EN ISO 23386/EN ISO 23387

methodology to provide an unambiguous definition of **properties**,
using a standardized data structure through **data templates**,
to describe the characteristics of **construction objects**

Espen Schulze
Group VP Research, Cobuilder

Standardization activities

CEN/TC 442
- WG 2
  - TG 1 – prEN 17412 - Level Of Information Need (expert)
  - TG 3 – Exchange structure for data templates (expert)
- WG 4
  - TG 1 – ISO 23386 (expert)
  - TG 2 – ISO/FDIS 23387 (expert, chair)
  - TG 3 - Semantic Modelling and Linking Standard (expert)

CEN/TC 350
- WG 3 - Products Level (expert)

ISO/TC 59/SC 13
- WG 6 – ISO 12006-3 – IFD (expert)
- WG 11 – ISO 16757 – data structure (expert)
- WG 13 – ISO 19650-4 – Information exchange (expert)
- JWG 14 – BIM/GIS alignment (expert)

ISO/TC 59/SC 17
- WG 3 – ISO/DIS 22057 - use of EPD in BIM (expert)

buildingSMART International
- Product Room Steering committee (member)
- Product Data Template WG (chair)

SN/K 257 – Norwegian BIM mirror committee (member)

Why do we need Data Templates?

One example

Everyone creates information locally

Espen Schulze

NBS → Thermal Transmittance

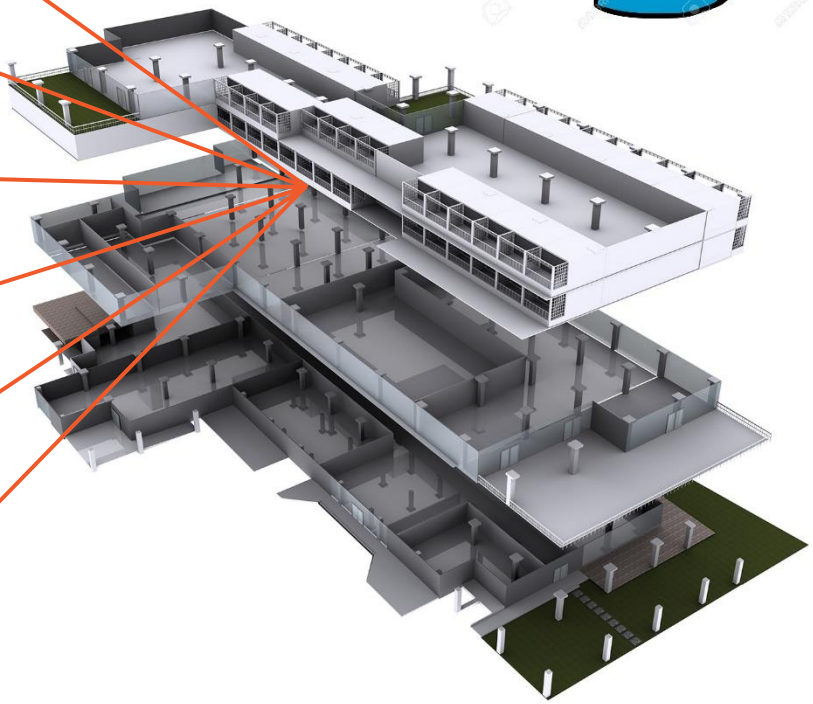
eCl@ss® CLASSIFICATION AND PRODUCT DESCRIPTION → Heat transfer

IFC® → Thermal Transmittance

AUTODESK® REVIT® → Thermal conductivity

ETIM International → U-value

OMNICLASS™ A Strategy for Classifying the Built Environment → Thermal resistance

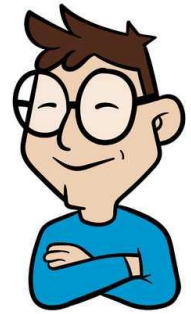


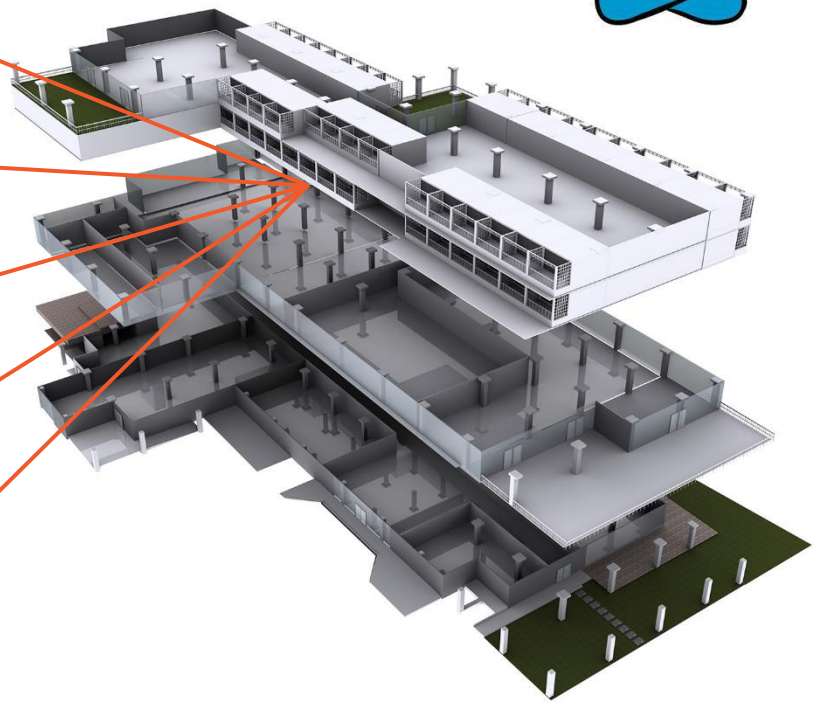
CEN CENELEC ISO

Espen Schulze

Trust in reliable information

- Thermal Transmittance acc. to EN ISO 10077-1
- Thermal Transmittance acc. to EN 14351-1
- Thermal Transmittance acc. to EN ISO 10077-2
- Thermal Transmittance acc. to EN ISO 12567-1
- Thermal Transmittance acc. to EN ISO 12567-2



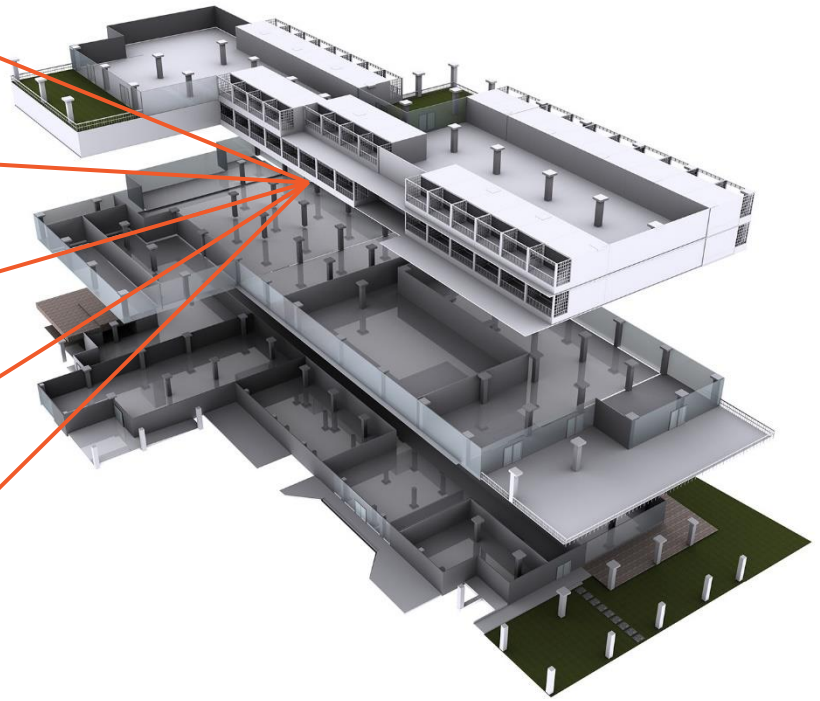


CEN CENELEC ISO

Espen Schulze

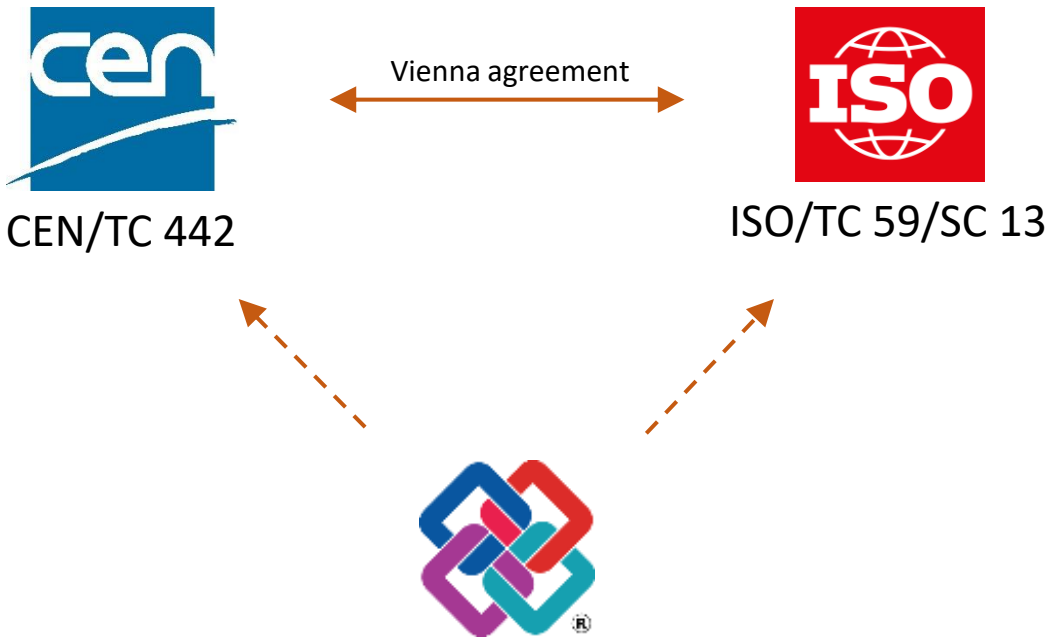
Contractual agreement

- Thermal Transmittance acc. to EN ISO 10077-1
- Thermal Transmittance acc. to EN 14351-1
- Thermal Transmittance acc. to EN ISO 10077-2
- Thermal Transmittance acc. to EN ISO 12567-1
- Thermal Transmittance acc. to EN ISO 12567-2



Espen Schulze

Development of International BIM standards



CEN/TC 442 - Building Information Modelling (BIM)

CEN/TC 442 Subcommittees and Working Groups

Working group	Title
CEN/TC 442/WG 1	Terminology
CEN/TC 442/WG 2	Exchange information
CEN/TC 442/WG 3	Information Delivery Specification
CEN/TC 442/WG 4	Support Data Dictionaries
CEN/TC 442/WG 5	Chairperson's Advisory Group
CEN/TC 442/WG 6	Infrastructure
CEN/TC 442/WG 7	Horizontal role

Contact us

European Committee for Standardization

CEN COMMUNITY | TECHNICAL BODIES | STANDARDS EVOLUTION AND FORECAST | SEARCH STANDARDS

Technical Bodies > **CEN/TC 442**

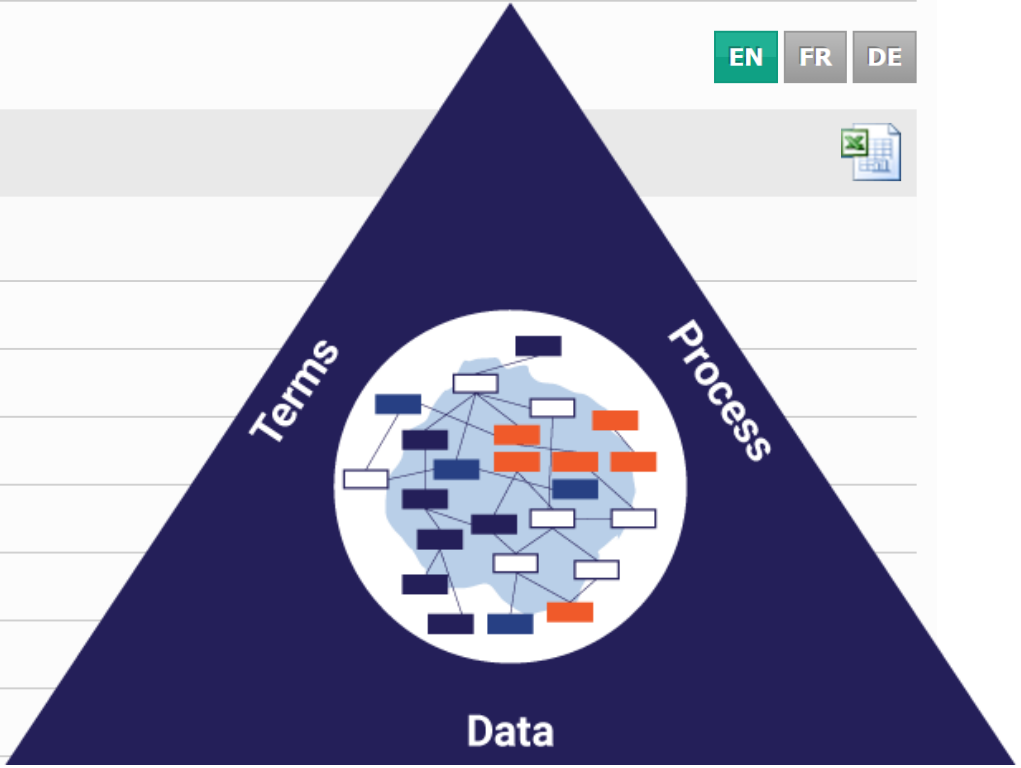
CEN/TC 442 - Building Information Modelling (BIM)

General | Structure | Work programme | Published Standards

EN FR DE

CEN/TC 442 Subcommittees and Working Groups

Working group	Title
CEN/TC 442/WG 1	Terminology
CEN/TC 442/WG 2	Exchange information
CEN/TC 442/WG 3	Information Delivery Specification
CEN/TC 442/WG 4	Support Data Dictionaries
CEN/TC 442/WG 5	Chairperson's Advisory Group
CEN/TC 442/WG 6	Infrastructure
CEN/TC 442/WG 7	Horizontal role



CEN CENELEC ISO

Espen Schulze

Contact us

European Committee for Standardization

CEN COMMUNITY | TECHNICAL BODIES | STANDARDS EVOLUTION AND FORECAST | SEARCH STANDARDS

Technical Bodies > **CEN/TC 442**

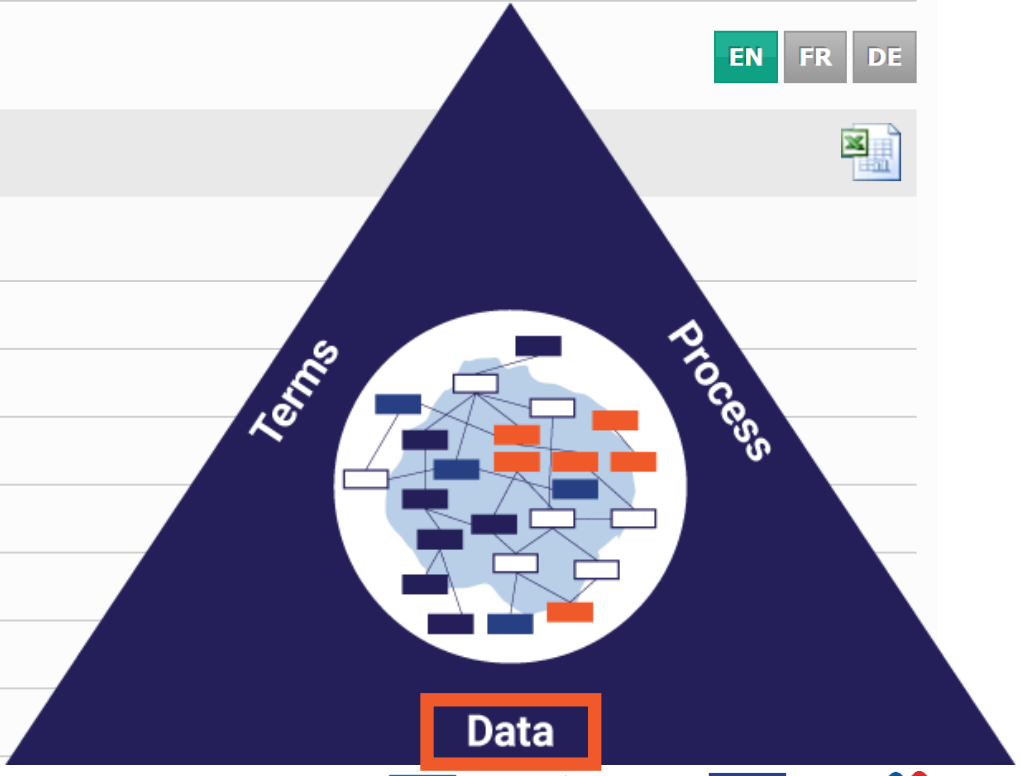
CEN/TC 442 - Building Information Modelling (BIM)

