ČESKÁ AGENTURA PRO STANDARDIZACI

MINISTERSTVO PRŮMYSLU A OBCHODU

BIM KONCEPCE

CCI – part of the BIM digital common language

CCIC worshop, Tallinn

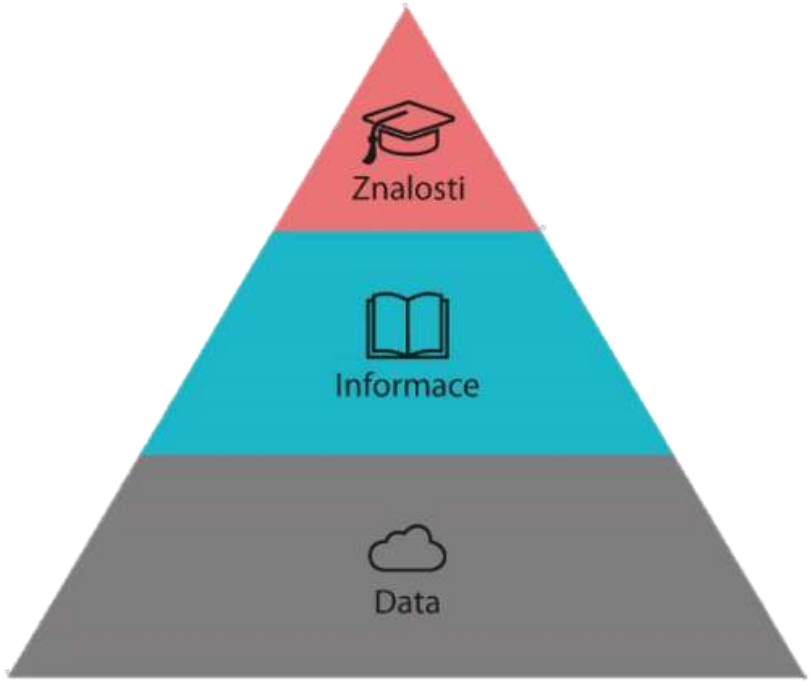
Jaroslav Nechyba, 15. 12. 2022

BIM. Sebevědomě a férově zadáváme, efektivně stavíme a provozujeme.

Why change current practices?

- The complexity of constructions is increasing
- The amount and coherence of information to the construction is increasing uncontrollably
- Digitization offers machine processes, filtering, alerts, and targeted reports
- However, it must have organized data
- And it is not possible to use email and Excel…

Why we need digital common language?



> **Data. Information. Knowledge.**

> To bring the pyramid to life, we need:

- machine readable data
- structured standard data
- interoperate – vendor independent
- lostless hand over, share and link trustworth data together – digital processes

Computer automation – BIM goal when it is usefull

- Benefits from the automation:
  - uniform interpretation
  - all parties' documents have the same structure
  - processes and information transfer are clear
  - we have no doubts - we are confident
  - platform independence – information can be transmitted

