SLOVENSKI STANDARD
SIST-TP CEN/TR 17439:2020

01-oktober-2020

Navodila za izvajanje EN ISO 19650-1 in EN ISO 19650-2 v Evropi

Guidance on how to implement EN ISO 19650-1 and -2 in Europe

Anleitung zur Umsetzung der EN ISO 19650-1 und -2 in Europa

Conseils sur la mise en oeuvre des normes EN ISO 19650-1 et -2 en Europe

Ta slovenski standard je istoveten z: **CEN/TR 17439:2020**

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

SIST-TP CEN/TR 17439:2020 **en,fr,de**

TECHNICAL REPORT

RAPPORT TECHNIQUE

TECHNISCHER BERICHT

CEN/TR 17439

June 2020

ICS 35.240.67; 91.010.01

English Version

Guidance on how to implement EN ISO 19650-1 and -2 in Europe

Document d'orientation pour la mise en oeuvre des normes EN ISO 19650-1 et -2 en Europe

Anleitung zur Umsetzung der EN ISO 19650-1 und -2 in Europa

This Technical Report was approved by CEN on 8 December 2019. It has been drawn up by the Technical Committee CEN/TC 442.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and United Kingdom.

EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

Ref. No. CEN/TR 17439:2020 E

Contents

Page

European foreword

This document (CEN/TR 17439:2020) has been prepared by Technical Committee CEN/TC 442 “Building Information Modelling (BIM)”, 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.

This document is intended to be a supporting document to the EN ISO 19650-1 and EN ISO 19650–2. It is the CEN guidance on how to implement the EN ISO 19650-1 and EN ISO 19650–2. The aim is to create a common understanding in digital collaboration according to EN ISO 19650-1 and EN ISO 19650–2 within the industry across Europe by fulfilling the following objectives:

— having a framework appropriate and adaptable across Europe for implementation according to EN ISO 19650-1 and EN ISO 19650–2,

— delivering interpretation of EN ISO 19650-1 and EN ISO 19650–2 commonly applied and consistent across Europe.

Introduction

It is important that this guidance is used as a supporting document to the original EN ISO 19650-1 and EN ISO 19650−2 documents when implementing the standards. However, this guidance has been prepared so that it can be read also as a standalone document to understand the principles of EN ISO 19650−1 and EN ISO 19650−2.

This guidance does not seek to duplicate, contradict or extend the meaning of EN ISO 19650-1 and EN ISO 19650−2.

This guidance helps to describe the journey to a good digital collaboration based on the EN ISO 19650-1 and EN ISO 19650−2 standards, which are targeted at the whole of the built environment included infrastructure as well as buildings. It describes some of the key parts of the journey to establish a common understanding of the digital collaboration. The detailed description of how to achieve this is described in the EN ISO 19650-1 and EN ISO 19650−2 standards.

The principle of EN ISO 19650-1 and EN ISO 19650−2 standards is a pragmatic approach to allow all involved parties to collaborate on information management using building information modelling for projects and built assets as efficiently as possible. There should also be benefits relating to quality from applying the principle of EN ISO 19650-1 and EN ISO 19650−2.

The first section (Clause 5 and Clause 6) of the guidance provides a description of what the key elements of the EN ISO 19650−1 and EN ISO 19650−2 standards are. The second section (Clause 7) explains the EN ISO 19650−2 process, and the examples of Clause 8 are available for European market.

1 Scope

The scope of this guidance is deliberately restricted only to refer to EN ISO 19650-1 and EN ISO 19650–2, highlighting and describing the manner in which to use it – and not extending or contradicting the scope and content of the standard. The document aims simply to provide minimum supporting text to achieve a basic understanding and ability to implement EN ISO 19650-1 and EN ISO 19650–2. In each country, each client, each team can use this guidance to provide the best response to information management in each project.

This document explains the terms and definitions, explains the concepts and principles and how to use them, and gives typical examples with clear explanations.

It should be noted that in this guidance, Information Management is considered as a part of the Project Management.

This guidance is intended to demonstrate how the standard works at European level, which is neutral, agnostic, and applicable to any of the following circumstances:

— the nature of contracts: e.g. public; private, alliances, global, partnership,

— the actors' functions: e.g. through the programming, design, construction phases, from small agencies, SMEs to large firms, large companies,

— the types of works: e.g. simple, complex, new, rehabilitated, housing, infrastructure.

