CEN/TC 442

Building Information Modelling

REPORT TO ACE

BRUSSELS 2017-11-01

ØIVIND ROOTH, CHAIR CEN/TC442

Norwegian leadership in CEN and ISO

ISO/TC59/SC13
Information about construction work

- Chair: Mr. Kjell Ivar Bakkmoen
- Secretary: Ms Lisbet Landfald, Standards Norway

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CEN/TC 442
Building Information Modelling

- Chair: Mr. Øivind Rooth
- Secretary: Ms Lisbet Landfald, Standards Norway

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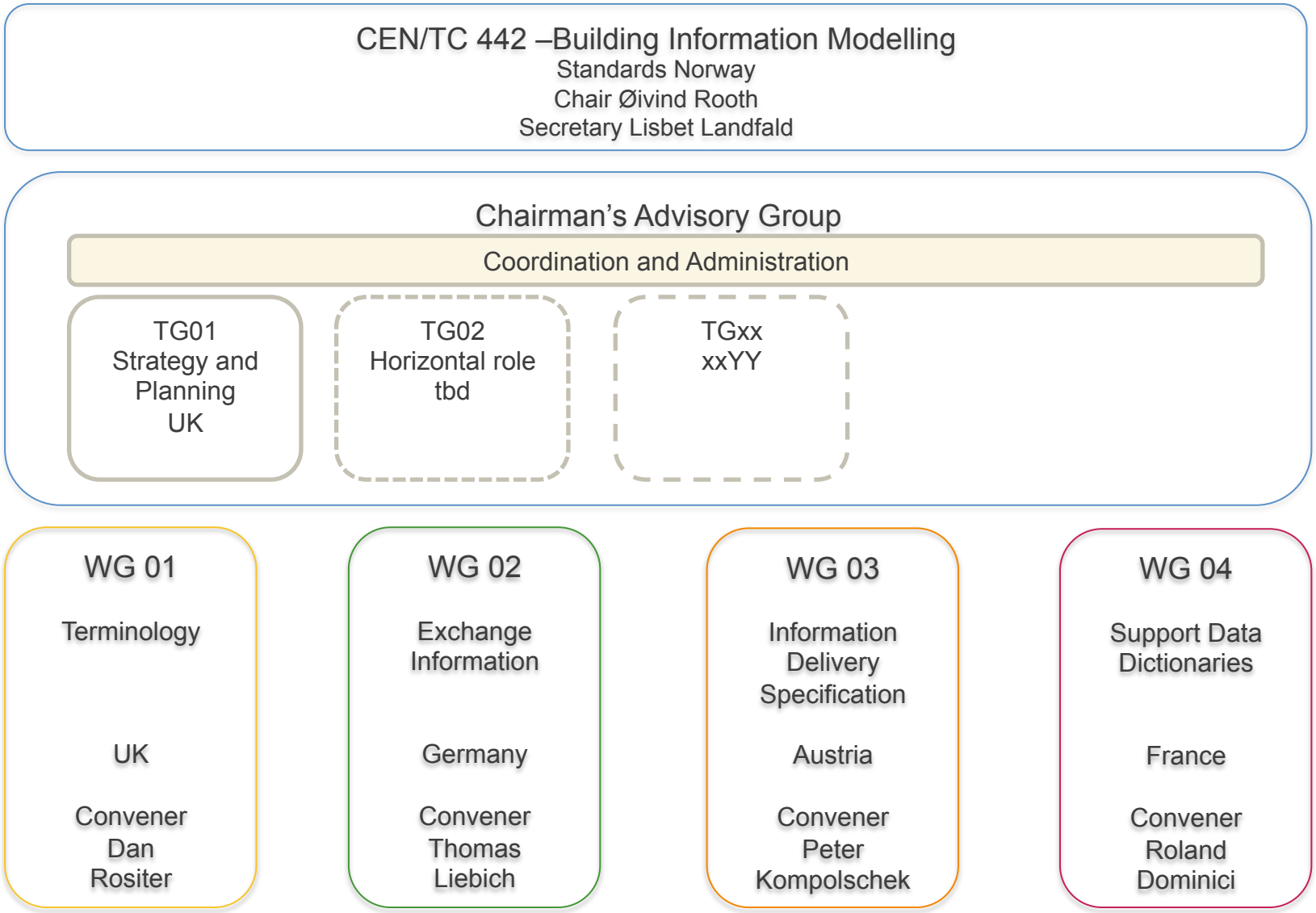
New structure decided in CEN/TC442 plenary meeting in Dublin 22.11.2017