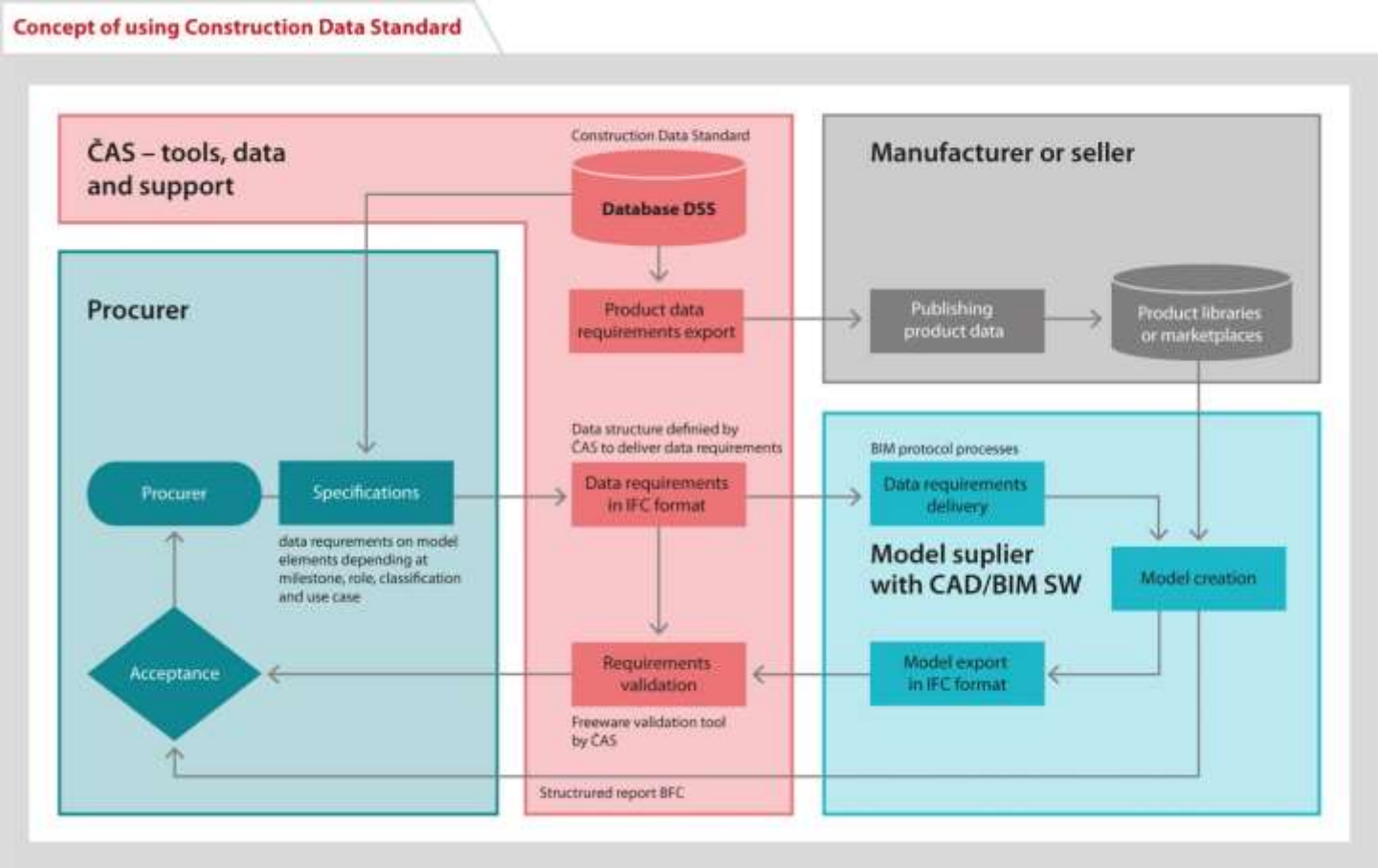
Purpose of CCI

Classification is a process related to categorization, the process in which ideas and objects are recognized, differentiated and understood.
Classification is the grouping of related facts into classes.

CCI's goal is to provide a common language for the processes of the plan, designing, constructing, and operating buildings that will enable recognizing, distinguishing, and understanding

the same things equally.

