SLOVENSKI STANDARD
oSIST prEN ISO 19650-3:2019

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Organizacija in digitalizacija informacij v gradbeništvu - Upravljanje informacij z BIM - 3. del: Obratovalna faza sredstev (ISO/DIS 19650-3:2019)

Organization and digitization of information about buildings and civil engineering works, including building information modelling (BIM) - Information management using building information modelling - Part 3: Operational phase of assets (ISO/DIS 19650-3:2019)

Organisation von Informationen zu Bauwerken - Informationsmanagement mit Bauwerksinformationsmodellierung - Teil 3: Betriebsphase der Assets (ISO/DIS 19650-3:2019)

Organisation et numérisation des informations relatives aux bâtiments et ouvrages de génie civil y compris modélisation des informations de la construction (BIM) - Gestion de l'information par la modélisation des informations de la construction - Partie 3: Phase d'exploitation des actifs (ISO/DIS 19650-3:2019)

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ICS:

35.240.67	Uporabniške rešitve IT v gradbeništvu	IT applications in building and construction industry
91.010.01	Gradbeništvo na splošno	Construction industry in general

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Organization and digitization of information about buildings and civil engineering works, including building information modelling (BIM) — Information management using building information modelling —

Part 3:
Operational phase of assets

ICS: 35.240.67; 91.010.01

Reference number
ISO/DIS 19650-3:2019(E)

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Introduction

0.1 Purpose and application

This document is designed to enable an appointing party (such as an asset owner, asset operator or outsourced asset management provider) to establish their requirements for information during the operational phase of assets. This document is also designed to enable them to provide the appropriate collaborative environment to fulfil commercial goals. Within this environment, multiple appointed parties can produce information in an effective and efficient manner.

This document is primarily intended for use by the following:

— those involved in the management of an asset;

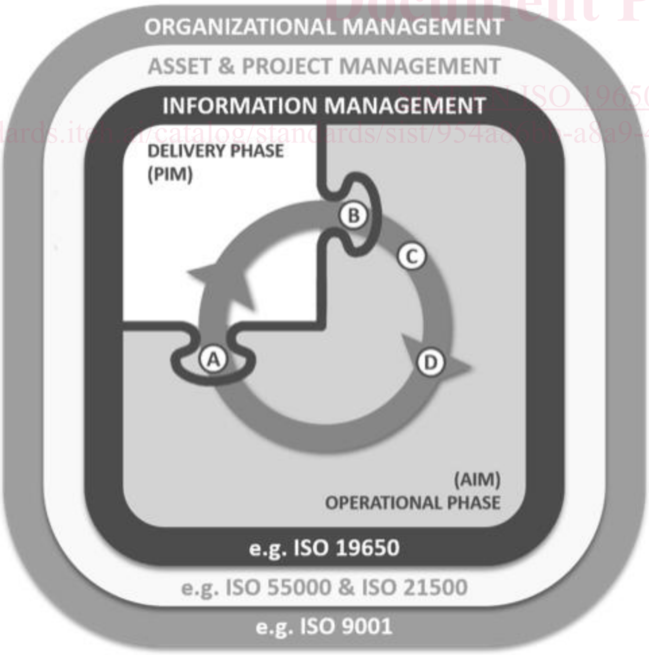
— those involved in the specification of appointments and the facilitation of collaborative working during the entire life cycle of an asset;

— those involved in delivering asset management and asset operation during the operational phase of an asset; and

— those involved in specifying the information required for operational purposes that is to be captured during the delivery phase of an asset.

If this document is being applied in relation to a particular asset then this should be reflected in the relevant appointments.

Figure 1 shows the application of information management during the operational phase (shaded) in conjunction with the delivery phase (unshaded apart from points A and B where information is transferred). Figure 1 also shows how information management according to the ISO 19650 series takes place within the context of asset and project management which itself takes place within the context of organizational management. ISO 9001, ISO 55000 and ISO 21500, indicated in Figure 1, are not requirements for applying this document.



Key:

AIM	Asset Information Model
PIM	Project Information Model
A	Start of delivery phase – transfer of relevant information from AIM to PIM
B	Start of operational phase – transfer of relevant information from PIM to AIM
C	Post-occupancy evaluation or performance review
D	Trigger events during the operational phase

Figure 1 — Scope of ISO 19650-3

Note 1 Information can be transferred between PIM and AIM during the delivery phase as well as at points A and B..

