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Navodila za razumevanje in uporabo EN/ISO 29481-1 Informacijski modeli stavb - Priročnik z informacijami - 1. del: Metodologija in oblika

Guidance for understanding and utilize EN/ISO 29481-1 Building information models - Information delivery manual - Part 1: Methodology and format

Anleitung zum Verständnis und zur Umsetzung der EN/ISO 29481-1 Bauwerksinformationsmodelle - Handbuch der Informationslieferungen - Teil 1: Methodik und Format

Guide pour comprendre et utiliser EN/ISO 29481-1 Modèles des informations de la construction - Protocole d`échange dînformation - Partie 1: Méthodologie et format

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Guidance for understanding and utilize EN/ISO 29481-1 Building information models - Information delivery manual - Part 1: Methodology and format

Document d'orientation pour comprendre et utiliser l'EN/ISO 29481-1 Modèles des informations de la construction - Protocole d'échange d'informations - Méthodologie et format

Anleitung zum Verständnis und zur Umsetzung der EN/ISO 29481-1 Bauwerksinformationsmodelle - Handbuch der Informationslieferungen - Teil 1: Methodik und Format

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European foreword

This document (CEN/TR 17741:2021) has been prepared by Technical Committee CEN/TC 442 “Building Information Modeling”, the secretariat of which is held by SN.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

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1 Scope

1.1 General

This document provides guidance on how to develop an information delivery manual (IDM) in compliance with EN ISO 29481-1 hereafter referred to as the "IDM standard". This document explains the core components and development process of the IDM methodology in non-technical terms. This document aims to help users and software vendors understand and utilize the IDM standard in defining information requirements and deliverables.

The technical implementation of IDM in a data model, model view definition[1] (MVD), is excluded from this document's scope. IDM standard introduces the MVD concept but does not specify it in detail.

This document also utilizes some transaction framework concepts introduced in EN ISO 29481-2. The technical XML- and XSD-schema definitions supporting the software solutions are excluded from this document.

1.2 Background

This document primary reference is the IDM standard part 1 (EN ISO 29481-1:2017) (hereafter referred to as IDM standard). This document helps in understanding and using the IDM standard to describe information delivery. This document also uses some concepts described in part 2 of the IDM standard series (EN ISO 29481-2:2016). Considerable efforts have been made to align this document with the terminology and concepts introduced in EN ISO 19650-1 and EN ISO 19650-2.

Information delivery manual specification (hereafter referred to as the IDM specification) provides help in getting the full benefit from building information modelling (BIM). When the required information is available using BIM to support a construction process or use case, and the quality of information is satisfactory, the process itself is much improved. The IDM standard provides a method to create the specification.

A complete IDM specification should support two perspectives: user requirements and technical solutions. User requirements describe the needed information delivery and the overall process in which information exchange occurs. The technical solution defines an exchange requirement model using a harmonized data schema.

EN ISO 29481-1 provides a methodology and a harmonized format to specify information requirements. It offers a framework and method to determine the needed information delivery with process maps and exchange requirements.

EN ISO 29481-2 specifies an interaction framework and format to describe "coordination acts" between actors or parties within an appointment. It facilitates interoperability between software applications used in the construction process to promote digital collaboration between actors in the building construction process. Also, it provides a basis for accurate, reliable, repeatable, and high-quality information exchange.

[1] An MVD defines a data model or a subset of an existing data model that is necessary to support one or many specific data exchange requirements. MVDs are used in software development and should have a machine-readable representation. An MVD that is dedicated to a single IDM can be used to filter information in software tools to a specific exchange requirement. [SOURCE: EN ISO 29481-1:2017, 5.6.4].

1.3 Users of this guidance document

This document is intended for clients, architects, engineers, contractors, surveyors, authorities, and other parties who need to specify or implement information delivery. Originally, the IDM standard was focused on defining model-based deliverables, but the possible application of the standard is much broader. It can be used to specify any requirement for information delivery.

Although software developers and technology adapters are not the primary audiences of this document, it may help them better understand existing IDMs and develop their own IDMs.

1.4 Relation to EN ISO 19650

The IDM standard is a process-oriented methodology used to describe the information exchange requirements for a particular purpose which may complement the information-management approach outlined in the EN ISO 19650 series. Simultaneously, the IDM standard pre-dates EN ISO 19650 and has a broader scope of application beyond model-based information exchanges.