Structure of CEN/TC 442 – Building Information Modelling



WG5 Chairman's Advisory Group

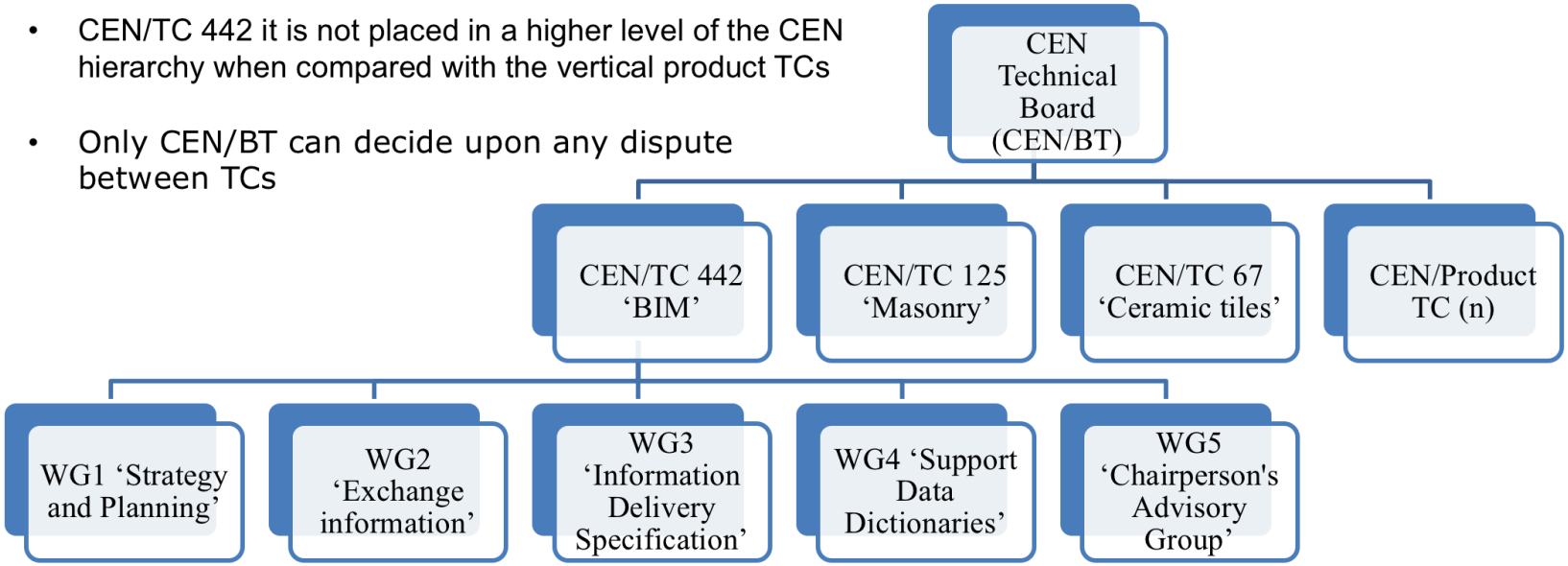
- WG5 Chairman's Advisory Group
  - Convener Øivind Rooth
  - Secretariat SN/Lisbet Landfald
  - Organise and coordinate meetings
  - Closed Group, WG Conveners and Secretaries and WG5/TG conveners
  - Meeting in conjunction with TC plenary meetings
- WG5/TG 01 – Strategy and Planning
  - Co-conveners Richard Waterhouse and Øivind Rooth
  - Secretariat BSI
  - Closed Group, WG Conveners and Secretaries and appointed delegates. (Delegates has to be active)
  - Meet regularly between TC plenary meetings
- WG5/TG 02 (as an example) – Chair Advisory Panel on Horizontal role
  - Develop and maintain collaboration framework between CEN TC's and other technical organisations in liaison

How to Implement CEN/TC 442

Horizontal role

CEN/TC 442 in CEN structure

- CEN/TC 442 is a horizontal TC because of its horizontal scope
- CEN/TC 442 it is not placed in a higher level of the CEN hierarchy when compared with the vertical product TCs
- Only CEN/BT can decide upon any dispute between TCs



CEN/TC 442 can propose a collaboration framework with the other TCs in order to promote consistency in the field of BIM and avoid overlapping

The example of CEN/TC 350 'Sustainability of construction works'

DECISION BT 3/2013 **(73rd BT item: 5.1.3)**

Subject: Product Category Rules (PCRs) based on EN 15804 from CEN/TC 350 'Sustainability of construction works'

BT,

- noting the request of CEN/TC 350 'Sustainability of construction works' as in Annex 1 BT N 9216;
- noting the concerns and recommendation of the Construction Core Group as in Annex 2 to BT N 9216;
- endorses the Construction Core Group recommendation 165/2013;
- asks CEN/TCs developing product standards to apply the horizontal rules of EN 15804;
- requests product TC's preparing specific Product Category Rules based on EN 15804 to liaise closely with CEN/TC 350;
- requests product TCs in the construction sector and CEN/TC 350 to consult the Construction Core Group, should issues be identified;
- requests CEN/TC 350 to finalise the Technical Report "Guidance for the implementation of EN 15804" as soon as possible.