This document is applicable to assets of all sizes and all levels of complexity. This includes portfolios of buildings, campuses, infrastructure networks, individual buildings and pieces of infrastructure. The requirements in this document should be applied in a way that is proportionate and appropriate to the scale and complexity of the asset.

Continuity of information management over the lifetime of an asset is important and it is recommended that all feasible steps (including transfer of the asset information model) are taken to ensure this whenever an asset is transferred from one owner to another.

In this document the hierarchy of information requirements and information models from ISO 19650-1 has been adapted as follows:

— the asset information requirements have been re-designated as interested parties' information requirements to emphasize their application to the asset as a whole; and

— the appointment information requirements that directly specify the asset information model have been renamed as asset-related exchange information requirements, in line with the definition at ISO 19650-1, 3.3.6.

The new version of this hierarchy is shown in Figure 2.

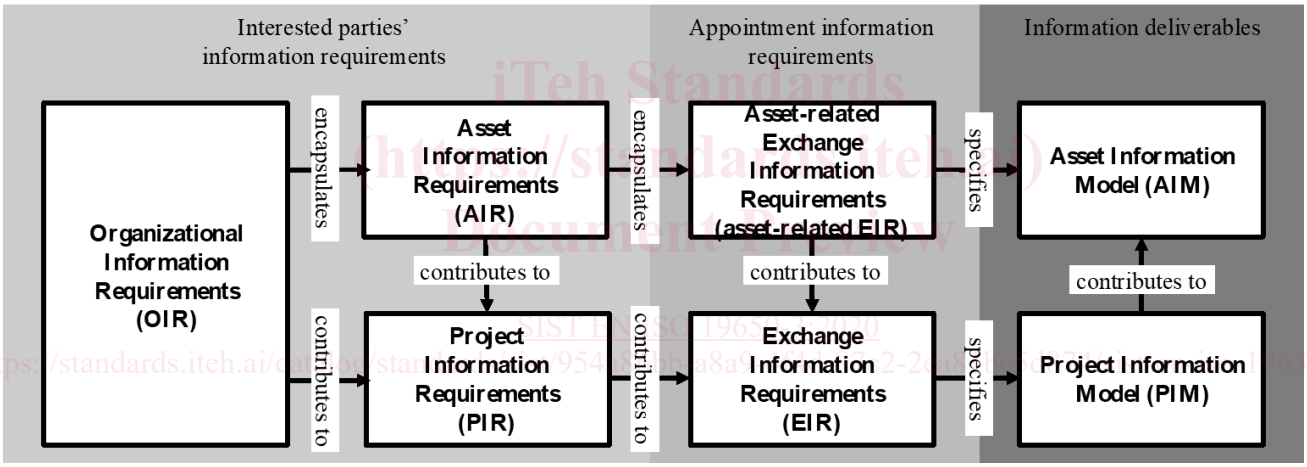


Figure 2 — Hierarchy of information requirements updated for ISO 19650-3

The information management process specified in this document can be applied to trigger events that are foreseen and scheduled in advance as well as to trigger events that are not scheduled in advance or cannot be foreseen. These two types of trigger event differ in terms of when the preparatory activities of identifying and appointing the lead appointed party can take place.

Examples of the first type of trigger event are: annual maintenance tasks, strategic estate reviews and call-off arrangements for common-place repairs. For this type of trigger event, it is possible and sensible to select and appoint the lead appointed party well before any of these trigger events actually takes place.

For the second type of trigger event there are two distinct scenarios. First is the deliberate decision to initiate a project such as the construction of a bridge or underpass. Here, the information management process could follow ISO 19650-2 as well as ISO 19650-3. The decision will depend on scale and complexity and the requirements on those involved are stated in clause 4.2. The second scenario includes trigger events that are so rare or unpredictable that having appointments in place can be inappropriate

or not possible. The selection and appointment occur after the trigger event takes place. Examples include unexpected breakdowns of equipment, accidents and extreme floods.

Finally, there is the separate situation of an asset being acquired from an existing owner, where information is exchanged as part of the transaction.

All these situations are catered for in the arrangement of clause 5.

0.2 Use of phrase "shall consider"

This document makes use of the phrase "shall consider", particularly in Clause 5. This phrase is used to introduce a list of items that the person in question must think about carefully in connection with the primary requirement described in the sub-clause. The amount of thought involved, the time taken to complete it, and the need for supporting evidence will depend on the complexity of the asset, the experience of the person(s) involved, and the requirements of any national policy on building information modelling. On a relatively small or straightforward asset, it can be possible to complete, or dismiss as not relevant, some of these "shall consider" items very quickly.