General | Structure | Work programme | Published Standards

EN FR DE

CEN/TC 442 Subcommittees and Working Groups

Working group	Title
CEN/TC 442/WG 1	Terminology
CEN/TC 442/WG 2	Exchange information
CEN/TC 442/WG 3	Information Delivery Specification
CEN/TC 442/WG 4	Support Data Dictionaries
CEN/TC 442/WG 5	Chairperson's Advisory Group
CEN/TC 442/WG 6	Infrastructure
CEN/TC 442/WG 7	Horizontal role



CEN CENELEC ISO

Espen Schulze

Contact us

European Committee for Standardization

CEN COMMUNITY | TECHNICAL BODIES | STANDARDS EVOLUTION AND FORECAST | SEARCH STANDARDS

Technical Bodies > **CEN/TC 442**

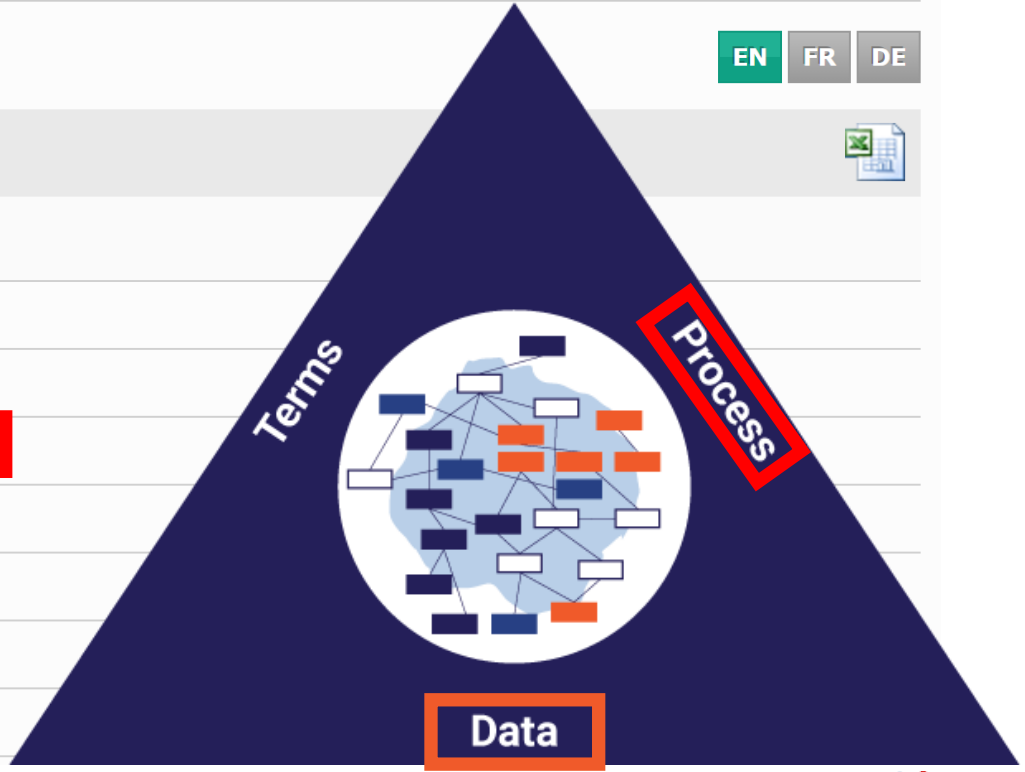
CEN/TC 442 - Building Information Modelling (BIM)

General | Structure | Work programme | Published Standards

EN FR DE

CEN/TC 442 Subcommittees and Working Groups

Working group	Title
CEN/TC 442/WG 1	Terminology
CEN/TC 442/WG 2	Exchange information
CEN/TC 442/WG 3	Information Delivery Specification
CEN/TC 442/WG 4	Support Data Dictionaries
CEN/TC 442/WG 5	Chairperson's Advisory Group
CEN/TC 442/WG 6	Infrastructure
CEN/TC 442/WG 7	Horizontal role



CEN CENELEC ISO

Espen Schulze

Contact us

European Committee for Standardization

CEN COMMUNITY | TECHNICAL BODIES | STANDARDS EVOLUTION AND FORECAST | SEARCH STANDARDS

Technical Bodies > **CEN/TC 442**

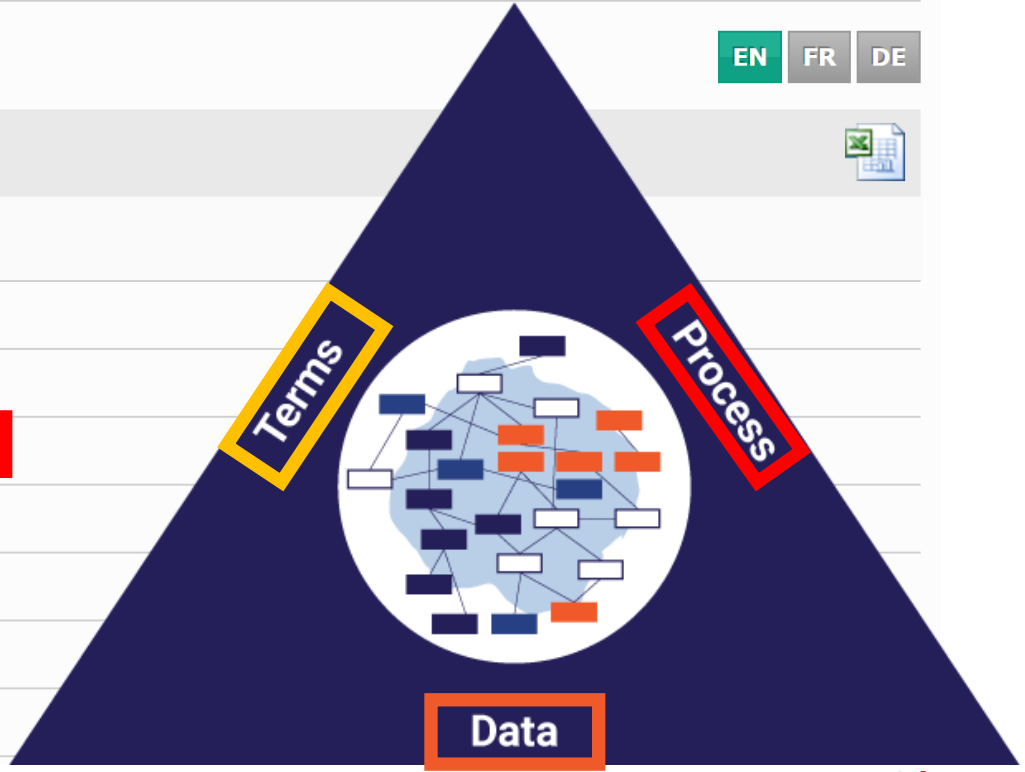
CEN/TC 442 - Building Information Modelling (BIM)

General | Structure | Work programme | Published Standards

EN FR DE

CEN/TC 442 Subcommittees and Working Groups

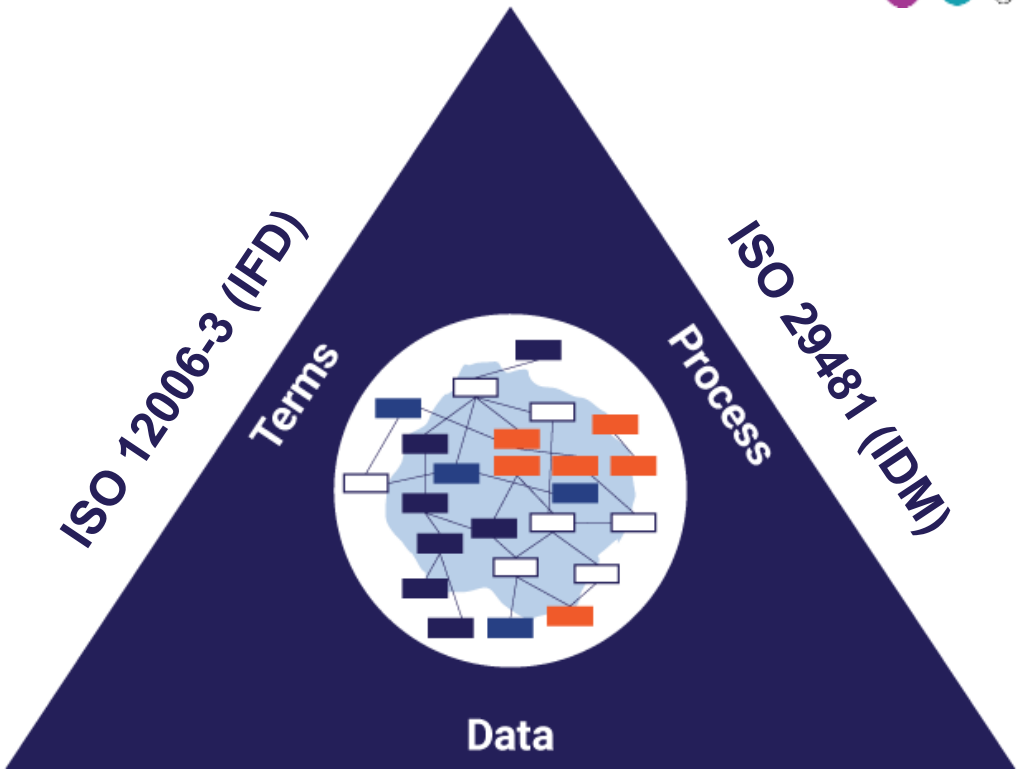
Working group	Title
CEN/TC 442/WG 1	Terminology
CEN/TC 442/WG 2	Exchange information
CEN/TC 442/WG 3	Information Delivery Specification
CEN/TC 442/WG 4	Support Data Dictionaries
CEN/TC 442/WG 5	Chairperson's Advisory Group
CEN/TC 442/WG 6	Infrastructure
CEN/TC 442/WG 7	Horizontal role



CEN CENELEC ISO

Espen Schulze

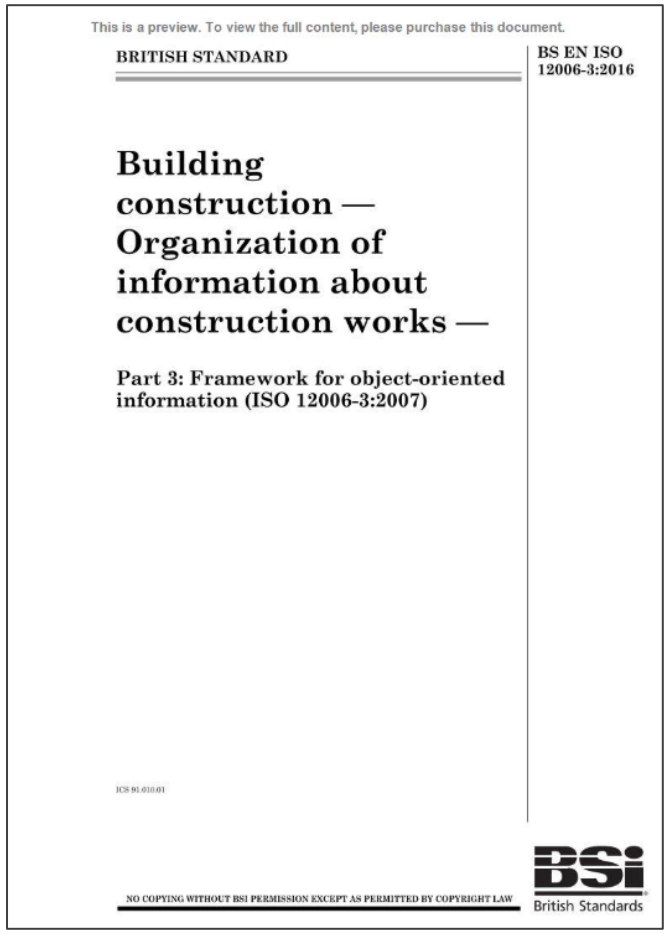
The buildingSMART Triangle

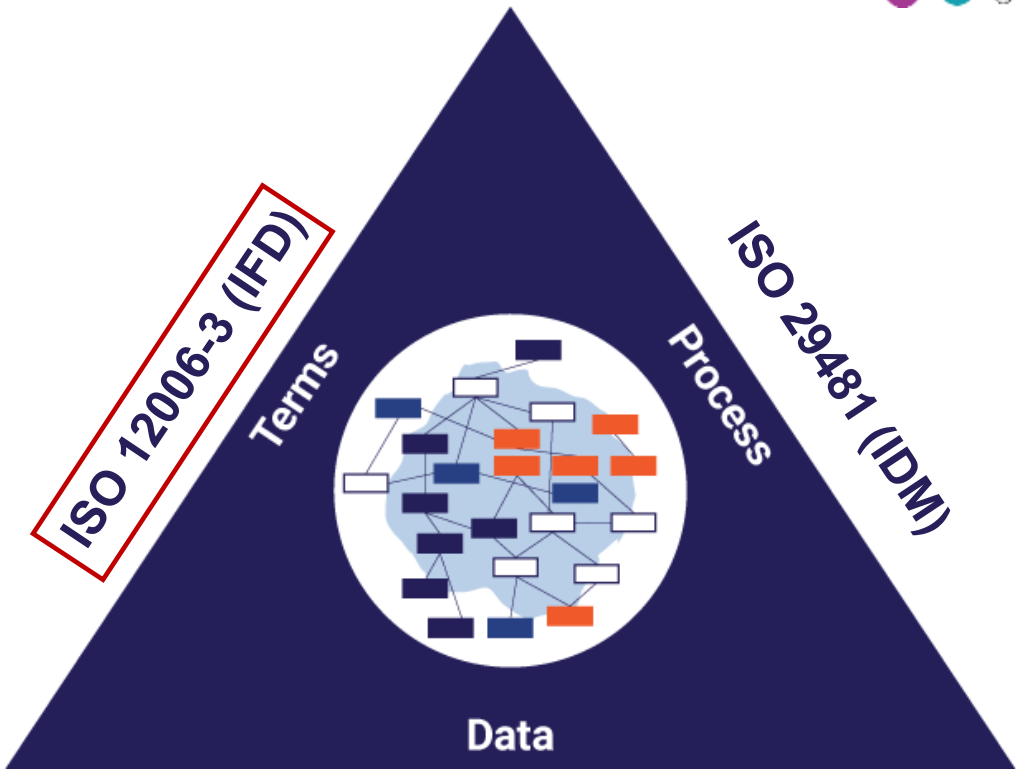


ISO 16739 (IFC)

Espen Schulze

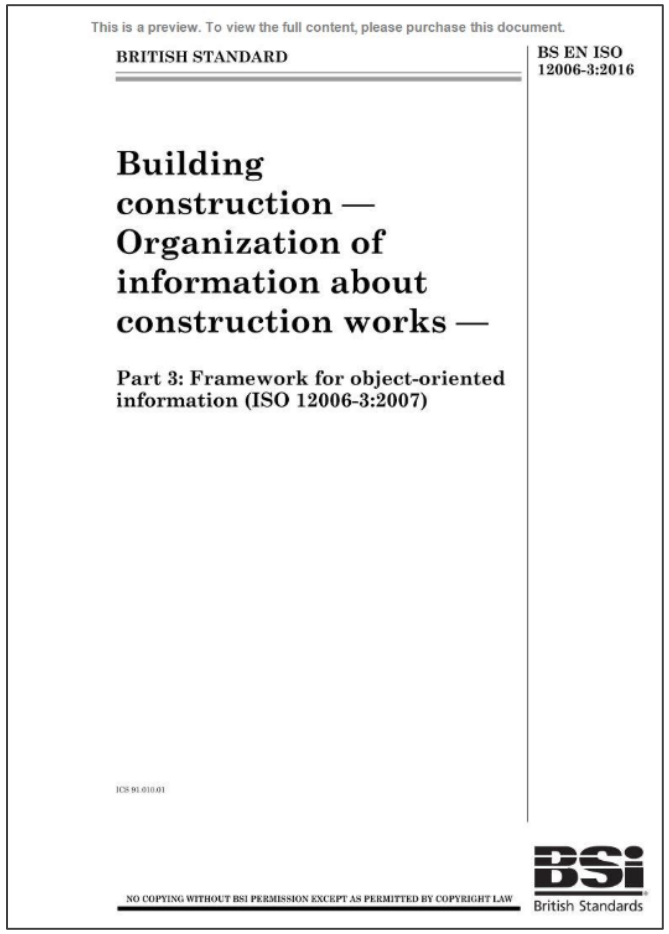
ISO 12006-3 - Framework for object-oriented information