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 12006–2, *Building construction — Organization of information about construction works — Part 2: Framework for classification (ISO 12006-2)*

EN ISO 12006–3, *Building construction — Organization of information about construction works — Part 3: Framework for object-oriented information (ISO 12006-3)*

EN ISO 19650-1:2018, *Organization and digitization of information about buildings and civil engineering works, including building information modelling (BIM) — Information management using building information modelling — Part 1: Concepts and principles (ISO 19650-1:2018)*

EN ISO 19650-2:2018, *Organization and digitization of information about buildings and civil engineering works, including building information modelling (BIM) — Information management using building information modelling — Part 2: Delivery phase of the assets (ISO 19650-2:2018)*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN ISO 19650-1 and EN ISO 19650-2 and the following 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

NOTE Only necessary supplement terms for this guidance are listed below.

3.1
task information requirement
TIR
information requirement in relation to task team

4 Symbols and abbreviations

No symbols and abbreviations are listed in this document.

5 Explanation of vocabulary

5.1 Appointment, appointing and appointed parties

5.1.1 Appointment

EN ISO 19650-1:2018, 3.2.2:

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.”

Proper understanding of these terms requires consideration of them as a group and also collectively with the terms “BIM Execution Plan (BEP)” and “Exchange Information Requirements (EIR)”. Fuller understanding will be achieved through review of Clause 6, Explanation of Concepts and Principles.

Within the context of EN ISO 19650, appointment is used at the level of the appointing party with the lead appointed party and its delivery team, wherein Exchange Information Requirements (EIR) are provided and a BIM Execution Plan (BEP) is provided in response. The agreed instruction will be cascaded to the appointed parties by the lead appointed party.

For a fuller explanation of what is an appointment, refer to 6.1 of this document and EN ISO 19650-1:2018, 5.1.

5.1.2 Appointing party

EN ISO 19650-1:2018, 3.2.4:

appointing party: “receiver of information concerning 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 functions.

Note 2 to entry: This term is used whether or not there is a formal appointment between the parties.”

In the context of EN ISO 19650, an appointing party has specific information requirements which the party seeks to fulfil by providing clear requests via appointments of appropriate suppliers which set out what, how and when information should be provided.

For a fuller explanation of what is an appointing party, refer to 6.1 of this document and EN ISO 19650-1:2018, 5.1.

5.1.3 Appointed party

EN ISO 19650-1:2018, 3.2.3:

appointed party: “provider of information concerning 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 term is used whether or not there is a formal written appointment in place."

An appointed party is part of a delivery team which is collectively responding to and delivering specific information requirements allocated to that delivery team by an appointing party. This delivery team may be comprised of a number of appointed parties, with a lead appointed party assigned to achieve overall coordination of information production and delivery and will work to an agreed delivery plan (see 5.3, BIM Execution Plan).

For a fuller explanation of what is an appointed party and lead appointed party, refer to 6.1 of this document and EN ISO 19650-1:2018, 5.1.

5.2 Information requirements

5.2.1 Introduction

Information requirements exist throughout the life cycle and shall be specified to ensure that all decisions are well supported and well informed, at the right times and to the right people to allow efficient delivery and running of individual facilities, and ultimately integrated, smart infrastructure, cities and communities. The information requirements specify what information the organization requires (e.g. how many customers a particular facility is required to support to meet its business objectives) – the Organizational Information Requirements (OIR); what information is required during the running of the asset (e.g. how many spare parts are required at what time to keep the facility running) – the Asset Information Requirements (AIR); what information is required to deliver the overall project (e.g. when will all parts of the facility/infrastructure be ready for commissioning, and go live, at what cost) – the Project Information Requirements (PIR); and what information is needed from each delivery team/appointed party (e.g. what parts are required to construct this particular element of the facility) – the Exchange Information Requirements (EIR).

The appointed party responds to the Exchange Information Requirements (EIR) through development and implementation of the BIM Execution Plan (BEP) (see 5.3) which enables delivery of the required information as set out in a Master Information Delivery Plan (MIDP) (see 5.4) which brings together the contributions of each task team as set out in the Task Information Delivery Plans (TIDP) (see 5.4).

5.2.2 Information Requirement (IR)

The umbrella term “Information Requirement (IR)” indicates a clear description of the information required to support a decision. An Information Requirement is usually related to a specific question(s) concerning organizational objectives, operation of an asset, delivery of an asset, or in relation to a specific appointment. The nature of the question helps to inform what information is needed, who will need to understand it, when it will be needed, and how it should be provided. It should also help to inform the framework for the level of information need.

