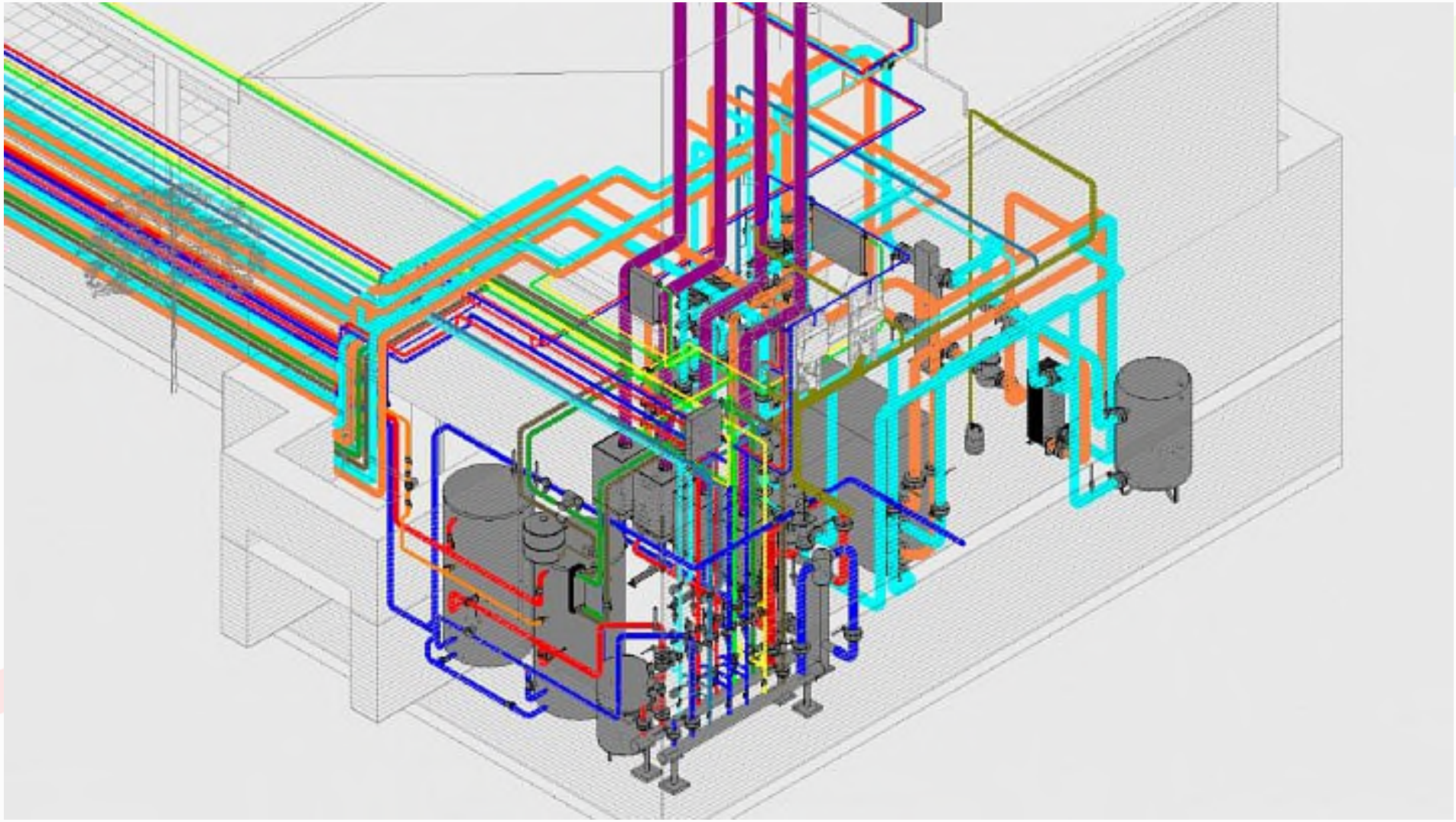
BIM

Digitization of the construction value chain

Günther Mertz
Managing Director, BTGA



What is BIM?

BIM "Building Information Modeling" is a methodology for planning, executing and managing building projects on basis of a component-oriented data model of these buildings.

The information database of the building model created is the source for all decisions during the entire life cycle of the building; from the first preliminary planning to the dismantling.

