

Building Information Modeling as a Total Contractor

Samir Alzeer
Office BIM Manager
25.10.2016



AGENDA

- ROYAL BAM GROUP AT A GLANCE
- CHALLENGES & SOLUTIONS
- PROJECT CASE STUDY FELIX PLATTER-HOSPITAL
- BIM COORDINATION
- COLLABORATION THROUGH OPEN BIM STANDARDS
- ISSUE MANAGEMEN IN THE CLOUD
- BIM2FM THROUGH OPEN BIM STANDARDS
- DIGITAL DOCUMENTATION

ROYAL BAM GROUP AT A GLANCE



Construction and M&E services



Civil engineering



Property



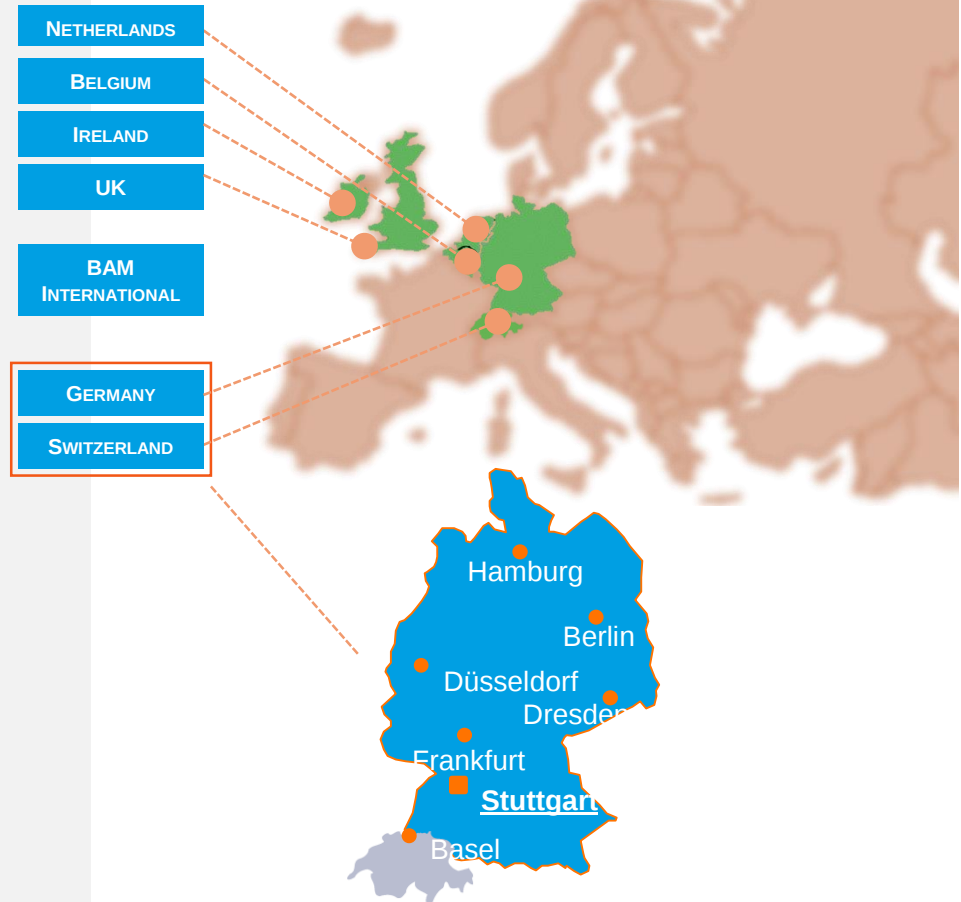
PPP

Head office

Bunnik, the Netherlands

Employees

approximately 21,500



ROYAL BAM GROUP AT A GLANCE

BIM RESEARCH & DEVELOPMENT



European **N**etwork of **C**onstruction Companies for
Research and **D**evelopment



5D-Initiative (Ballast Nedam, Royal BAM Group, CCC, Max Bögl
and Strabag)



Energy-Efficient **E**mbodied



Holistic and **O**ptimized **L**ife-Cycle **I**ntegrated **S**upport
for **E**nergy-Efficient Building Design and
Construction

ROYAL BAM GROUP AT A GLANCE

BIM PROJECTS IN GERMANY & SWITZERLAND

Felix Platter
Hospital,
Basel



Haus der
Zukunft, Berlin



Alsterufer
Hamburg



Fire Station,
Leverkusen



Meininger
Hotel, Berlin



Klinikum
Frankfurt-Höchst



Stuttgart
Hospital



Campus
Derendorf



Cost
Estimation,
Allianz Coeur
Cologne

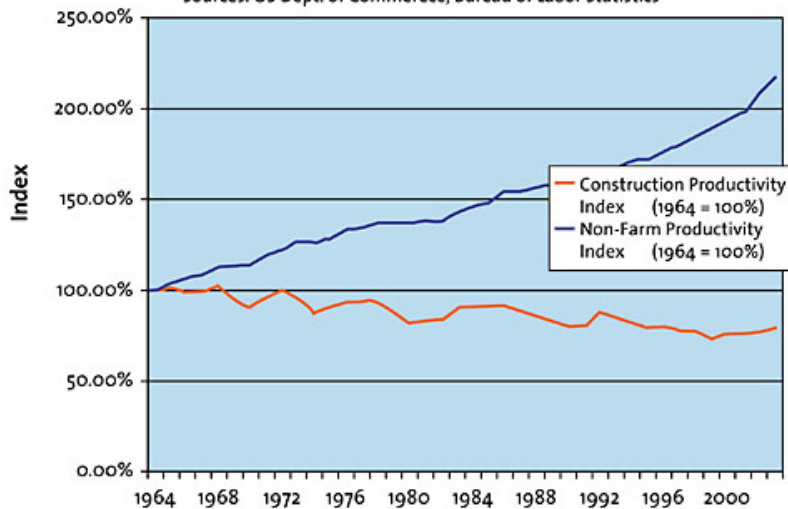


CHALLENGES

CHALLENGES

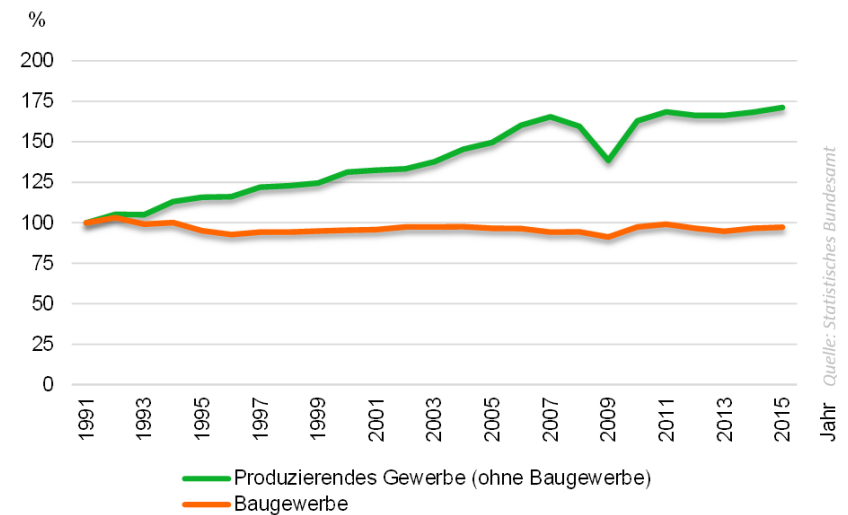
Construction & Non-Farm Labor Productivity Index (1964-2003)

Constant \$ of contracts/workhours of hourly workers
Sources: US Dept. of Commerce, Bureau of Labor Statistics



Data Source: US Department of Commerce

**Entwicklung der Arbeitsproduktivität
(je Erwerbstätigen)**



Productivity

CHALLENGES



Tools



Person

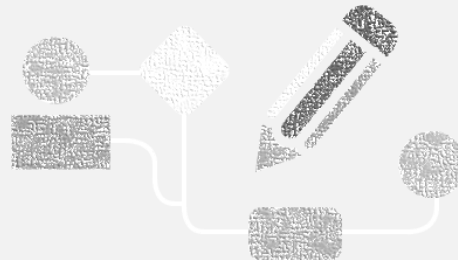


Material

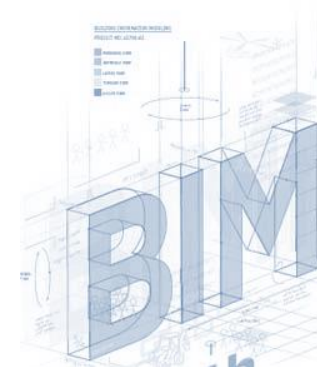


Technology

Processes are still
traditional



Methods



Productivity

CHALLENGES



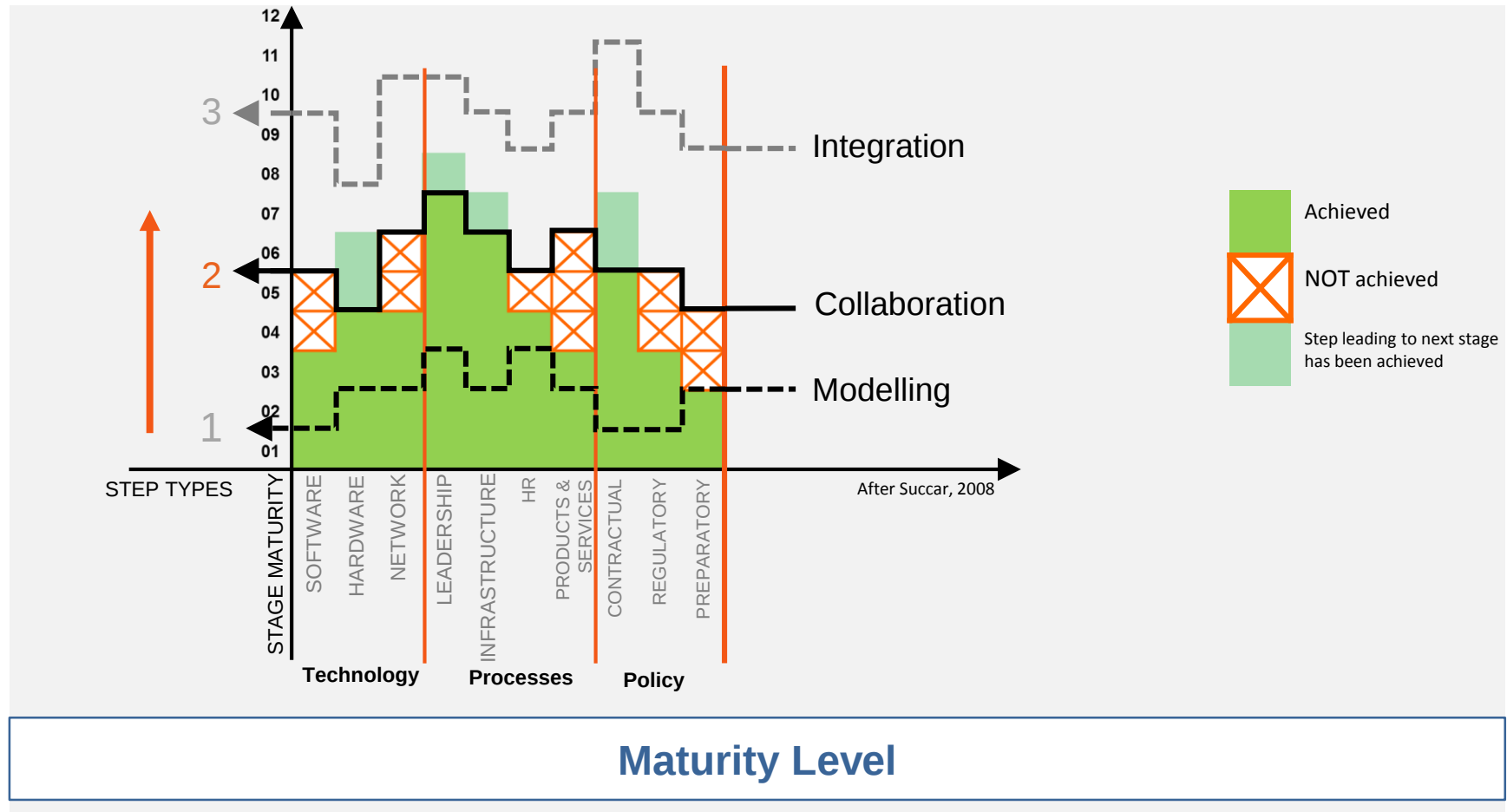
Buildingsmart.de, Berlin, 19.10.2016

Patrick MacLeamy: It's not about my business or about your business...it's about our industry!!