This decision is applicable as from: 2013-04-12

CEN/TC442 mandated CAG to develop a framework for implementing the horizontal role.

DECISION *102* taken by CEN/TC *442* on *2017-11-22*

Subject: Horizontal role of TC 442

TC 442 agrees that the recognition from CEN/BT of TC 442 as a horizontal group is important and asks the secretariat to contact CEN/BT.

The decision was taken by *unanimity*

Updated Business Plan

From Road Map to Business Plan

Proposed revised Business Plan
from CEN/TC 442/WG 1 Building Information Modelling (BIM)

SCOPE CEN TC 442
Building Information Modelling

Standardization in the field of structured semantic life-cycle information for the built environment. The committee will develop a structured set of standards, specifications and reports which specify methodologies to define, describe, exchange, monitor, record and securely handle asset data, semantics and processes with links to geospatial and other external data.

Proposed revised BUSINESS PLAN

CEN/TC 442
Building Information Modelling (BIM)

EXECUTIVE SUMMARY

Business Environment
The construction industry is one of the largest European industries (9% of the GDP of the EU and 18 million jobs and 3.1 million enterprises). It uses about 50% of the raw materials taken from the earth and generates about 40% of all greenhouse gas emissions in Europe.

The industry is seen as being relatively inefficient in both process and service delivery. Current practices lead to duplication of activities as well as increases in costs and timescales for delivery of construction projects and operation of the assets.

Construction clients and users typically receive poor operating information at handover of the built assets and as such, management of the asset portfolio can be improved.

The introduction of Building Information Modelling (BIM) is seen as being the solution to the management of the information during the design, construction and operational phases of the asset lifecycle. The development of BIM is advancing rapidly and requires the application of common standards to ensure future compatibility of data exchange and use.

A recently published UK Cabinet Office report shows capital cost savings of 19.6% due to use of BIM, saving £840m on £3.5bn of construction spend in the 2013/2014 financial year.

Benefits
The introduction of common standards and operating methods using BIM will:
- Reduce barriers to operation and trade across the European market area and beyond.

CEN/TC 442/WG 1 - Road Map

1. Introduction

1.1. CEN/TC 442

The objective of the CEN/TC 442 "Building Information Modelling (BIM)"is to be:
- the home for European BIM standardisation;
- the central place to go for coordinating European BIM harmonisation.

CEN/TC 442 Building Information Modelling: Scope

Standardisation in the field of structured semantic life-cycle information for the built environment.

The committee will develop a structured set of standards, specifications and reports which specify methodologies to define, describe, exchange, monitor, record and securely handle asset data, semantics and processes with links to geospatial and other external data.

Purpose of this document

This document will give a short overview on what BIM is and explain why open BIM is important. It will seek to identify necessary actions for producing standards within strategic areas for the European Construction industry in order to bring down barriers and unlock business opportunities.

1.2. What is BIM?

BIM stands for Building Information Modelling. Building includes also infrastructures.

Building information modelling provides a methodology for digital interoperability by using digital technology, describing and displaying information required in the planning, design, construction and operation of constructed facilities. Increasingly, this modelling approach is expanding to encompass all aspects of the built environment. These are collectively referred to as construction processes. This approach to managing information brings together the diverse sets of information used during the life cycle of the built environment into a common information environment, reducing, and often eliminating the need for the many types of paper documentation currently in use.

The terms and definitions in the Business Plan shall be updated in this sense.

1.3. What is BIM maturity?

BIM maturity is associated to the fact that it not possible to move brutally from a traditional modelling approach towards an open BIM approach. The change has to be managed progressively as climbing up a stair step by step.

The BIM maturity is often presented as a "wedge". Compared to the UK wedge, some levels have been subdivided (Level 0 and Level 3) and a new level has been added (Level 4).

To evaluate which wedge level is reached, indicators have been introduced. These indicators measure four aspects: the content, the digitalization, the interoperability and the collaboration.

