



SLOVENSKI STANDARD
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Organizacija podatkov o gradbenih delih - Upravljanje podatkov z uporabo modeliranja informacij o zgradbi - 1. del: Pojmi in načela (ISO/DIS 19650-1:2018)

Organization of information about construction works - Information management using building information modelling - Part 1: Concepts and principles (ISO/DIS 19650-1:2018)

Organisation von Daten zu Bauwerken - Informationsmanagement mit BIM - Teil 1: Konzepte und Grundsätze (ISO/DIS 19650-1:2018)

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Organization of information about construction works — Information management using building information modelling —

Part 1: Concepts and principles

Organisation des informations concernant les ouvrages de construction — Gestion de l'information par la modélisation des informations de la construction —

Partie 1: Concepts et principes

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Foreword

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The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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For an explanation on the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see the following URL: www.iso.org/iso/foreword.html.

This document was prepared by ISO/TC 59, *Buildings and civil engineering works*, SC 13, *Organization of information about construction works*.

A list of all parts in the ISO 19650 series, published under the general title *Organization of information about construction works — Information management using building information modelling*, can be found on the ISO website.

Introduction

This document sets out the recommended concepts and principles for business processes across the built environment sector in support of the management and production of information during the life cycle of built assets (referred to as “information management”) when using building information modelling (BIM). These processes can deliver beneficial business outcomes to asset owners/operators, clients, their supply chains, and those involved in project funding including increase of opportunity, reduction of risk and reduction of cost through the production and use of asset and project information models. In line with ISO drafting standards, the auxiliary verb in a recommendation is “should”.

This document is primarily intended for use by:

- those involved in the procurement, design, construction and/or commissioning of built assets; and
- those involved in delivering asset management activities, including operations and maintenance.

This document is applicable to built assets and construction projects of all sizes and all levels of complexity. This includes large estates, infrastructure networks, individual buildings and pieces of infrastructure, and the projects or programmes that deliver them. However, the concepts and principles included in this document should be applied in a way that is proportionate and appropriate to the scale and complexity of the asset or project. This is particularly the case where small and medium-sized enterprises are mainly appointed for asset management or project delivery. It is also important that procurement and mobilization of asset or project appointed parties should be integrated as far as possible with existing processes for technical procurement and mobilization.

The specific requirements for information management during the delivery of built assets are provided in ISO 19650-2. These are based on the concepts and principles within this document but on its own this document includes no obligation to apply ISO 19650-2. Further Parts of ISO 19650 might be published subsequently.

The concepts and principles contained in this document are aimed at all those involved in the asset life cycle. This includes, but is not limited to, the asset owner/operator, the client, the asset manager, the design team, the construction team, an equipment manufacturer, a system specialist, a regulator, an investor, an insurer and an end-user.

There are many different ways that asset owners/operators or clients can best meet their particular requirements or respond to their national contexts. This includes procurement routes and appointment arrangements. The concepts and principles for information management described in this document should be adopted and applied in accordance with the specific circumstances and requirements of the asset management or project delivery activities. The information requirements should specify or guide how this will be achieved and the details should be agreed in time for the requirements to be delivered efficiently and effectively.

Collaboration between the participants involved in construction projects and in asset management is pivotal to the efficient delivery and operation of assets. Organizations are increasingly working in new collaborative environments in order to achieve higher levels of quality and greater re-use of existing knowledge and experience. A significant outcome of these collaborative environments is the potential to communicate, re-use and share information efficiently, and reducing the risk of loss, contradiction or misinterpretation.

True collaborative working requires mutual understanding and trust and a deeper level of standardized process than has typically been experienced, if the information is to be produced and made available in a consistent timely manner. Information requirements have to pass along supply chains to the point where information can be most efficiently produced, and information has to be collated as it is passed back. At present, each year considerable resources are spent on making corrections to unstructured information or incorrect management of information by untrained personnel, on solving problems

ISO/ DIS 19650-1.2:2018(E)

arising from uncoordinated efforts of delivery teams, and on solving problems related to information reuse and reproduction. This is considered waste and can be reduced if the concepts and principles within this document are adopted.

In order to improve future editions of the ISO 19650 series, national asset owners, public clients and authorities are recommended to gather information and experiences about its implementation and use.

The ISO 19650 series can benefit from a formal process for managing assets, for example the ISO 55000 series. ISO 19650 can also benefit from a systematic approach to quality within an organization, for example as in ISO 9001, although certification to ISO 9001 is not a requirement of ISO 19650. Other standards that relate to information structures and delivery methods are also listed in the Bibliography.

In addition, there are several standards required for the successful implementation of this document that relate to specific regions and countries and that are not suitable for inclusion within an international standard. National standards bodies are encouraged to compile and document the standards relevant to the region or country they represent within a national annex.

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Organization of information about construction works — Information management using building information modelling — Part 1: Concepts and Principles

1 Scope

This document outlines the concepts and principles for information management at a stage of maturity described as “building information modelling (BIM) according to ISO 19650”.

This document provides recommendations for a framework to manage information including exchanging, recording, versioning and organizing for all actors.

This document is applicable to the whole life cycle of a built asset, including strategic planning, initial design, engineering, development, documentation and construction, day-to-day operation, maintenance, refurbishment, repair and end-of-life.

However, regarding the large scale of types of assets and sizes of organizations to which this document is applicable, the recommendations of this standard should not hamper flexibility and versatility that characterize the large range of potential procurement strategies. Therefore, the concepts and principles explained in this document should be adapted to the scale and complexity of the asset or project, in order to address the cost of implementing this standard.

2 Normative references

There are no normative references in this document.

