

OIE Use Case 15 – Capital Project Asset Installation

This Use Case describes the process for updating Construction systems with installations of serialized assets: on both an individual and group/package basis. The updates originate from a Capital Work Management System (CWMS) that has successfully completed a work order for asset installation/commissioning.

Background

During the construction of a plant or complex facility, it is important to keep accurate track of the uniquely identified physical assets installed in each functional location as the plant/facility is constructed. Maintaining this 'As-Built' information on an event-driven basis is essential in maintaining accurate asset configuration information in the Digital Twin. This information can then be provided to O&M systems during information handover ([Use Case 1](#)) or may be propagated to O&M systems on an event-driven basis.

One factor that differentiates asset installation during construction versus installations that occur during the operation of a plant, is the large number of assets that may be installed at the same time. These batch installs may occur for the installation of many identical assets or groups/packages of assets. Moreover, the installations may be performed by the EPC, O/O, contracted out, or a combination. Therefore, there is a need to adequately manage these packages of work in a consistent and reusable fashion as well as the resulting configuration changes. Improved management and exchange of work-flow and 'As-Built' information during construction will lead to improvements in quality, reliability, etc. throughout the life of the plant.

Scope

The scope of this use case is limited to the installation of (individual) physical assets in Capital Projects.

NOTE This Use Case will be extended in the future to describe group or "package" asset installations, including the management of templates of work (defined as Solutions Packages) that can be defined in advance and maintained in a library.

Preconditions

As the coverage of Capital Project activities is limited within the current set of defined Use Cases, this Use Case is not predicated on any other occurring prior. However, [Use Case 12](#) for a Greenfield site will likely have occurred in order for equipment models to be selected and assets procured for installation.

NOTE As the set of Use Cases is expanded to cover Capital Project activities, these preconditions will need to be updated.

Successful End Condition

A completed work order for asset/package installation has been published to any interested Construction/Commissioning and/or O&M systems.