Data dictionary – key for machine-readable data

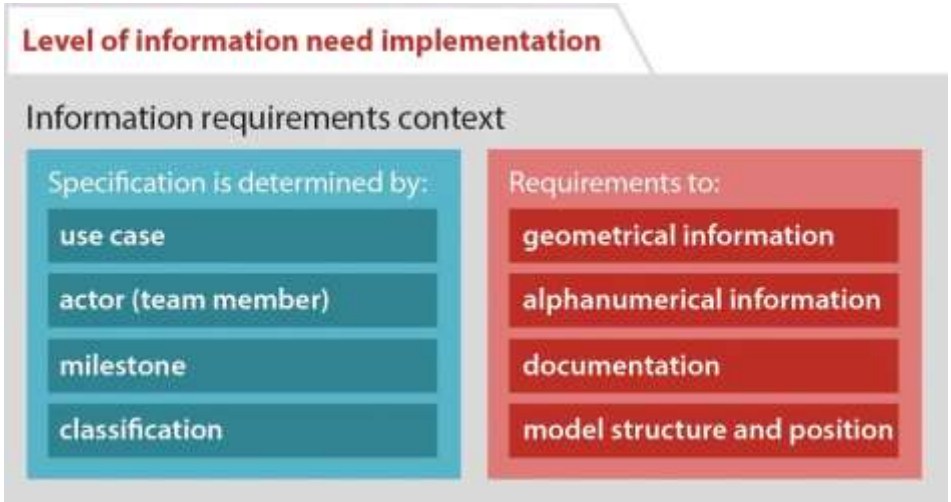


Key components for sharing structured data

- Data templates for construction objects (EN 23386, 23387)
- Common properties (EN 23386, 23387)
- **Classification system (ISO 12006-2)**
- Level of information needed (EN 17412)
- Open schema and format = IFC (ISO 16379)
- Structured format for requirements (prEN 17412-3)
- Rules for modelling and data delivery (CZ)

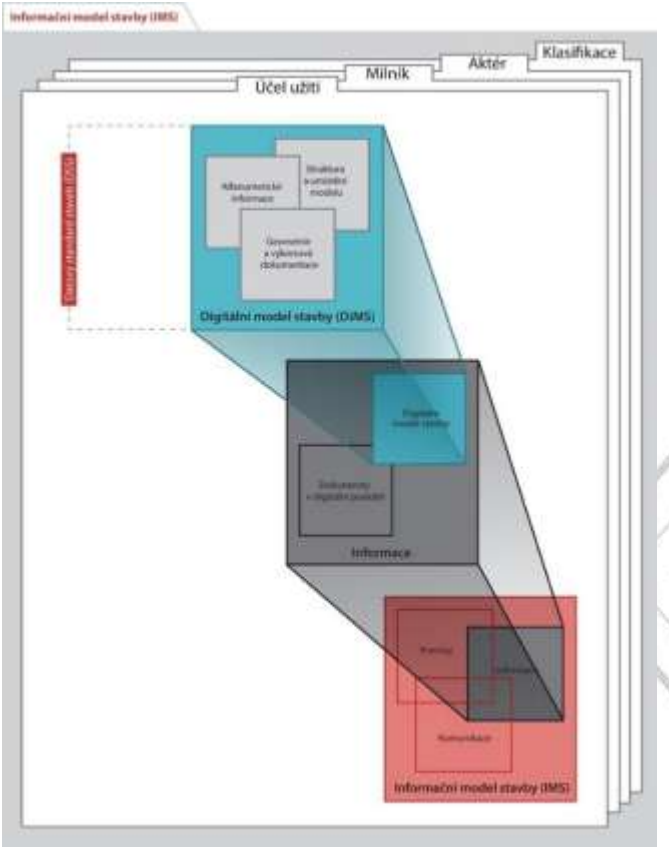
LOIN – Level Of Information Needed (EN 17412)

- Provides a framework for specifying the required level of need and details of information
- Classification CCI is used to specify domains of requirements related to
  - Construction entities
  - Technical systems
  - Construction systems



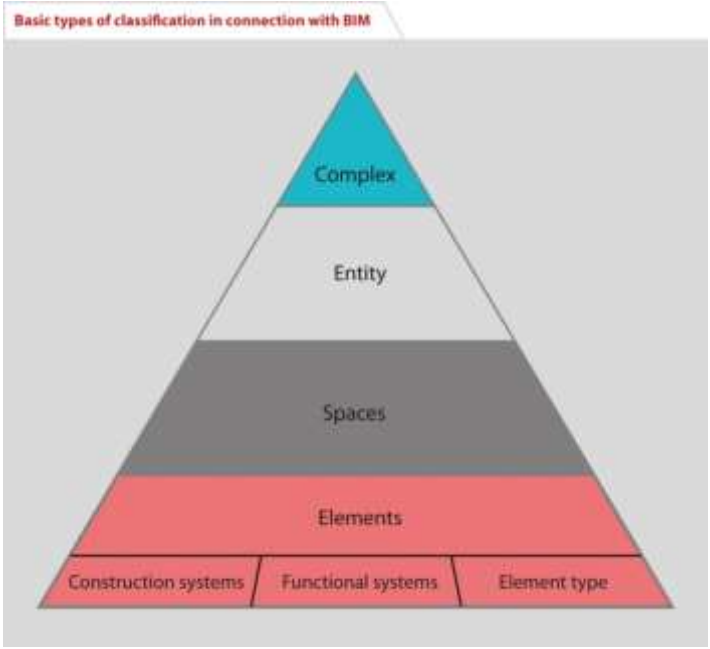
Data templates – core (EN 23387)