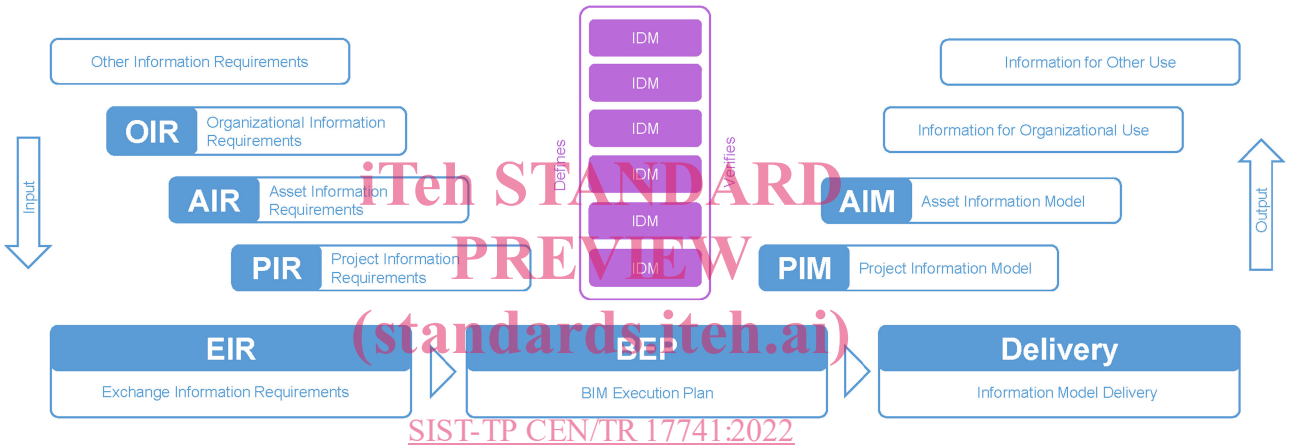

Figure 1 — IDM specifications can support the definition of the information requirements and to verify the information deliverables

The scope of EN ISO 19650-1 stipulates that information deliverables "should be described clearly within the OIR, PIR, AIR or EIR". Figure 1 depicts how IDMs can support the definition of information deliverables for these requirements. The figure also shows how the IDM standard can be applied to use cases outside of the EN ISO 19650 series scope. These use cases may include information requirements for regulatory processes or other common demands such as national information standards. In addition, Figure 1 presents how the IDM that is used to specify the exchange requirement can be used to verify the information delivery.

1.5 How to use this guidance document

This document is split into two sections:

— The first section explains the IDM components and can be used to get a better understanding of the IDM structure.

— The second section gives and overview of the IDM methodology and steps through how to create an IDM.

In both sections the IDM standard can be used in parallel to this document.

Several similar terms are used in this document, the following list helps clarify these terms:

— IDM standard: this is the EN ISO 29481-1 standard itself (as indicated in 1.2 above);

— IDM specification: this is information delivery manual specification (as indicated in 1.2 above); and

— IDM method: This is the general method of developing an IDM.

As noted above, this document has references to part 2 of the IDM standard series (EN ISO 29481-2). To avoid confusion, in these cases the standard code is mentioned in its full length i.e. EN ISO 29481-2.

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.

EN ISO 29481-1, *Building information models — Information delivery manual — Part 1: Methodology and format (ISO 29481-1)*

EN ISO 29481-2, *Building information models — Information delivery manual — Part 2: Interaction framework (ISO 29481)*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN ISO 29481-1 and EN ISO 29481-2 and the following apply.

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

— IEC Electropedia: available at https://www.electropedia.org/

— ISO Online browsing platform: available at https://www.iso.org/obp

3.1
activities
tasks that are needed to complete deliverables

[SOURCE: EN 15221-5:2011, 3.1]

3.2
actor
person, organization or organizational unit involved in a construction process

Note 1 to entry: Organizational units include, but are not limited to, departments, teams.

Note 2 to entry: In the context of this document, construction processes take place during the delivery phase and the operational phase.

[SOURCE: EN ISO 29481-1:2017, 3.1, as modified by EN ISO 19650-1:2018, 3.2.1: The words “such as a department, team, etc.” have been removed; Note 1 and 2 to entry have been added.]

3.3
appointment
agreed instruction for the provision of information concerning works, goods or services

Note 1 to entry: This term is used whether or not there is a formal appointment between the parties.

[SOURCE: EN ISO 19650-1:2018, 3.2.2]

3.4
asset
item, thing or entity that has potential or actual value to an organization

[SOURCE: ISO 55000:2014, 3.2.1, as modified by EN ISO 19650-1:2017, 3.2.8: Note 1, 2 and 3 to entry have been removed.]