Actors

Business Actors

- Construction Manager
- Construction Planner
- Technician

System Actors

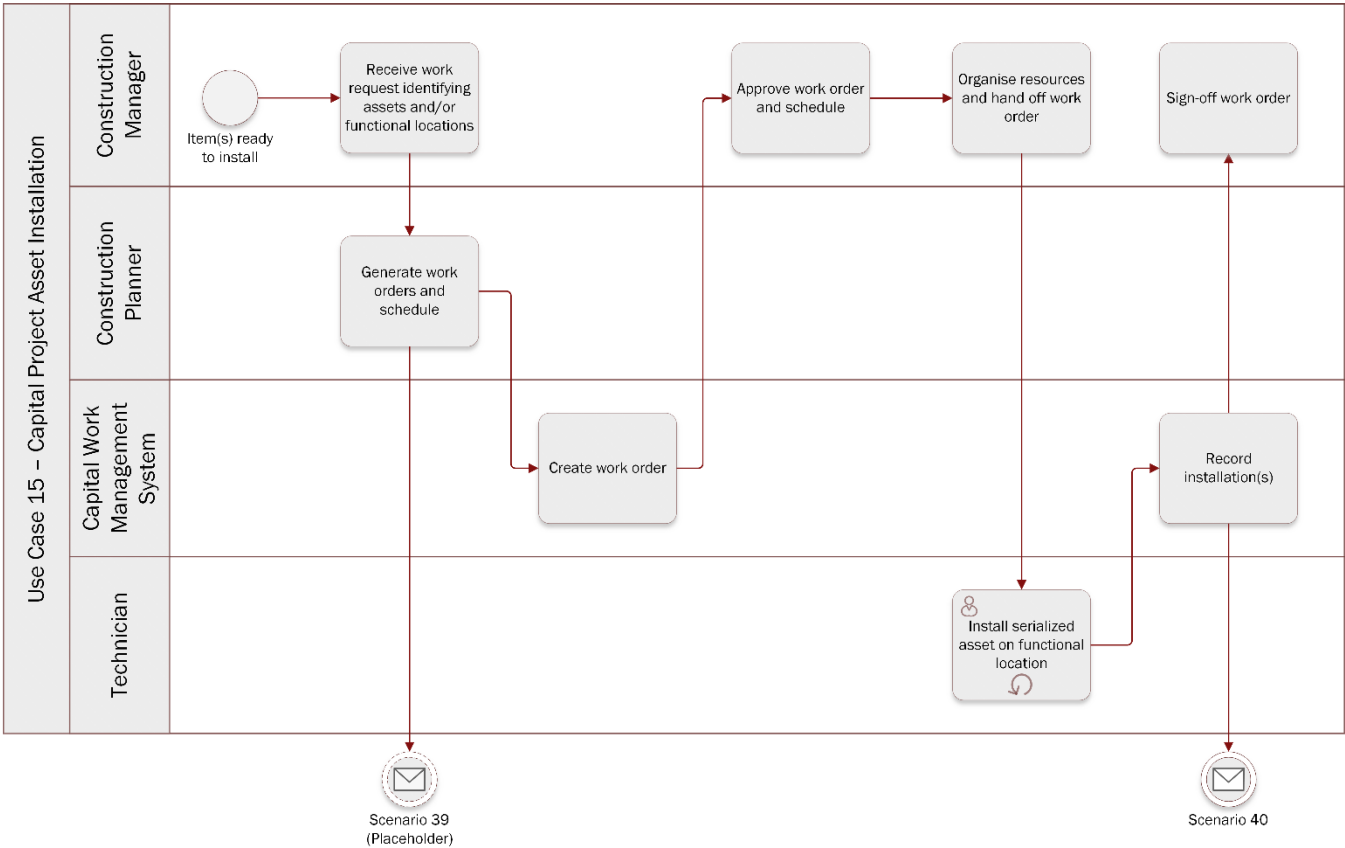
- Capital Work Management System

Triggers

Engineering sends a work request to Construction identifying a particular plant item (equipment), items, packages (sub-systems), or system that are to be installed.

Main Success Scenario

The following is a simplified workflow of asset installation that is intended to indicate the interoperability-based interactions with enterprise and automation systems within a general business process context.



Receive work request	Engineering sends a work request to Construction identifying a particular plant item, group of items, sub-system, or unit that needs to be installed.
Generate and approve work order and schedule	<p>The Construction Planner generates a combined work order and schedule in the Construction Work Management System for all assets/functional locations identified in the work request.</p> <p>The Construction Planner leverages standard work packages/templates from a library to assist in the generation of the work order.</p> <p>The Construction Manager approves the work order and schedule.</p>
Organize resources and hand off work order	The Construction Manager organizes necessary resources (materiel and information) for the work order before handing it off to the Technician.
Install serialized asset on functional location	<p>The Technician physically installs each piece of equipment onto the designated location and registers the installation into the Construction Work Management System. This may occur immediately via a portable on-field device or through a lengthy data entry process.</p> <p>The installation of the entire package may be registered, thereby registering each element of the package as installed.</p>
Sign-off work order	Once the work order has been deemed complete—following any subsequent activities and audits, etc.—it can be signed-off and closed by the Construction Manager.

System Interoperability Scenarios

- Scenario 39 – Pull Work Installation Packages from RDL to CONSTRUCT (Placeholder)
- [Scenario 40 – Publish Asset/Package Installation Events from CONSTRUCT to CONSTRUCT, O&M](#)

Version Applicability/Alignment

Use Cases do not specify generic or specific data requirements; however, they have a lifecycle and can be associated with versions of CCOM and other MIMOSA standards based on when they are introduced, updated, or deprecated. For example, newer Use Cases may not be able to be supported by older versions of CCOM, while older Use Cases may become obsolete as the standards and OIIE evolves over time.

This Use Case is applicable to the following versions of CCOM:

- CCOM 3.x (part of OSA-EAI 3.x)
- CCOM 4.x

NOTE Use of 'x' in the version number indicates a variable version. For example, "4.x" indicates applicability to all versions of CCOM with the MAJOR version '4', regardless of MINOR and PATCH versions.

Document Versioning

Version	Date	Major Changes
1.0	2019-02-05	Initial write-up. Basics only, to be extended later.