O&M information is submitted in a structured and easily accessible format, so it can be linked to relevant assets.

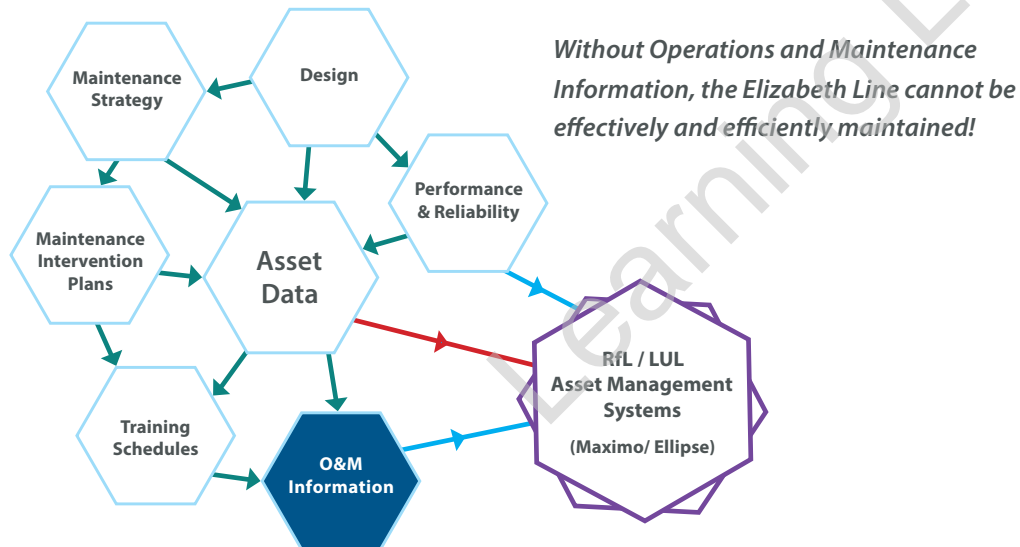
With this goal in mind, Crossrail has developed a unique O&M development process which will ensure that the IMs are provided with O&M information that is consistent across all CRL contracts and can be re-used against similarly configured assets and systems across the railway.

This guide provides an overview of the requirements that need to be met in order to produce a complete O&M information set.

## The Method

O&M information is delivered using standard digital templates (not paper) which aligns to the Crossrail's Asset Breakdown Structure (ABS) for the Facilities, PFUs (systems) and FUs (Sub systems) delivered by the Contractor. The templates are cross referenced to provide the IMs with essential information for the operation and maintenance of the facilities.