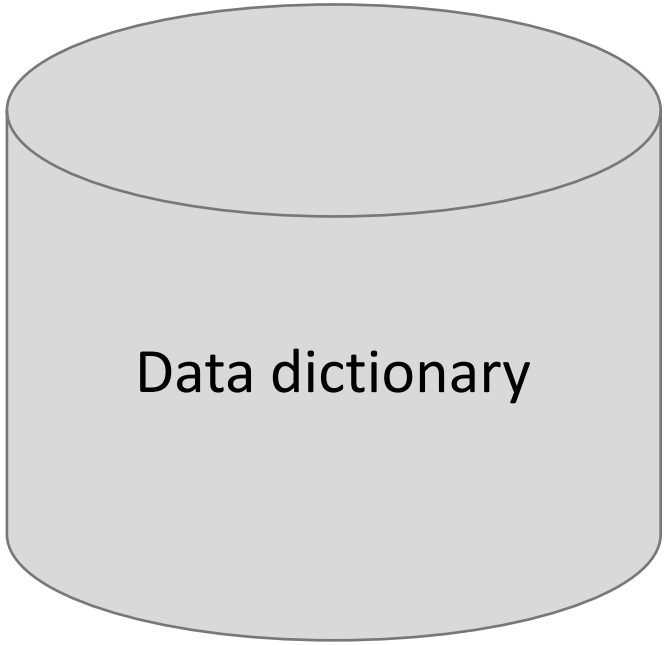


ISO 16739 (IFC)

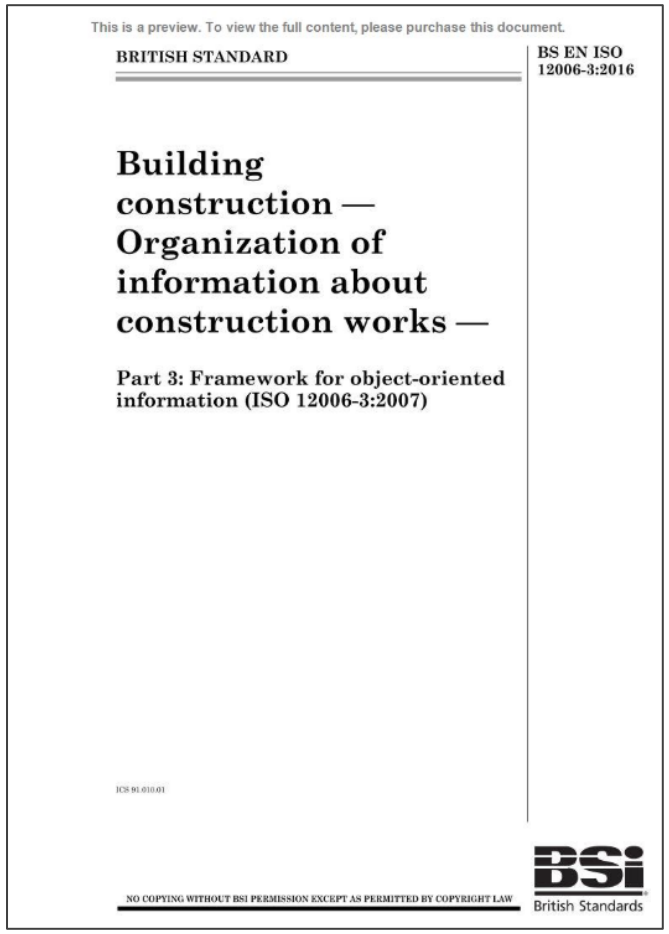
ISO 12006-3 - Framework for object-oriented information



Provides framework for



ISO 12006-3 - Framework for ISO 23387



This is a preview. To view the full content, please purchase this document.

BRITISH STANDARD

BS EN ISO 12006-3:2016

Building construction — Organization of information about construction works —

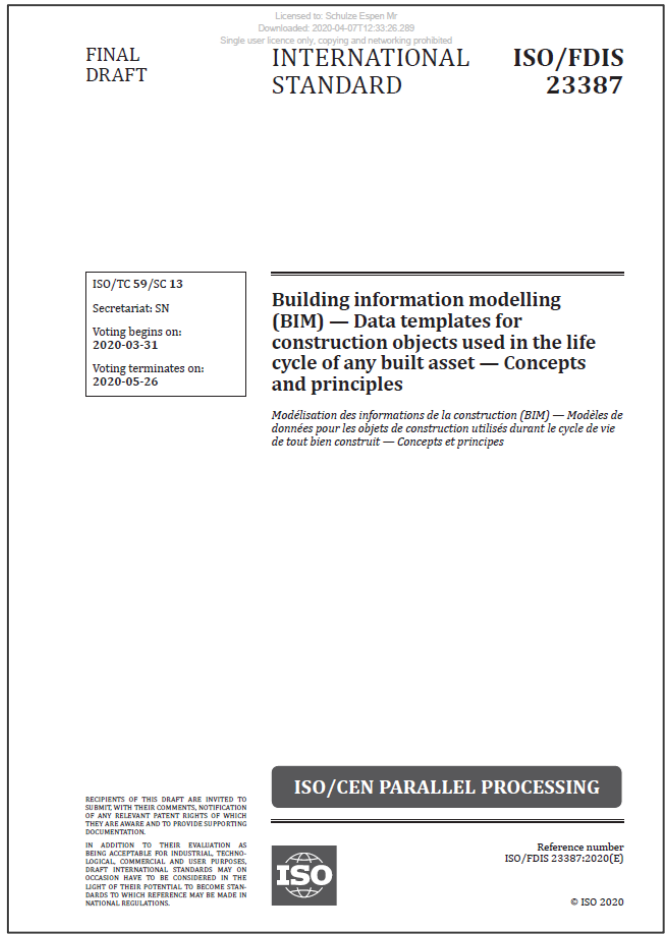
Part 3: Framework for object-oriented information (ISO 12006-3:2007)

ICS 91.010.01

NO COPYING WITHOUT BSI PERMISSION EXCEPT AS PERMITTED BY COPYRIGHT LAW

BSI British Standards

Provides framework for



FINAL DRAFT

INTERNATIONAL STANDARD

ISO/FDIS 23387

ISO/TC 59/SC 13

Secretariat: SN

Voting begins on: 2020-03-31

Voting terminates on: 2020-05-26

Building information modelling (BIM) — Data templates for construction objects used in the life cycle of any built asset — Concepts and principles

Modélisation des informations de la construction (BIM) — Modèles de données pour les objets de construction utilisés durant le cycle de vie de tout bien construit — Concepts et principes

RECIPIENTS OF THIS DRAFT ARE INVITED TO SUBMIT, WITH THEIR COMMENTS, NOTIFICATION OF ANY RELEVANT PATENT RIGHTS OF WHICH THEY ARE AWARE AND TO PROVIDE SUPPORTING DOCUMENTATION.

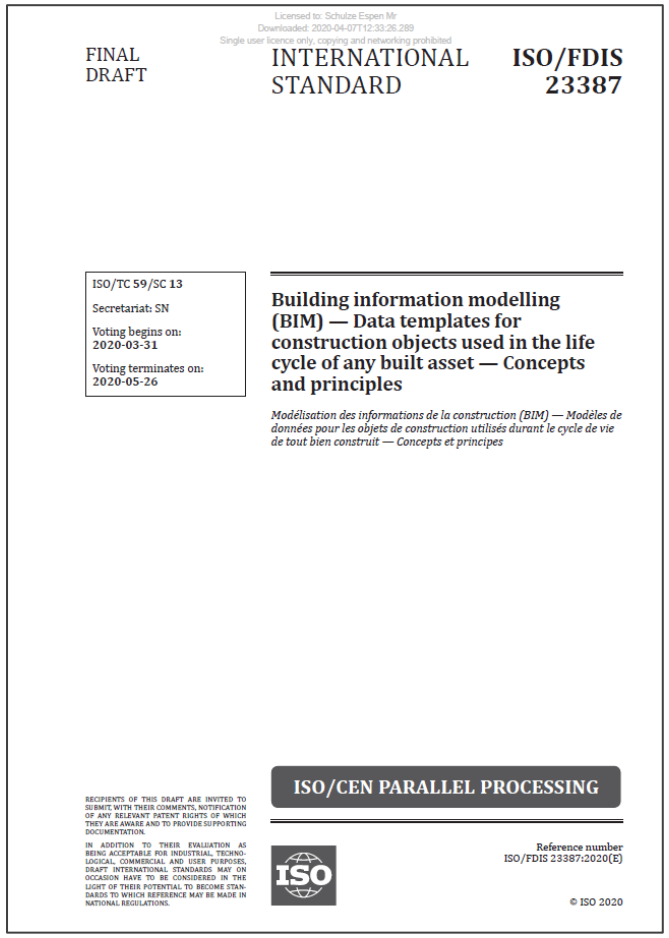
IN ADDITION TO THEIR EVALUATION AS BEING ACCEPTABLE FOR INDUSTRIAL, TECHNOLOGICAL, COMMERCIAL AND USER PURPOSES, DRAFT INTERNATIONAL STANDARDS MAY ON OCCASION HAVE TO BE CONSIDERED IN THE LIGHT OF THEIR POTENTIAL TO BECOME STANDARDS TO WHICH REFERENCE MAY BE MADE IN NATIONAL REGULATIONS.

ISO/CEN PARALLEL PROCESSING

Reference number
ISO/FDIS 23387:2020(E)

Espen Schulze

ISO 23387 – Data structure for data templates



FINAL DRAFT

INTERNATIONAL STANDARD

ISO/FDIS 23387

ISO/TC 59/SC 13

Secretariat: SN

Voting begins on: 2020-03-31

Voting terminates on: 2020-05-26

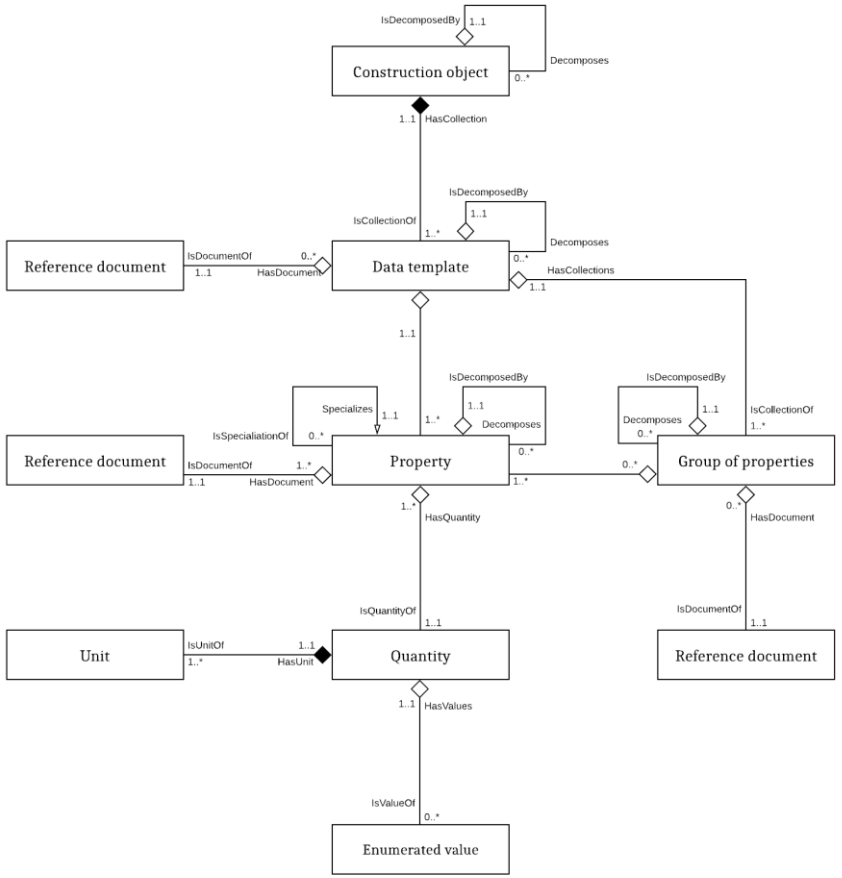
Building information modelling (BIM) — Data templates for construction objects used in the life cycle of any built asset — Concepts and principles

Modélisation des informations de la construction (BIM) — Modèles de données pour les objets de construction utilisés durant le cycle de vie de tout bien construit — Concepts et principes

ISO/CEN PARALLEL PROCESSING

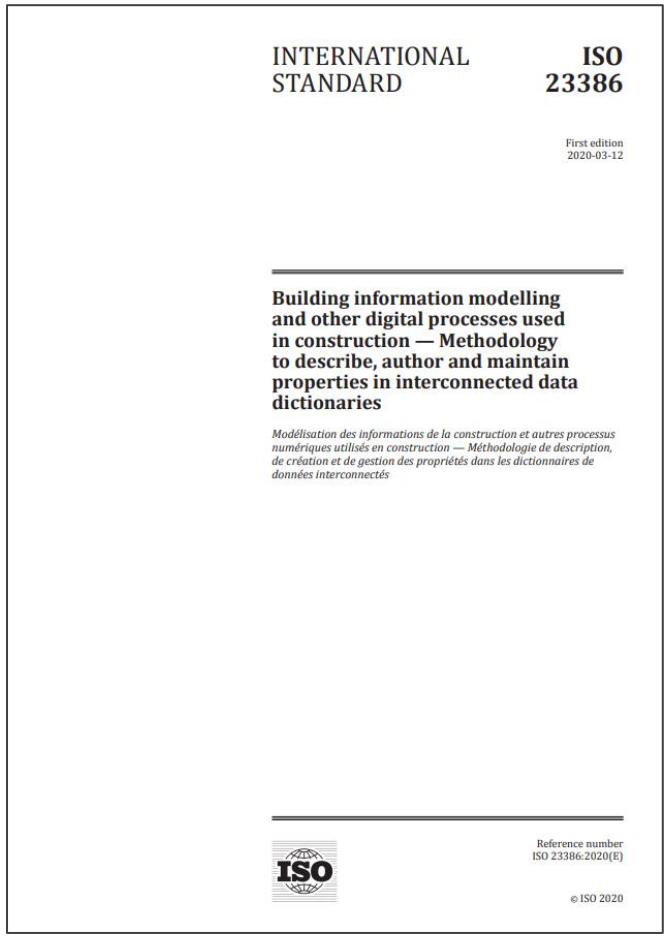
Reference number
ISO/FDIS 23387:2020(E)

Provides



Espen Schulze

ISO 23386 – methodology to provide an unambiguous definition of properties



INTERNATIONAL STANDARD

ISO 23386

First edition
2020-03-12

Building information modelling and other digital processes used in construction — Methodology to describe, author and maintain properties in interconnected data dictionaries

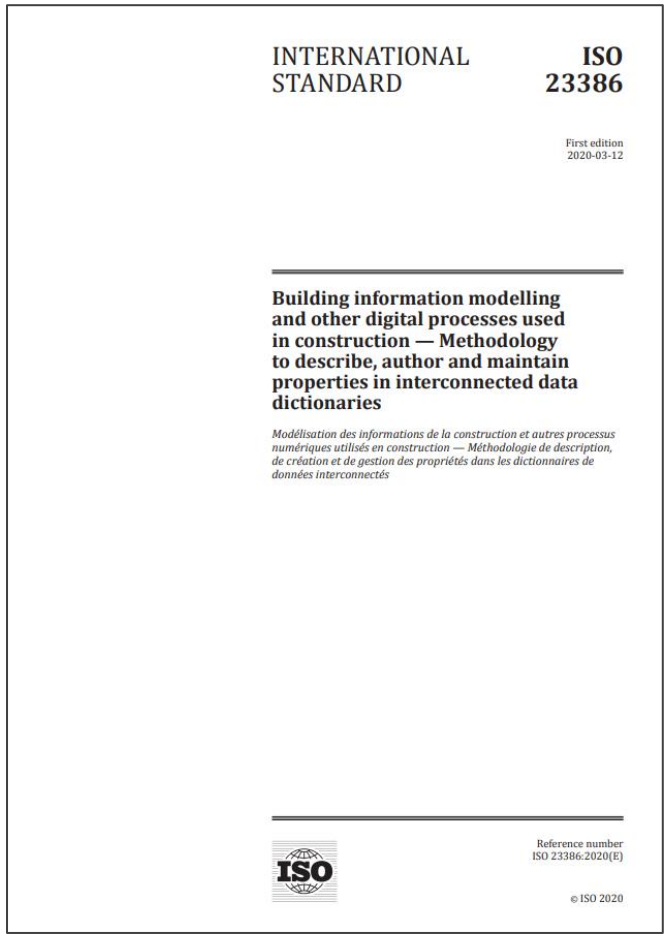
Modélisation des informations de la construction et autres processus numériques utilisés en construction — Méthodologie de description, de création et de gestion des propriétés dans les dictionnaires de données interconnectés