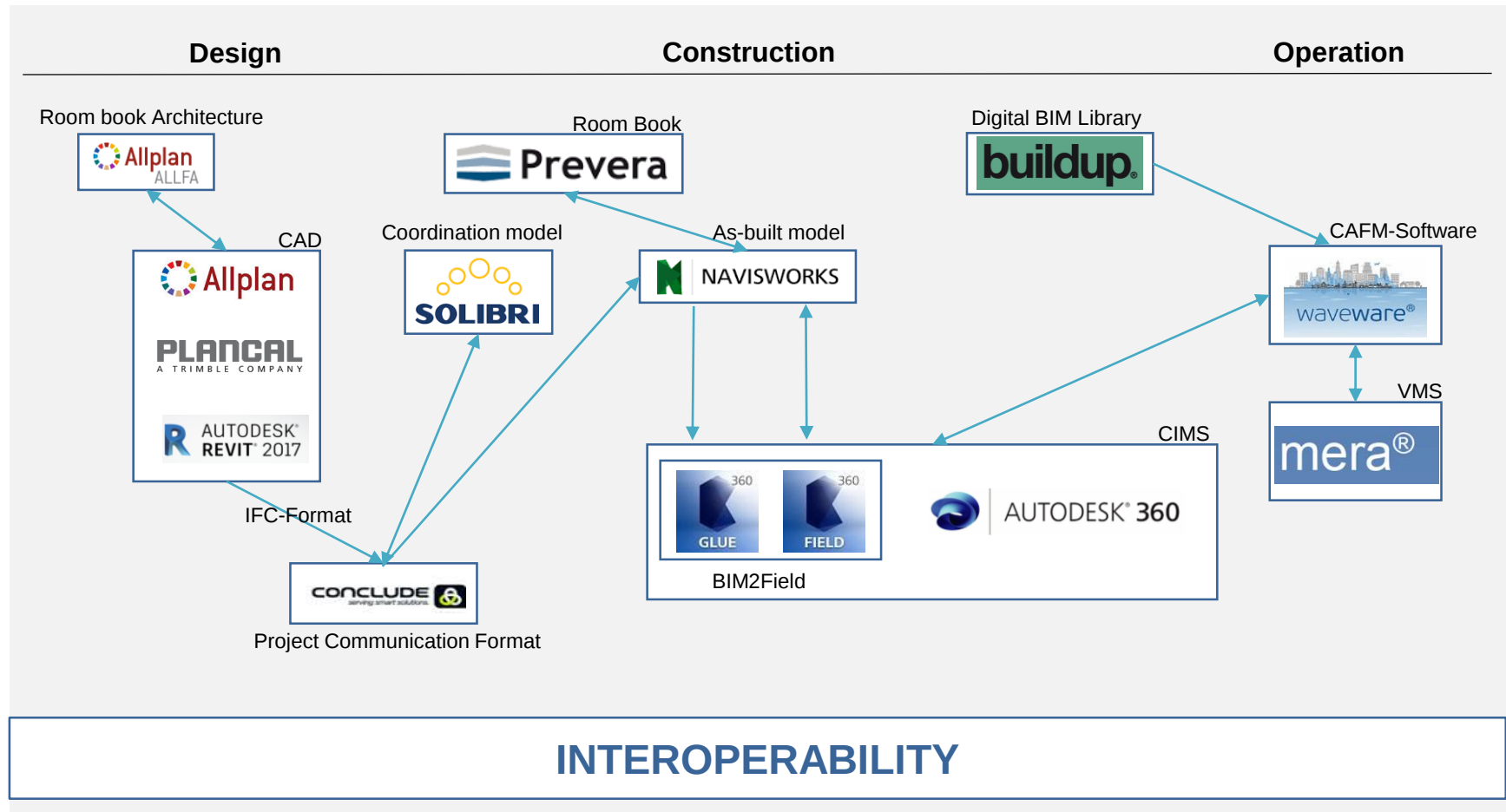
Patrick MacLeamy: Chairman of BuildingSMART International & HOK Architects

Productivity

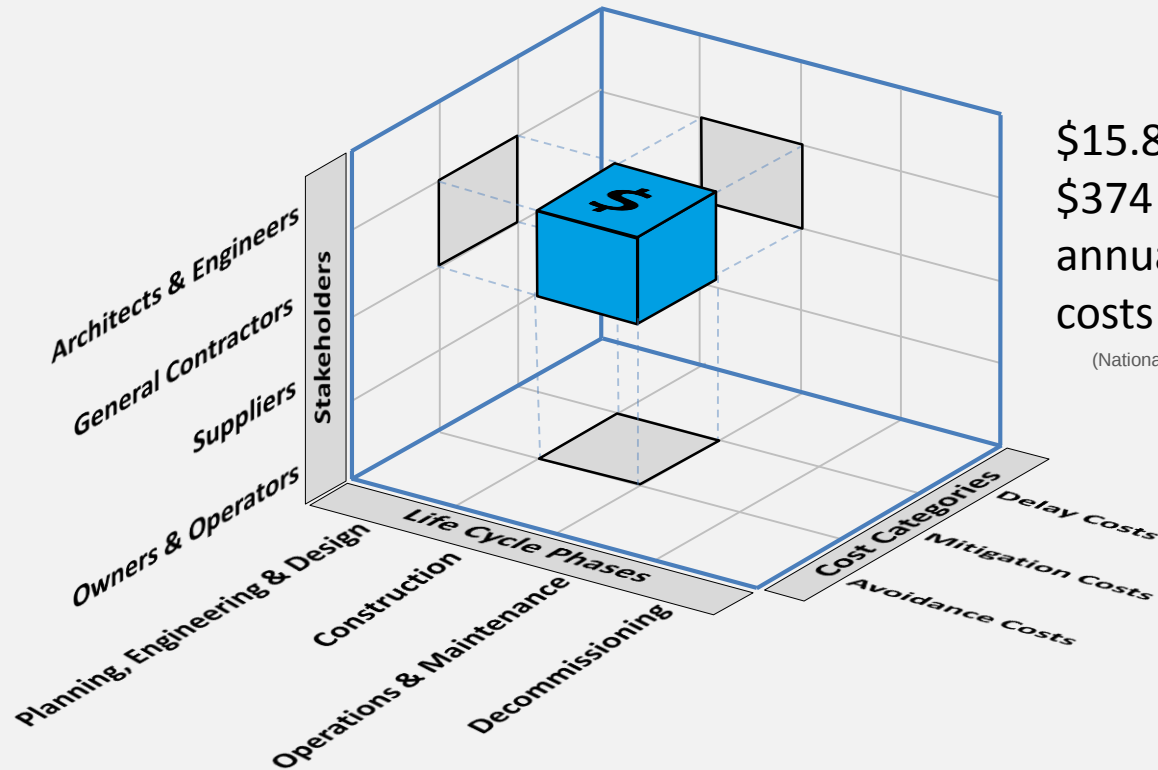
CHALLENGES



CHALLENGES



CHALLENGES



\$15.8 billion from
\$374 billion is the
annual interoperability
costs 2002 in US

(National Institute of Standards and Technology)

Interoperability

CHALLENGES

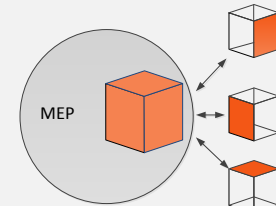
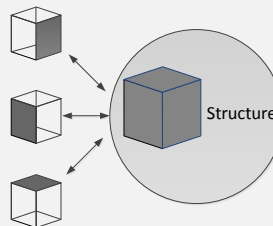
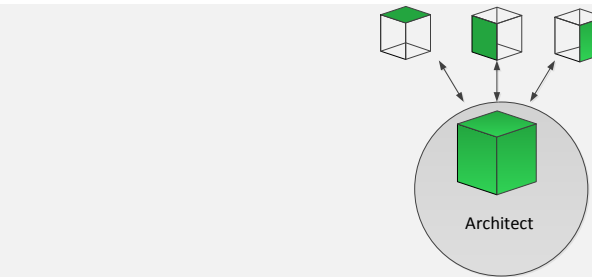