## Why O&M Information Matters

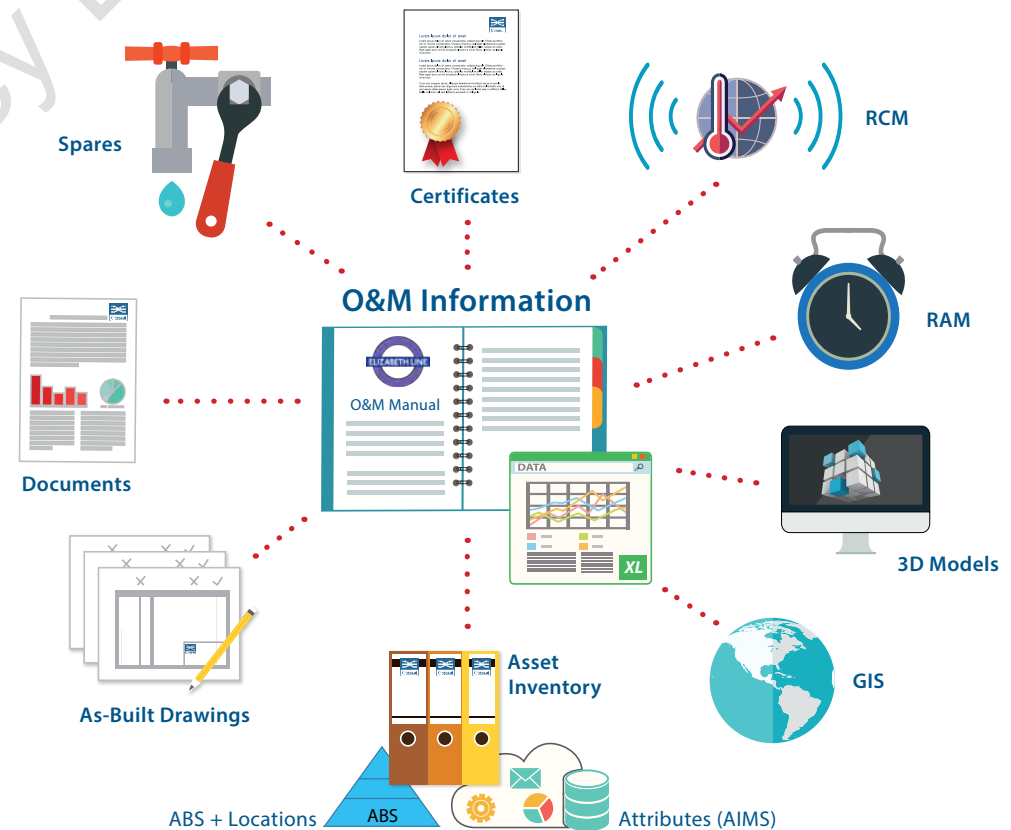


# Importance of O&M Manuals

The process of creating O&M manuals or information is a progressive one that allows that both Contractors and Crossrail can factor in the dynamic nature of the project and associated changes to Asset structures. As such, the manuals may remain in draft form for a long period of time, but this is good thing!

For effective staff training and for the comprehensive set up of Asset Management systems by the operators and maintainer, progressively creating a high quality set of O&M information **as early as possible** is vital for quality assurance purposes and allowance for change.

## O&M Information - The Culmination of Project Information



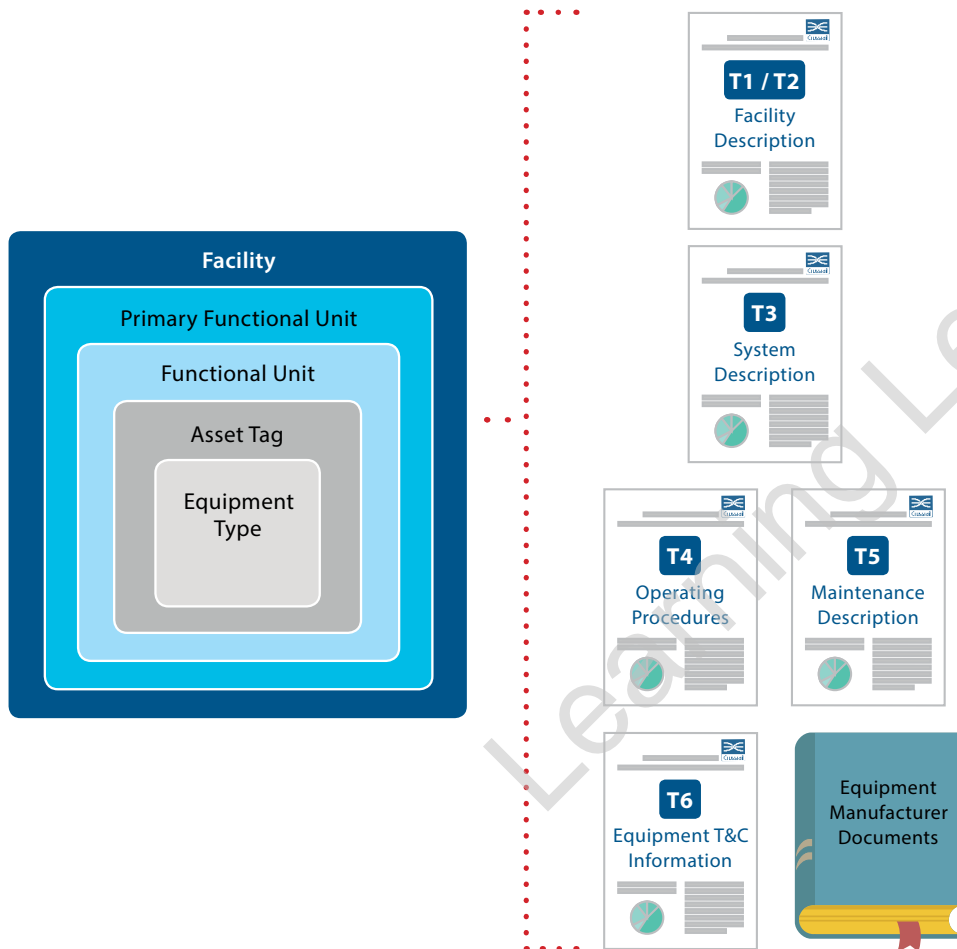
# Relationship with the ABS

## What is the Asset Breakdown Structure?

The Asset Breakdown Structure - known as the ABS - is a structure made up of:

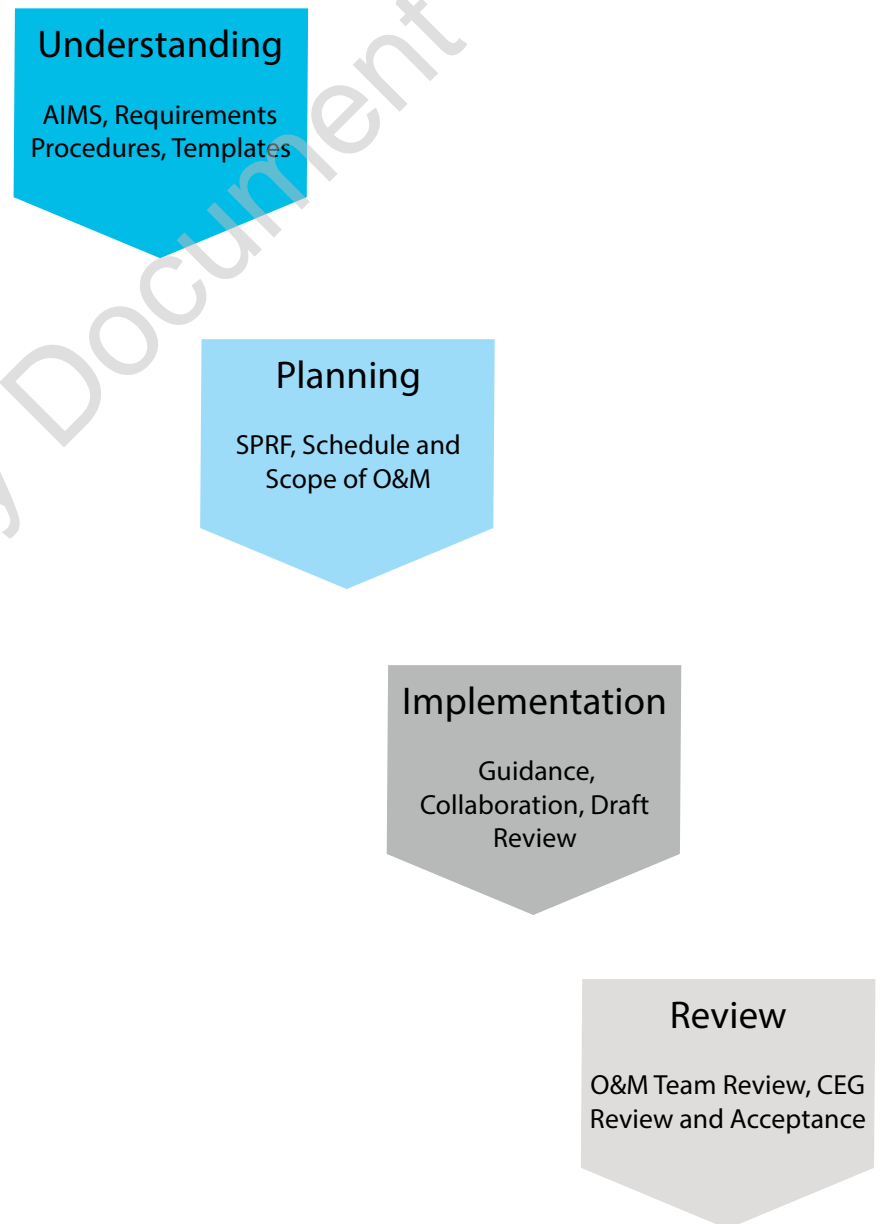
- Facilities e.g. a Station
- Primary Functional Units (PFUs) e.g. Systems
- Functional Units (FUs) e.g. Sub-systems

This is used to logically group Assets and align classifications and definitions. It's important to know as O&M information is often collated at PFU level.