ISO

Reference number
ISO 23386:2020(E)

Espen Schulze

ISO 23386 – methodology to provide an unambiguous definition of properties



INTERNATIONAL STANDARD

ISO 23386

First edition
2020-03-12

Building information modelling and other digital processes used in construction — Methodology to describe, author and maintain properties in interconnected data dictionaries

Modélisation des informations de la construction et autres processus numériques utilisés en construction — Méthodologie de description, de création et de gestion des propriétés dans les dictionnaires de données interconnectés

ISO

Reference number
ISO 23386:2020(E)

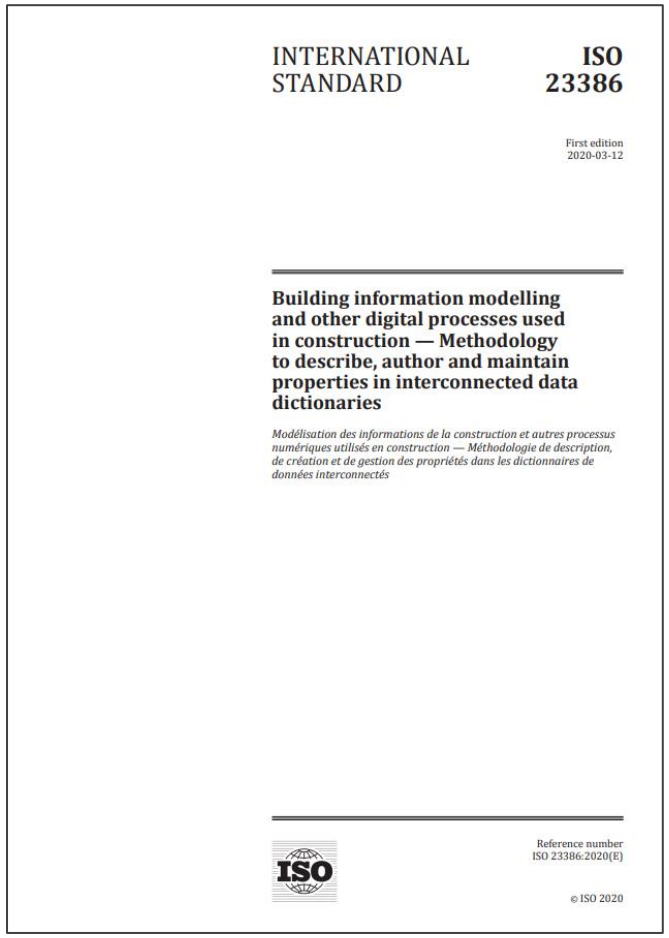
© ISO 2020

Attributes

Property
GUID : Status : Names in language N : Descriptions in language N : Connected properties : Physical quantity : Data type : Units : …

Espen Schulze

ISO 23386 – methodology to provide an unambiguous definition of properties



INTERNATIONAL STANDARD **ISO 23386**

First edition
2020-03-12

Building information modelling and other digital processes used in construction — Methodology to describe, author and maintain properties in interconnected data dictionaries

Modélisation des informations de la construction et autres processus numériques utilisés en construction — Méthodologie de description, de création et de gestion des propriétés dans les dictionnaires de données interconnectés

Reference number
ISO 23386:2020(E)

© ISO 2020

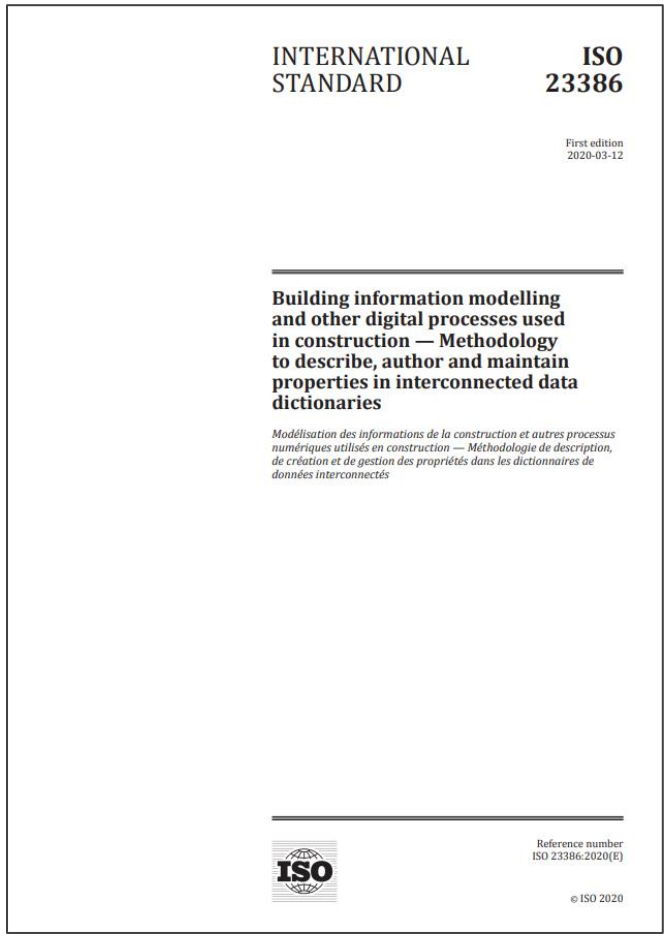
Process →

Attributes →

Property
GUID : Status : Names in language N : Descriptions in language N : Connected properties : Physical quantity : Data type : Units : …

Espen Schulze

ISO 23386 – methodology to provide an unambiguous definition of properties



INTERNATIONAL STANDARD **ISO 23386**

First edition
2020-03-12

Building information modelling and other digital processes used in construction — Methodology to describe, author and maintain properties in interconnected data dictionaries

Modélisation des informations de la construction et autres processus numériques utilisés en construction — Méthodologie de description, de création et de gestion des propriétés dans les dictionnaires de données interconnectés

Reference number
ISO 23386:2020(E)

© ISO 2020

Process →

← Source

ISO, CEN, ANSI, IEC, CENELEC, ASTM INTERNATIONAL

Building codes

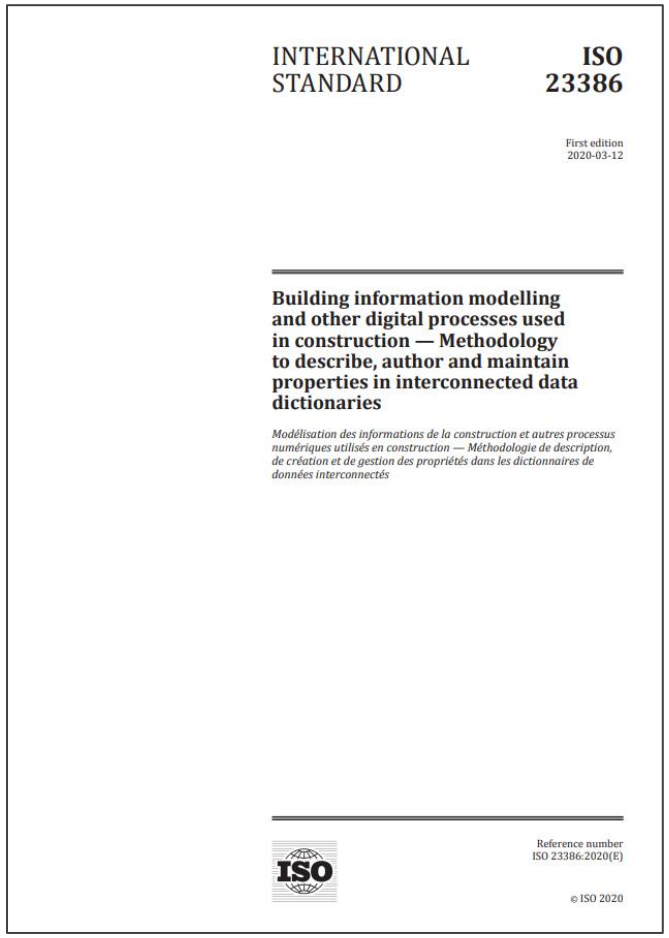
Attributes →

Property
GUID : Status : Names in language N : Descriptions in language N : Connected properties : Physical quantity : Data type : Units : …

CEN CENELEC ISO

Espen Schulze

ISO 23386 – methodology to provide an unambiguous definition of properties



INTERNATIONAL STANDARD **ISO 23386**

First edition
2020-03-12

Building information modelling and other digital processes used in construction — Methodology to describe, author and maintain properties in interconnected data dictionaries

Modélisation des informations de la construction et autres processus numériques utilisés en construction — Méthodologie de description, de création et de gestion des propriétés dans les dictionnaires de données interconnectés

Reference number
ISO 23386:2020(E)

© ISO 2020

Process

Source

ISO cen ANSI American National Standards Institute
IEC CENELEC ASTM INTERNATIONAL Standards Worldwide

Building codes

Attributes

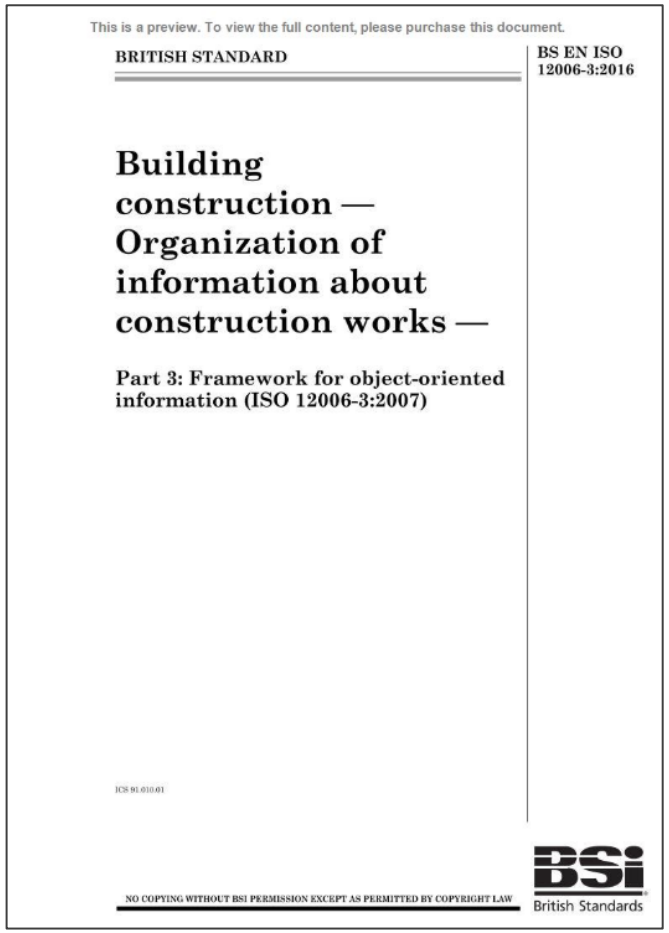
Property

GUID : **3lUmQqkDzCQRG1n$GNKhkL**
Status : **Active**
Names in language N : **volume air flow rate according to EN 13141-1**
Descriptions in language N : **measurement of the amount of air per unit of…**
Connected properties : **static pressure difference according to EN 13141-1**
Physical quantity : **volume flow rate**
Data type : **FloatNumber**
Units : **litre per second**
…

cen CENELEC ISO

Espen Schulze

ISO 12006-3



BRITISH STANDARD

BS EN ISO 12006-3:2016

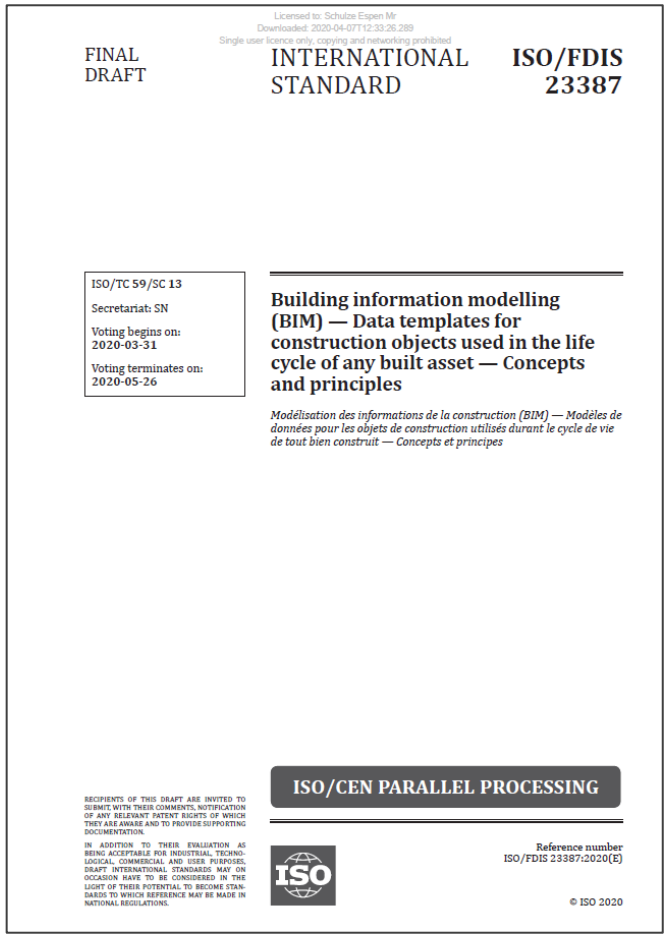
Building construction — Organization of information about construction works —

Part 3: Framework for object-oriented information (ISO 12006-3:2007)

ICS 91.010.01

BSI British Standards

ISO 23387



FINAL DRAFT

INTERNATIONAL STANDARD

ISO/FDIS 23387

ISO/TC 59/SC 13

Secretariat: SN

Voting begins on: 2020-03-31

Voting terminates on: 2020-05-26

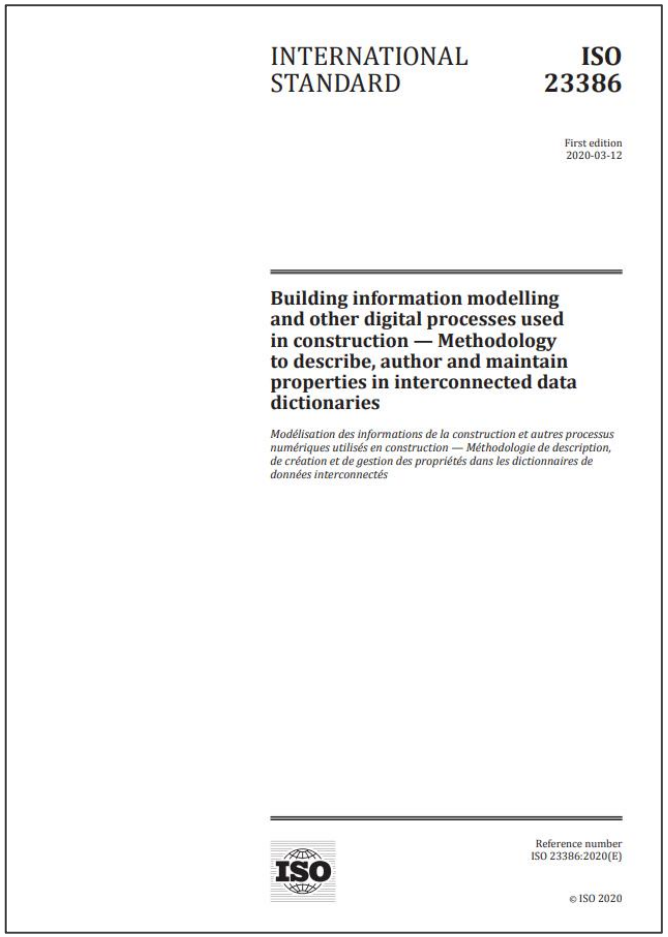
Building information modelling (BIM) — Data templates for construction objects used in the life cycle of any built asset — Concepts and principles