CHALLENGES



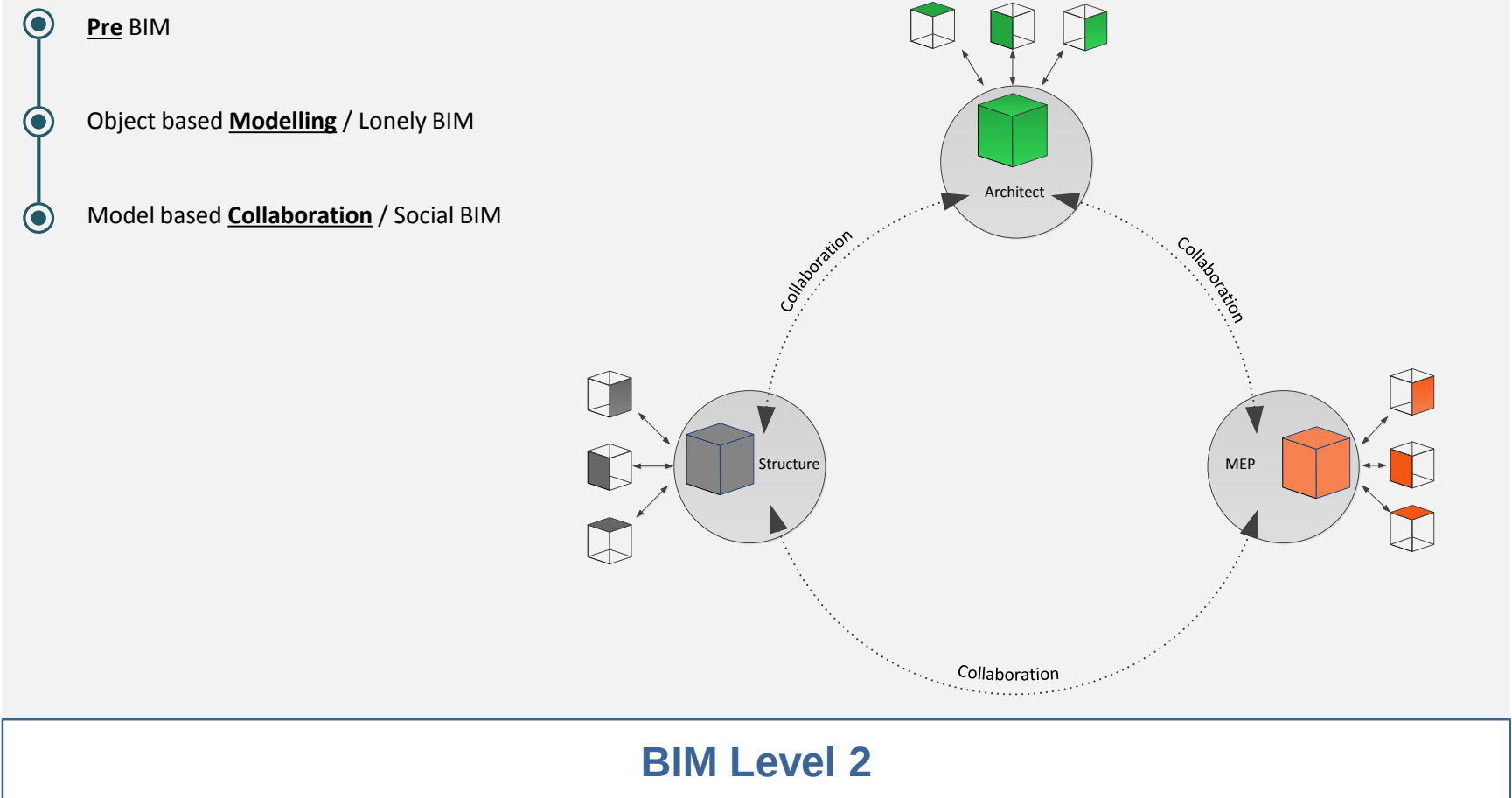
Pre BIM

Object based **Modelling** / Lonely BIM

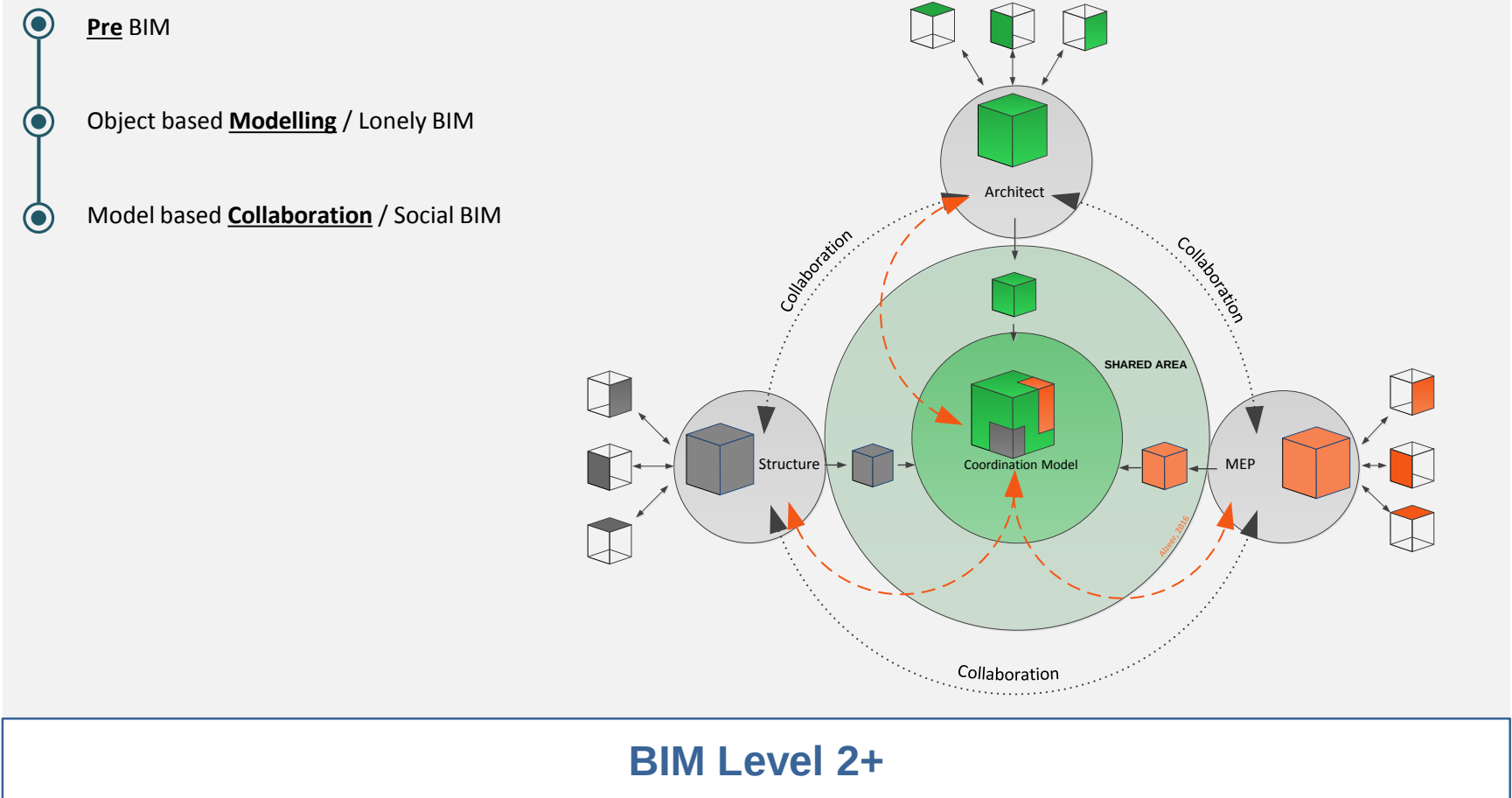


BIM Level 1

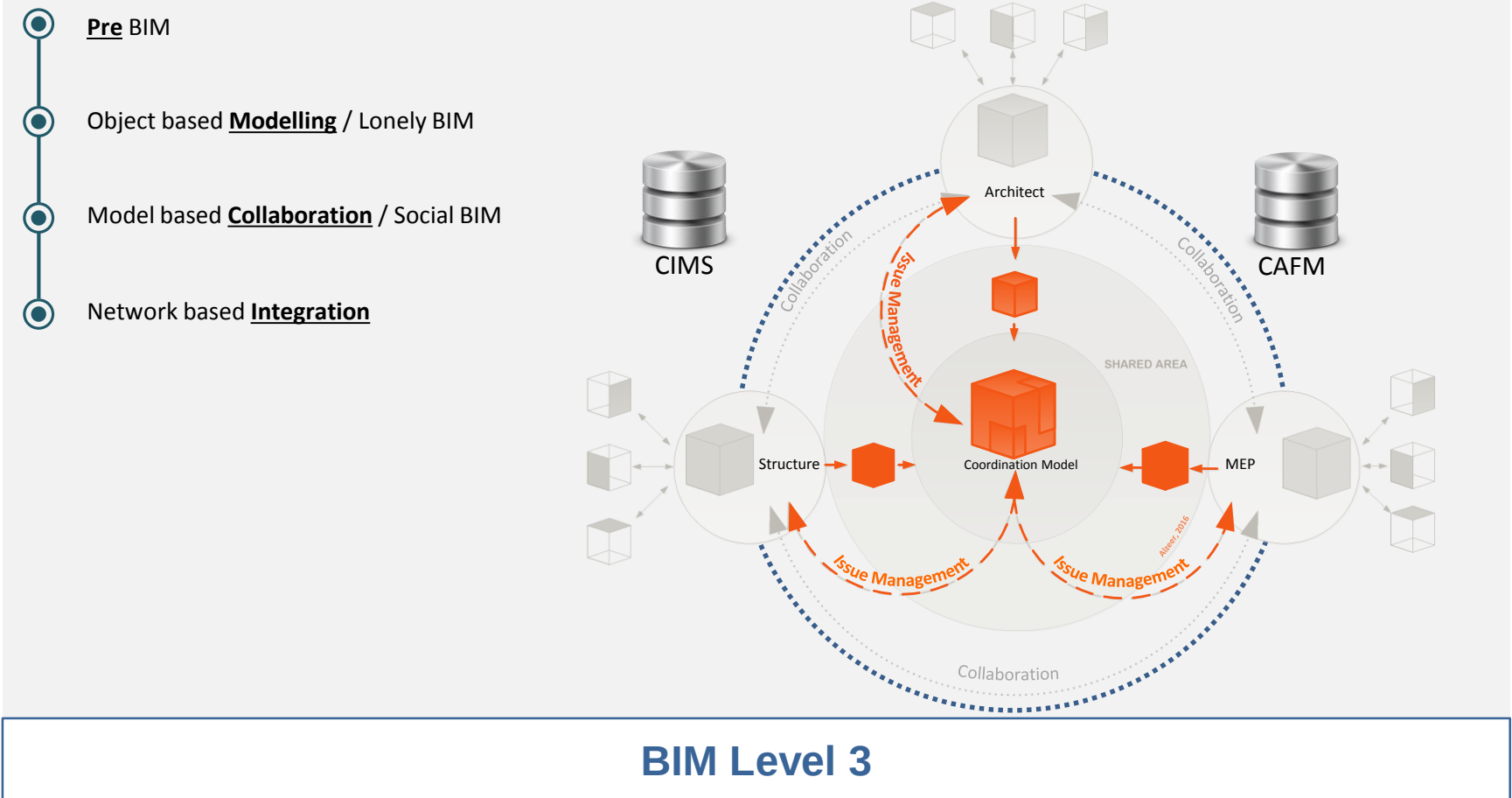
CHALLENGES



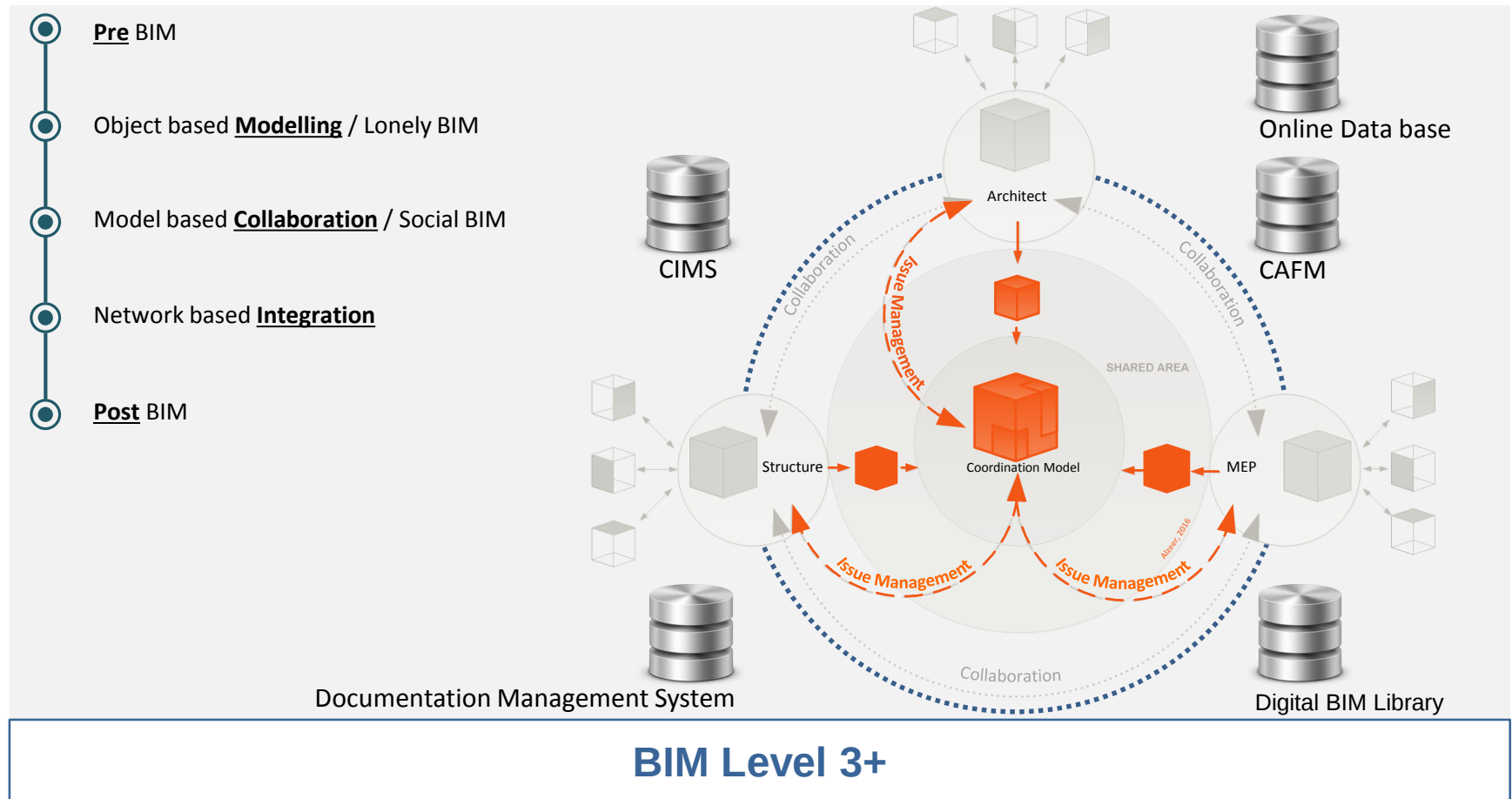
CHALLENGES



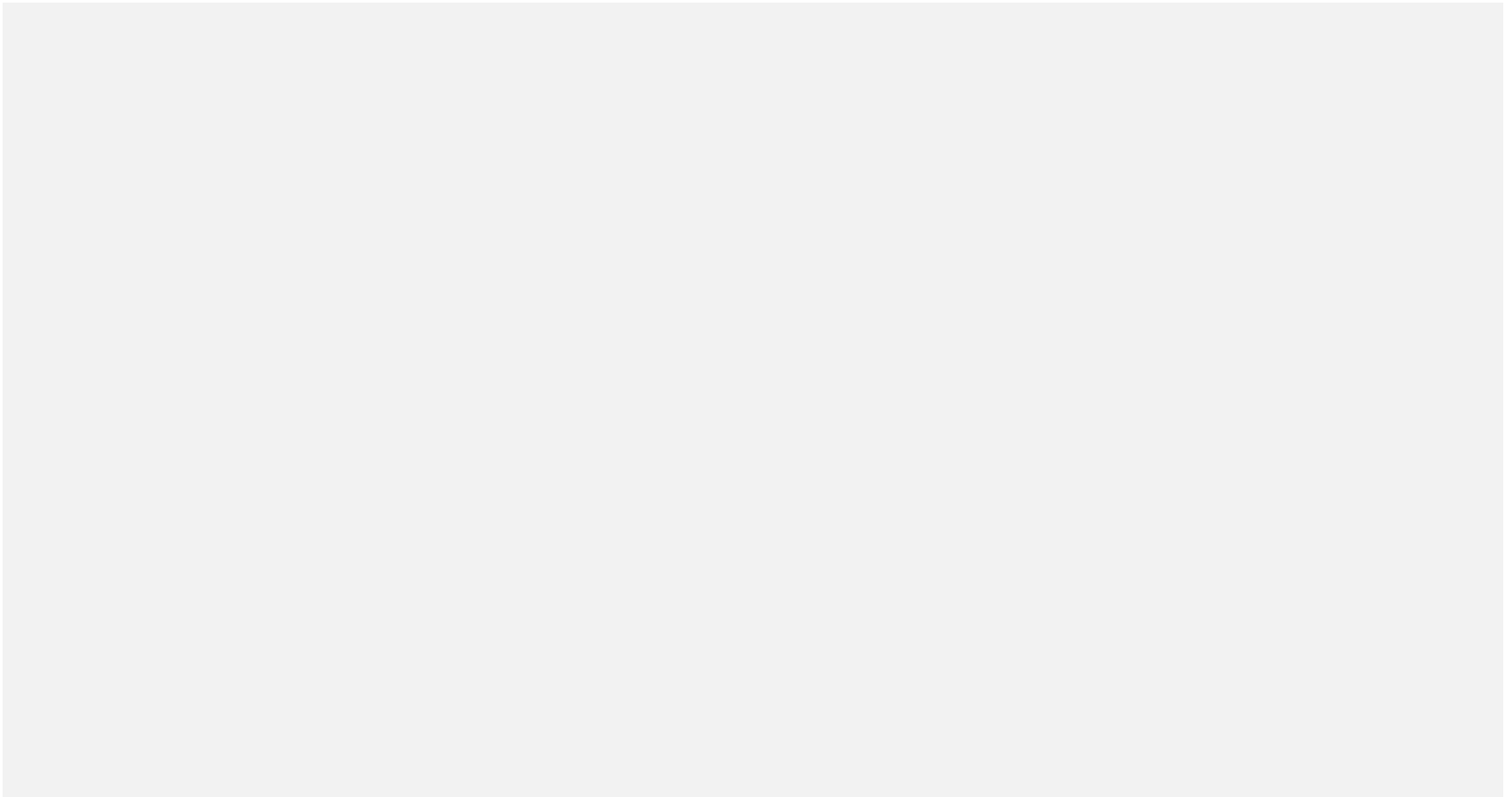
CHALLENGES



CHALLENGES



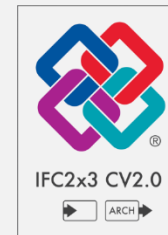
SOLUTION



SOLUTION



SPEAK THE SAME LANGUAGE



Standardization

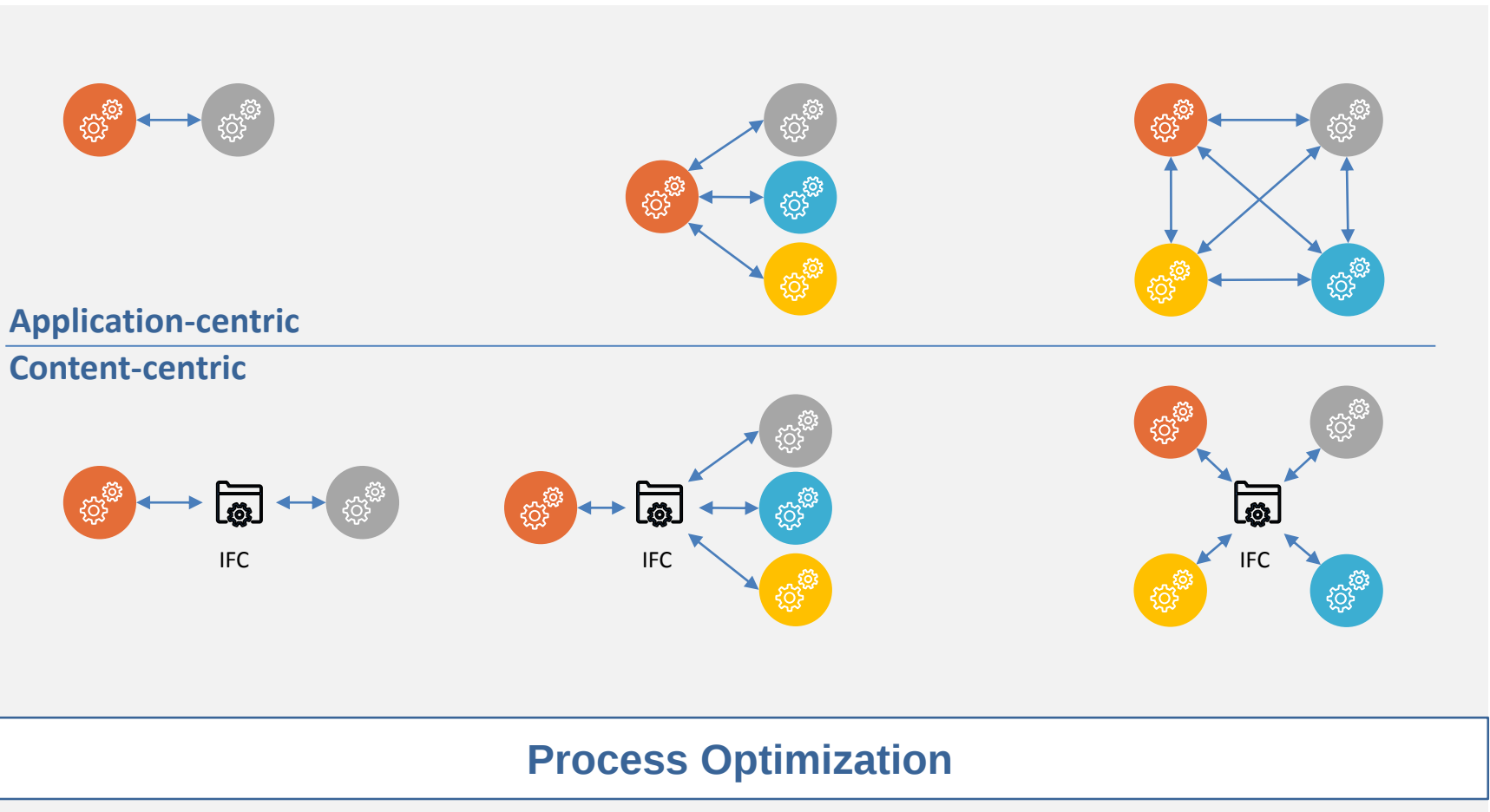
SOLUTION



ELIMINATE WASTEFUL TASKS

Efficiency

SOLUTION

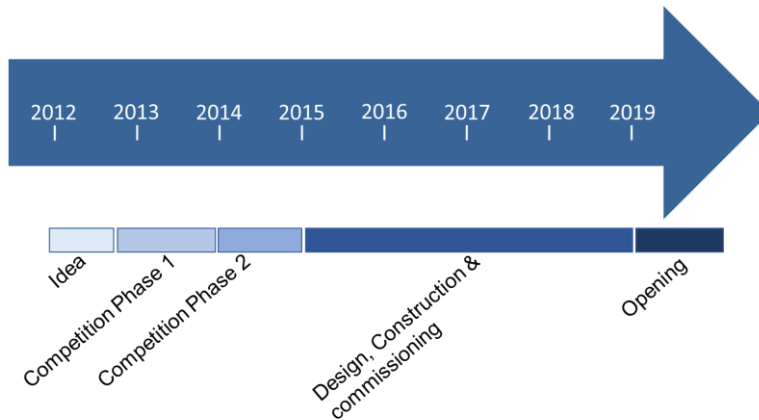


PROJECT CASE STUDY FELIX PLATTER-HOSPITAL

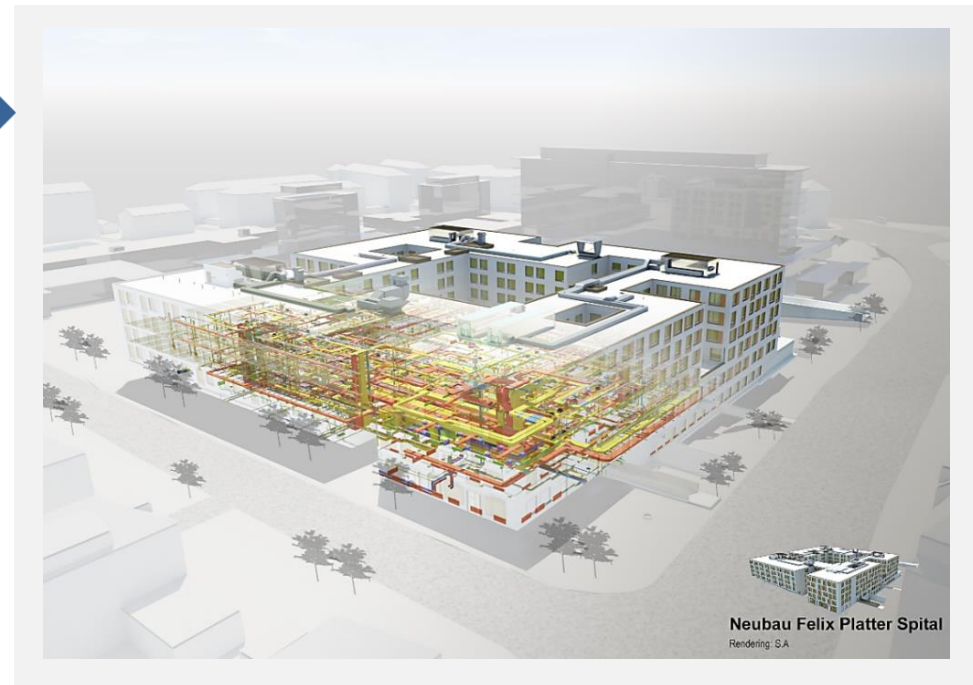


PROJECT CASE STUDY FELIX PLATTER-HOSPITAL

PROJECT INTRODUCTION

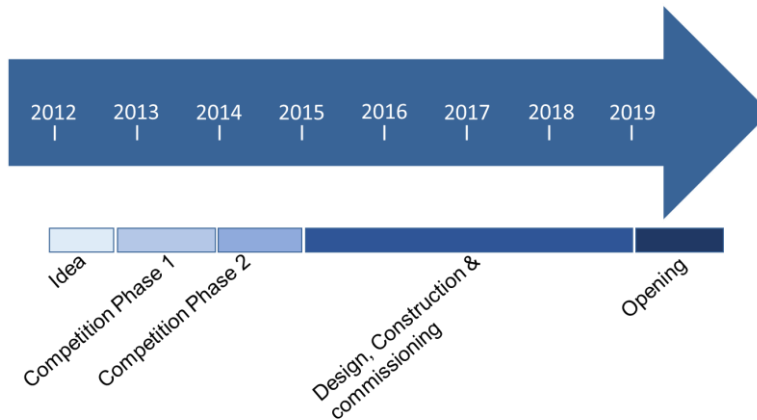


- **GFA:** 45,262 m²
- **Contract value:** 194 million SFr.
- **Construction period:** 01/2015 – 10/2018
- **Contract Type:** Design-Build

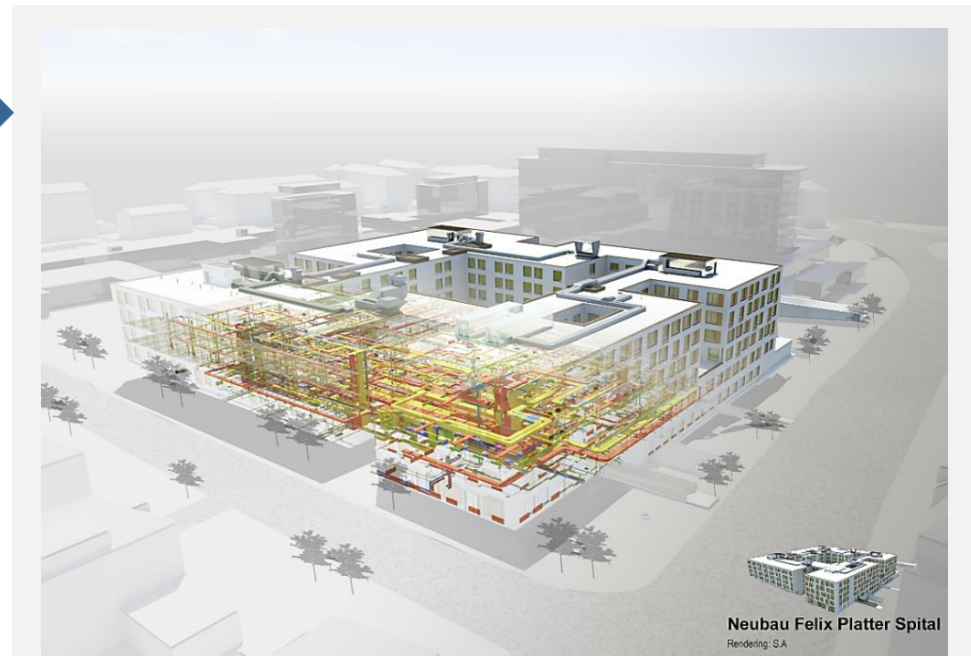


PROJECT CASE STUDY FELIX PLATTER-HOSPITAL

PROJECT INTRODUCTION



- **GFA:** 45,262 m²
- **Contract value:** 194 million SFr.