- Sets of properties for construction objects (physical/abstract)
- Common Properties, definitions, mapping on IFC
- Information system for the governance under EN 23386 to manage relations and GUIDs to avoid duplicates
- CCI is used to organize data templates for LOIN principle
- CCI have own properties for the values of specific contruction objects and RDS specification



Classification system CCI

- Based on relevant international standards
- Cover the whole built environment
- Support digital processes
- Allow specific or national add-ons
- Core classification can be used free without any license fees



Basic terms of classifications according to 12006-2

Object – any part of perceived or conceivable value

Property – every object has properties that characterize it

Classification – division into groups of objects according to a specific purpose

Class – a group of objects with one or many shared properties

Classification + RDS for the Built Environment – the standards used

CCI

Revision of CCS with infrastructure classes 2019/20

CCI Collaboration (CCIC)
between Estonian Ministry, Czech Standards, and Molio (DK) – as founders

12006-2:2001

Framework standard for Construction Classification

12006-2:2015

Revision of Framework standard for Construction Classification

81346-2:2009

Classification principle standard with letter coded tables

NEW **81346-12:2018**

Development of Classification standard for Functional and Technical systems and application of 81346-principles for construction

81346-2:2019

Revision of Classification principle standard based on CCS and CoClass development

NEW **81346-10:2021**

Development of Classification standard 81346-principles for power plants

81346-1:2009

Reference Designation System standard with first examples of use within construction