Modélisation des informations de la construction (BIM) — Modèles de données pour les objets de construction utilisés durant le cycle de vie de tout bien construit — Concepts et principes

ISO/CEN PARALLEL PROCESSING

Reference number ISO/FDIS 23387:2020(E)

ISO 23386



INTERNATIONAL STANDARD

ISO 23386

First edition 2020-03-12

Building information modelling and other digital processes used in construction — Methodology to describe, author and maintain properties in interconnected data dictionaries

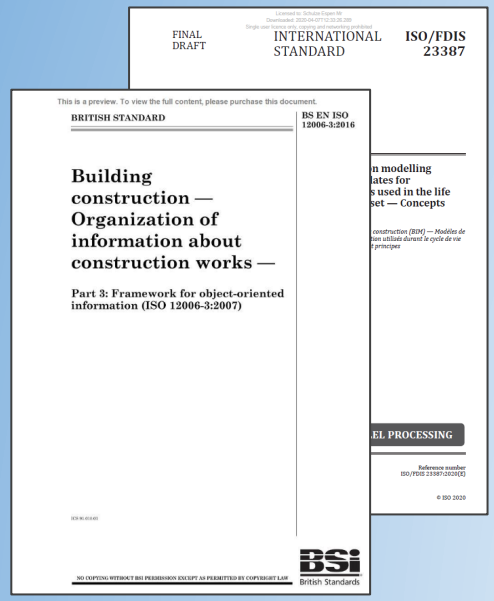
Modélisation des informations de la construction et autres processus numériques utilisés en construction — Méthodologie de description, de création et de gestion des propriétés dans les dictionnaires de données interconnectés

Reference number ISO 23386:2020(E)

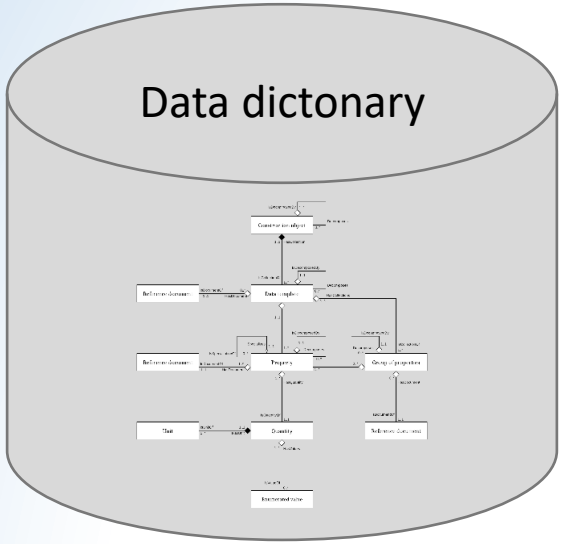
CEN CENELEC ISO

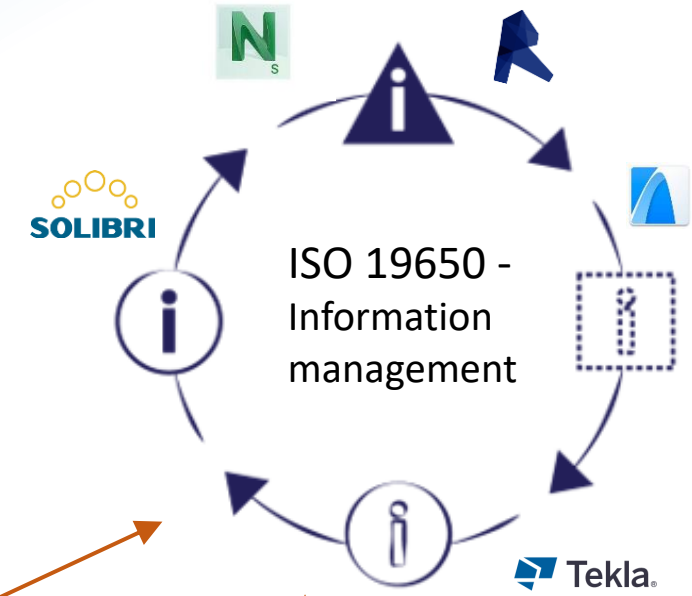
Espen Schulze

Expert process



Data model





IFC

Information exchanges

CEN CENELEC ISO

Espen Schulze

Contact us

European Committee for Standardization

CEN COMMUNITY | TECHNICAL BODIES | STANDARDS EVOLUTION AND FORECAST | SEARCH STANDARDS

Technical Bodies › **prEN 17473**

–

General | Work programme | Published Standards

EN FR DE

Project

Reference	prEN 17473
Title	Building information modelling (BIM) - Data templates for construction objects used in the life cycle of any built asset - Data templates based on harmonised technical specifications under the Construction Products Regulation (CPR)
Work Item Number	00442008
Abstract/Scope	This document provides a methodology and process to create data templates for construction products that are covered by harmonized technical specifications (harmonized product standards (hEN) and European Assessment Documents (EAD)), under Regulation (EU) No 305/2011 - the Construction Products Regulation (CPR).
Status	Under Approval
Reference Document	

Implementation Dates

date of Ratification (DOR) (1)

date of Availability (DAV) (2)

date of Announcement (DOA) (3)

date of Publication (DOP) (4)

date of Withdrawal (DOW) (5)

Relations

Supersedes

(1) Date of ratification (dor) date when the Technical Board notes the approval of an EN (and HD for

CEN CENELEC ISO

Espen Schulze

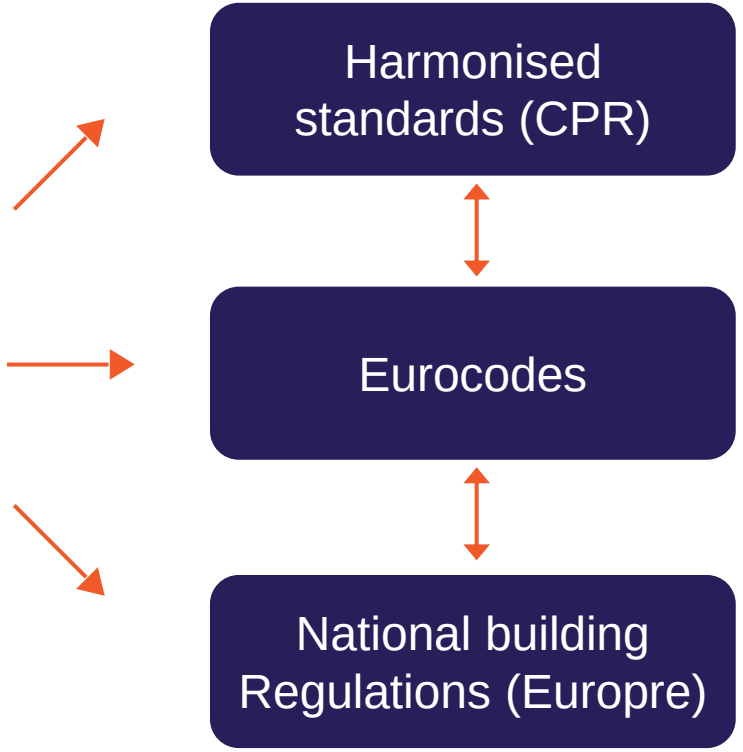

Standards

CONSTRUCTION PRODUCTS REGULATION (CPR)

- Lays down harmonised rules for the marketing of construction products in the EU
- Provides a common technical language to assess the performance of construction products
- Ensures reliable information is available to professionals, public authorities, and consumers, so they can compare the performance of products from different manufacturers in different countries

CPR – BASIC REQUIREMENTS FOR CONSTRUCTION WORKS

1. Mechanical resistance and stability
2. Safety in case of fire
3. Hygiene, health and the environment
4. Safety and accessibility in use
5. Protection against noise
6. Energy economy and heat retention
7. Sustainable use of natural resources



Annex ZA

Table ZA.1 — Relevant clauses and intended uses for lifting plants for wastewater containing faecal matter

Product: Prefabricated lifting plants and lifting plants delivered as prefabricated kits for wastewater containing faecal matter.

Intended use: Drainage of locations below flood level in buildings and sites to prevent any backflow of wastewater into the building.

Essential characteristics	Clauses in this European Standard related to essential characteristics	Regulatory classes	Notes
Reaction to fire [a]	4.7	A1 to E	A1 WT or tested and classified in accordance with EN 13501–1
Watertightness, airtightness			
— Watertightness	4.2.2	None	Test according to 5.2.1, expressed as "no leakage"
— Odourtightness	4.2.3	None	Test according to 5.2.2 expressed as "no leakage"
Effectiveness (Lifting effectiveness)			
— Pumping of solids	4.3.1	None	Test according to 5.3, expressed as "no accumulation of solids"
— Pipe connections	4.3.2, 4.3.6 and 4.3.7	None	Test according to 5.1 and 5.2.3, measured value expressed as "DN xxx"
Minimum dimensions of ventilating pipe system	4.3.3	None	Measure to the minimum value, expressed either as "DN 50" or "DN 70"
— Minimum flow velocity	4.3.4	None	Test according to 5.1.2 and 5.3, measured to the minimum value expressed as "0,7 m/s"
— Minimum free ball passage of the plant	4.3.5	None	Test according to 5.1 and 5.3, measured against the minimum value expressed as "40 mm"
Effectiveness (Lifting effectiveness)			
— Useful volume	4.3.8	None	Test according to 5.1 and 5.3, value measured and declared either as "10 l" or "20 l"

DoP

KSB

Declaration of performance as per Regulation (EU) No 305/2011, Annex III

Declaration of performance as per Regulation (EU) No 305/2011, Annex III

No.		DoP2317.1-01
For the product		**mini-Compacta**
(1)	Product type	Sewage lifting unit to EN 12050-1
(2)	Series code	See name plate
(3)	Intended use	For collecting and automatically lifting waste water with or without faeces above the flood level.
(4)	Manufacturer	KSB AG 67225 Frankenthal (Germany)
(5)	Authorised representative	Not applicable
(6)	System of assessment and verification of constancy of performance	System 3
(7)	Harmonised standard	The notified body, TÜV Rheinland LGA Products -0197-, performed determination of the product type on the basis of type-testing under system 3 and issued test report 5371065-02.
(8)	European Technical Assessment	Not relevant

(9) Declared performance

Essential characteristics		Performance	Harmonised technical specification
Effectiveness			EN 12050-1:2001
	Handling of solids	Passed	
	Pipe connections	Passed	
	Ventilation	Passed	
	Minimum flow velocity	≥ 0.7 m/s	
	Minimum cross-section of the system	≥ 40 mm	
	Minimum cross-section of the discharge-side connection	DN 80	
	Fastening elements	Passed	
Electrical equipment enclosures			
	Motor	IP68	
	Contactor	IP68	
Corrosion resistance of materials		Passed	
Hydraulic and electric characteristic values		Passed	
Water and air-tight			
	Water-tight	0.5 bar 10 min	
	Odour-proof	0.5 bar 10 min	
Noise level		≤ 70 dB	

(10) The performance of the product identified in points (1) and (2) is in conformity with the declared performance in point (9). This declaration of performance is issued under the sole responsibility of the manufacturer identified in point (4).

Frankenthal, 1 July 2013

CEN CENELEC ISO

Espen Schulze

Annex ZA

Table ZA.1 — Relevant clauses and intended uses for lifting plants for wastewater containing faecal matter

Product: Prefabricated lifting plants and lifting plants delivered as prefabricated kits for wastewater containing faecal matter.

Intended use: Drainage of locations below flood level in buildings and sites to prevent any backflow of wastewater into the building.

Essential characteristics	Clauses in this European Standard related to essential characteristics	Regulatory classes	Notes
Reaction to fire [a]	4.7	A1 to E	A1 WT or tested and classified in accordance with EN 13501–1
Watertightness, airtightness			
— Watertightness	4.2.2	None	Test according to 5.2.1, expressed as "no leakage"
— Odourtightness	4.2.3	None	Test according to 5.2.2 expressed as "no leakage"
Effectiveness (Lifting effectiveness)			
— Pumping of solids	4.3.1	None	Test according to 5.3, expressed as "no accumulation of solids"
— Pipe connections	4.3.2, 4.3.6 and 4.3.7	None	Test according to 5.1 and 5.2.3, measured value expressed as "DN xxx"
Minimum dimensions of ventilating pipe system	4.3.3	None	Measure to the minimum value, expressed either as "DN 50" or "DN 70"
— Minimum flow velocity	4.3.4	None	Test according to 5.1.2 and 5.3, measured to the minimum value expressed as "0,7 m/s"
— Minimum free ball passage of the plant	4.3.5	None	Test according to 5.1 and 5.3, measured against the minimum value expressed as "40 mm"
Effectiveness (Lifting effectiveness)			
— Useful volume	4.3.8	None	Test according to 5.1 and 5.3, value measured and declared either as "10 l" or "20 l"

Watertightness

Dop

KSB

Declaration of performance as per Regulation (EU) No 305/2011, Annex III

Declaration of performance as per Regulation (EU) No 305/2011, Annex III

No.		DoP2317.1-01
For the product		**mini-Compacta**
(1)	Product type	Sewage lifting unit to EN 12050-1
(2)	Series code	See name plate
(3)	Intended use	For collecting and automatically lifting waste water with or without faeces above the flood level.
(4)	Manufacturer	KSB AG 67225 Frankenthal (Germany)
(5)	Authorised representative	Not applicable
(6)	System of assessment and verification of constancy of performance	System 3
(7)	Harmonised standard	The notified body, TÜV Rheinland LGA Products -0197-, performed determination of the product type on the basis of type-testing under system 3 and issued test report 5371065-02.
(8)	European Technical Assessment	Not relevant

(9) Declared performance

Essential characteristics	Performance	Harmonised technical specification
Effectiveness		EN 12050-1:2001
Handling of solids	Passed	
Pipe connections	Passed	
Ventilation	Passed	
Minimum flow velocity	≥ 0.7 m/s	
Minimum cross-section of the system	≥ 40 mm	
Minimum cross-section of the discharge-side connection	DN 80	
Fastening elements	Passed	
Electrical equipment enclosures		
Motor	IP68	
Contactor	IP68	
Corrosion resistance of materials	Passed	
Hydraulic and electric characteristic values	Passed	
Water and air-tight		
Water-tight	0.5 bar 10 min	
Odour-proof	0.5 bar 10 min	
Noise level	≤ 70 dB	

(10) The performance of the product identified in points (1) and (2) is in conformity with the declared performance in point (9). This declaration of performance is issued under the sole responsibility of the manufacturer identified in point (4).

Frankenthal, 1 July 2013

CE

CEN CENELEC ISO

Espen Schulze

- **Essential characteristics**
  - **Watertightness**
    - EN XXXXX
    - ISO XXXXX
  - **Reaction to fire**
    - EN XXXXX
  - **Effectiveness**
    - EN XXXXX
- **None-Essencial characteristics**
  - **Property 1**
    - EN XXXXX
  - **Property 2**
    - EN XXXXX

Espen
Schulze

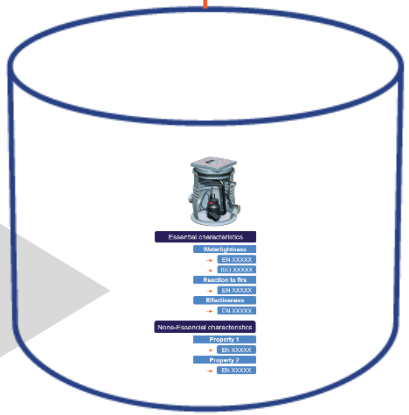
Essential characteristics

- **Watertightness**
  - EN XXXXX
  - ISO XXXXX
- **Reaction to fire**
  - EN XXXXX
- **Effectiveness**
  - EN XXXXX

None-Essencial characteristics

- **Property 1**
  - EN XXXXX
- **Property 2**
  - EN XXXXX

Common European technical language in a data dictionary based on EN ISO 12006-3



Following CEN/TC 442 expert process

Espen Schulze

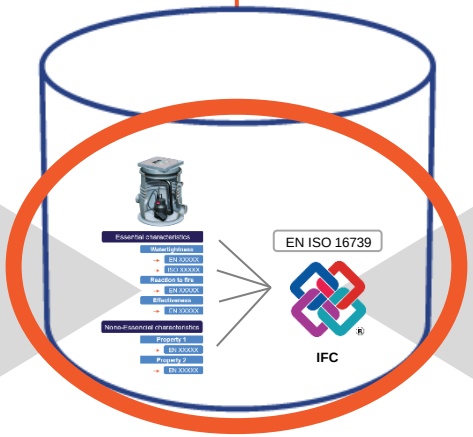
Common European technical language in a data dictionary based on EN ISO 12006-3

Essential characteristics

- **Watertightness**
  - EN XXXXX
  - ISO XXXXX
- **Reaction to fire**
  - EN XXXXX
- **Effectiveness**
  - EN XXXXX

None-Essencial characteristics

- **Property 1**
  - EN XXXXX
- **Property 2**
  - EN XXXXX



EN ISO 16739

IFC™

Espen Schulze

Data Templates – Do they work with Linked Data?