One way to help identify which of the "shall consider" statements are relevant can be to review each statement and create templates for assets of different sizes and complexity.

0.3 Relationship with other standards

The concepts and principles relating to the application of the requirements within this document are provided in ISO 19650-1. Requirements for a security-minded approach to managing asset information are provided in ISO 19650-5 (to be published).

For those occasions when the operational phase of an asset leads into a delivery phase and the other way around, the requirements provided in ISO 19650-2 are to be used in conjunction with this document.

General information on a management system for asset management, including terminology applicable to asset management, can be found in ISO 55000.

Consideration of the concepts and principles contained within both ISO 19650-1 and ISO 55000 can assist appointing parties with the implementation of the requirements of this document and the development of asset management in their organization.

0.4 Benefits of ISO 19650-3

The aim of this document is to support all parties towards achieving their business objectives through effective and efficient production, use and management of information during the operational and end of life phases of assets where building information modelling is used.

International cooperation in the preparation of these documents has identified a common information management process that can be applied to the broadest range of assets. This applies to the broadest range of organizations, across the broadest range of cultures, under the broadest range of appointment routes.

The benefits of the information management process should be kept under review during the operational phase of the asset life cycle and it is recommended this is done through regular formal reviews of the costs and benefits of the entire process to all parties.

0.5 Interfaces between parties and teams for the purpose of information management

For the purpose of this document, Figure 3 shows the interfaces between parties and teams with respect to information management in the operational phase and should not be seen as indicating contractual relationships.

The appointing party referred to in Figure 3 can be the owner of the asset, the operator of the asset (for example through a long-term concession agreement), or the outsourced asset manager (typically appointed for a period of several years).

Delivery teams for the operational phase typically join and leave the asset management and operation team at any appropriate time during the life cycle of the asset. Where information is produced by a task team within the appointing party's organization, for example a maintenance department, that task team should still comply with the requirements of this document as an appointed party or as a lead appointed party.

Figure 3 shows that delivery teams for asset management and operation activities can be of varying size and complexity and can include different numbers of task teams. Where multiple delivery teams are appointed at the same time, the appointing party can require them to coordinate their production of information with each other.