- **Construction period:** 01/2015 – 10/2018
- **Contract Type:** Design-Build



**Winner of buildingSMART
International Award 2016**

“Operation & Maintenance using open technology”



Evaluation criteria

- The use of open BIM Technologies
- Level of innovation
- Level of collaboration

FELIX PLATTER-HOSPITAL

THE BIM USES

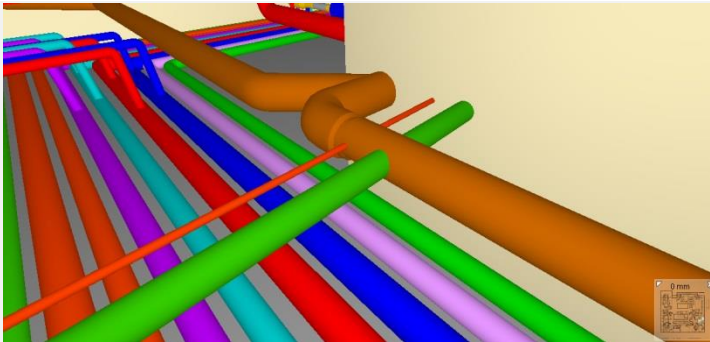
		PRELIMINARY STUDIES	DEVELOPMENT DESIGN	DETAILED DESIGN	CONSTRUCTION	OPERATION
GATHER	CAPTURE	CAPTURE EXISTING FACILITY/SITE		AS-BUILT		CLIENT BIM USES
	QUANTIFY					
GENERATE						
ANALYZE	COORDINATE		BIM COORDINATION			
	FORECAST		5D (COST ESTIMATION)			
			LCC ESTIMATION, ENERGY ANALYSIS, PROCESS ANALYSIS			
	VALIDATE		CODE VALIDATION, ATTRIBUTE VALIDATION, ESCAPE ROUTES, INSERTION ROUTES			
COMMUNICATE	VISUALIZE		3D VISUALIZATION AND DESIGN VALIDATION			
	TRANSFORM		COLLABORATION THROUGH OPEN STANDARDS			
				BIM2FM THROUGH OPEN STANDARDS		
	DRAW		BIM-BASED DRAWINGS PRODUCTION			
REALIZE	DOCUMENT				DIGITAL DOCUMENTATION	
	FABRICATE					
	ASSEMBLE				DIGITAL CONSTRUCTION	
	CONTROL			CONSTRUCTION INFORMATION MANAGEMENT SYSTEM		
	REGULATE					