Espen
Schulze

TC 442

WI 442021:
Semantic Modelling and Linking Standard (SMLS) for data integration in the built environment

Espen
Schulze

TC 442

WI 442021:
Semantic Modelling and Linking Standard (SMLS) for data integration in the built environment

EN ISO 23386, Methodology to create properties

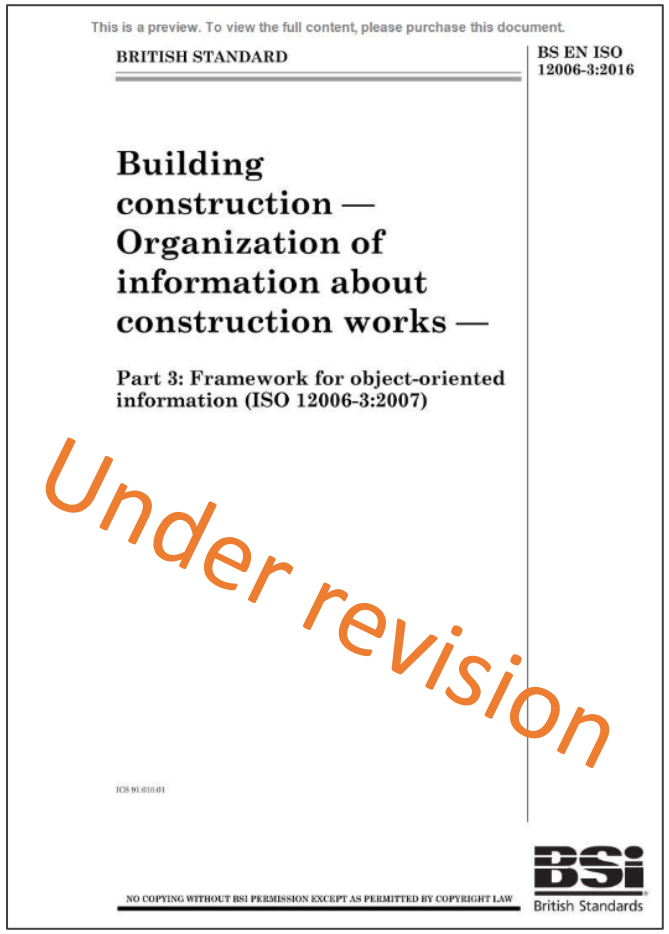
EN ISO 23387, Structure for Data Templates

EXAMPLE (OWL / TURTLE)

```
ex:Door a owl:Class .

ex:height a owl:ObjectProperty ;
  rdfs:range smls:QuantityValue ;
  smls:quantityKind quantitykind:Length .

ex:clearOpeningHeight a owl:ObjectProperty ;
  skos:definition "height measured from top threshold to bottom of stop"@en ;
  rdfs:subPropertyOf ex:height ;
  rdfs:domain ex:Door ;
  rdfs:seeAlso "EN12519" ; -- example external reference
  pdt:languageCode nace:FR ; -- example CEN PDT meta-data
  pdt:dateOfVersion "2019-11-06T16:10" . -- example CEN PDT meta-data

ex:Door_1 a ex:Door ;
  ex:ClearOpeningHeight [rdf:value 2.40 ;
                         smls:unit unit:M ;
                         ex:hasAccuracy 85.5 ;
                         ex:measuredBy "Somebody" ; ] .

ex:PropertyDefSet_1 a rdfs:Container ;
  rdfs:member ex:clearOpeningHeight .
```