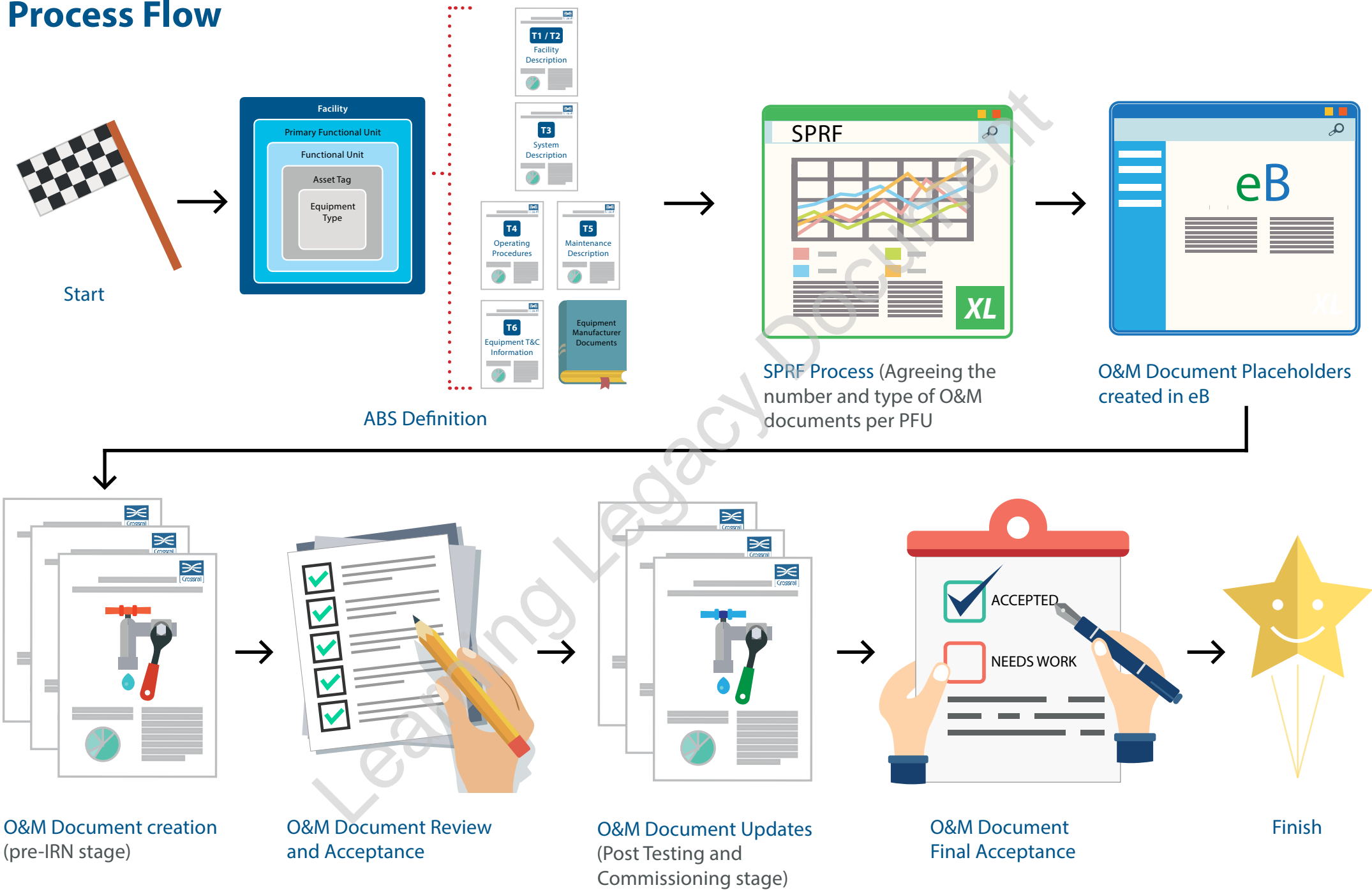


# Process Overview

There are 4 broad steps to compiling an O&M information set:



# Process Flow



# The Templates

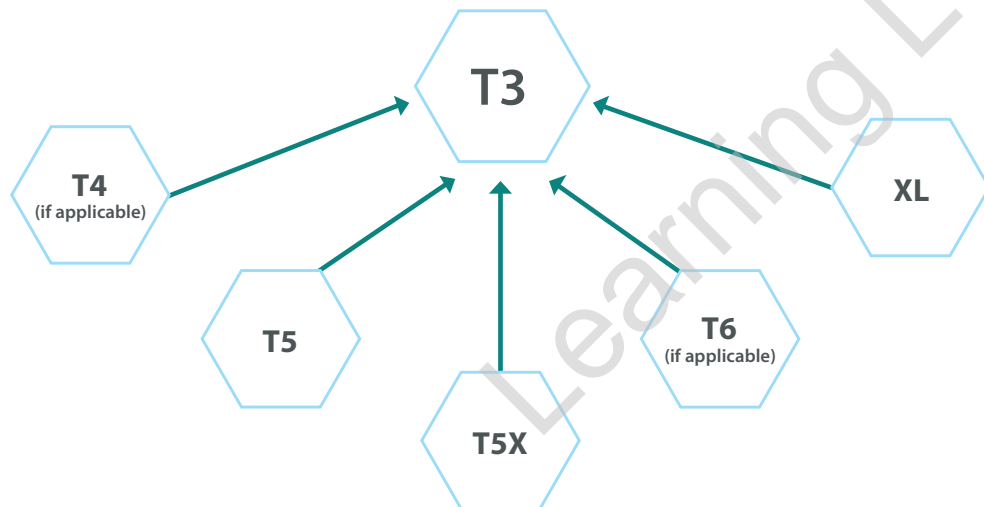
The O&M manuals consist of two elements for completion:

1. A series of Microsoft Word based template
2. A series of Microsoft Excel based templates

These elements of the O&M manual are not combined in a unique manner for each PFU; for the ease of approval and manual creation the O&MIT have created a mechanism whereby multiple PFUs of the same class in the same facility with similar or identical fabrication, configuration and maintenance can be grouped together.

The T1, T2, T3 and T4 templates will be unique to each PFU but T5 series of templates can be assigned to multiple PFUs. This is performed by storing the templates separately in eB then creating relationships using its functionality as a relational database.

T3 is considered the 'Parent' and the remainder are known as the 'Child' in the 'Parent-Child' data relationship.

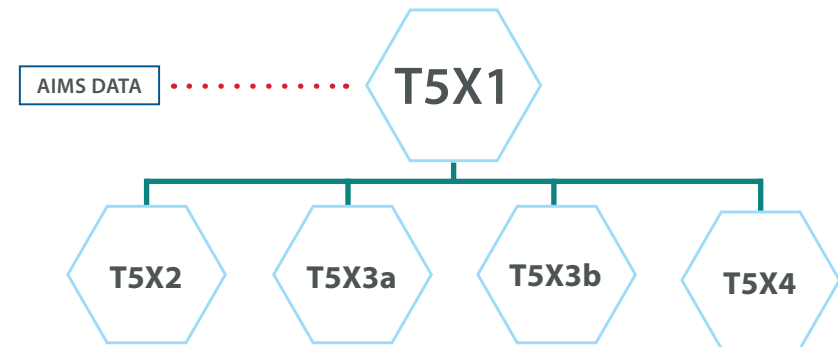


# T5X Templates

Form T5X1- T5X4 is designed to capture all asset intervention details for the PFU including all FUs, assets, equipment and software that are located within its functional boundaries.

There is no set order in which to complete the process but is rather a collation of PFU/FU related details that are progressively compiled by the Contractor.

A complete set of T5X forms will allow a logical data set that contains maintenance intervention details, spares information, maintenance materials in a form that allows the data to be directly uploaded into railway maintenance systems. The T5X forms has built in functionality that automates a large amount of data entry before the Contractor even opens it! Allowing for an informed and intuitive data entry process.



## T5X Templates - Simplified Definitions

- T5X1 - What and when maintenance tasks need to be performed
- T5X2 - How to perform the maintenance tasks contained in T5X1
- T5X3a - Asset manufacturer details
- T5X3b - Materials needed for maintenance tasks
- T5X4 - Maintenance task supporting documents and the tasks that they relate to.

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## CRL1-XRL-Z3-GUI-CR001-500XX

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### Other Key Documents

1. Crossrail Operation and Maintenance Information Requirements  
CRL1-XRL-K2-ZTM-CR001-50001
2. Provision and Acceptance of O and M Information Procedure  
CRL1-XRL-Z3-GPD-CR001-50011
3. Operations and Maintenance Templates - Document Control Guide  
CRL1-XRL-Z3-GUI-CR001-50062