FELIX PLATTER-HOSPITAL

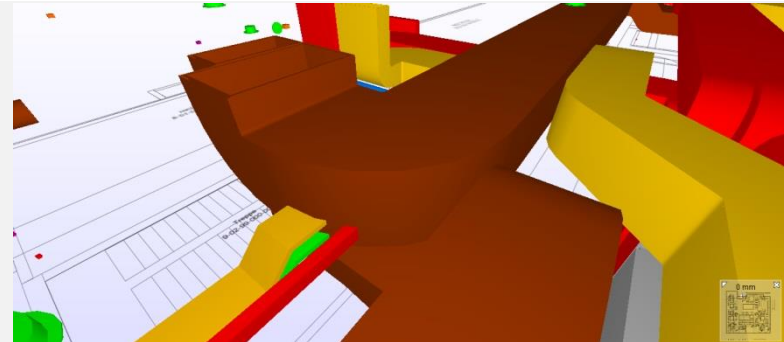
THE BIM USES

		PRELIMINARY STUDIES	DEVELOPMENT DESIGN	DETAILED DESIGN	CONSTRUCTION	OPERATION
GATHER	CAPTURE					
	QUANTIFY					
GENERATE						
ANALYZE	COORDINATE		BIM COORDINATION			
	FORECAST					
	VALIDATE					
COMMUNICATE	VISUALIZE					
	TRANSFORM					
	DRAW					
REALIZE	DOCUMENT					
	FABRICATE					
	ASSEMBLE					
	CONTROL					
	REGULATE					

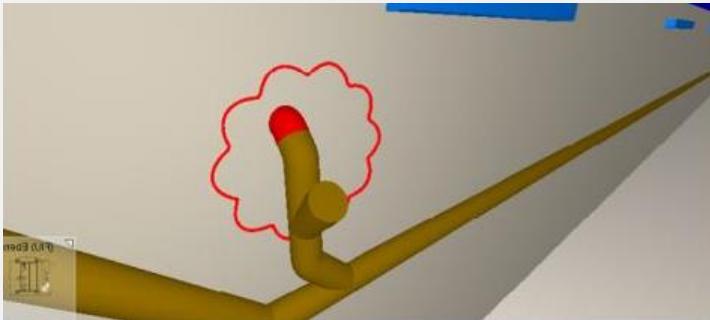
BIM COORDINATION



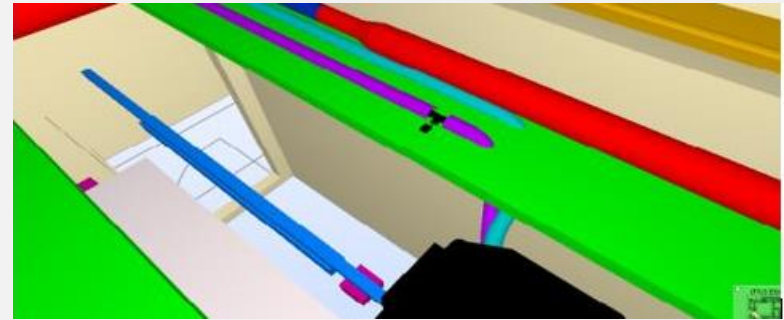
- Physical clashes (pipe with pipe)



- Physical clashes (electrical with ducts)



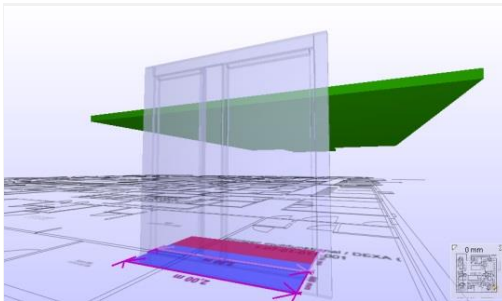
- Physical clashes (pipe with wall)



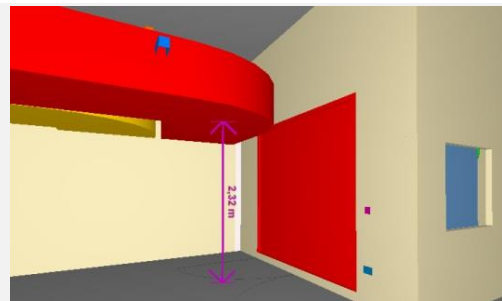
- Physical clashes (pipe with electrical)

PHYSICAL CLASHES

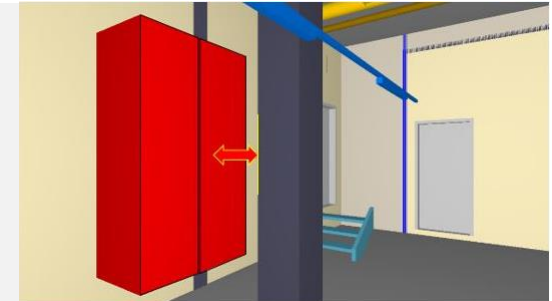
BIM COORDINATION



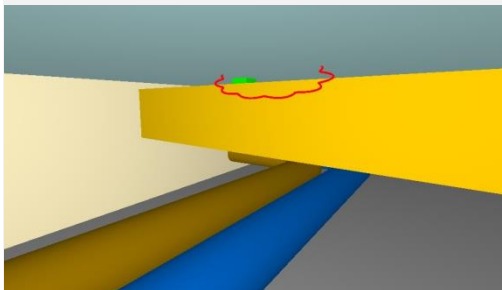
- Clear space in front of windows



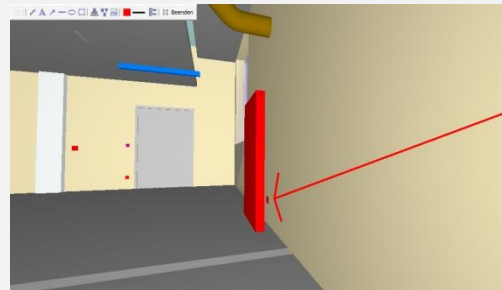
- Clear Space in front of doors



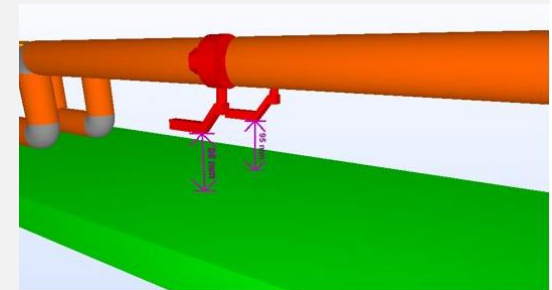
- Clear Space in front of electrical Cabinets



- Accessibility to fire alarm indicators



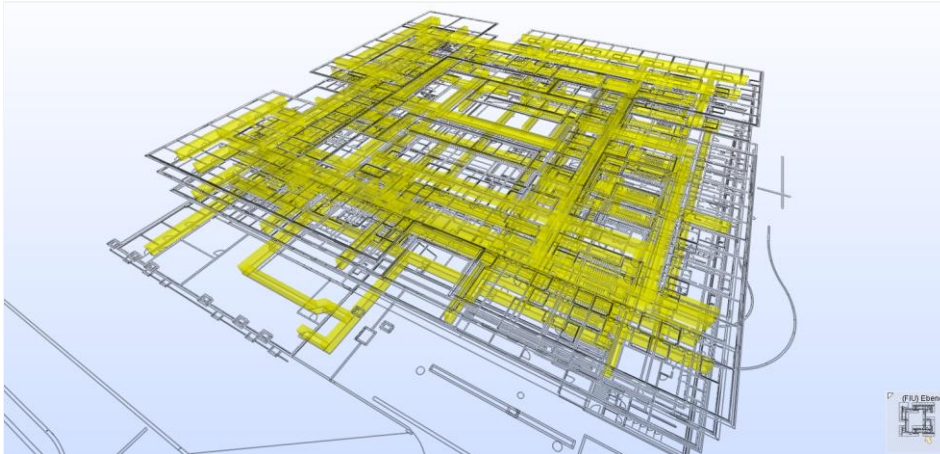
- Clear space in front of electrical sockets



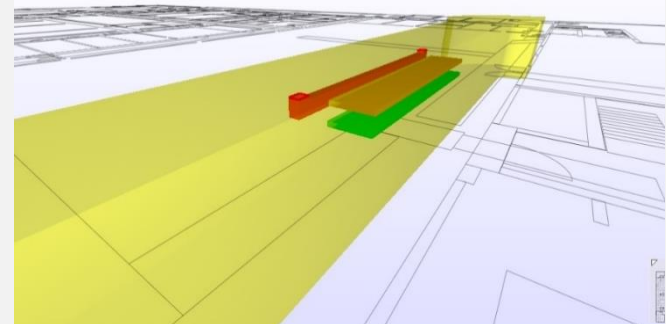
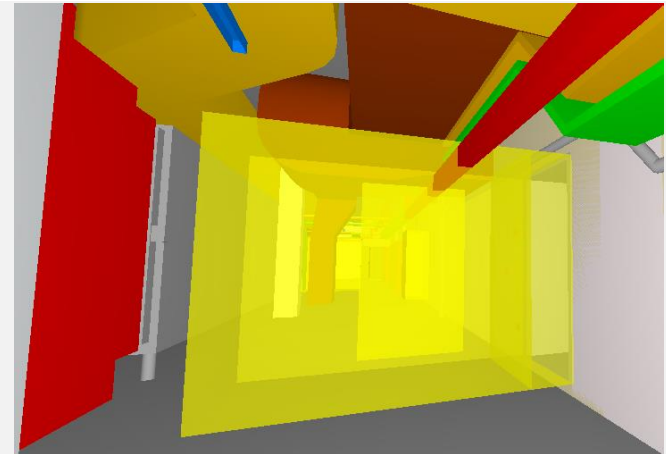
- Accessibility to mechanical equipment

NON-PHYSICAL CLASHES

BIM COORDINATION



- review of escape routes



- review insertion routes

CODE VALIDATION

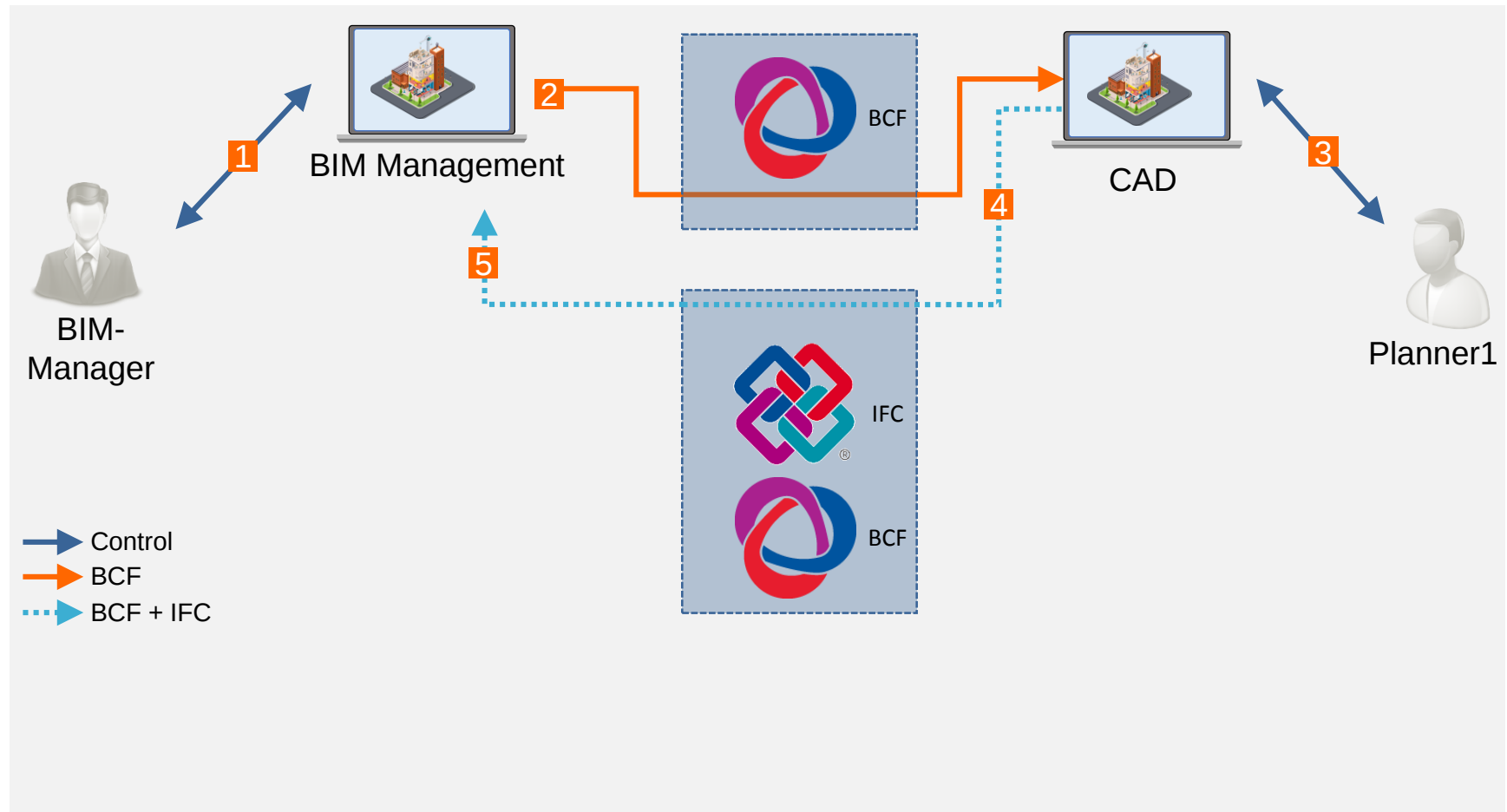
FELIX PLATTER-HOSPITAL

THE BIM USES

		PRELIMINARY STUDIES	DEVELOPMENT DESIGN	DETAILED DESIGN	CONSTRUCTION	OPERATION
GATHER	CAPTURE					
	QUANTIFY					
	GENERATE					
ANALYZE	COORDINATE					
	FORECAST					
	VALIDATE					
COMMUNICATE	VISUALIZE					
	TRANSFORM		COLLABORATION THROUGH OPEN STANDARDS			
	DRAW					
REALIZE	DOCUMENT					
	FABRICATE					
	ASSEMBLE					
	CONTROL					
	REGULATE					