ISO 704 + ISO 22274 + buildingSMART standards

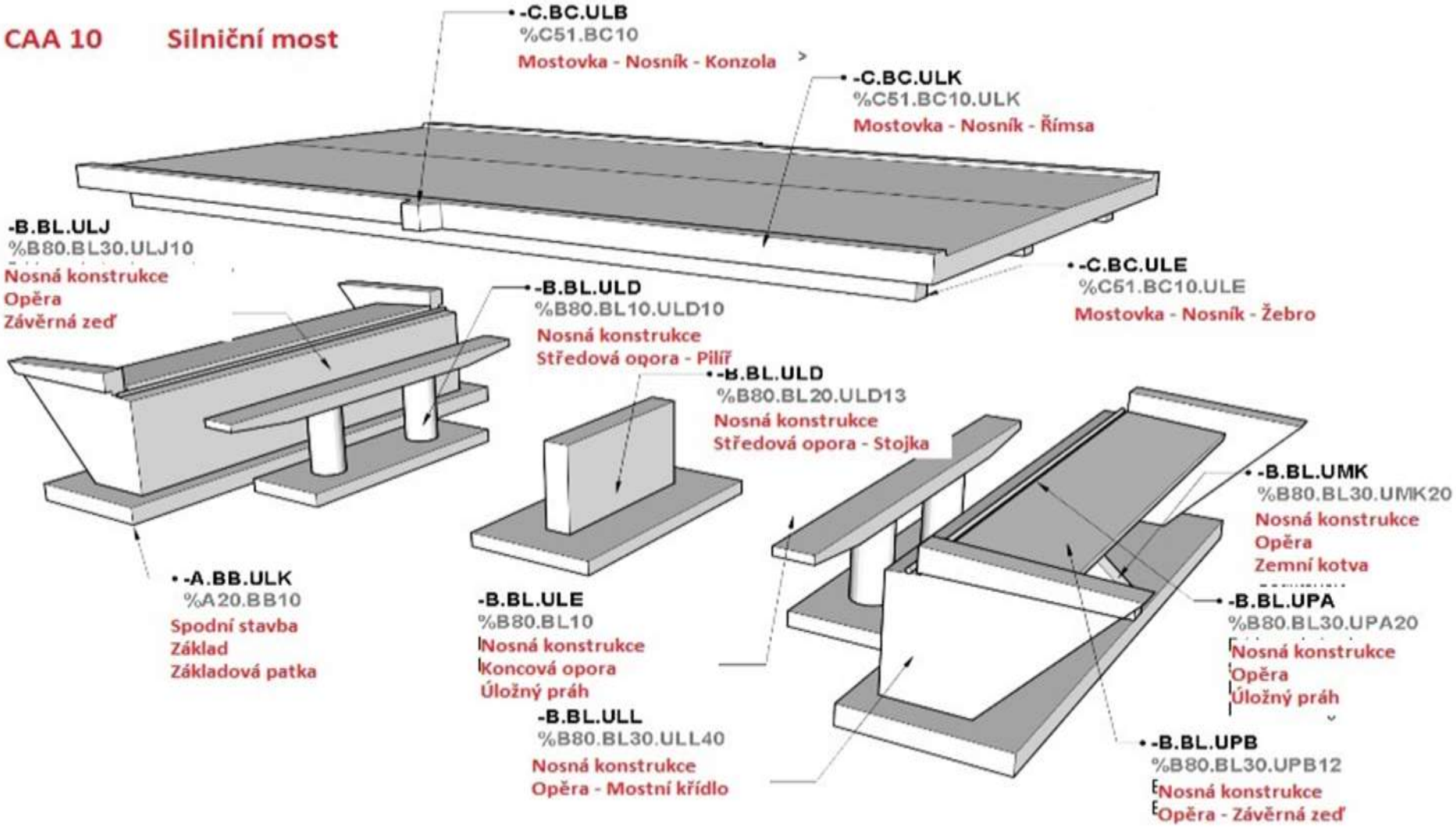
General standards used for Terminology work and Developing and internationalizing classification systems.
Coordination with principles in buildingSMART standards.

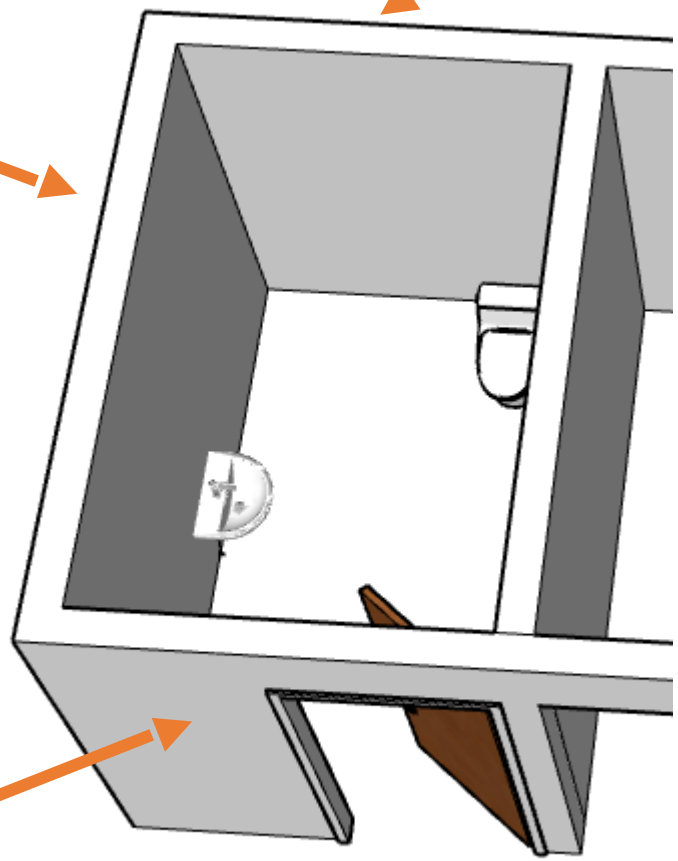
81346-1:2021

Revision of Reference Designation System standard with more examples of use within construction, airplanes, power plants etc.