5.2.3 Exchange Information Requirements (EIR)

The Exchange Information Requirements (EIR) bring together all the information required from a specific appointment to support decision which may be at an organization asset or project level as explained in 5.2.1 above. Exchange Information Requirements (EIR) are set out in such a way that the appointed party can respond through the BIM Execution Plan (BEP) in a clear and direct manner allowing for robust acceptance criteria to be developed, and in accordance with the plan of information exchange as Master Information Delivery Plan (MIDP).

5.2.4 Task Information Requirements (TIR)

It should be noted that it is most likely that appointed parties within a delivery team will have their own information requirements to fulfil their task – and this is recognized within EN ISO 19650. This may be described as Task Information Requirements (TIR) for convenience, although not specifically referenced as such in EN ISO 19650.

5.3 BIM Execution Plan (BEP)

EN ISO 19650-2:2018, 3.1.3.1:

BIM execution plan (BEP): “plan that explains 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.”

A BIM Execution Plan (BEP) is the response of a delivery team to the Exchange Information Requirements (EIR) of an appointment. It provides the framework that sets out how the appointed parties will work together as a delivery team, to enable delivery of the information in response to the Exchange Information Requirements (EIR).

This captures what, when and how exchange of information is organized between task teams within a delivery team to enable them to develop the information required by the Exchange Information Requirements (EIR). The Master Information Delivery Plan (MIDP) can then be directly compared with the Exchange Information Requirements (EIR) to ensure complete matching of deliverables with the information required.

The BIM Execution Plan (BEP) is developed in two steps, first before the appointment, the second to confirm and to update if necessary after the appointment. During the second step associated to the BEP, a Master Information Delivery Plan (MIDP) is developed.

Within this guidance the requirements for information by a task team as described here is referred to as Task Information Requirements (TIR). The content of BIM Execution Plans (BEP) is described in EN ISO 19650-2:2018, 5.3.2.

For a fuller explanation of what is an appointed party and lead appointed party, refer to 6.1 of this document and EN ISO 19650-1:2018, 5.1

5.4 Information Delivery Plans

Task Information Delivery Plan (TIDP), Master Information Delivery Plan (MIDP)

EN ISO 19650-2:2018, 3.1.3.3:

master information delivery plan (MIDP): “plan incorporating all relevant task information delivery plans”

EN ISO 19650-2:2018, 3.1.3.4:

task information delivery plan (TIDP): “schedule of information containers and delivery dates, for a specific task team”

A Task Information Delivery Plan (TIDP) is prepared by each task team to identify each of the information deliverables it is responsible for and how they will be managed within their delivery team. A Master Information Delivery Plan (MIDP) is prepared by each lead appointed party bringing together all of the Task Information Delivery Plans (TIDP) within their delivery team and resolving any conflicts, or omissions. The Master Information Delivery Plan (MIDP) could be considered as a part of the BIM Execution Plan (BEP) and should fulfil delivery of the complete information to the appointing party as required by the Exchange Information Requirements (EIR). Therefore, the Master Information Delivery Plan (MIDP) can be used to check that there is a complete match of the information delivered with that specified in the Exchange Information Requirements (EIR).

NOTE 1 Where the delivery team is small and there is only a single task team, the process of developing a Master Information Delivery Plan (MIDP) will be more straightforward than described by the standard as it will not require the compilation of a number of Task Information Delivery Plans (TIDP).

NOTE 2 It can become apparent, when the lead appointed party reviews the Task Information Delivery Plans (TIDP), that specific Task Information Requirements (TIR) can only be fulfilled by the appointing party, or by another delivery team. In this case, the lead appointed party is expected to have a dialogue with the appointing party to establish how this can be accomplished.

5.5 Information model

EN ISO 19650-1:2018, 3.3.8:

information model: “set of structured and unstructured information containers”

An information model within the context of EN ISO 19650 will be comprised of a planned and managed set of structured and unstructured information containers which are produced in response to specific Exchange Information Requirements (EIR).

It is likely that a number of information models, coming from different appointments, will contribute to the overall Project Information Model (PIM). As a whole, the Project Information Model (PIM) should collectively, as a result of each appointment following EN ISO 19650-2, contain all the relevant information identified through the organizational, asset and project information requirements (OIR, AIR, PIR), which need to be sourced through that project.

In the same way, the Asset Information Model (AIM) will comprise an amalgam of information models, some derived from Project Information Models (PIM) developed during the delivery phase, but some during the operational phase. It shall be remembered that – in general - the Asset Information Model (AIM) exists through the larger part of the asset life cycle and will through the correct management of appointments through EN ISO 19650 contain all the relevant information identified through the overall Organizational Information Requirements (OIR), Asset Information Requirements (AIR) and Project Information Requirements (PIR).