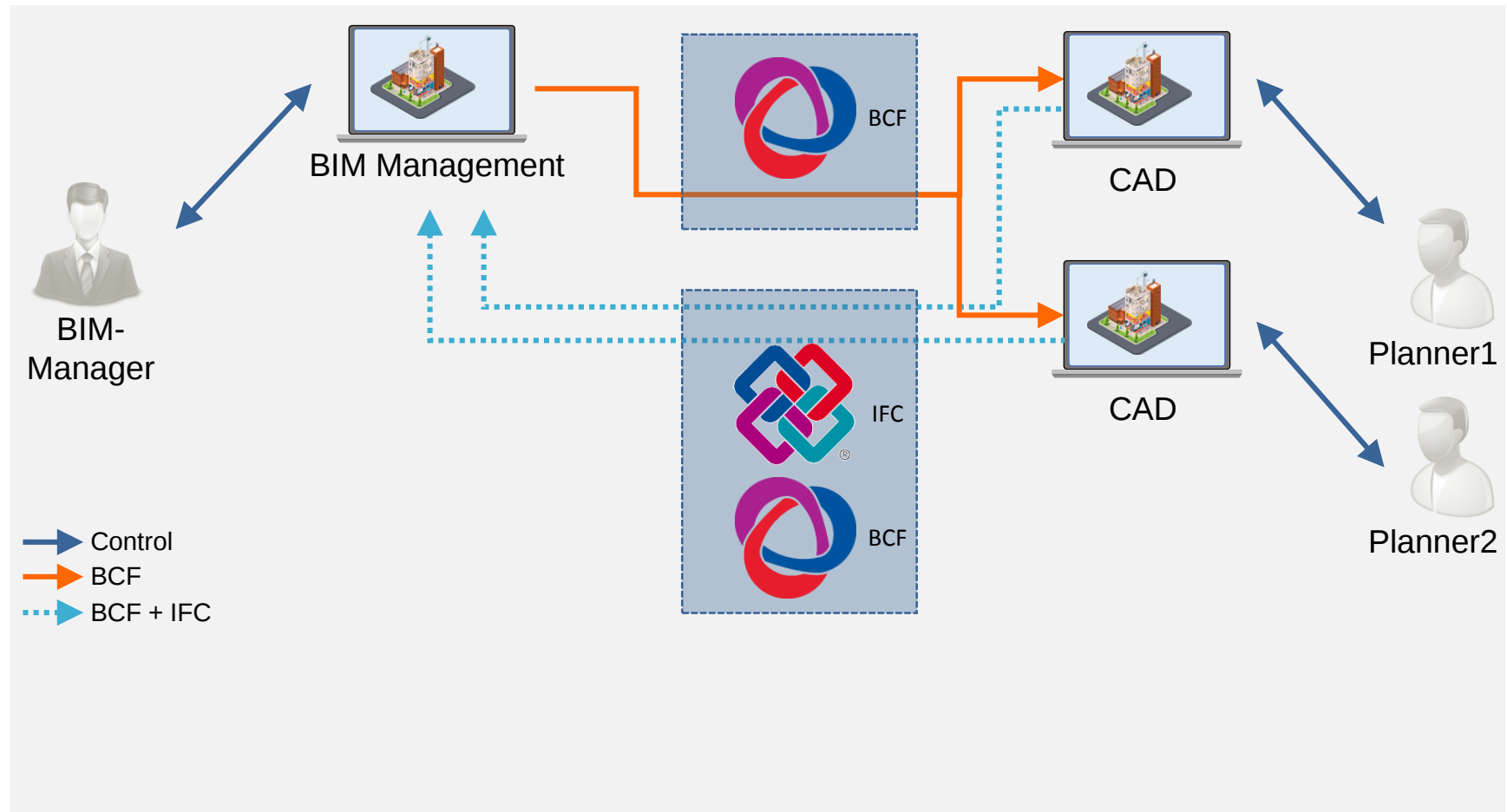
COLLABORATION THROUGH OPEN STANDARDS

ISSUE MANAGEMENT



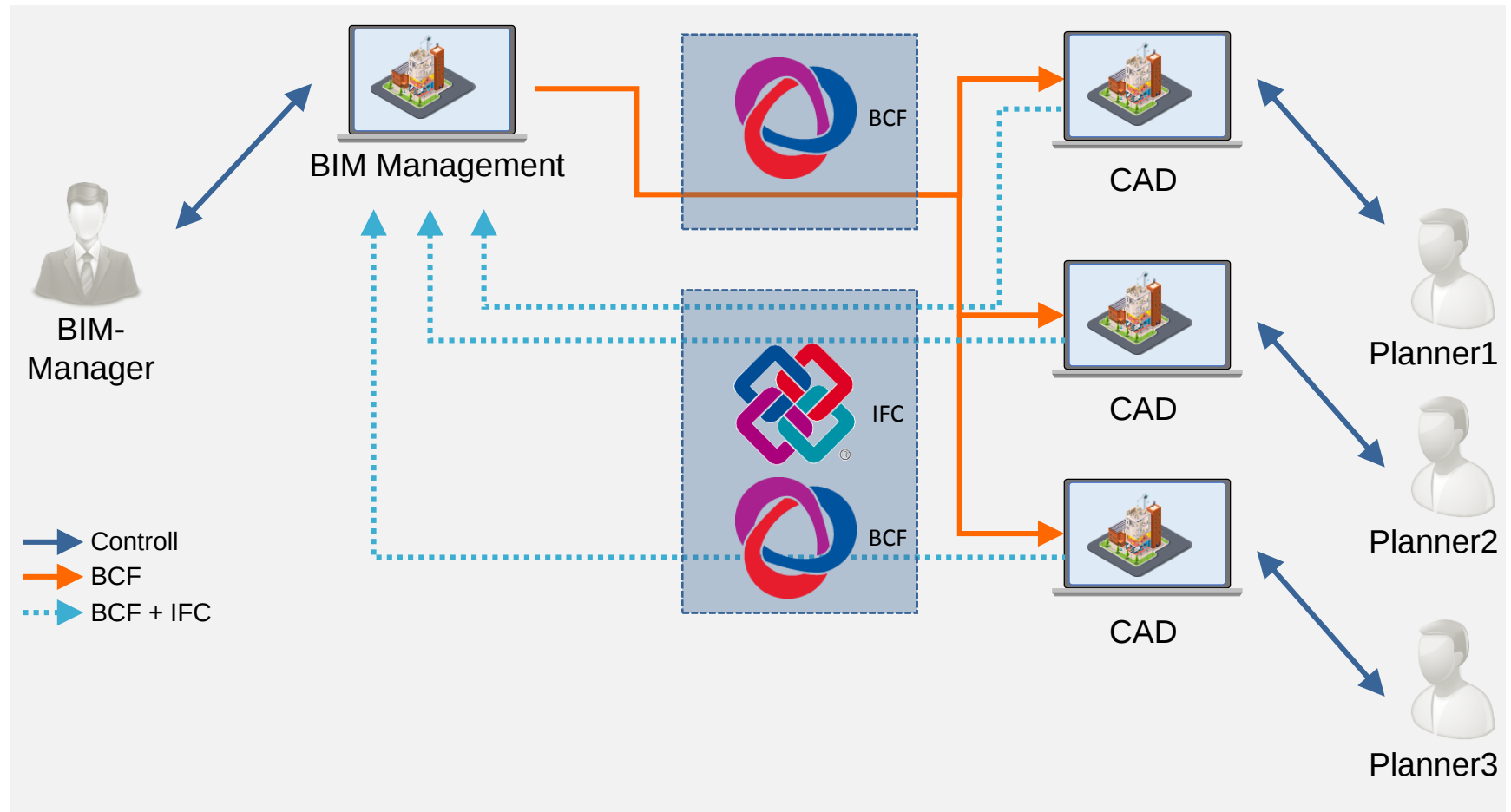
COLLABORATION THROUGH OPEN STANDARDS

ISSUE MANAGEMENT



COLLABORATION THROUGH OPEN STANDARDS

ISSUE MANAGEMENT



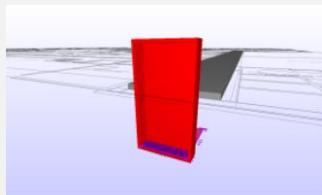
ISSUE MANAGEMEN IN THE CLOUD

BIMcollab



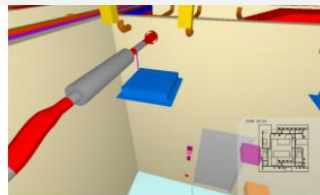
ISSUE MANAGEMEN IN THE CLOUD BIMcollab

- Online Plattform / Always accessible



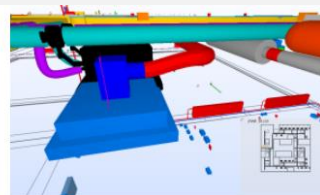
859 . (ARC. EG) Belag.-2.93.1 zu n...

Daniel Dörner
Closed, Normal
Undecided



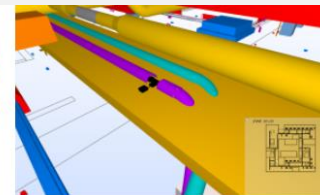
967 . (LUE. EG) Objekt.-1.4494

Samir Alzeer
Closed, Normal
Undecided



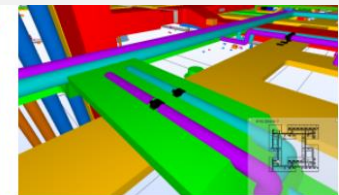
966 . (HEI. 01) Mengenregler.1.94

Alexander Wallensteiner
Active, Normal
Undecided



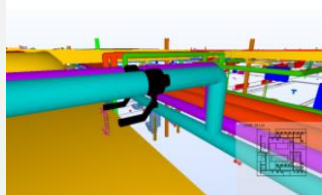
965 . (HEI. 01) Mengenregler.1.72

Alexander Wallensteiner
Active, Normal
Undecided



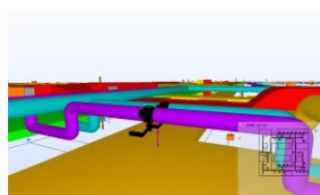
964 . (HEI. 01) Mengenregler.1.68

Alexander Wallensteiner
Active, Normal
Undecided



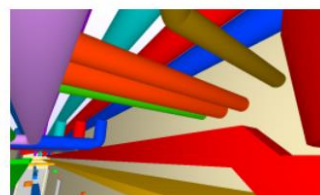
963 . (HEI. 01) Mengenregler.1.60

Samir Alzeer
Active, Normal
Undecided



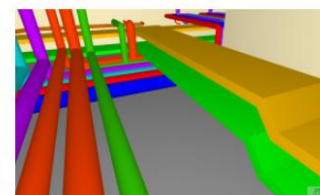
962 . (HEI. 01) Mengenregler.1.50

Alexander Wallensteiner
Active, Normal
Undecided



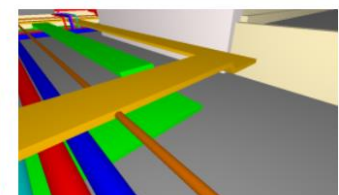
746 . Medium, Rohrbogen, und Sta...

Alexander Wallensteiner
Resolved, Normal
Undecided



750 . Elektro und HLKS überschne...

Alexander Wallensteiner
Resolved, Normal
Undecided



752 . Elektro und Sanitär Übersch...