CEN/TC 442 – Building Information Modelling

SCOPE CEN TC 442

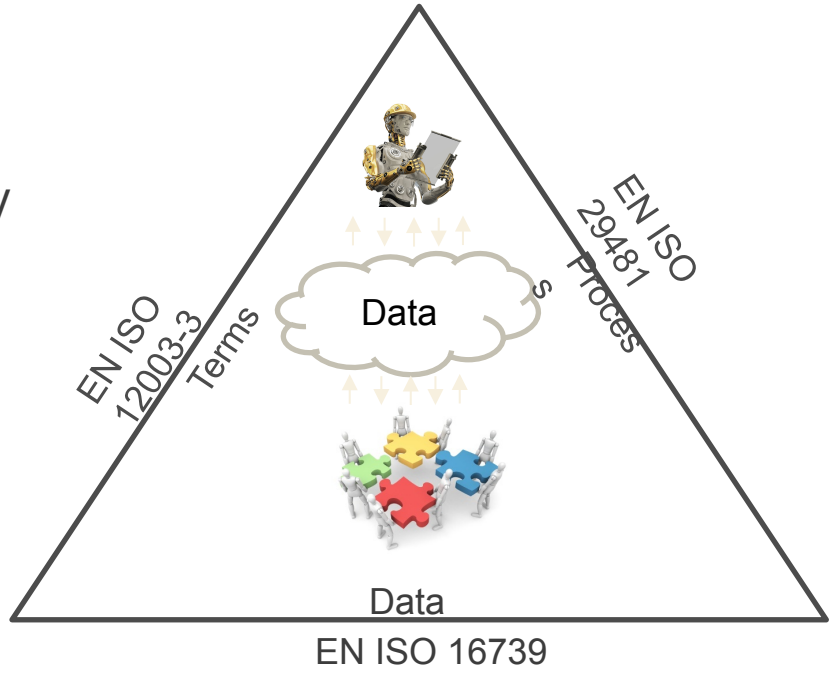
Building Information Modelling

Standardization in the field of structured semantic life-cycle information for the built environment.

The committee will develop a structured set of standards, specifications and reports which specify methodologies to define, describe, exchange, monitor, record and securely handle asset data, semantics and processes with links to geospatial and other external data.