The BIM method is used in building construction, civil engineering and for infrastructure measures such as road, rail or waterway construction.

BIM: why?

Elbphilharmonie

11,5 times cost overrun
7 years Construction time exceedance

Flughafen Berlin Brandenburg

6 times cost overrun
8 years Construction time exceedance (till today)

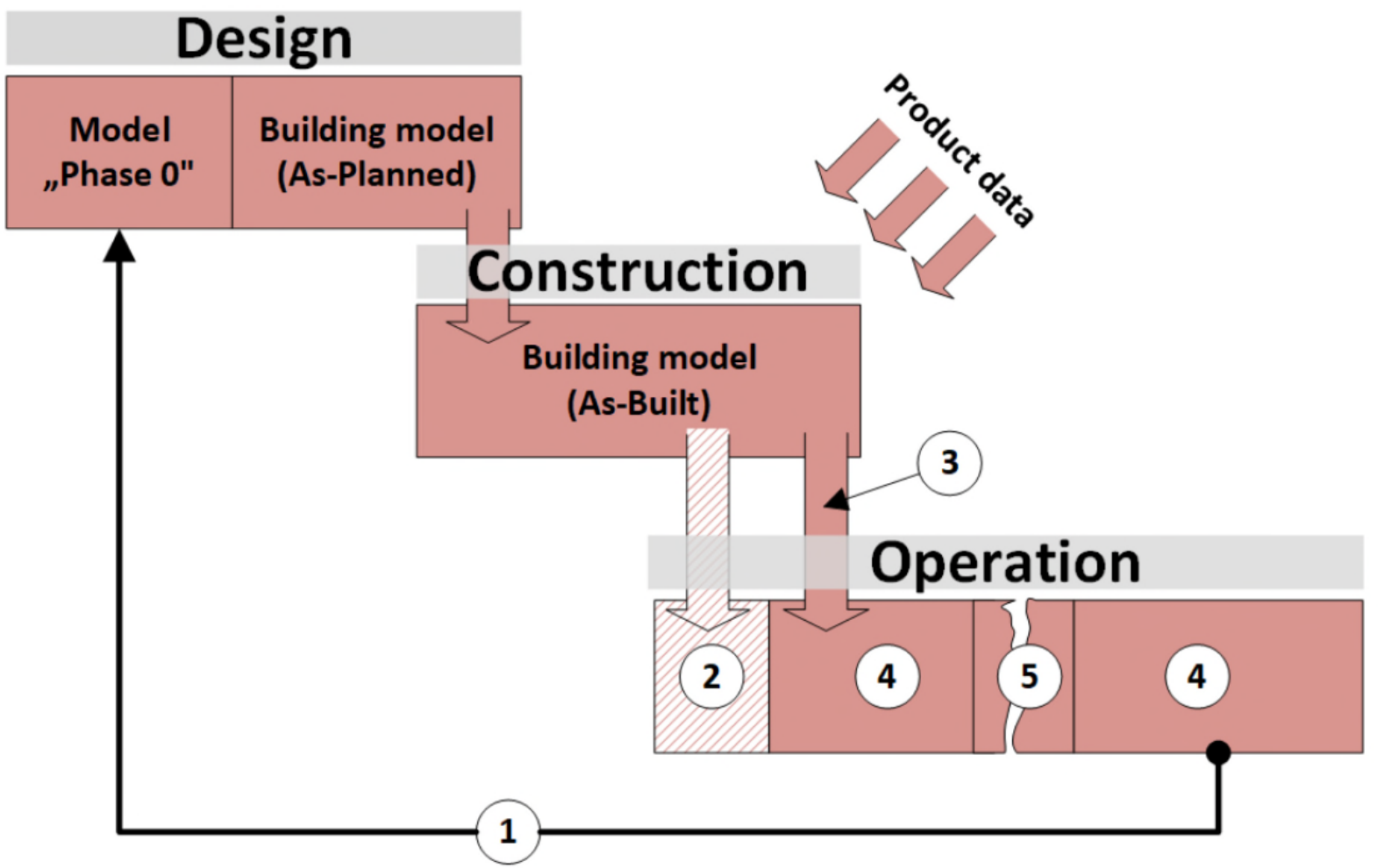
Stuttgart 21

4 times cost overrun
6 years expected Construction time exceedance

Quelle: Vieregg & Rössler, München

There are many reasons:
- cost approach too low
- missing preliminary cost determination
- insufficient involvement of citizens
- underestimation of the complexity of the task
- changes in use during the construction phase
- and much more…