3.5
business process
partially ordered set of enterprise activities that can be executed to achieve some desired end-result in pursuit of a given objective of an organization

[SOURCE: ISO/IEC/IEEE 24765:2017, 3.445]

3.6
BIM execution plan
plan that specifies in detail how the information management aspects of the appointment will be carried out by the delivery team

Note 1 to entry: The pre-appointment BIM execution plan focuses on the delivery team's proposed approach to information management, and their capability and capacity to manage information.

[SOURCE: EN ISO 19650-2:2018, 3.1.3.1]

3.7
end user
person receiving facility services

Note 1 to entry: A visitor could also be an end user.

[SOURCE: EN 15221-5:2011, 3.4]

3.8
exchange information requirements
EIR
information requirements in relation to an appointment

[SOURCE: EN ISO 19650-1:2018, 3.3.6]

3.9
Industry Foundation Classes
IFC
conceptual data schema and exchange file format for building information modelling (BIM) data

Note 1 to entry: See EN ISO 16739-1:2020.

3.10
information
interpretable representation of data in a formalized manner suitable for communication, interpretation or processing

Note 1 to entry: Information can be processed by human or automatic means.

[SOURCE: EN ISO 19650-1:2018, 3.3.1]

3.11
information requirement
IR
specification for what, when, how and for whom information is to be produced

[SOURCE: EN ISO 19650-1:2018, 3.3.2]

3.12
level of information need
framework which defines the extent and granularity of information

[SOURCE: EN ISO 19650-1:2018, 3.3.16]

3.13
process
set of interrelated or interacting activities that use inputs to deliver an intended result

Note 1 to entry: Whether the "intended result" of a process is called output, product or service depends on the context of the reference.

Note 2 to entry: Inputs to a process are generally the outputs of other processes and outputs of a process are generally the inputs to other processes.

Note 3 to entry: Two or more interrelated and interacting processes in series can also be referred to as a process.

Note 4 to entry: Processes in an organization are generally planned and carried out under controlled conditions to add value.

Note 5 to entry: A process where the conformity of the resulting output cannot be readily or economically validated is frequently referred to as a "special process".

Note 6 to entry: This constitutes one of the common terms and core definitions for ISO management system standards given in Annex SL of the Consolidated ISO Supplement to the ISO/IEC Directives, Part 1. The original definition has been modified to prevent circularity between process and output and Notes 1 to 5 to entry have been added.

[SOURCE: EN ISO 9000:2015, 3.4.1]

3.14
business process model and notation
BPMN
graphical representation for specifying dynamic business processes in a business process model

[SOURCE: ISO/IEC 19510:2013]

3.15
project information requirements
PIR
information requirements in relation to the delivery of an asset

[SOURCE: EN ISO 19650-1:2018, 3.3.5]

3.16
purpose
<of use> context and conditions of data/record use at a specific point in time, and within a specific setting

[SOURCE: ISO/TS 21089:2018, 3.117.1]

3.17
organization information requirements
OIR
information requirements in relation to organizational objectives

[SOURCE: ISO 19650-1:2018, 3.3.3]

3.18
requirement
need or expectation that is stated, generally implied or obligatory

Note 1 to entry: "Generally implied" means that it is custom or common practice for the organization and interested parties that the need or expectation under consideration is implied.

Note 2 to entry: A specified requirement is one that is stated, for example in documented information.

[SOURCE: ISO/IEC 27000:2018, 3.56]

3.19
reverse engineering
design process that consists in analysing the shape, dimensions and function of a finished part or prototype and using this information to produce a similar product

[SOURCE: ISO/TS 14253-4:2010, 3.1]

3.20
specification
document stating requirements

EXAMPLE Quality manual, quality plan, technical drawing, procedure document, work instruction.

Note 1 to entry: A specification can be related to activities (e.g. procedure document, process specification and test specification), or products (e.g. product specification, performance specification and drawing).

Note 2 to entry: It can be that, by stating requirements, a specification additionally is stating results achieved by design and development and thus in some cases can be used as a record.

[SOURCE: EN ISO 9000:2015, 3.8.7]

3.21
use case
<informatics> textual and graphical depiction of the actors and operations that address information exchange in the context of a set of specific tasks for a workflow performed by different systems or devices

[SOURCE: ISO/TR 28380-1:2014, 2.13]