The three pillars of interoperability

Data Dictionary

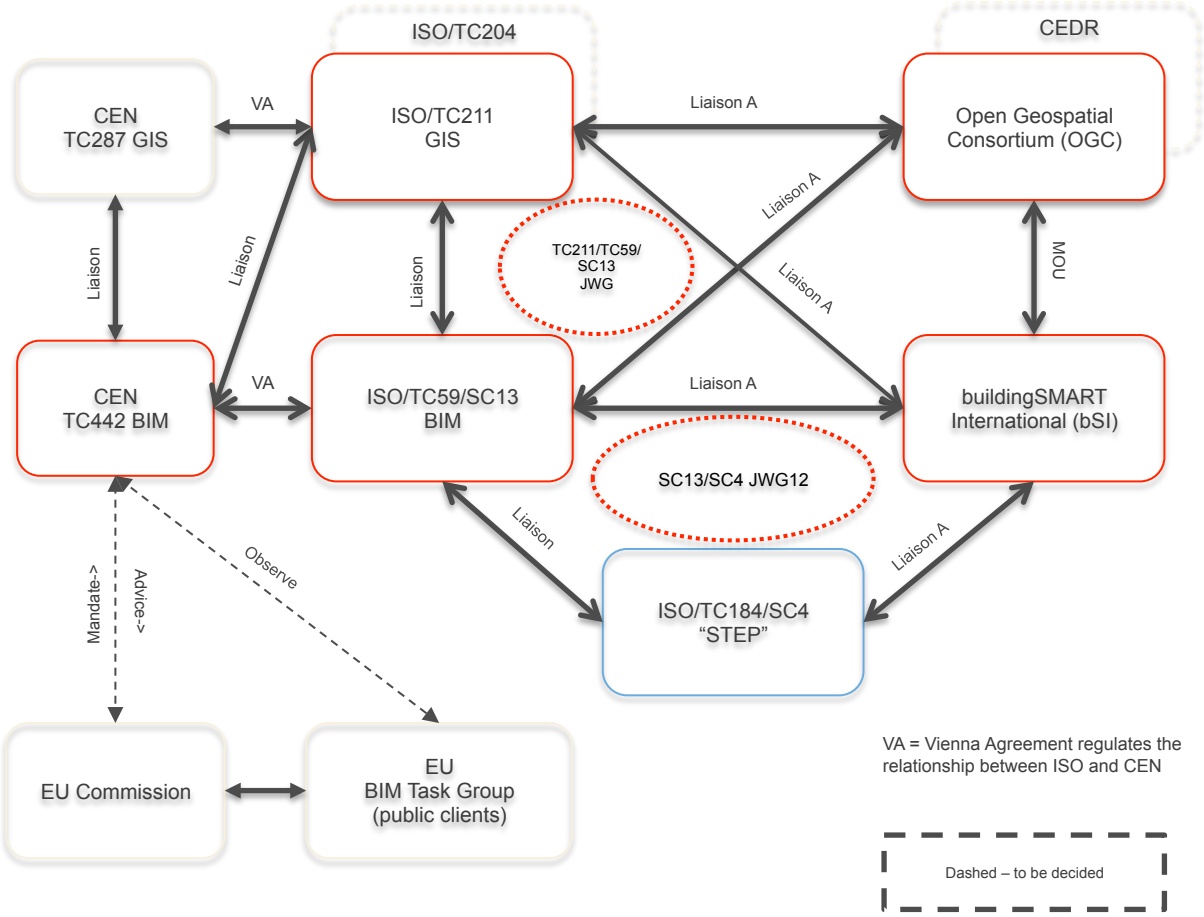


Process Map and Exchange Requirement (E

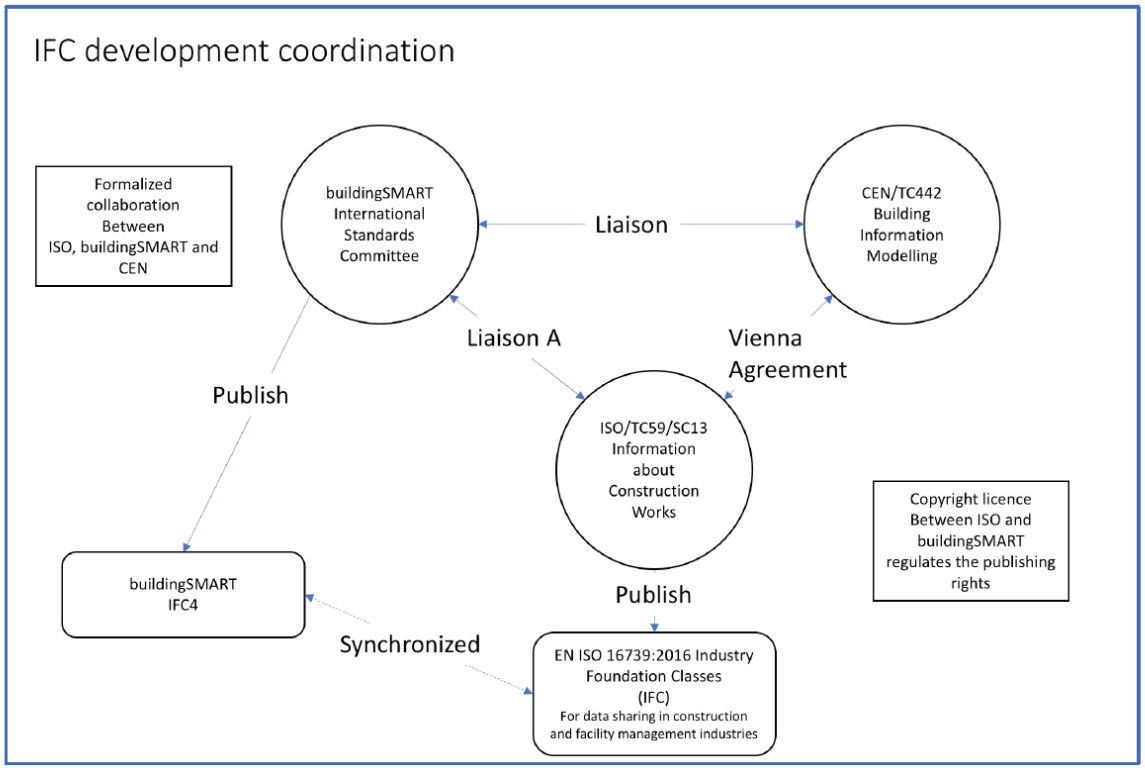
Data Model

standards norway

Important relations in international BIM standardisation

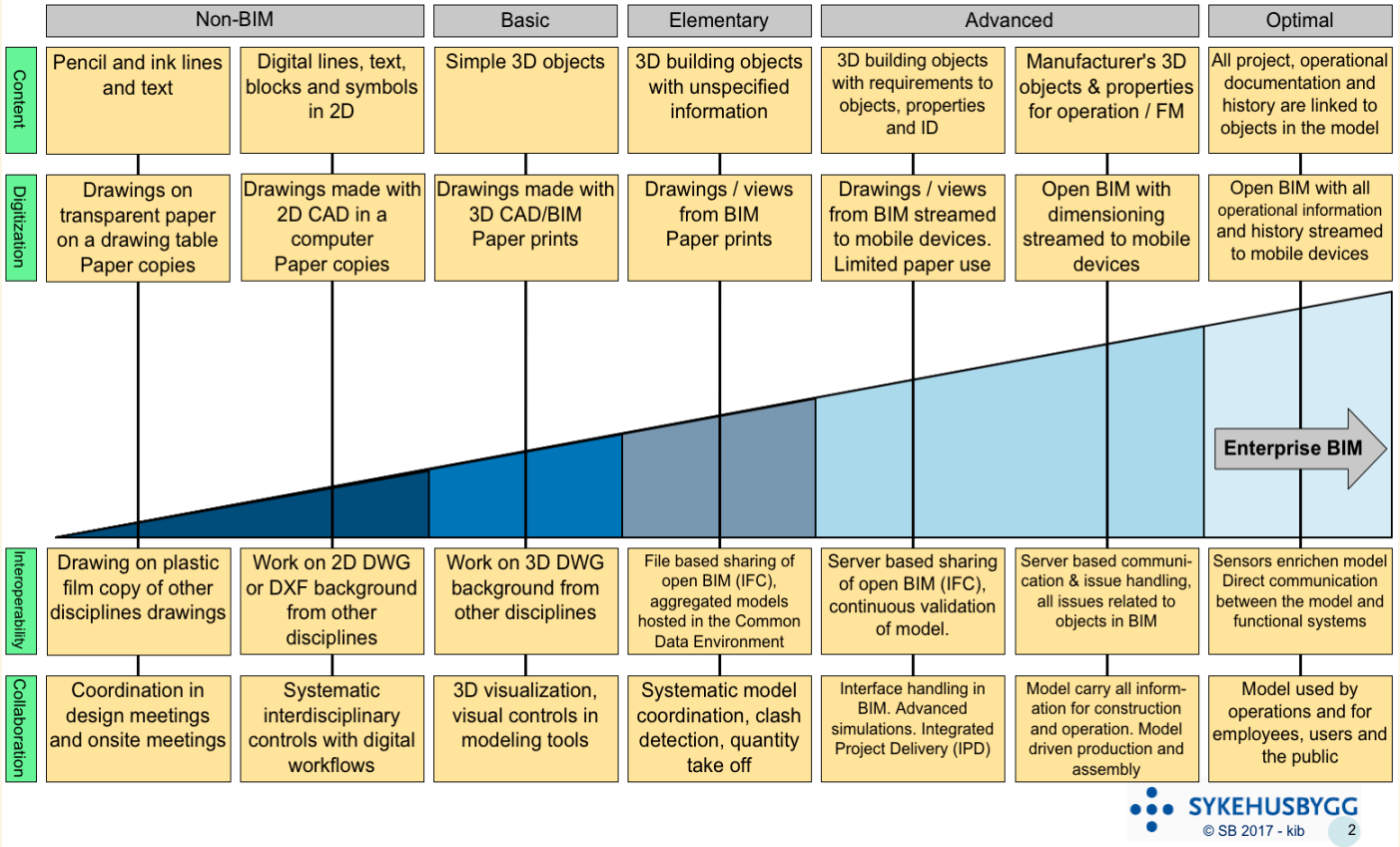


buildingSMART is the home of IFC



- buildingSMART has copyright to the IFC standard
- buildingSMART and ISO collaborate on IFC
- Important to gain synchronization between ISO and bSI IFC versions
- CEN has adopted the ISO IFC version – EN ISO 16739:2013

BIM Maturity Map – 4 aspects
Content, digitization, interoperability, collaboration



Status CEN/TC 442 Work Programme

Published CEN/TC 442 standards

EN ISO 12006-3:2016 Building construction - Organization of information about construction works - Part 3: Framework for object-oriented information (ISO 12006-3:2007)
EN ISO 16739:2016 Industry Foundation Classes (IFC) for data sharing in the construction and facility management industries (ISO 16739:2013)
EN ISO 29481-2:2016 Building information models - Information delivery manual - Part 2: Interaction framework (ISO 29481-2:2012)
EN ISO 29481-1:2017 Building information models - Information delivery manual - Part 1: Methodology and format (ISO 29481-1:2016)

CEN/TC 442 Work Items – WG2

prEN ISO 21597-1 Organization of information about construction works - Information container for data drop (ICDD) - Part 1: Container	NWI accepted
prEN ISO 21597-1 Organization of information about construction works - Information container for data drop (ICDD) - Part 2: Dynamic semantics	NWI accepted
Exchange structure for product data templates and product data based on IFCXML	Ballot closed 28.11.2017
Levels of information need - Part 1: Concepts and principles	NWI accepted

CEN/TC 442 Work Items – WG3

prEN ISO 19650-1 Organization of information about construction works -Information management using building information modelling - Part 1: Concepts and principles (ISO/ DIS19650-1:2017)	2nd Enquiry
prEN ISO 19650-2 Organization of information about construction works - Information management using building information modelling - Part 2: Delivery phase of assets (ISO/ DIS 19650-2:2017)	2nd Enquiry
prEN ISO 19650-5 Organization of information about construction works -- Information management using building information modelling -- Part 5: Specification for security minded building information modelling, digital built environments and smart asset management	NWI Accepted
prEN ISO 19650-3 Organization of information about construction works - Information management using building information modelling - Part 3: Operational phase of assets	NWIP ballot close 21.02.2017