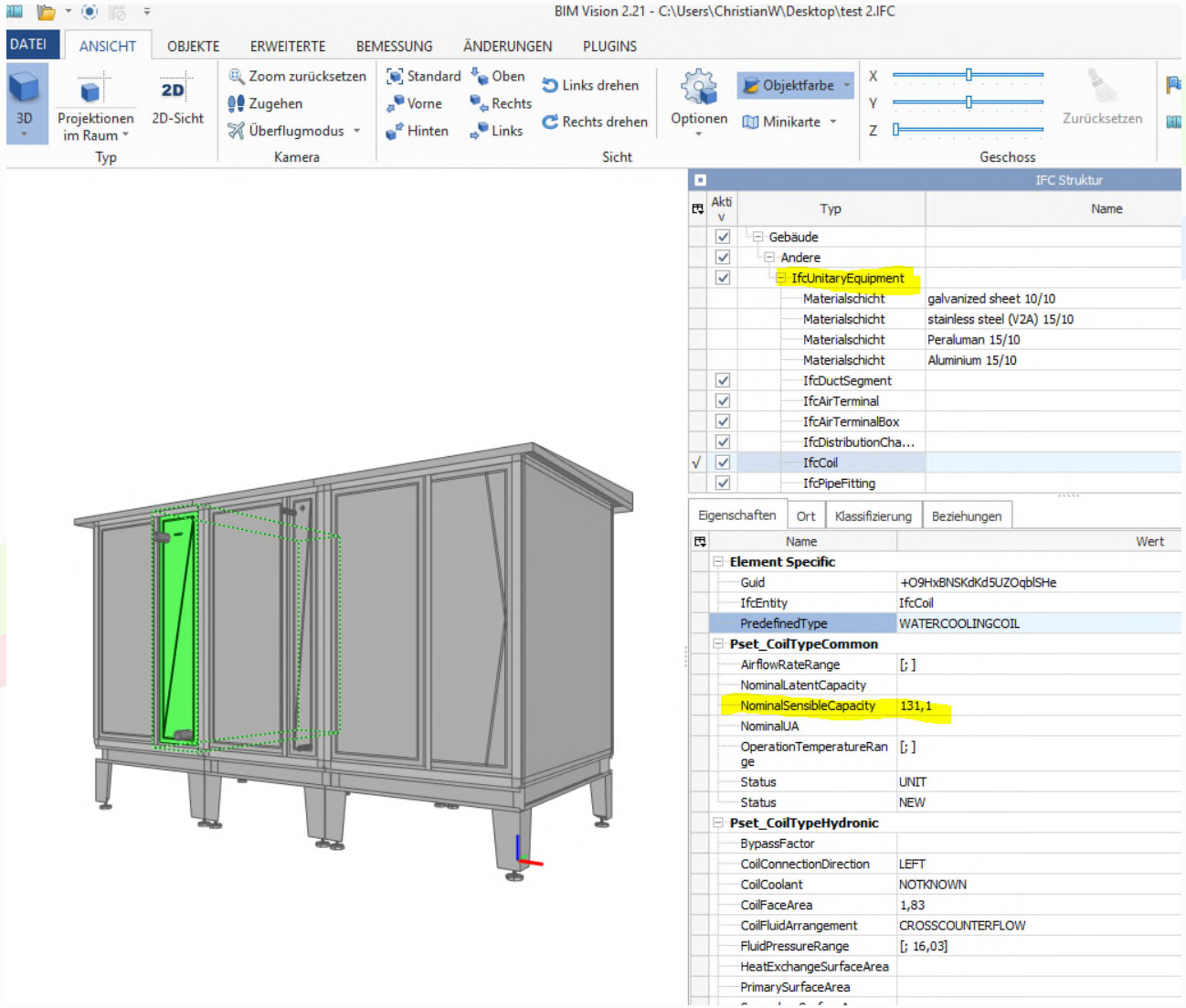
Product data in the building lifecycle



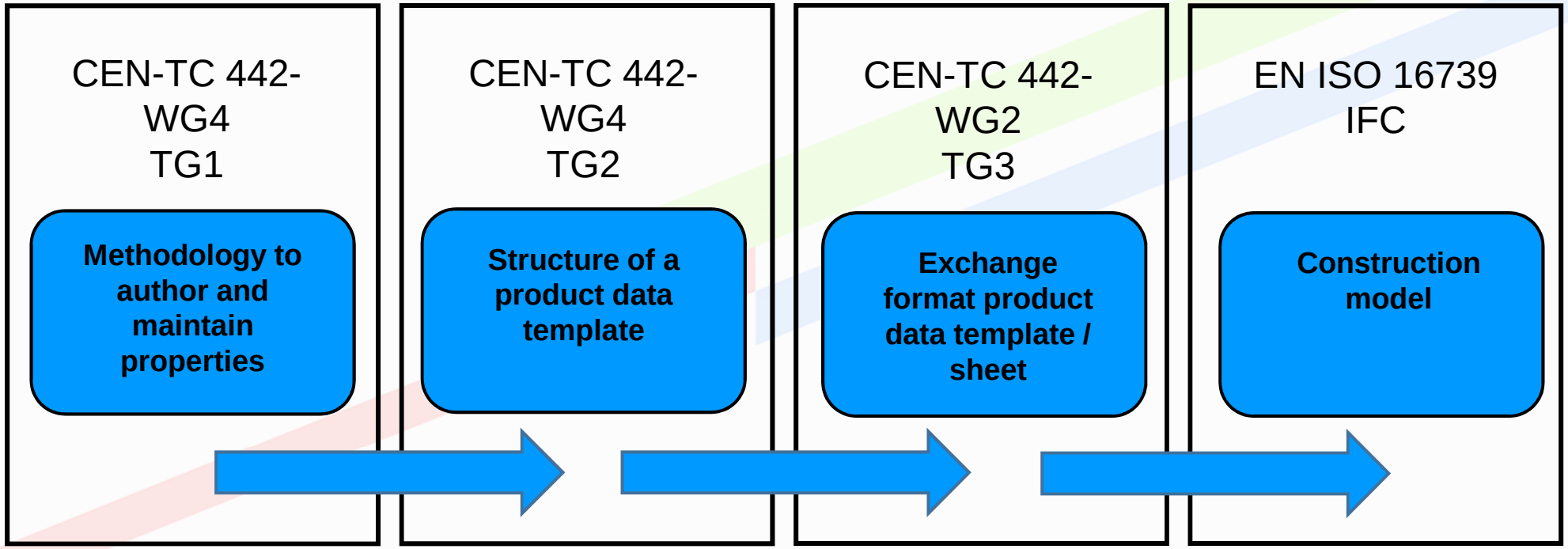
1 requirements management
2 preparation for comissioning
3 commissioning
4 ongoing operation
5 change of owner

