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# INTERNATIONAL STANDARD

# NORME INTERNATIONALE

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**Common data concepts for smart manufacturing**

**Concepts de données communs pour la fabrication intelligente**



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**Common data concepts for smart manufacturing**

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IEC 63489 has been prepared by subcommittee SC65E: Devices and integration in enterprise systems, of IEC technical committee TC65: Industrial-process measurement, control and automation. It is an International Standard.

The text of this International Standard is based on the following documents:

Draft	Report on voting
65E/1084/CDV	65E/1141B/RVC

Full information on the voting for its approval can be found in the report on voting indicated in the above table.

The language used for the development of this International Standard is English.

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at [www.iec.ch/members\\_experts/refdocs](http://www.iec.ch/members_experts/refdocs). The main document types developed by IEC are described in greater detail at [www.iec.ch/publications](http://www.iec.ch/publications).

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## INTRODUCTION

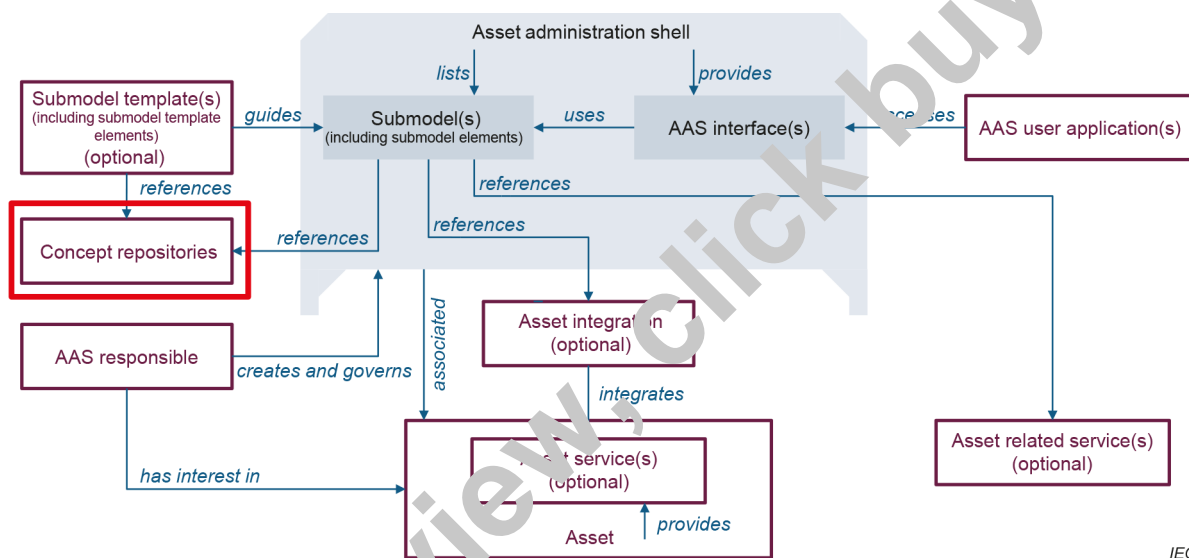
The IEC Common Data Dictionary (CDD) is an IEC-hosted system that includes a common repository with data dictionaries for all ISO and IEC technical related-domains and that complies with the data model for data dictionaries defined in IEC 61360-2/ISO 13584-42 with an enhancement of its modelling capability adopted from IEC 62656-1.

NOTE 1 Data dictionaries can include data from electrotechnical and non-electrotechnical domains.

NOTE 2 Content published in data dictionaries will become ISO or IEC standard.

By using the dictionary, applications can interact and share data in an unambiguous way with clear semantic meaning.

Smart manufacturing approaches (such as in IEC 63278) expect various domain-specific data models (called "submodels"), which are enhanced with semantic information. Some of these data models can be used to describe products from many technical domains. The semantic information should be provided by concepts in concept repositories. IEC CDD is used in this document as the concept repository (see the red rectangle in Figure 1).



**Figure 1 – Detailed overview of the asset administration shell and related entities (according to IEC 63278-1)**

This document defines cross-domain product data concepts that support common data models in smart manufacturing. This document is essential for harmonizing fundamental concepts needed in smart manufacturing-related implementations. The purpose is to provide one central definition of such concepts (for example, identification of devices, technical documentation, or fundamental technical information) that many technical domains can reference.

## 1 Scope

This document specifies the definition of cross-domain product data concepts (classes and properties) in the context of smart manufacturing.

This document will be published as a set of concepts within cross-domain data dictionary "General Items (IEC 61360-7)" in the IEC CDD.

## 2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 61360, *IEC Common Data Dictionary*, available at <http://cdd.iec.ch>

## 3 Terms, definitions, and abbreviated terms

### 3.1 Terms and definitions

No terms and definitions are listed in this document.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

- IEC Electropedia: available at <https://www.electropedia.org/>
- ISO Online browsing platform: available at <http://www.iso.org/obp>

### 3.2 Abbreviated terms

IEC CDD IEC Common Data Dictionary

## 4 Digital nameplate in IEC 61360-7

### 4.1 Overview and generic concepts

Subclause 4.1 specifies the generic concepts defined in IEC 61360-7 (i.e. data dictionary "General items (IEC 61360-7)").

The generic structure of the data dictionary with classes and assigned properties are shown in Table 1.