CCI principles

- **Clear criteria for classification**
  - Classification according to function, form or location, or their combination
  - Contains hierarchical classes
- **Unique classes**
  - Disambiguation primarily applies to the classification code and class definition
- **A small number of classes that are stable**
  - The classification is thus applicable in the long term to suit all roles during whole life cycle
  - The need for more detail breakdown – use properties in data templates in data dictionary
  - A functional approach to sorting allows for the addition of alternative constructions
- **Not to confuse CCI with IFC**
  - IFC is just an open data schema for transfer, not a classification
  - the classification is part of the IFC structure, not the content


CAA 10 Silniční most
-C.BC.ULB
%C51.BC10
Mostovka - Nosník - Konzola
-C.BC.ULK
%C51.BC10.ULK
Mostovka - Nosník - Římsa
-C.BC.ULE
%C51.BC10.ULE
Mostovka - Nosník - Žebro
-B.BL.ULJ
%B80.BL30.ULJ10
Nosná konstrukce
Opěra
Závěrná zeď
-B.BL.ULD
%B80.BL10.ULD10
Nosná konstrukce
Středová opora - Pilíř
-B.BL.ULD
%B80.BL20.ULD13
Nosná konstrukce
Středová opora - Stojka
-A.BB.ULK
%A20.BB10
Spodní stavba
Základ
Základová patka
-B.BL.ULE
%B80.BL10
Nosná konstrukce
Koncová opora
Úložný práh
-B.BL.ULL
%B80.BL30.ULL40
Nosná konstrukce
Opěra - Mostní křídlo
-B.BL.UMK
%B80.BL30.UMK20
Nosná konstrukce
Opěra
Zemní kotva
-B.BL.UPA
%B80.BL30.UPA20
Nosná konstrukce
Opěra
Úložný práh
-B.BL.UPB
%B80.BL30.UPB12
Nosná konstrukce
Opěra - Závěrná zeď



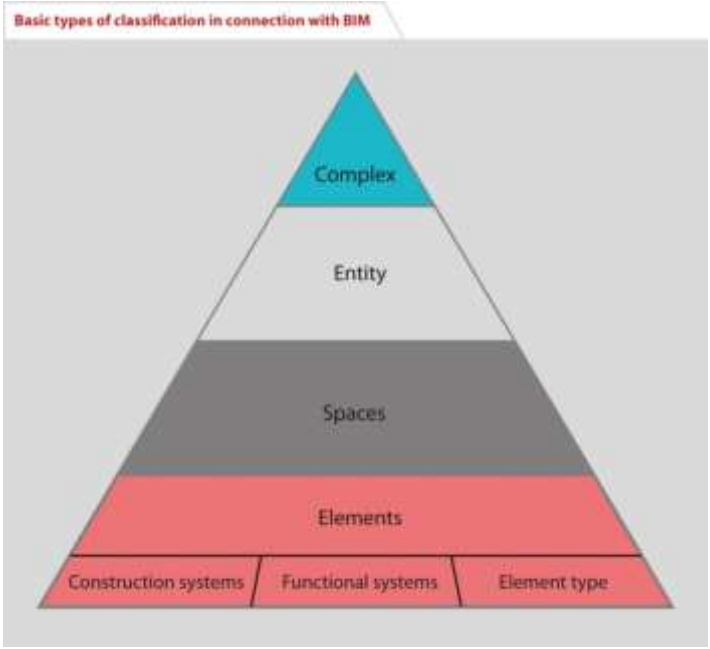
Reference designation

++1-202
=J1.JJ3.RNB10
%J10.JJ20.RNB12

House 1 room 202: Air distribution system no 1 > Extract air distribution system no 3 > Regulating damper type 12 no 10