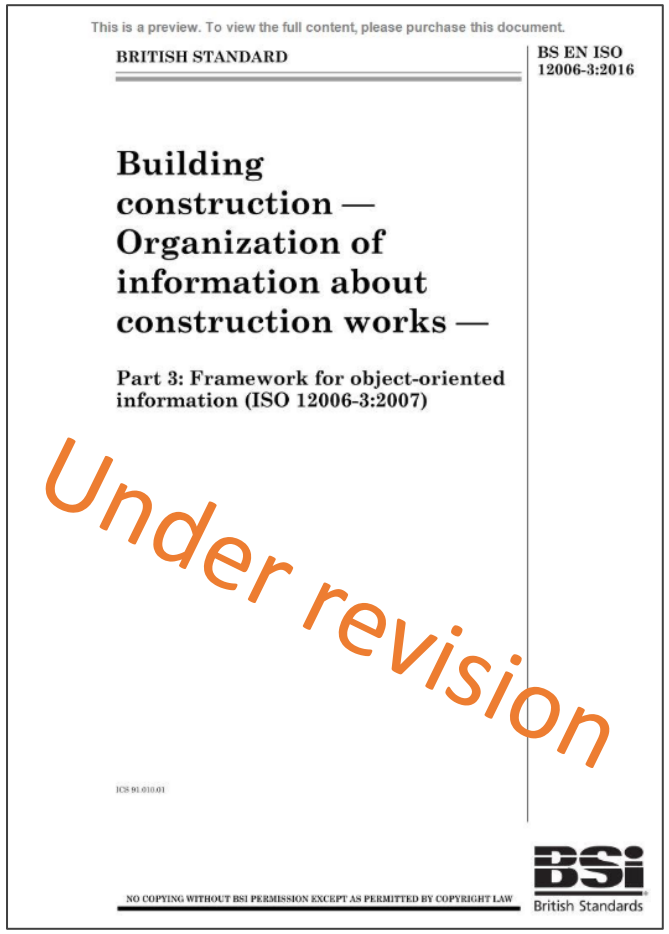
Meta-data in **bold**

ISO 12006-3 (IFD) - Framework for object-oriented information



Espen Schulze

ISO 12006-3 (IFD) - Framework for object-oriented information



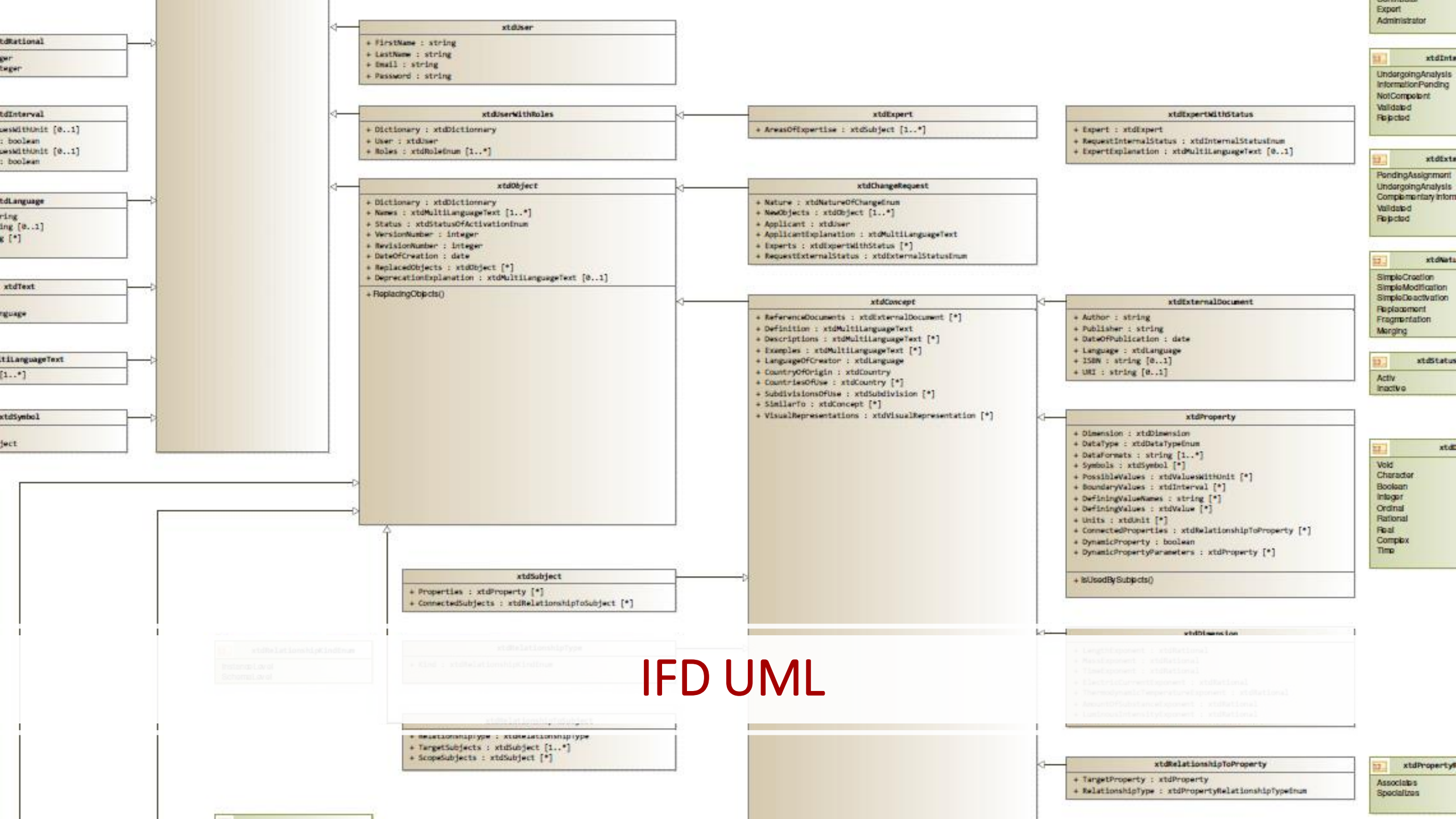
→ EXPRESS

→ UML

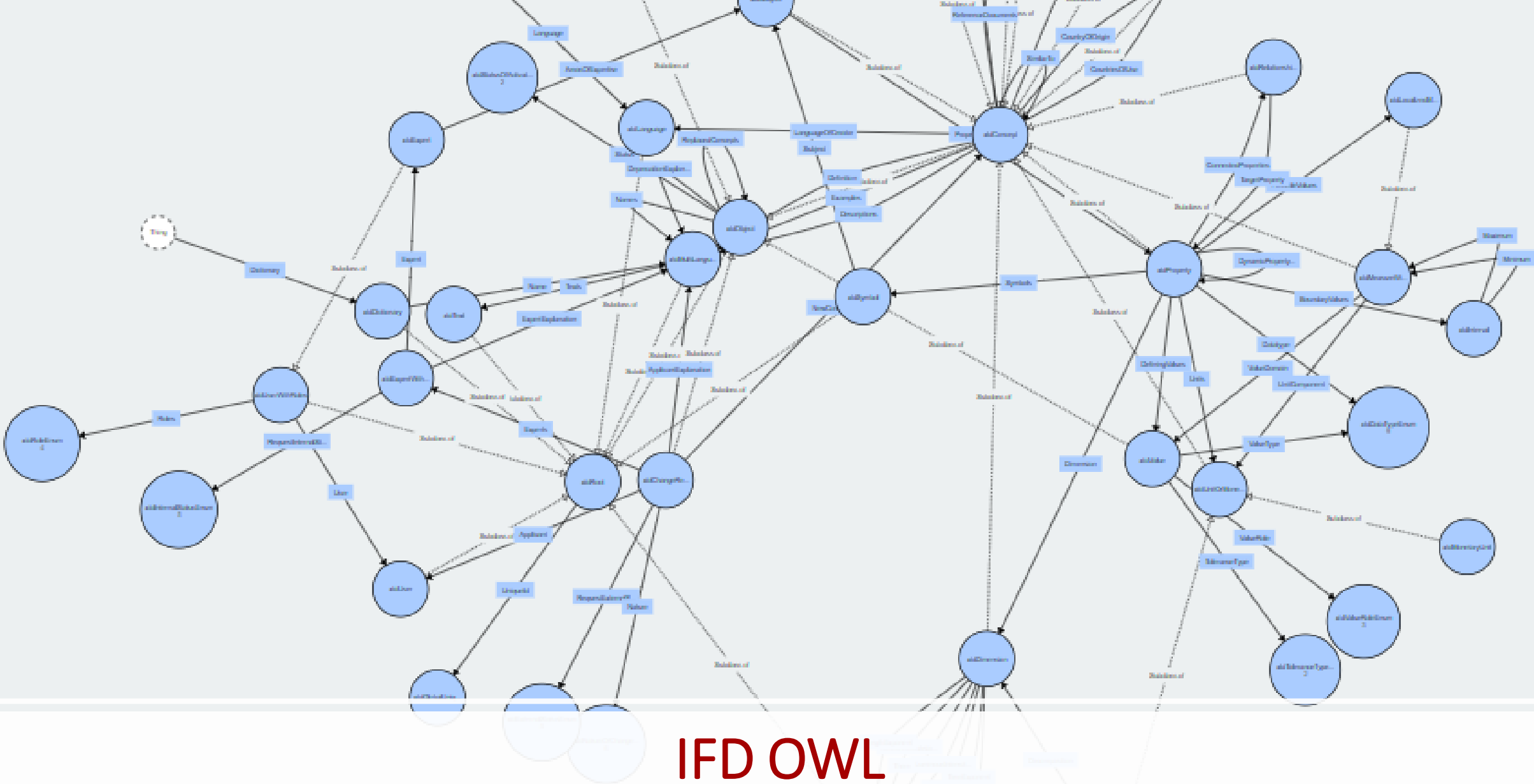
→ Turtle

→ …

Espen Schulze

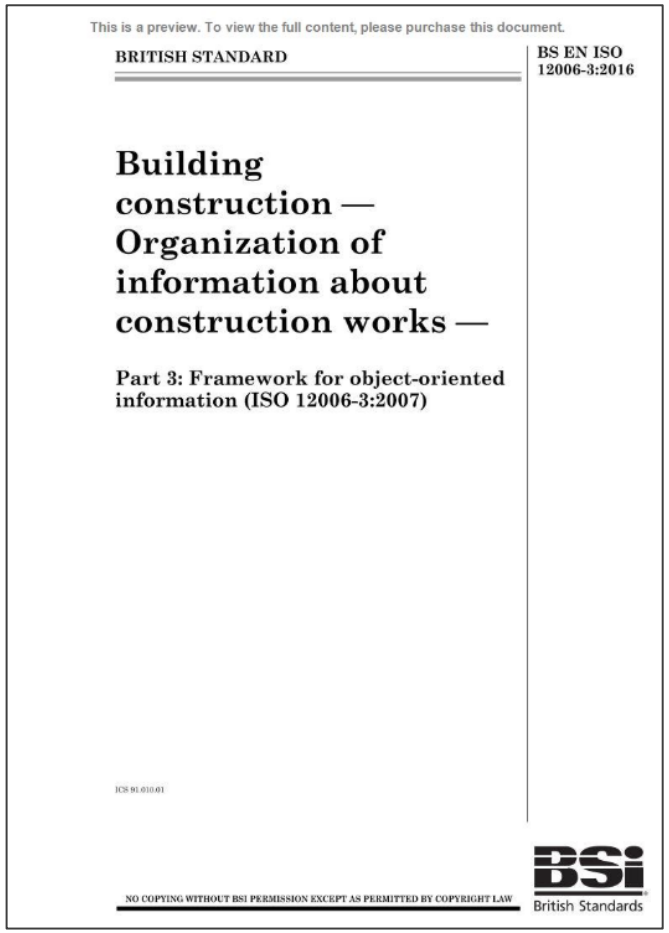

xtdUser
+ FirstName : string
+ LastName : string
+ Email : string
+ Password : string
xtdUserWithRoles
+ Dictionary : xtdDictionary
+ User : xtdUser
+ Roles : xtdRoleEnum [1..*]
xtdExpert
+ AreasOfExpertise : xtdSubject [1..*]
xtdExpertWithStatus
+ Expert : xtdExpert
+ RequestInternalStatus : xtdInternalStatusEnum
+ ExpertExplanation : xtdMultiLanguageText [0..1]
xtdObject
+ Dictionary : xtdDictionary
+ Names : xtdMultiLanguageText [1..*]
+ Status : xtdStatusOfActivationEnum
+ VersionNumber : integer
+ RevisionNumber : integer
+ DateOfCreation : date
+ ReplacedObjects : xtdObject [*]
+ DeprecationExplanation : xtdMultiLanguageText [0..1]
+ ReplacingObjects()
xtdChangeRequest
+ Nature : xtdNatureOfChangeEnum
+ NewObjects : xtdObject [1..*]
+ Applicant : xtdUser
+ ApplicantExplanation : xtdMultiLanguageText
+ Experts : xtdExpertWithStatus [*]
+ RequestExternalStatus : xtdExternalStatusEnum
xtdConcept
+ ReferenceDocuments : xtdExternalDocument [*]
+ Definition : xtdMultiLanguageText
+ Descriptions : xtdMultiLanguageText [*]
+ Examples : xtdMultiLanguageText [*]
+ LanguageOfCreator : xtdLanguage
+ CountryOfOrigin : xtdCountry
+ CountriesOfUse : xtdCountry [*]
+ SubdivisionsOfUse : xtdSubdivision [*]
+ SimilarTo : xtdConcept [*]
+ VisualRepresentations : xtdVisualRepresentation [*]
xtdExternalDocument
+ Author : string
+ Publisher : string
+ DateOfPublication : date
+ Language : xtdLanguage
+ ISBN : string [0..1]
+ URI : string [0..1]
xtdProperty
+ Dimension : xtdDimension
+ DataType : xtdDataTypeEnum
+ DataFormats : string [1..*]
+ Symbols : xtdSymbol [*]
+ PossibleValues : xtdValuesWithUnit [*]
+ BoundaryValues : xtdInterval [*]
+ DefiningValueNames : string [*]
+ DefiningValues : xtdValue [*]
+ Units : xtdUnit [*]
+ ConnectedProperties : xtdRelationshipToProperty [*]
+ DynamicProperty : boolean
+ DynamicPropertyParameters : xtdProperty [*]
+ IsUsedBySubjects()
xtdSubject
+ Properties : xtdProperty [*]
+ ConnectedSubjects : xtdRelationshipToSubject [*]
+ TargetSubjects : xtdSubject [1..*]
+ ScopeSubjects : xtdSubject [*]
xtdRelationshipToProperty
+ TargetProperty : xtdProperty
+ RelationshipType : xtdPropertyRelationshipTypeEnum
xtdRational
xtdInterval
xtdLanguage
xtdText
xtdLanguageText
xtdSymbol
Export
Administrator
UndergoingAnalysis
InformationPending
NotCompetent
Validated
Rejected
PendingAssignment
UndergoingAnalysis
ComplementaryInform
Validated
Rejected
SimpleCreation
SimpleModification
SimpleDeactivation
Replacement
Fragmentation
Merging
Activ
Inactive
Void
Character
Boolean
Integer
Ordinal
Rational
Real
Complex
Time
Associates
Specializes

IFD UML



IFD OWL

ISO 12006-3



BRITISH STANDARD

BS EN ISO 12006-3:2016

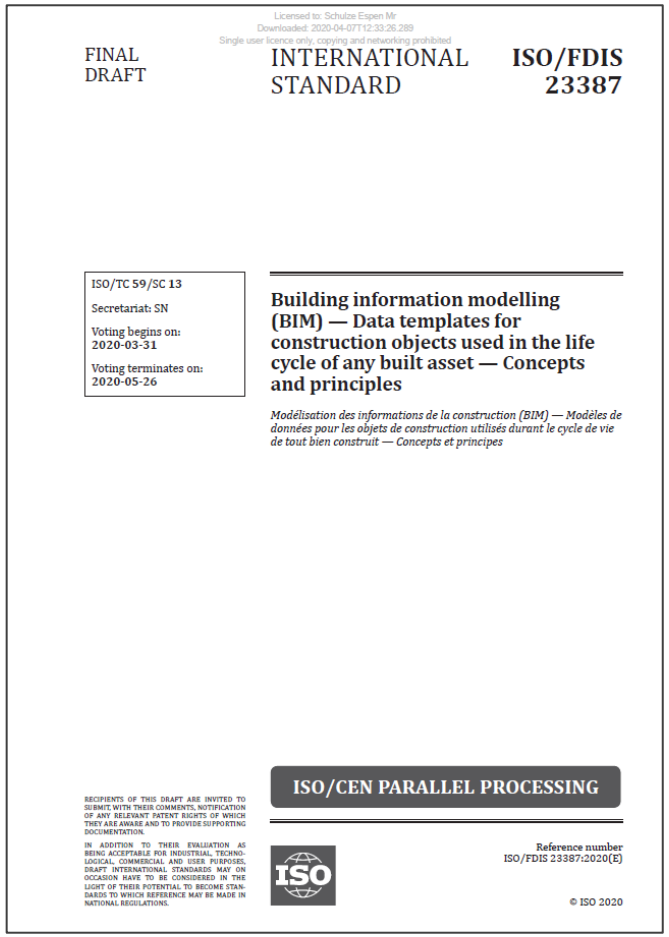
Building construction — Organization of information about construction works —

Part 3: Framework for object-oriented information (ISO 12006-3:2007)

ICS 91.010.01

BSI British Standards

ISO 23387



FINAL DRAFT

INTERNATIONAL STANDARD

ISO/FDIS 23387

ISO/TC 59/SC 13

Secretariat: SN

Voting begins on: 2020-03-31

Voting terminates on: 2020-05-26

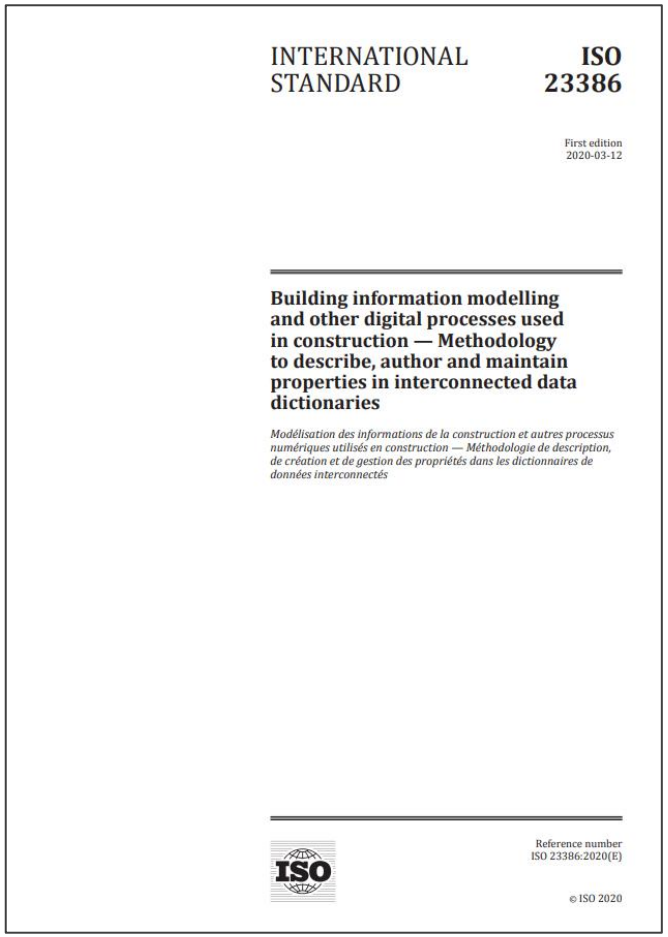
Building information modelling (BIM) — Data templates for construction objects used in the life cycle of any built asset — Concepts and principles

Modélisation des informations de la construction (BIM) — Modèles de données pour les objets de construction utilisés durant le cycle de vie de tout bien construit — Concepts et principes

ISO/CEN PARALLEL PROCESSING

Reference number ISO/FDIS 23387:2020(E)

ISO 23386



INTERNATIONAL STANDARD

ISO 23386

First edition 2020-03-12

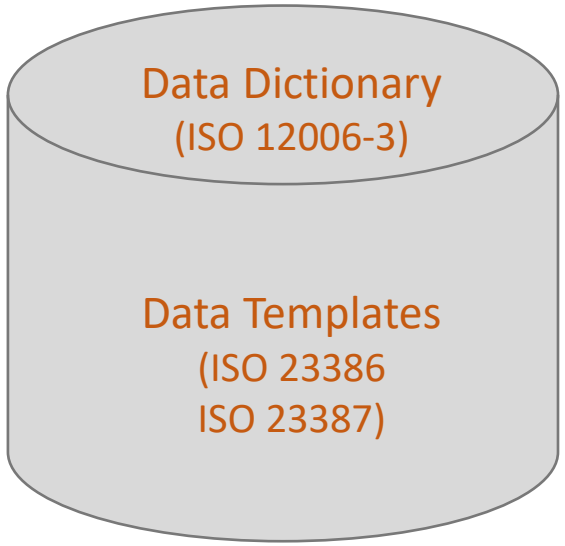
Building information modelling and other digital processes used in construction — Methodology to describe, author and maintain properties in interconnected data dictionaries

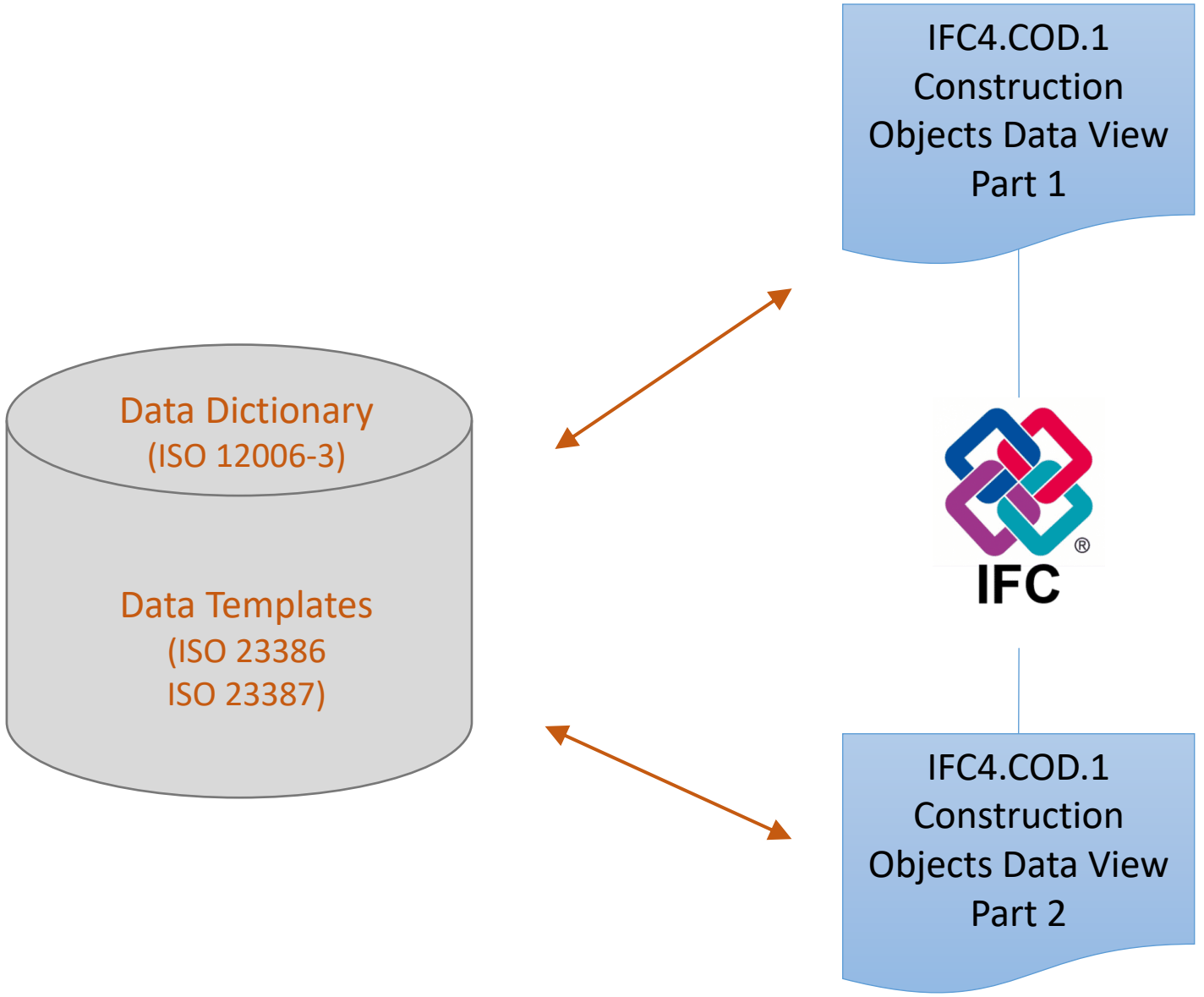
Modélisation des informations de la construction et autres processus numériques utilisés en construction — Méthodologie de description, de création et de gestion des propriétés dans les dictionnaires de données interconnectés

Reference number ISO 23386:2020(E)