CEN/TC 442 Standards Work Items – WG4

Building information modelling and other digital processes used in Construction – Methodology to describe, author and maintain properties in interconnected dictionaries	Proposal NWI
Product data templates based on CEN/CENELEC standards in an open European data dictionary - Part 1: General structure of a product data template and how to relate it to Industry Foundation Classes (IFC)	Proposal NWI
Product data templates based on CEN/CENELEC standards in an open European Data Dictionary - Part 2: Framework for product data templates based on harmonised technical specifications under the Construction Products Regulation (CPR), and how to relate the product data templates to Industry Foundation Classes (IFC)	Proposal NWI
prEN ISO 16757-1 Data structures for electronic product catalogues for building services - Part 1: Concepts, architecture and model (ISO 16757-1:2015)	Enquiry March 2018
prEN ISO 16757-2 Data structures for electronic product catalogues for building services - Part 2: Geometry (ISO 16757- 2:2016)	Enquiry March 2018

Status report to plenary in Dublin

WI Number	Reference	Title	Standard Status	WG	VA	Last Milestone Name	Last Milestone	Last Realised Date	Next Milestone Name	Risk	Comment
00442001	EN ISO 29481-2:2016	Building information models - Information delivery manual - Part 2: Interaction framework (ISO 29481-2:2012)	Published		No		60.60.0000	19.10.2016			
00442002	EN ISO 16739:2016	Industry Foundation Classes (IFC) for data sharing in the construction and facility management industries (ISO 16739:2013)	Published		No		60.60.0000	19.10.2016			
00442003	EN ISO 12006-3:2016	Building construction - Organization of information about construction works - Part 3: Framework for object-oriented information (ISO 12006-3:2007)	Published		No		60.60.0000	19.10.2016			
00442004	prEN ISO 19650-1	Organization of information about construction works - Information management using building information modelling - Part 1: Concepts and principles (ISO/DIS 19650-1:2017)	Not Published	WG 3	VA/ISO Lead	Closure of // Enquiry	40.60.0000	12.05.2017	2. Enq		2nd enquiry to be launched. Publication limit date Nov. 2018
00442005	prEN ISO 19650-2	Organization of information about construction works - Information management using building information modelling - Part 2: Delivery phase of assets (ISO/DIS 19650-2:2017)	Not Published	WG 3	VA/ISO Lead	Closure of // Enquiry	40.60.0000	12.05.2017	2. Enq		Enq. Failed. 2nd enquiry to be launched. Publication limit date Nov. 2018
00442006	EN ISO 29481-1:2017	Building information models - Information delivery manual - Part 1: Methodology and format (ISO 29481-1:2016)	Published		No	DAV/Definitive text available	60.60.0000	11.10.2017			
00442007		Building information modelling and other digital processes used in Construction â€“ Methodology to describe, author and maintain properties in interconnected dictionaries	Not Published	WG 4	No	Proposal of Preliminary WI	00.60.0000	04.01.2017	Proposal of WI for approval		Preliminary work items have to be activated within 3 years of their creation to avoid being automatically deleted from the work programme
00442008		Product data templates based on CEN/CENELEC standards in an open European Data Dictionary - Part 2: Framework for product data templates based on harmonised technical specifications under the Construction Products Regulation (CPR), and how to relate the product data templates to Industry Foundation Classes (IFC)	Not Published	WG 4	No	Proposal of Preliminary WI	00.60.0000	04.01.2017	Proposal of WI for approval		as above
00442009		Building Information Modeling - Levels of Definitions (LOD) -	Not Published	WG 2	No	Proposal of Preliminary WI	00.60.0000	04.01.2017	Proposal of WI for approval		CIB for Activation end 2017-11-19. Doc N 243