5.6 Information container

EN ISO 19650-1:2018, 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: Structured information containers include geometrical models, schedules, databases. Unstructured information containers include documentation, video clips, sound recordings.

Note 2 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 3 to entry: Naming of an information container should be according to an agreed naming convention.”

An information model within the context of EN ISO 19650-1 will be comprised of a planned and managed set of structured and unstructured information containers which are produced in response to specific Exchange Information Requirements (EIR).

The definition of information container recognizes that management of information using EN ISO 19650 goes a step beyond management of documents and files and encompasses other forms and scale of information such as objects, models and databases.

5.7 Federation

EN ISO 19650-1:2018, 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.”

Federation is an aggregation of information models to describe the whole project and/or asset or a part of it.

5.8 Common data environment (CDE)

EN ISO 19650-1:2018, 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

Note 1 to entry: A CDE workflow describes the processes to be used and a CDE solution might provide the technology to support those processes."

It is important to understand that the definition of Common Data Environment (CDE) covers both the process for collecting, managing and distributing information, and the technology which supports this process.

From the technological perspective, this means that there could be a number of technological solutions, distributed across organizations. These solutions are serving the Common Data Environment (CDE) and collectively provide a consistent managed information process. This allows for unambiguous, logical and robust control of information production and exchange.

The process information management perspective relies on these technological solutions. The workflow shall be embedded consistently across all the above technological solutions.

6 Explanation of concepts and principles

6.1 Appointment, appointing and appointed parties

An appointing party prepares Exchange Information Requirements (EIR) informed by the Organizational Information Requirements (OIR), Asset Information Requirements (AIR) and Project Information Requirements (PIR). The appointing party provides the Exchange Information Requirements (EIR) for that appointment to the lead appointed party of that delivery team, reviews and agrees the BIM Execution Plan (BEP) provided by that lead appointed party and is then the receiver of information concerning works, goods or services from that lead appointed party defined by the Exchange Information Requirements (EIR).

NOTE 1 An appointing party can be instigating multiple appointments, and will be expected to ensure that in aggregate, the Exchange Information Requirements (EIRs) for each of those appointments, addresses as a whole the Organizational Information Requirements (OIR), Asset Information Requirements (AIR) and Project Information Requirements (PIR).

NOTE 2 For a full explanation of what an appointing party is, refer to EN ISO 19650-1:2018, 5.1.

The lead appointed party receives Exchange Information Requirements (EIR) from the appointing party. It develops a BIM Execution Plan (BEP) in response to this Exchange Information Requirements (EIR) in collaboration with the appointed parties which make up this delivery team. The BIM Execution Plan (BEP) includes the Master Information Delivery Plan (MIDP) which brings together all of the Task Information Delivery Plans (TIDP) for each task team which describe the information flows needed to enable delivery of the overall Exchange Information Requirements (EIR). This will include Task Information Requirements (TIR), which can be managed through the Master Information Delivery Plan (MIDP). There may be cases where those requirements can only be provided from outside of this delivery team. The lead appointed party will need to establish how these are provided for through discussion with the appointing party.

NOTE 3 There could be cases where the lead appointed party receives a number of Exchange Information Requirements (EIR) from the appointing party to support different service deliveries. In this case, the lead appointed party could find it more efficient to combine the responding BIM Execution Plan (BEP). It is important in this instance that the delivery of information in response to each Exchange Information Requirements (EIR) remains clear.

The appointed party is a part of the delivery team led by a lead appointed party who collectively respond to and deliver to the specific Exchange Information Requirements (EIR) for that delivery team. Managed by the lead appointed party, each appointed party prepares a task information delivery plan which may incorporate its own Task Information Requirements (TIR) which is then combined to form the delivery team's Master Information Delivery Plan (MIDP). Once the delivery team has agreed the MIDP, and the BIM Execution Plan (BEP) overall has been agreed with the appointing party, the lead appointed party then instructs the appointed party proceeds to deliver information according to the agreed BIM Execution Plan (BEP) in collaboration with the rest of the delivery team.

6.2 Information management functions

Different functions are involved in steering the management of information for the project, they are necessary and shall be described and defined by the appointment, a special sheet matrix could be used.

They depend on it and are distinct from conventional professions. These functions of information management can be assigned in parallel to the project conventional actors.

Depending on the project, the same party or actor may perform one or more functions or conversely a specific facilitation function to support the project teams may be necessary.