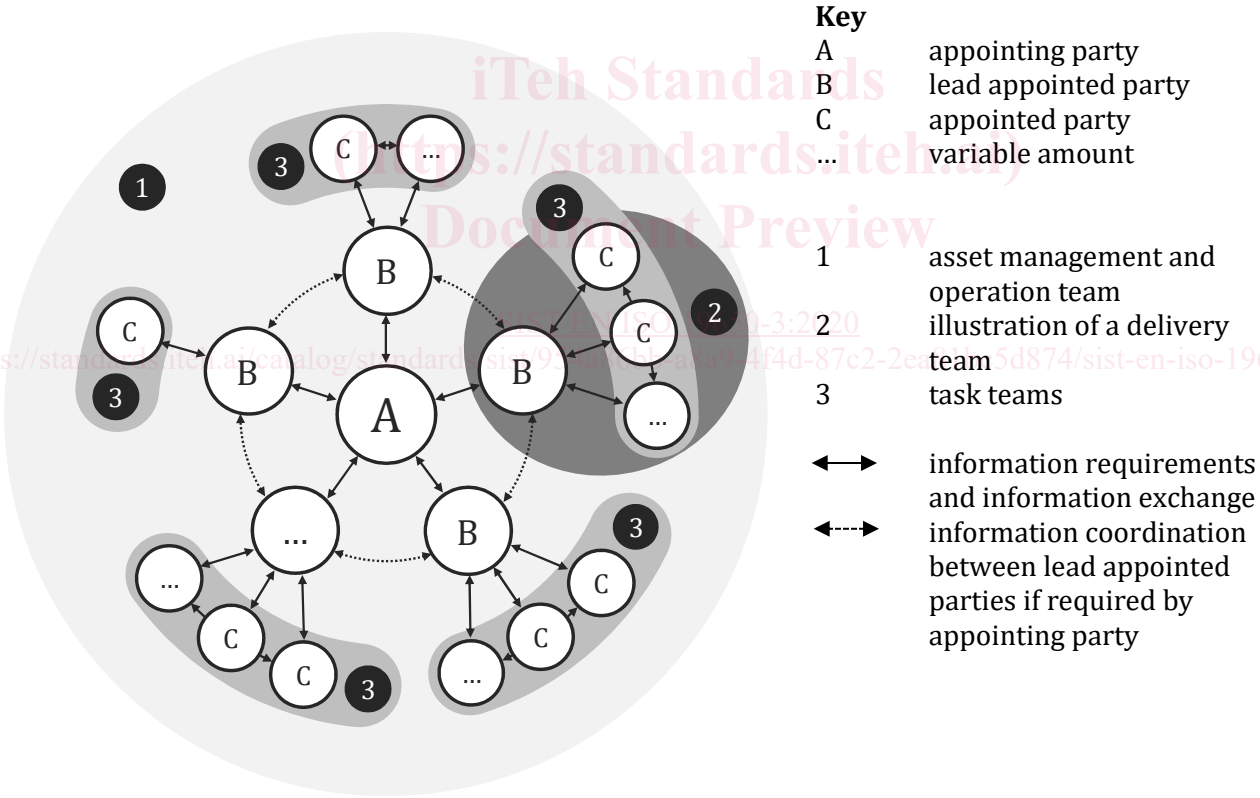


Figure 3 — Interface between parties and teams for the purpose of information management

Organization and digitization of information about buildings and civil engineering works, including building information modelling (BIM) — Information management using building information modelling —

Part 3:
Operational phase of assets

1 Scope

This document specifies requirements for information management, in the form of a management process, within the context of the operational phase of assets and the exchanges of information within it, using building information modelling.

This document can be applied to all types of assets and by organizations of all types and sizes involved in the operational phase of assets.

The requirements in this document may be achieved through direct or delegated actions.

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.

ISO 19650-1:2018, *Organization of information about construction works — Information management using building information modelling — Part 1: Concepts and principles*

ISO 19650-2, *Organization of information about construction works — Information management using building information modelling — Part 2: Delivery phase of the assets*

ISO 19650-5, *Organization of information about construction works — Information management using building information modelling — Part 5: Security-minded approach to information management* <<Author note: To be published 2020 – amend final text accordingly>>

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 19650-1 and those given below 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 Terms related to asset management

3.1.1
asset management
coordinated activity of an organization to realize value from assets

Note 1 to entry: Realization of value will normally involve a balancing of costs, risks, opportunities and performance benefits.

Note 2 to entry: Activity can also refer to the application of the elements of the asset management system.

Note 3 to entry: The term “activity” has a broad meaning and can include, for example, the approach, the planning, the execution and implementation of a plan.

Note 4 to entry: For the purposes of this document “asset management” also means “facility management” and “facilities management” as defined in ISO 41011:2017, 3.1.1.

[SOURCE: ISO 55000:2014, 3.3.1, adapted]

3.1.2
facility management
facilities management
organizational function which integrates people, place and process within the built environment with the purpose of improving the quality of life of people and the productivity of the core business

[SOURCE: ISO 41011:2017, 3.1.1]

3.2 Terms related to information management

3.2.1
asset-related exchange information requirements
asset-related EIR
information requirements in relation to an asset management appointment