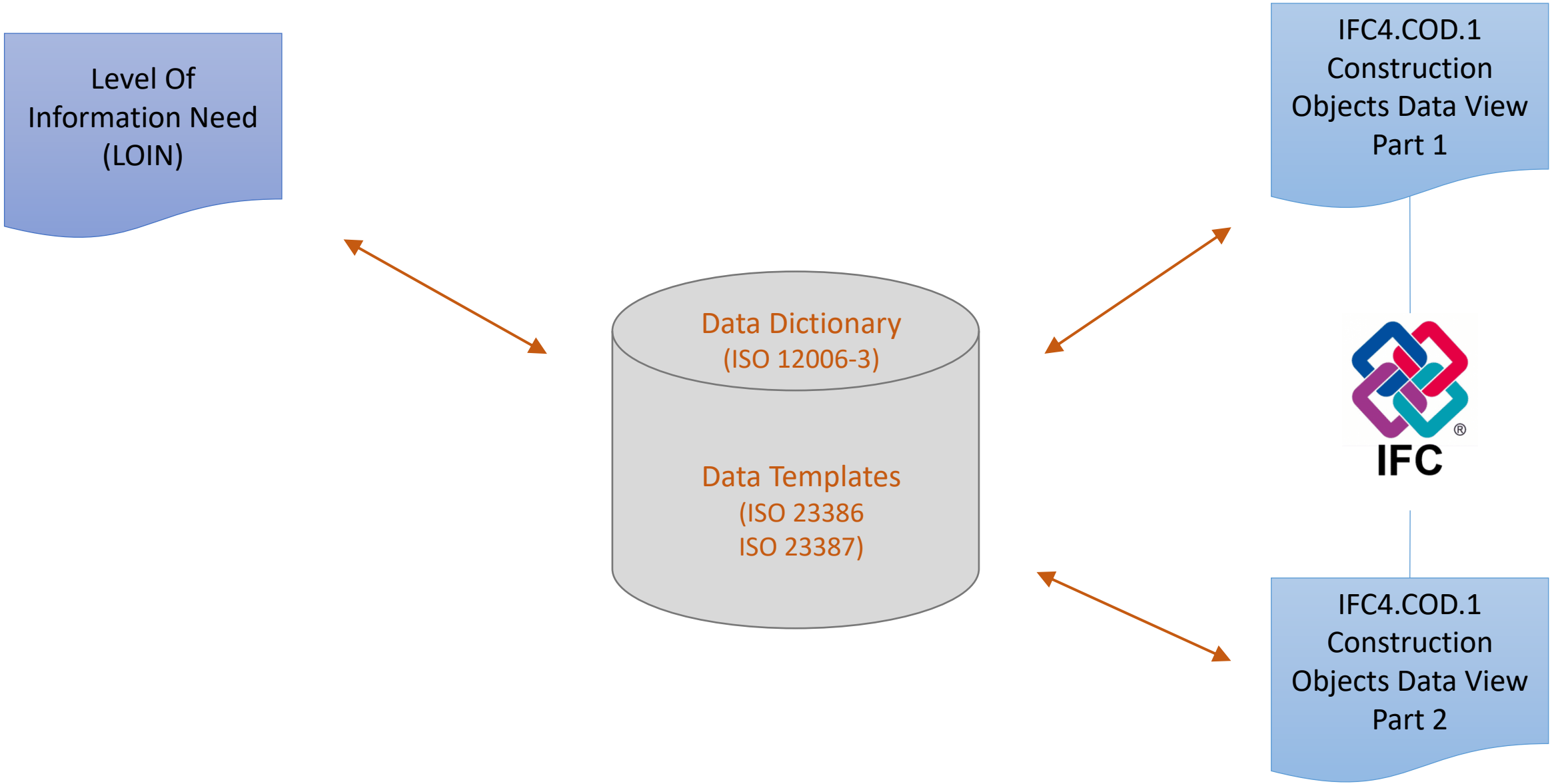
CEN CENELEC ISO

Espen Schulze

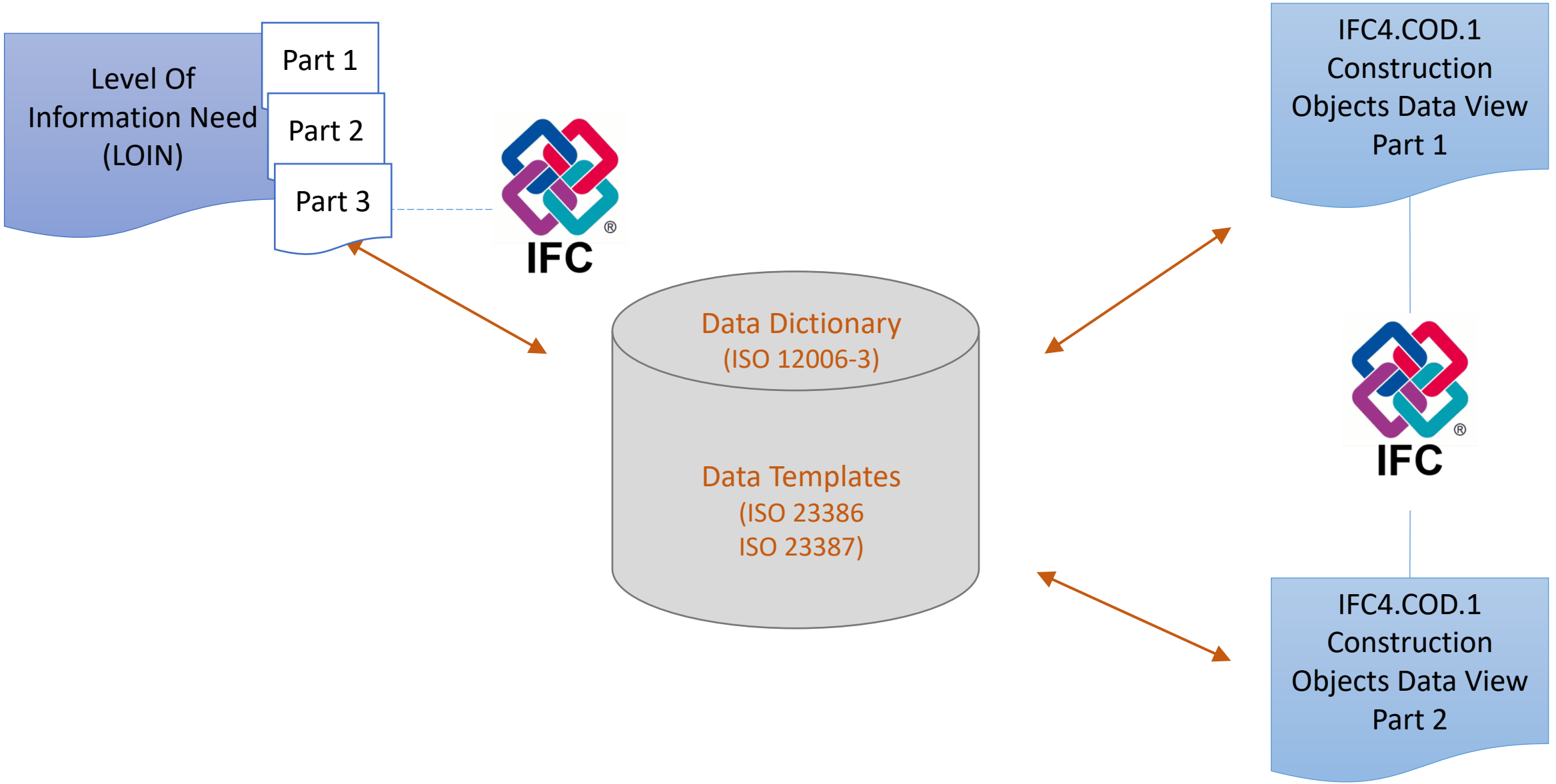

Data Dictionary
(ISO 12006-3)
Data Templates
(ISO 23386
ISO 23387)



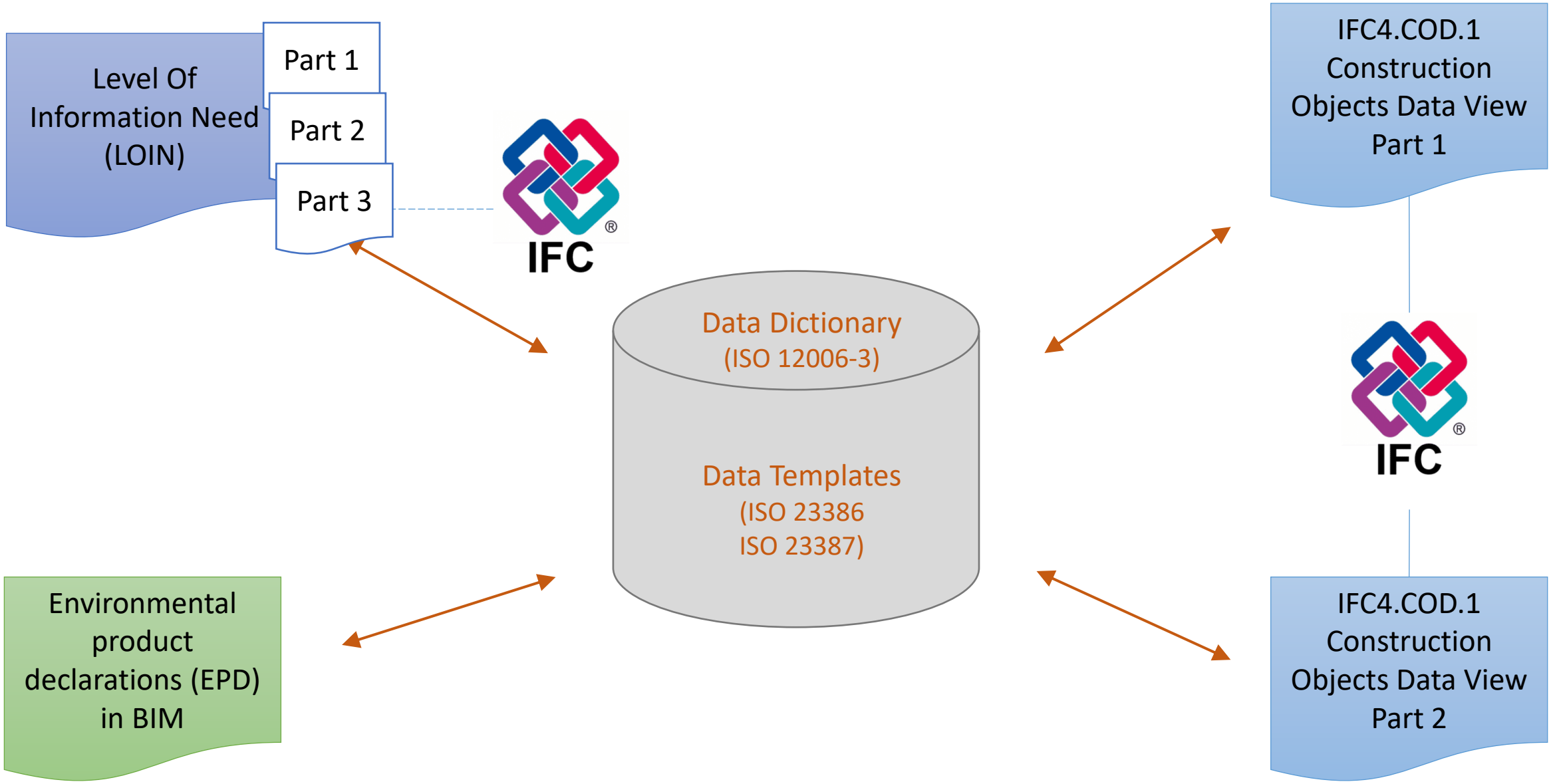
Espen
Schulze



Espen Schulze

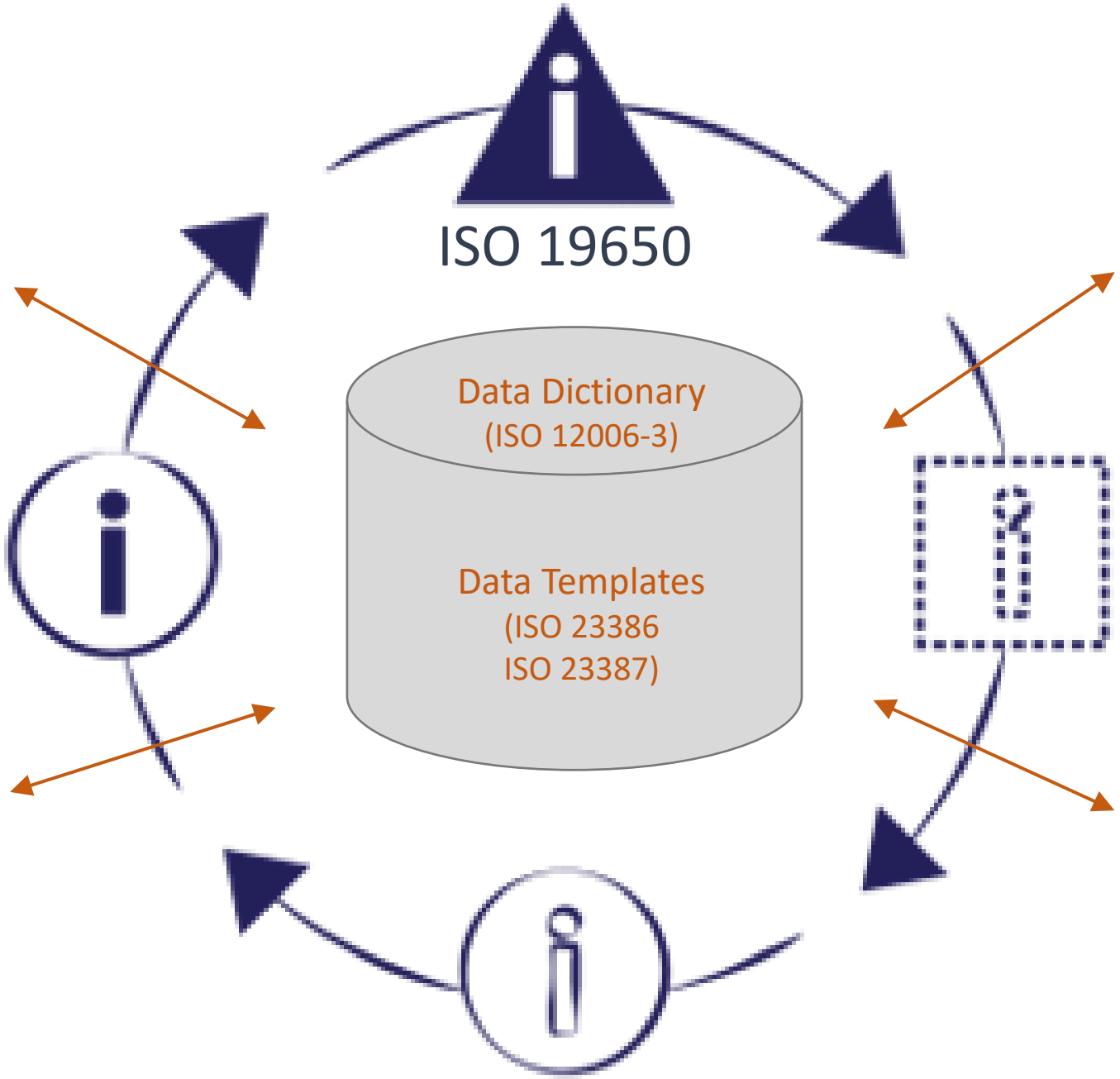


Espen Schulze



Espen Schulze

Level Of Information Need (LOIN)



IFC4.COD.1 Construction Objects Data View Part 1

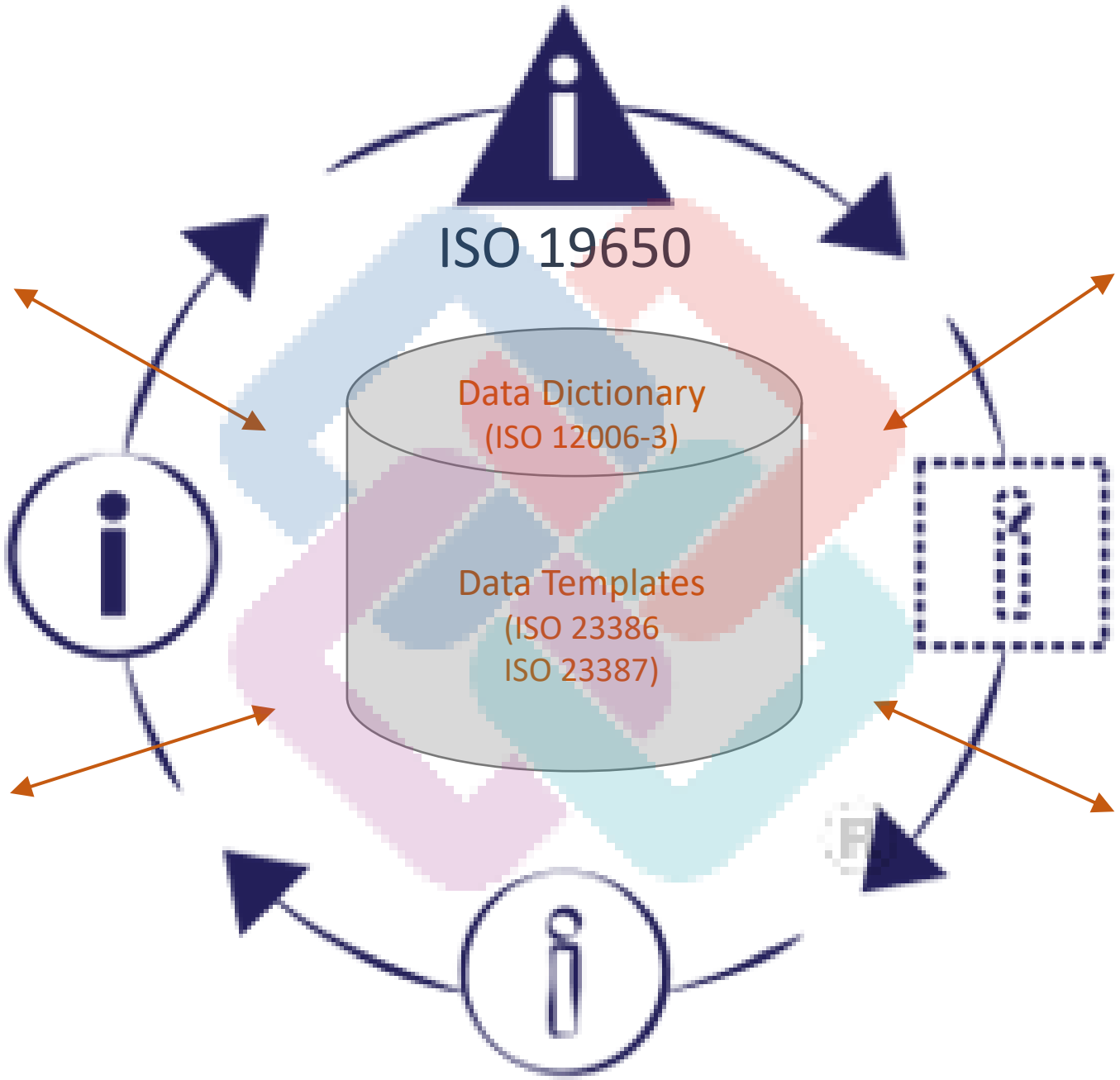
Environmental product declarations (EPD) in BIM

IFC4.COD.1 Construction Objects Data View Part 2

Espen Schulze

Level Of Information Need (LOIN)

IFC4.COD.1 Construction Objects Data View Part 1



Environmental product declarations (EPD) in BIM

IFC4.COD.1 Construction Objects Data View Part 2

Espen Schulze

Thank you for the attention!

 schulze@cobuilder.no

 Espen Schulze

 @espenschulze