Each function of information management has tasks and responsibilities are associated, which should not be confused with design tasks and responsibilities.

In this sense, we are talking about:

— Asset information management functions:

  The function of asset information management is designed earliest and continues throughout the asset life cycle. As the asset life cycle is a long time, these functions are covered by a succession of organizations or individuals;

— Project information management functions:

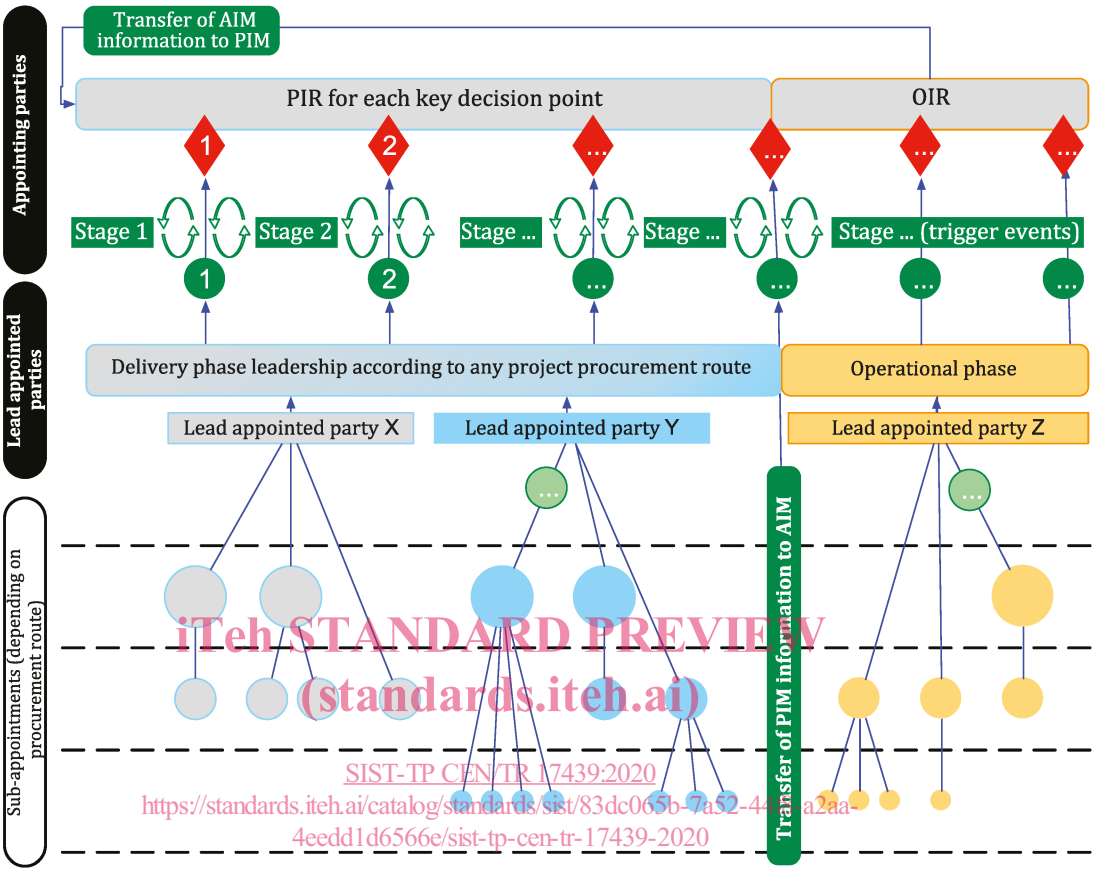
  The function of project information exists during all the project time and relies on the appropriate cascade of appointments for information management for the function to be realized properly;

— Task information management functions:

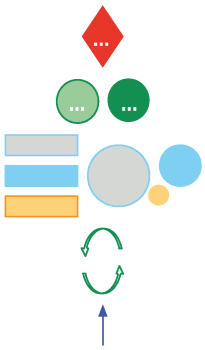
  Each task team includes a function for management of information which needs to be coordinated with the other task teams.

6.3 Information delivery

Figure 1 shows the information delivery process from lead appointed parties and their delivery teams to the appointing party to help make key decisions.



Key



asset owner or project client key decision points

information exchange within delivery team, into PIM or AIM

lead appointed parties and appointed parties (task teams and delivery teams)

information verification and validation

flow of information deliverables

Figure 1 — Information delivery details using EN ISO 19650
[SOURCE: EN ISO 19650–1:2018, Figure 9]