Status report to plenary in Dublin

00442010		Product data templates based on CEN/CENELEC standards in an open European data dictionary - Part 1: General structure of a product data template and how to relate it to Industry Foundation Classes (IFC)	Not Published	WG 4	No	Proposal of Preliminary WI	00.60.0000	04.01.2017	Proposal of WI for approval		as WI 008
00442011		Digital information exchange - Definition of activities and transactions â€“ use cases of built assets within a framework of steps of maturity and activities	Not Published	WG 3	No	Proposal of Preliminary WI	00.60.0000	06.03.2017	Decision on WI Proposal		as above
00442012	prEN ISO 16757-1	Data structures for electronic product catalogues for building services - Part 1: Concepts, architecture and model (ISO 16757-1:2015)	Not Published		No	Start of draft translation	40.10.6001	19.07.2017	Submission to Enquiry		Enq post phoned. Decision 261. To be followed up. N 261
00442013	prEN ISO 16757-2	Data structures for electronic product catalogues for building services - Part 2: Geometry (ISO 16757-2:2016)	Not Published		No	Start of draft translation	40.10.6001	19.07.2017	Submission to Enquiry		as above
00442015	prEN ISO 21597-1	Organization of information about construction works - Information container for data drop (ICDD) - Part 1: Container	Not Published		VA/ISO Lead	Decision on WI Proposal	10.99.0000	14.08.2017	Circulation of 1st WD		
00442016	prEN ISO 21597-2	Organization of information about construction works - Information container for data drop (ICDD) - Part 2: Dynamic semantics	Not Published		VA/ISO Lead	Decision on WI Proposal	10.99.0000	14.08.2017	Circulation of 1st WD		
00442017	prEN ISO 19650-5	Organization of information about construction works -- Information management using building information modelling -- Part 5: Specification for security-minded building information modelling, digital built environments and smart asset management	Not Published		VA/ISO Lead	Decision on WI Proposal	10.99.0000	04.10.2017	Circulation of 1st WD		To be developed in ISO/TC 59/SC 13/WG 13.

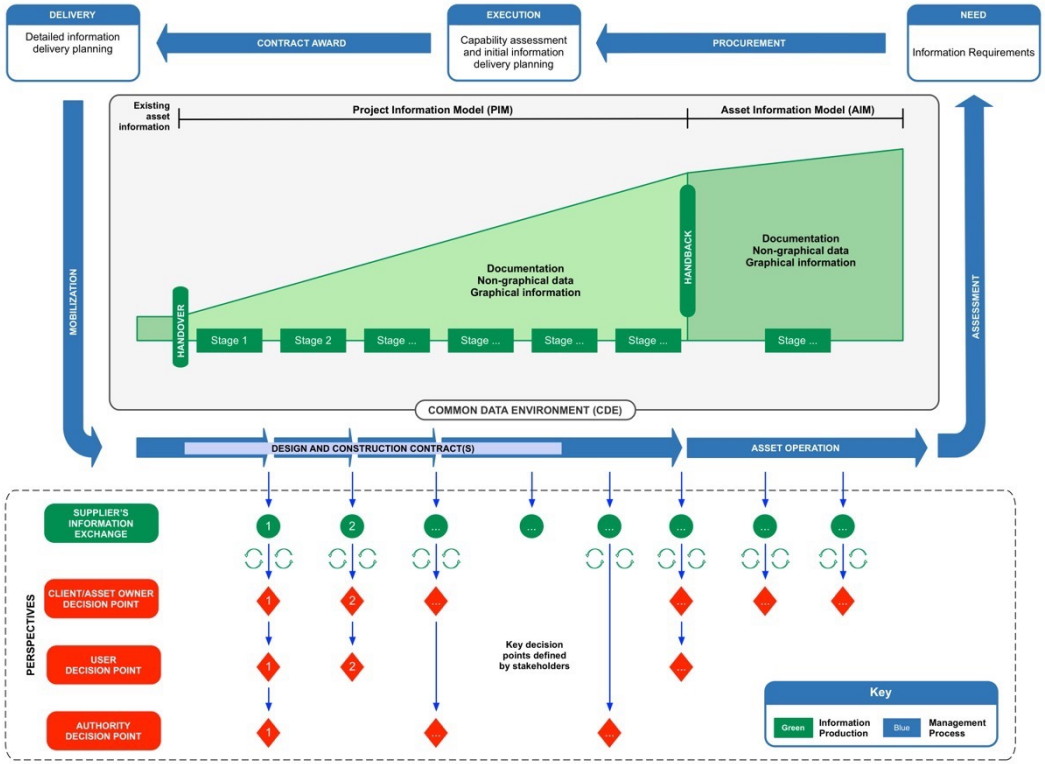
prEN ISO 19650- 1 and -2

- ISO/DIS and CEN Enquiry closing date 12. May 2017, **N 196** and **N 197**
- Voting result:

	19650-1	19650-2
ISO DIS	Positive	Positive
CEN Enquiry	Positive	Negative

- More than 1000 comments received, **N 514** and **N 515**
- Comments discussed in ISO/TC59/SC13/WG13 meeting 12.-14. June, Paris
- Participants from UK, F, B, NL, DK, IT, NO, JP, AU, CH, JP

prEN ISO/DIS 19650 part 1 and 2
Framework for Information Management



The figure is not the same version as in prEN ISO/DIS 19650

The adoption of ISO 19650 will allow the move from a document-centric environment to an information-centric environment unlocking the power of information technology.

prEN ISO/DIS 19650 will be on 2nd enquiry from 28.02.10 to 28.04.18. Last publishing date is 28.11.18.
If the enquiry fails, the project will terminate.
Please no more technical comments!

Thank you!