Bildquelle: K. Aengenvoort

Structure of data sets

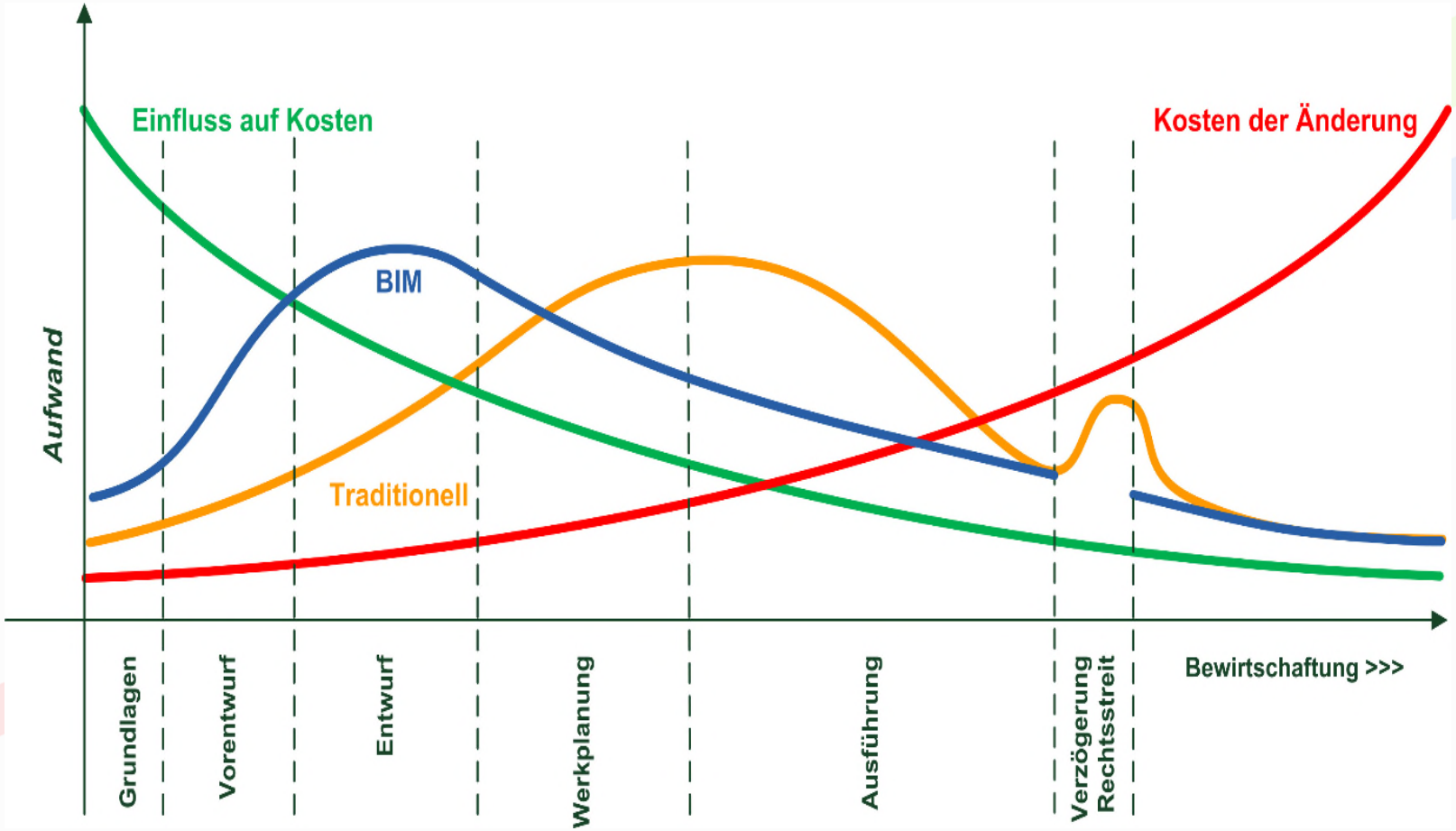


CEN – Standardisation on BIM



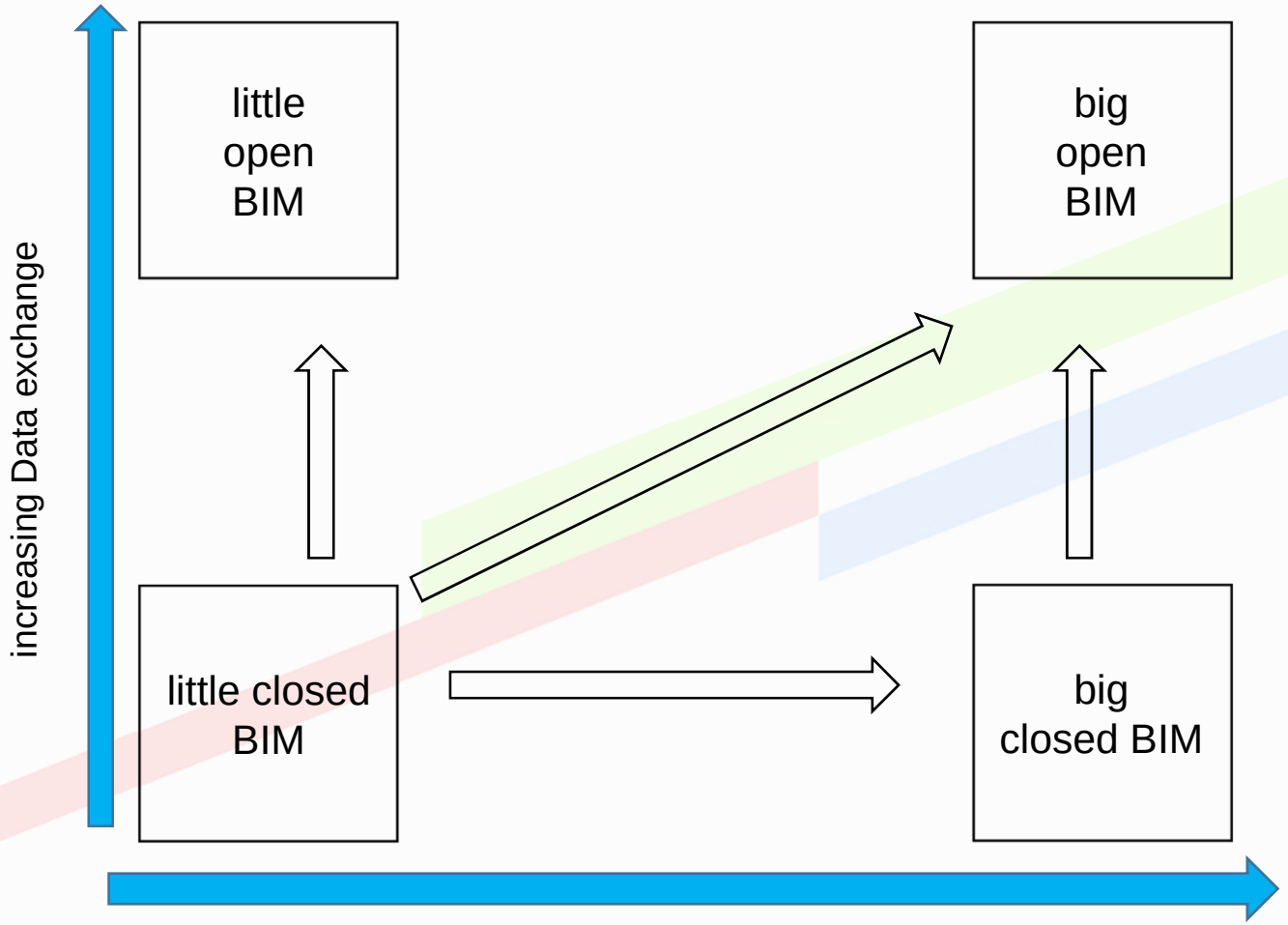
Darstellung: K. Aengenvoort

How can BIM change the planning process?



Quelle: Thomas Liebich, AEC3, nach Patrick MacLeamy, HOK

BIM is not proprietary



Open data standards; exchange between all participants is possible (loss-free).