Alexander Wallensteiner
Resolved, Normal
Undecided



ISSUE MANAGEMEN IN THE CLOUD

BIMcollab

- Online Plattform / Always accessible
- Clear responsibilities through Filtering

All 967 issues in this project Show all All open Open for me Filter ^

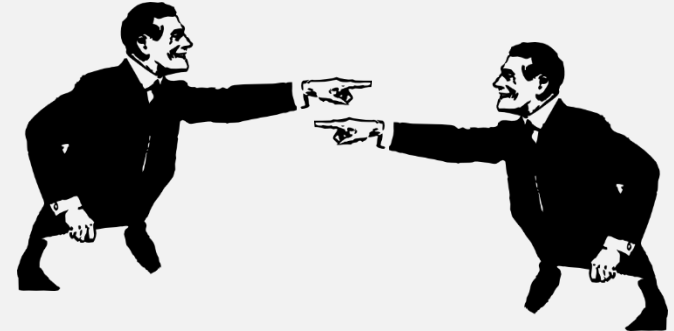
Type:	Area:	Milestone:	Label:	Status:
All	All	All	All	☒ Active ☒ Resolved ☒ Closed
Priority:	Assigned to:	Deadline:	Created by:	Sorted on:
All	All		All	Modified date ☒ Reverse

Cancel

ISSUE MANAGEMEN IN THE CLOUD

BIMcollab

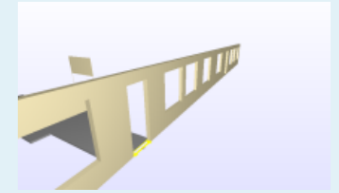
- Online Plattform / Always accessible
- Clear responsibilities through Filtering
- Changes are documented



No more finger pointing

858. Abgehängte Decke, Belag, Wand zu nah an der Komponente Tür

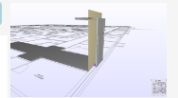
Type: Issue	Area: -	Milestone: Undecided	Labels: -
Priority: Normal	Assigned to: Daniel Dörner	Deadline: -	
Creator: Samir Alzeer	Created: 31-03-2016 14:59	Modified: 01-04-2016 15:25	Visibility: All
			Status: Resolved



Edited by Samir Alzeer 31-03-2016 14:59

wird angepasst

Edit



Created by Samir Alzeer 31-03-2016 14:59

Title set to 'Abgehängte Decke, Belag, Wand zu nah an der Komponente Tür'. Type set to 'Issue'. Assigned to 'Daniel Dörner'.
Viewpoint modified by Samir Alzeer 01-04-2016 15:25.

History

Edit



Status von Öffnen zu Resolved geändert.

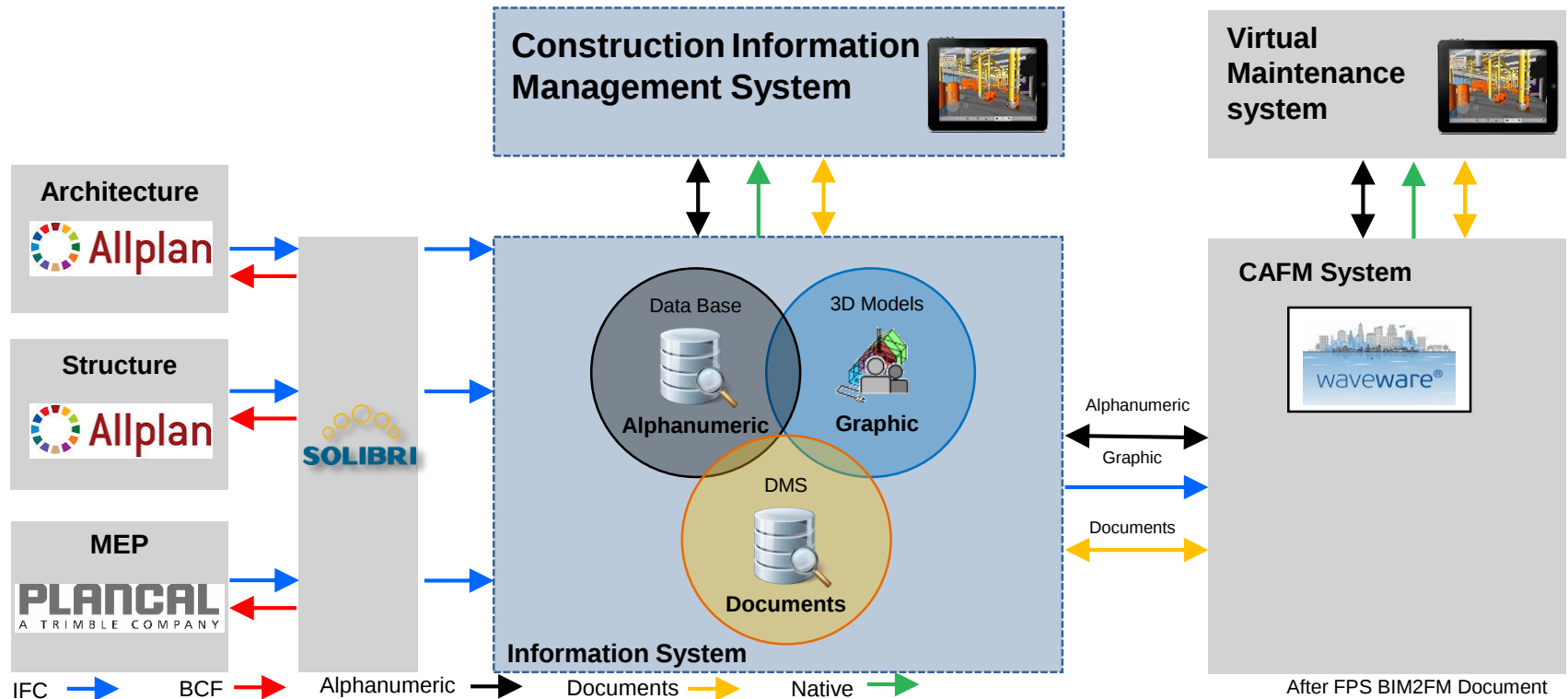
FELIX PLATTER-HOSPITAL

THE BIM USES

		PRELIMINARY STUDIES	DEVELOPMENT DESIGN	DETAILED DESIGN	CONSTRUCTION	OPERATION
GATHER	CAPTURE					
	QUANTIFY					
	GENERATE					
ANALYZE	COORDINATE					
	FORECAST					
	VALIDATE					
COMMUNICATE	VISUALIZE					
	TRANSFORM					
	DRAW					
	DOCUMENT					
REALIZE	FABRICATE					
	ASSEMBLE					
	CONTROL					
	REGULATE					

BIM2FM THROUGH OPEN STANDARDS

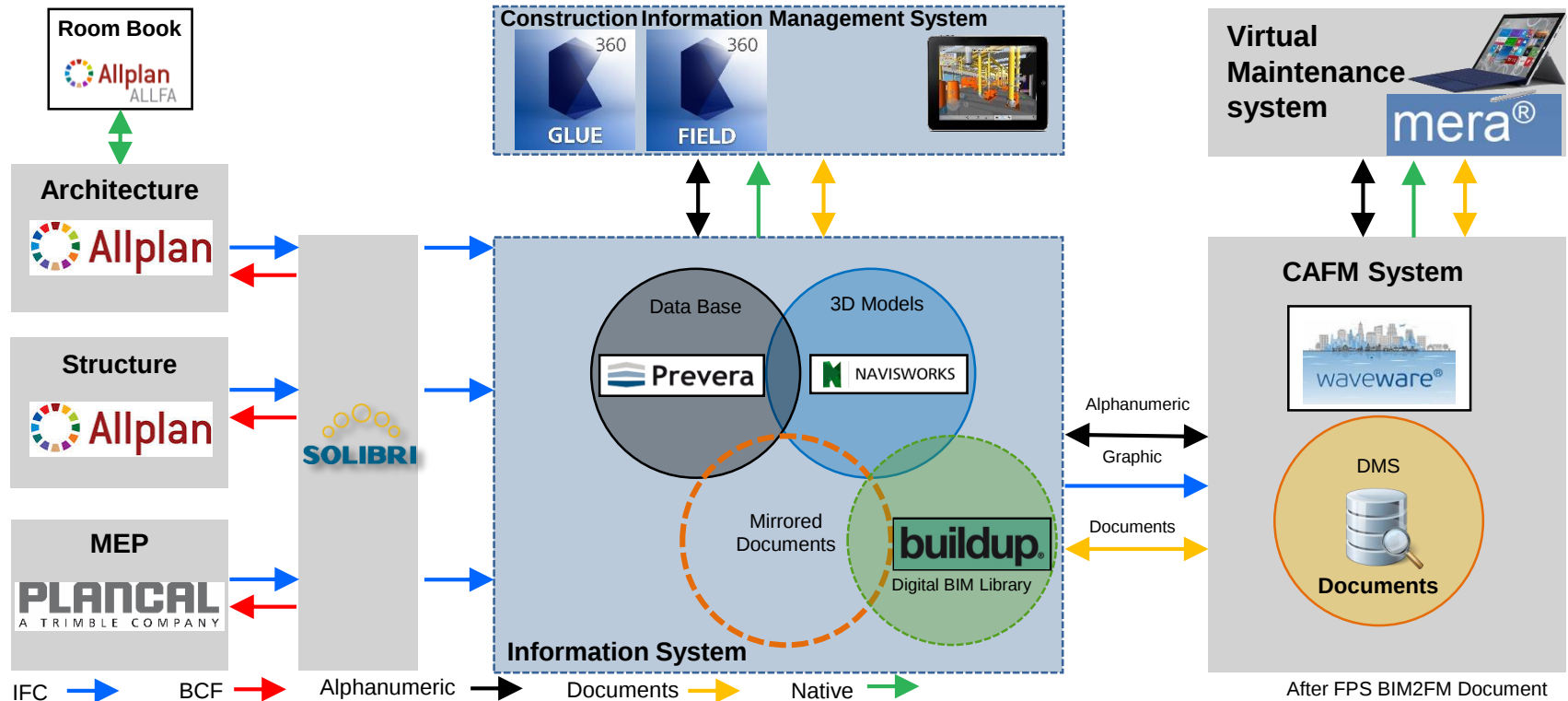
BIM2FM THROUGH OPEN BIM STANDARDS



Employer's Information Requirements

BIM2FM THROUGH OPEN BIM STANDARDS

CURRENT CONCEPT



Common Data Environment

FELIX PLATTER-HOSPITAL

THE BIM USES

		PRELIMINARY STUDIES	DEVELOPMENT DESIGN	DETAILED DESIGN	CONSTRUCTION	OPERATION
GATHER	CAPTURE					
	QUANTIFY					
GENERATE						
ANALYZE	COORDINATE					
	FORECAST					
	VALIDATE					
COMMUNICATE	VISUALIZE					
	TRANSFORM					
	DRAW					
REALIZE	DOCUMENT				DIGITAL DOCUMENTATION	
	FABRICATE					
	ASSEMBLE					
	CONTROL					
	REGULATE					

DIGITAL DOCUMENTATION



DIGITAL DOCUMENTATION

TRADITIONAL DOCUMENTATION VS. DIGITAL DOCUMENTATION



- Difficult to gather, edit and update
- Storage space is an issue
- Vanishes through project phases

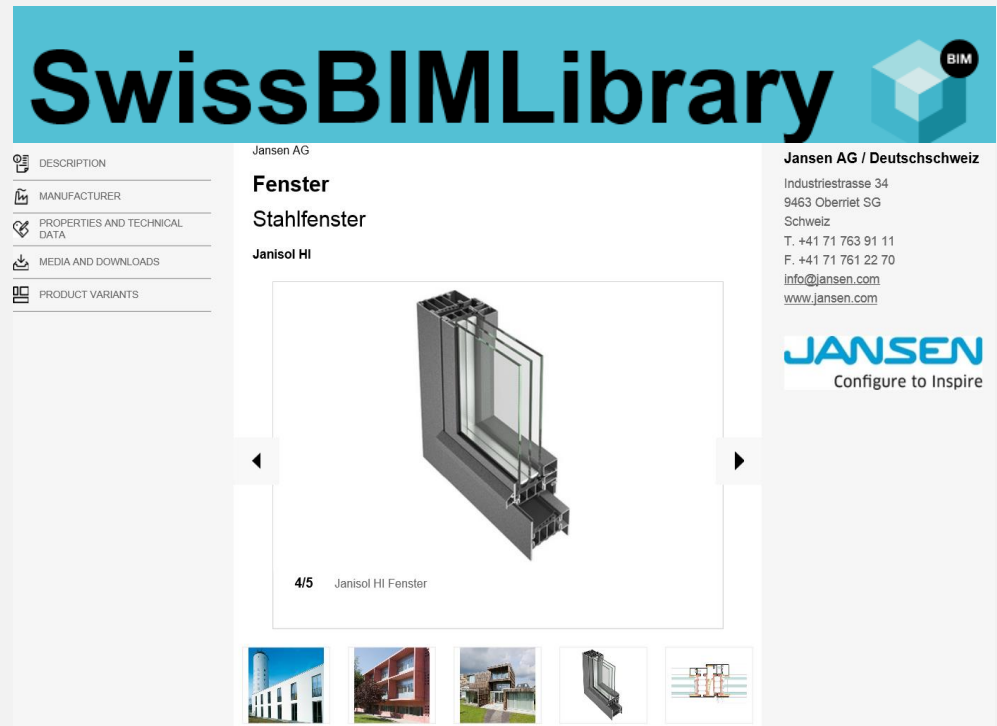
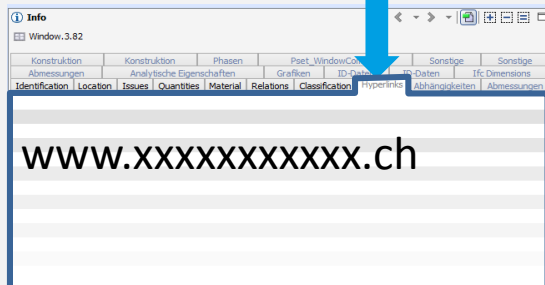
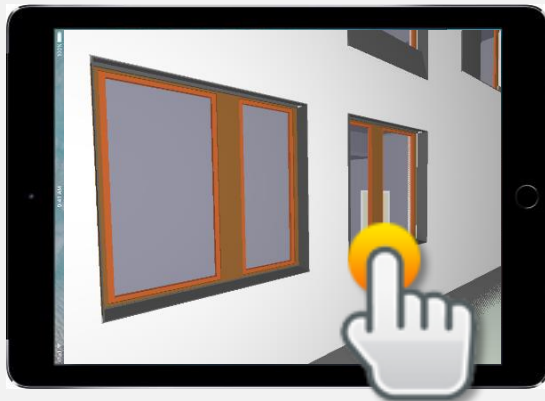
TRADITIONAL DOCUMENTATION