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

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

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

3.1 General terms

3.1.1

responsibility matrix

chart that describes the participation by various functions in completing tasks or deliverables

[SOURCE: ISO 37500:2014, 3.16 – modified]

Note 1 to entry: A responsibility matrix can indicate accountability, consultation and informing, alongside the obligation to complete tasks or deliverables.

3.1.2

space

limited three-dimensional extent defined physically or notionally

ISO/ DIS 19650-1.2:2018(E)

[SOURCE: ISO 12006-2:2015, 3.1.8]

3.2 Terms related to assets and projects

3.2.1

actor

person, organization or organizational unit (such as a department, team, etc.) involved in a construction process

[SOURCE: ISO 29481-1:2016, 3.1]

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*

3.2.2

appointment

agreed instruction for the provision of works, goods or services

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

3.2.3

appointed party

provider of works, goods or services

Note 1 to entry: A lead appointed party should be identified for each delivery team but this might be the same organization as one of the task teams.

Note 2 to entry: This includes the provision of required information concerning the works, goods or services

Note 3 to entry: This term is used whether or not there is a formal written appointment in place.

3.2.4

appointing party

Receiver of works, goods or services from a lead *appointed party*

Note 1 to entry: In some countries the appointing party might be termed client, owner or employer but the appointing party is not limited to these roles.

Note 2 to entry: This includes the receipt of required information concerning the works, goods or services.

Note 3 to entry: An appointing party may, in many cases, engage third parties or appoint an appointed party to assist them in their information management tasks, particularly where the appointing party does not have the capacity or capability in-house, provided this does not create a conflict of interest.

Note 4 to entry: This term is used whether or not there is a formal appointment between the parties.

3.2.5

client

actor responsible for initiating a project and approving the brief

[SOURCE: ISO 6707-1:2014, 8.3 – modified]

3.2.6 delivery team

lead *appointed party* and their appointed parties

Note 1 to entry: A delivery team can be any size, from one person carrying out all the necessary functions through to complex, multi-layered task teams. The size and structure of each delivery team are in response to the scale and complexity of the asset management or project delivery activities.

Note 2 to entry: Multiple delivery teams can be appointed simultaneously and/or sequentially in connection with a single asset or project, in response to the scale and complexity of the asset management or project delivery activities.

Note 3 to entry: A delivery team can consist of multiple task teams from within the lead appointed party's organization and any appointed parties.

Note 4 to entry: In some countries a delivery team might be assembled by the appointing party rather than the lead appointed party.

3.2.7 task team

appointed parties who as part of their *appointment* produce or generate *information containers*

3.2.8 asset

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

[SOURCE: ISO 55000:2014, 3.2.1]

3.2.9 project

appointment by which a construction works or part of it is executed

[SOURCE: ISO 6707-2:2014, 3.8 – modified]

3.2.10 life cycle

life of the *asset* from the definition of its requirements to the termination of its use, covering its conception, development, operation, maintenance support and disposal

[SOURCE: ISO/TS 12911:2012, 3.13 – modified]

3.2.11 delivery phase

part of the *life cycle* during which an *asset* is designed, constructed and commissioned

Note 1 to entry: Delivery phase normally reflects a stage-based approach to a project.

3.2.12 operational phase

part of the *life cycle*, during which the *asset* is used, operated and maintained

3.2.13 trigger event

planned or unplanned event that changes an *asset* or its status during its *life cycle*, which results in *information exchange*

ISO/ DIS 19650-1.2:2018(E)

Note 1 to entry: During the delivery phase, trigger events normally reflect the ends of project stages.

3.2.14

key decision point

point in time during the *life cycle* when a decision crucial to the direction or viability of the *asset* is made

Note 1 to entry: During a project these generally align with project stages.

3.3 Terms related to information management

3.1.1

information

reinterpretable representation of data in a formalized manner, suitable for communication, interpretation or processing

[SOURCE: adapted from IEC 82045-1:2001, 3.1.4 “data”]

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

3.3.2

information requirement

specification for what, when, how and for whom *information* is to be produced

3.3.3

organizational information requirements

OIR

information requirements in relation to organizational objectives

3.3.4

asset information requirements

AIR

information requirements in relation to the operation of an *asset*

3.3.5

project information requirements

PIR

information requirements in relation to the delivery of an *asset*

3.3.6

exchange information requirements

EIR

information requirements in relation to an *appointment*

3.3.7

information exchange (verb)

act of satisfying an *information requirement* or part thereof

3.3.8

information model

set of structured and unstructured *information containers*

Note 1 to entry: Structured information containers include graphical models, schedules, databases. Unstructured information containers include documentation, video clips, sound recordings.

3.3.9**asset information model****AIM**

information model relating to the *operational phase*

3.3.10**project information model****PIM**

information model relating to the *delivery phase*

3.3.11**federation**

creation of a composite *information model* from separate *information containers*

Note 1 to entry: The separate information containers used during federation might come from different task teams.

3.3.12**information container**

named persistent set of *information* retrievable from within a file, system or application storage hierarchy

EXAMPLE Including sub-directory, information file (including model, document, table, schedule), or distinct sub-set of an information file such as a chapter or section, layer or symbol.

Note 1 to entry: Persistent information exists over a timescale long enough for it to have to be managed, i.e. this excludes transient information such as internet search results.

Note 2 to entry: Naming of an information container should be according to an agreed naming convention.

3.3.13**status code**

meta-data describing the suitability of the content of an *information container*

3.3.14**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

[SOURCE: ISO 29481-1:2016, 3.2 – modified]

Note 1 to entry: Built assets include, but are not limited to, buildings, bridges, roads, process plants.

3.3.15**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

3.3.16**level of information need**

framework which defines the extent and granularity of *information*