CCI - challenges

- Onthology, understable definitions, relations to legal and technical standards environment
- National translations and implementations – minimalize specific versions
- Support e-governmental agendas
- Supporting software vendors and theit tools
- Guidances, examples, use cases, pilot projects
- Training for specific roles (owners, architects, contruction companies, facility managers)



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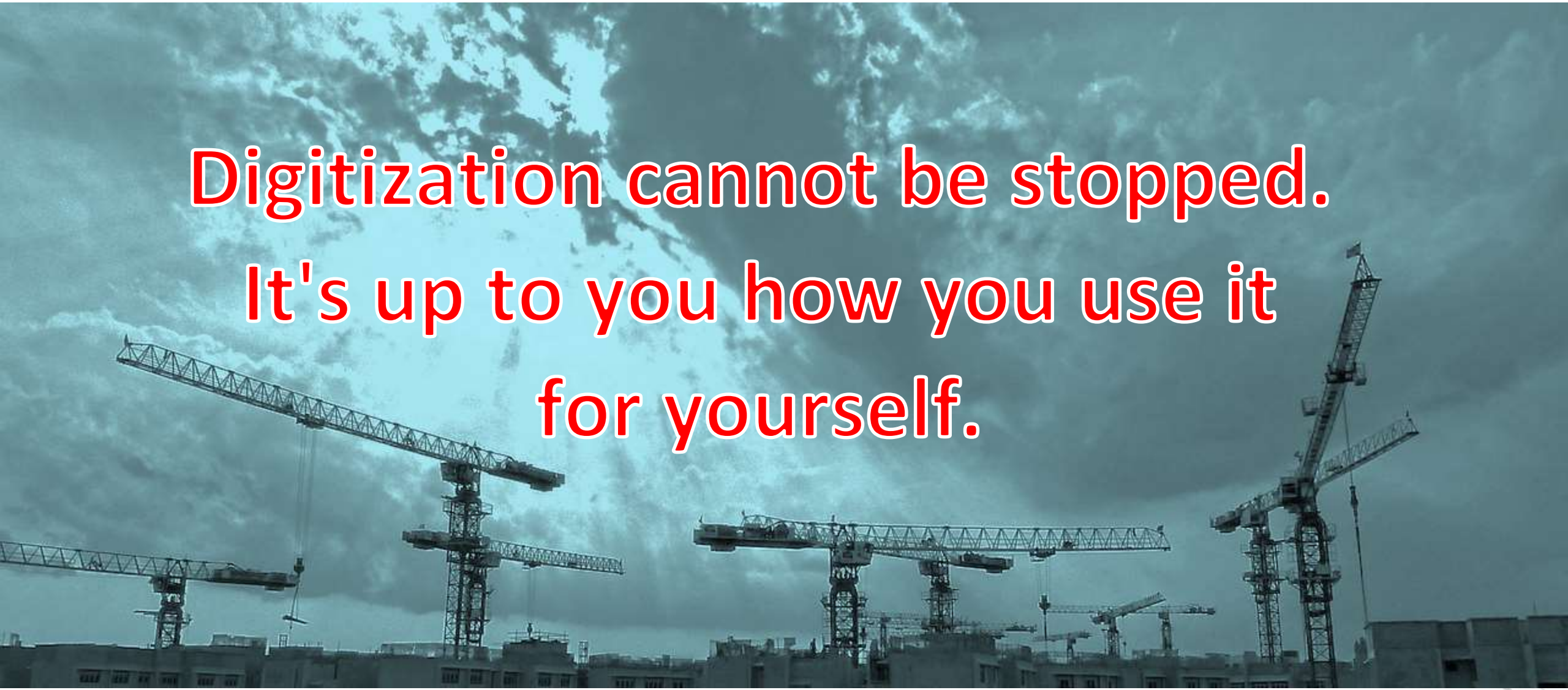

Jaroslav Nechyba, Head of BIM strategy department

Thank you for your attention.

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