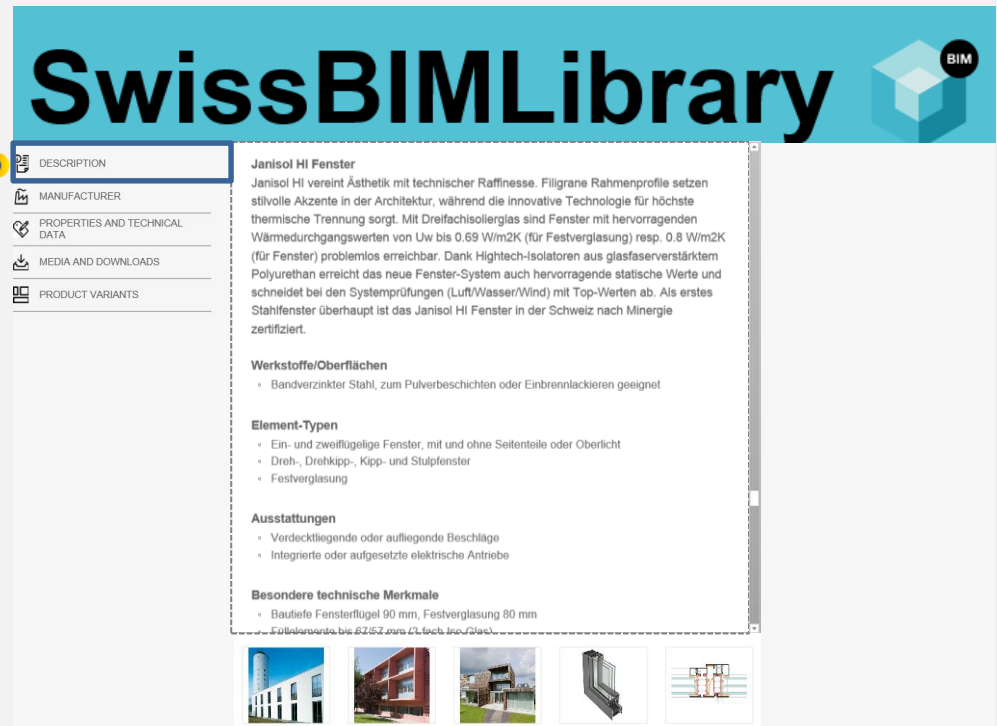
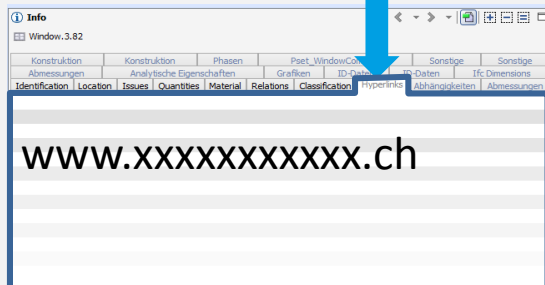
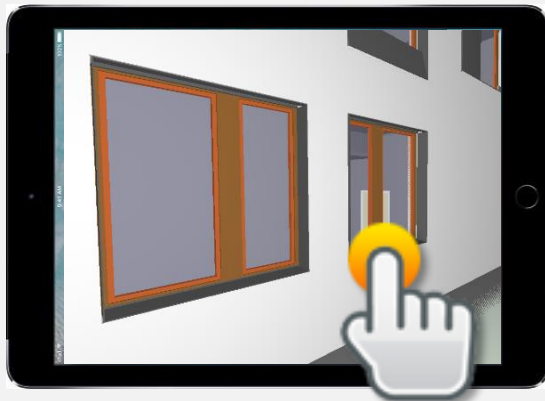
- Easy to access (online)
- documents can be retrieved from mobile devices
- Easy to edit and update
- Ideal for Facility Managers

DIGITAL DOCUMENTATION

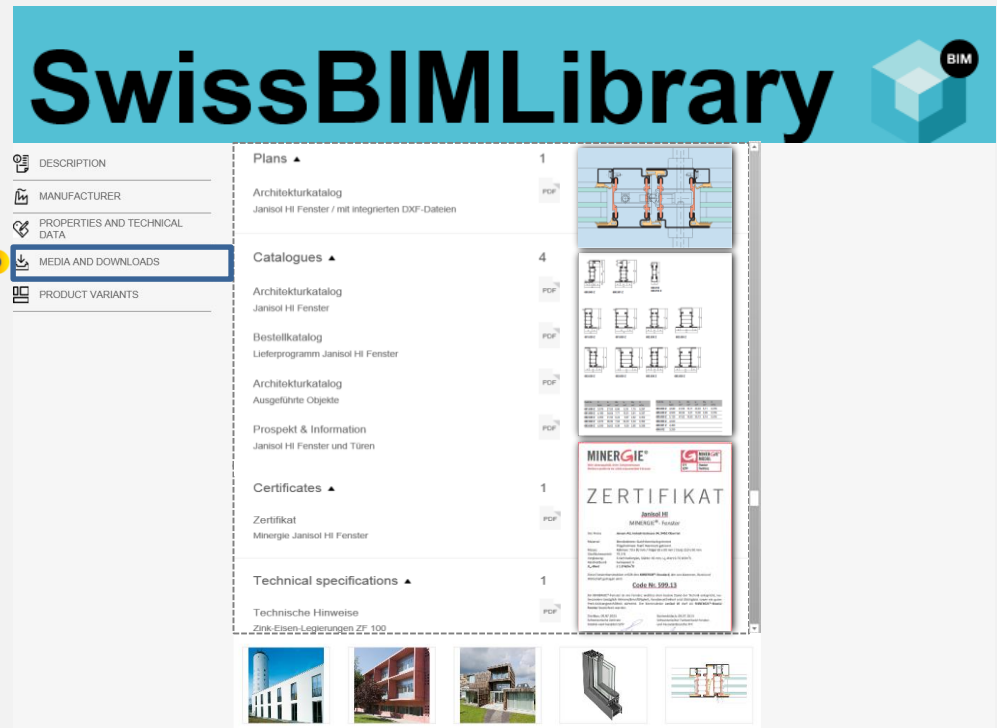
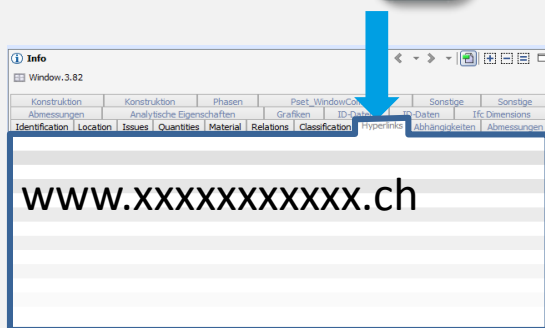
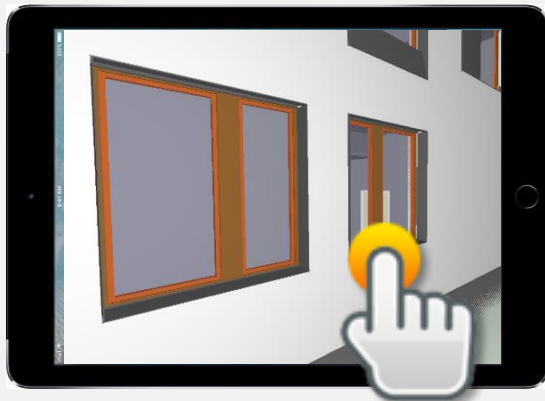
DIGITAL DOCUMENTATION CASE STUDY



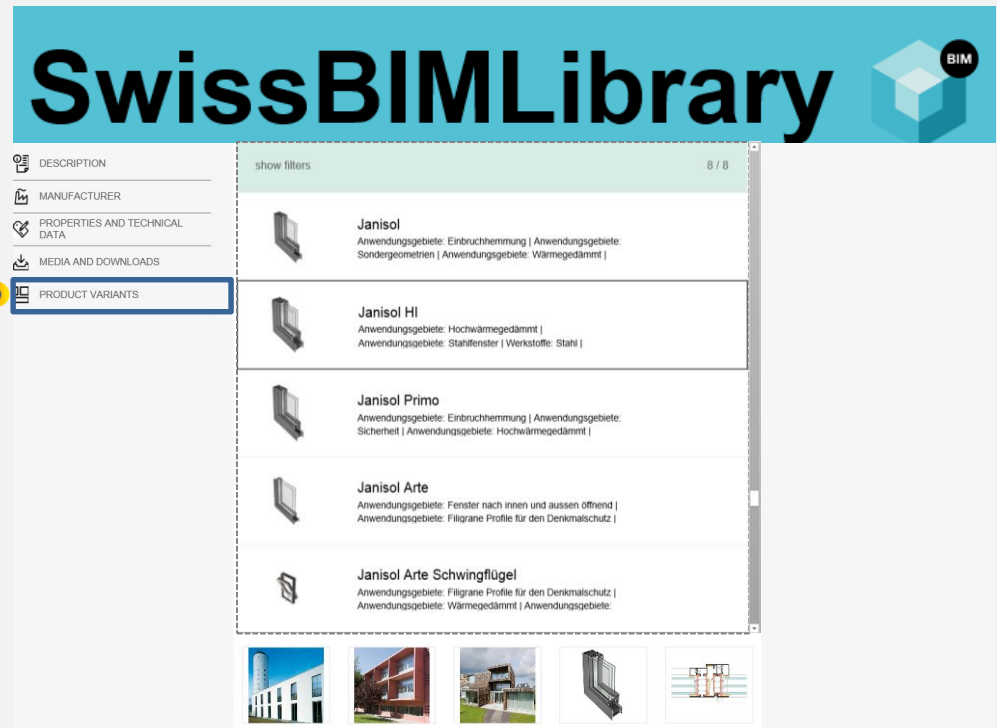
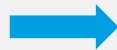
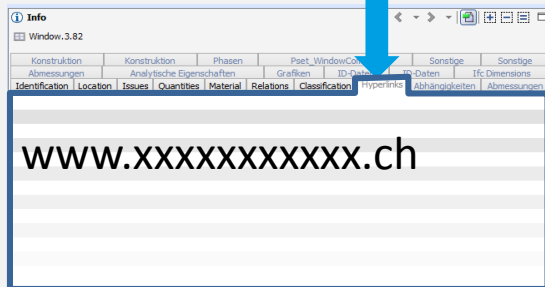
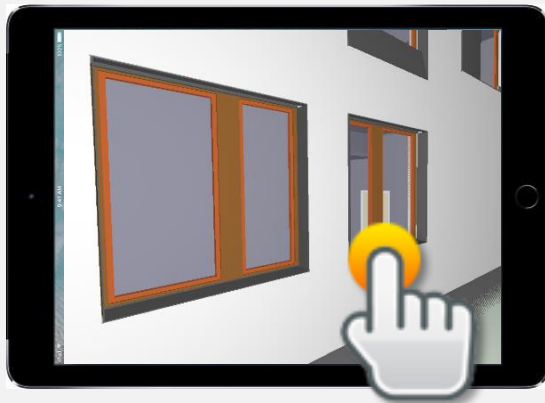
DIGITAL DOCUMENTATION CASE STUDY



DIGITAL DOCUMENTATION CASE STUDY



DIGITAL DOCUMENTATION CASE STUDY



CONTACT INFORMATION



Samir Alzeer

M.ENG. International Project Management,
Architect

Office BIM Manager

 BAM Deutschland AG, Stuttgart

 +49 (711) 2500 74 12

 +49 (172) 621 27 64

 s.alzeer@bam-deutschland.de

THANK YOU FOR YOUR ATTENTION