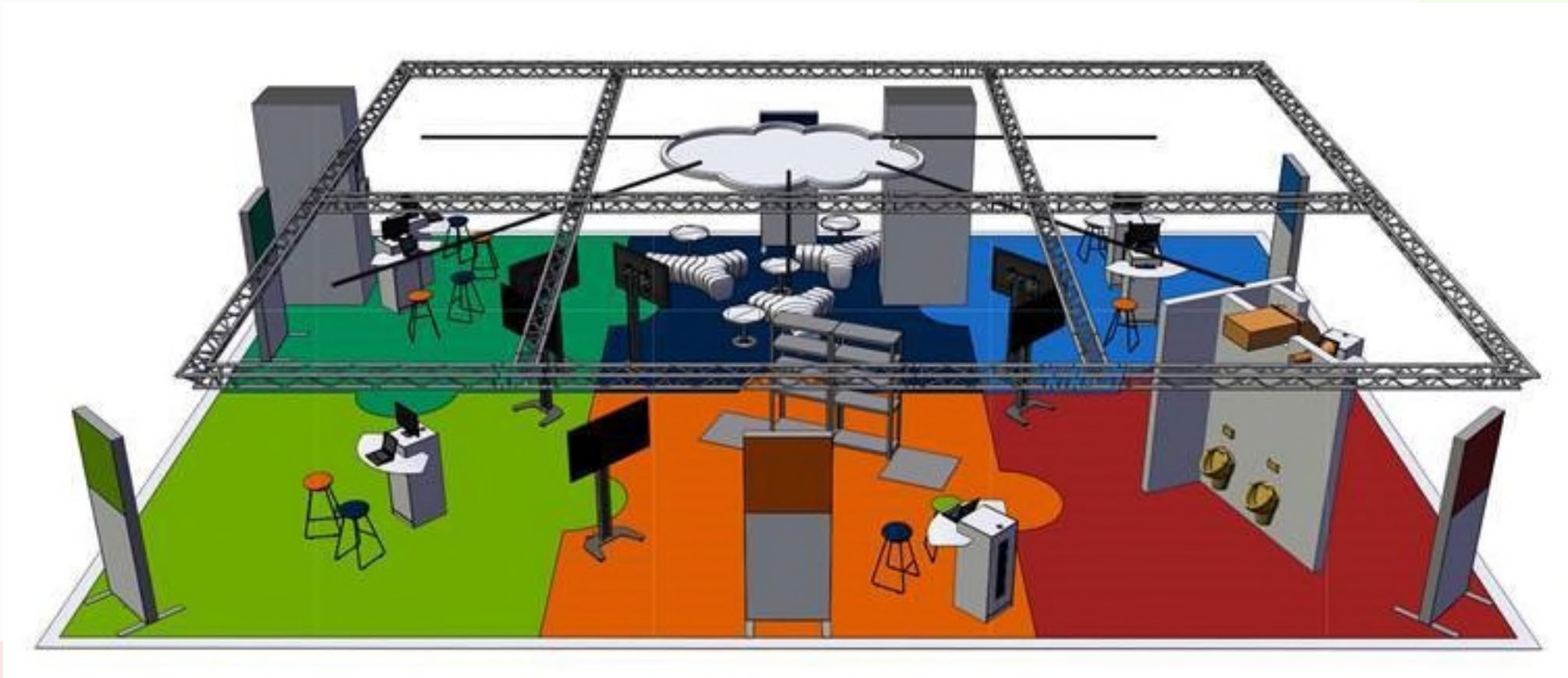
Isolated solution, data exchange within a software family.

BIM@ISH

special Show at ISH 2019

provided by BTGA, Messe Frankfurt and VDMA AMG

Information and findings on the use of BIM models beyond planning




Halle 10.3
CLOUD
DATEN
BIM@ISH


BUILDING SITE
BAUSTELLE


BIM@ISH
BIM@ISH


Halle 10.3
CLOUD
DATEN
BIM@ISH
BIM@ISH
BIM@DESIGN - Mehr
Optimierte Ergebnisse
Betriebssimulation
Grundlage für Aussch
Vorfertigung
Vereinfachte Datenübe

Workflow on site, shown in 6 stations

1) planning
2) prefabrication
3) construction site warehouse
4) installation
5) operation
6) cloud

Station 1: Planning

Work on a MEP BIM Modell
Export and provision of models for:
- prefabrication
- assembly
- collaboration
- status visualization
- VR / Mixed Reality

Station 2: Prefabrication

Further use of the BIM model:
- enrichment with data and documents
- group formation
- pre-assembling possible –pipework, components etc.
- tracking of the production progress
- transferring data to the cloud

Station 3: Warehouse

Intentions:
- continuous localization of the components
- storage space management
- Model-based picking out of storage,
- localization in the warehouse
- provision at the installation site
- Transferring data to the cloud

Station 4: Installation-works

Use of:
- Model-based deployment:
  - reduced models for each trade
  - metadata
  - E-Documents
- augmented reality
  - visualization of unassembled elements

Station 5: Operation

What was shown:
- transfer of metadata for Operation
- status
- E-document management
- digital building file
- digital maintenance and operational management

Station 6: Cloud

Purposes of Data-use:
- live Dashboard
- display changes of components -live-
- cloud based discussions on construction site
- project meetings of BIM relevant issues with all parties involved
- etc.

BIM at Light + Building

BTGA Bundesindustrieverband Technische Gebäudeausrüstung e.V.

- **Special show in Hall 9.0**
  - Takes account of the individual level of visitor knowledge
  - Presents the BIM process along the value chain
  - Experts on hand to answer practical questions
- **Technology Forum**
  - Focuses on BIM in the context of other technological challenges faced today
- **Intersec Building**
  - The congress will discuss BIM as a tool for the integration of connected safety and security in buildings
- **BUILTWORLD Innovation Forum by Light + Building**
  - Examines BIM from the viewpoint of building operators
- **REHVA**
  - Half-day seminar on BIM in the HVAC field

Thanks for your interest!