3.3 Symbols for process diagrams


start


trigger event


end

collapsed sub-process


decision

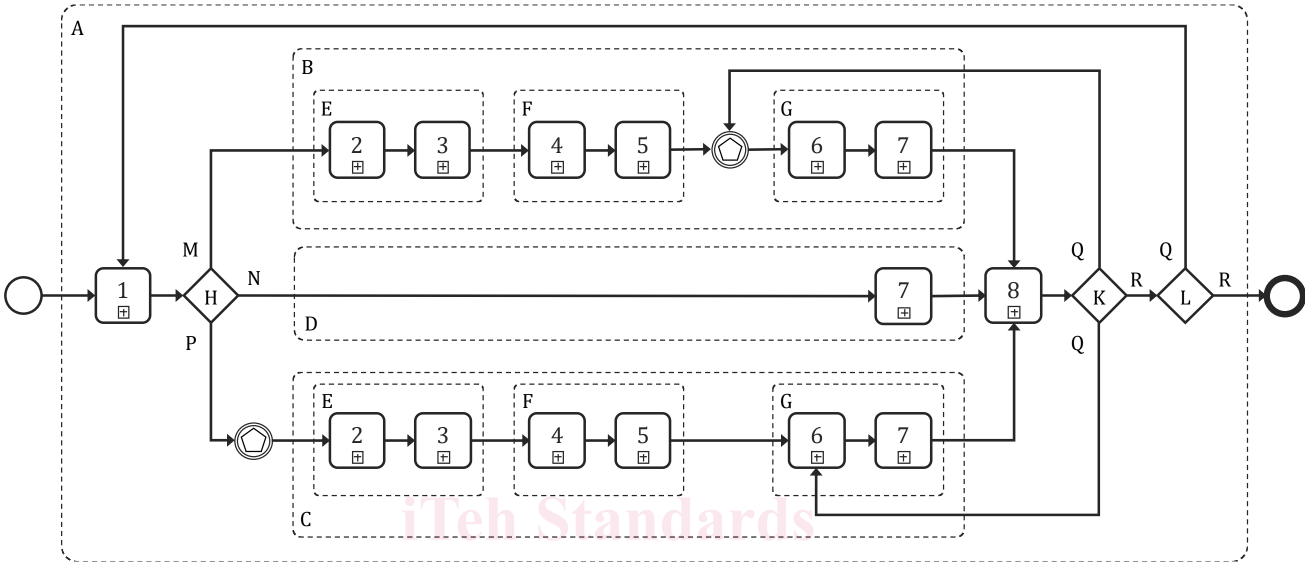
Note The symbols used within this document have been adapted from symbols defined within ISO/IEC 19510.

4 Information management associated with the operational phase of assets

4.1 Information management process associated with the operational phase of assets

The information management process (Figure 4) shall be applied throughout the operational phase of each asset to which this document applies and in the case of an existing asset shall be applied to all legacy information relating to that asset.

The information management process shall operate within or link with such enterprise systems or organizational functions as necessary to optimize its implementation.



Key:

Information management activities

1. assessment and need
2. invitation to tender/request to provide service
3. response to invitation to tender/request to provide service
4. appointment
5. mobilization
6. production of information
7. information model acceptance by appointing party
8. AIM aggregation

Activity groupings

A. activities undertaken during the asset lifecycle
B. activities undertaken for each appointment made before trigger event
C. activities undertaken for each appointment made after trigger event or project using ISO 19650-2
D. activities undertaken when acquiring an asset
E. activities undertaken during the procurement stage (of each appointment)
F. activities undertaken during the information planning stage (of each appointment)
G. activities undertaken during the information production stage (of each appointment)

Decision points, questions and actions

H. type of trigger event providing information
K. continuation of the appointment
L. continuation of this information management process
M. via an appointment made before a trigger event
N. received from another appointing party/asset owner
P. via an appointment made after a trigger event or project using ISO 19650-2
Q. yes
R. no

Note 1 This process is intended to reduce the quantity of information to be reconciled at Step 8 and reduces the effort of doing so.

Note 2 There may be a number of lead appointed parties responding to the same trigger event, on the same or similar assets, at different times.

Figure 4 – Information management process to support the operational phase of assets

4.2 Relationship between ISO 19650-3 and ISO 19650-2

The appointing party shall decide whether the requirements of ISO 19650-2 apply to particular trigger events and/or in relation to particular assets. In doing this, the asset-related appointing party shall consider:

— the scale and complexity of the asset(s);

— the scale and complexity of the response to the trigger event(s); and

— the scale and complexity of the delivery team(s) appointed as part of the response to the trigger event(s).

If it is decided that ISO 19650-2 does apply, and the appointing party in ISO 19650-2 is different from the asset-related appointing party in ISO 19650-3, then these two appointing parties shall:

— ensure that their respective responsibilities within ISO 19650-2 and ISO 19650-3 are clearly defined and communicated to each other; and

— ensure that information requirements from the asset-related appointing party in this document are conveyed to all relevant lead appointed parties appointed under ISO 19650-2.

5 Information management process to support the operational phase of assets

5.1 Information management process – assessment and need

5.1.1 Appoint individuals to undertake the information management function

The appointing party shall nominate individuals from within its organization to undertake the information management function.

Alternatively, the appointing party can appoint a prospective lead appointed party or a third party to undertake all or part of the information management function. In which case the appointing party shall establish a scope of services for that appointment.

In doing this, the appointing party shall consider the tasks that the prospective lead appointed party or third party shall be responsible for.

In all cases, the appointing party shall consider the capability and capacity of any individuals or organizations being nominated or appointed to undertake the information management function.

