



doka

The Formwork Experts.

BIM

Building Information Modeling

Experiences and Approaches of a Formwork Supplier

Mag. Markus Bittner (SE)

Bratislava , 20th October 2016

About Me

May I introduce myself



Mag. Markus Bittner

Head of Service Engineering
Research & Development

- Global BIM Coordinator
- Business Development for New Business Opportunities
- Optimization of Existing Service
- Development of New Service Offerings
- Service Trend Scouting

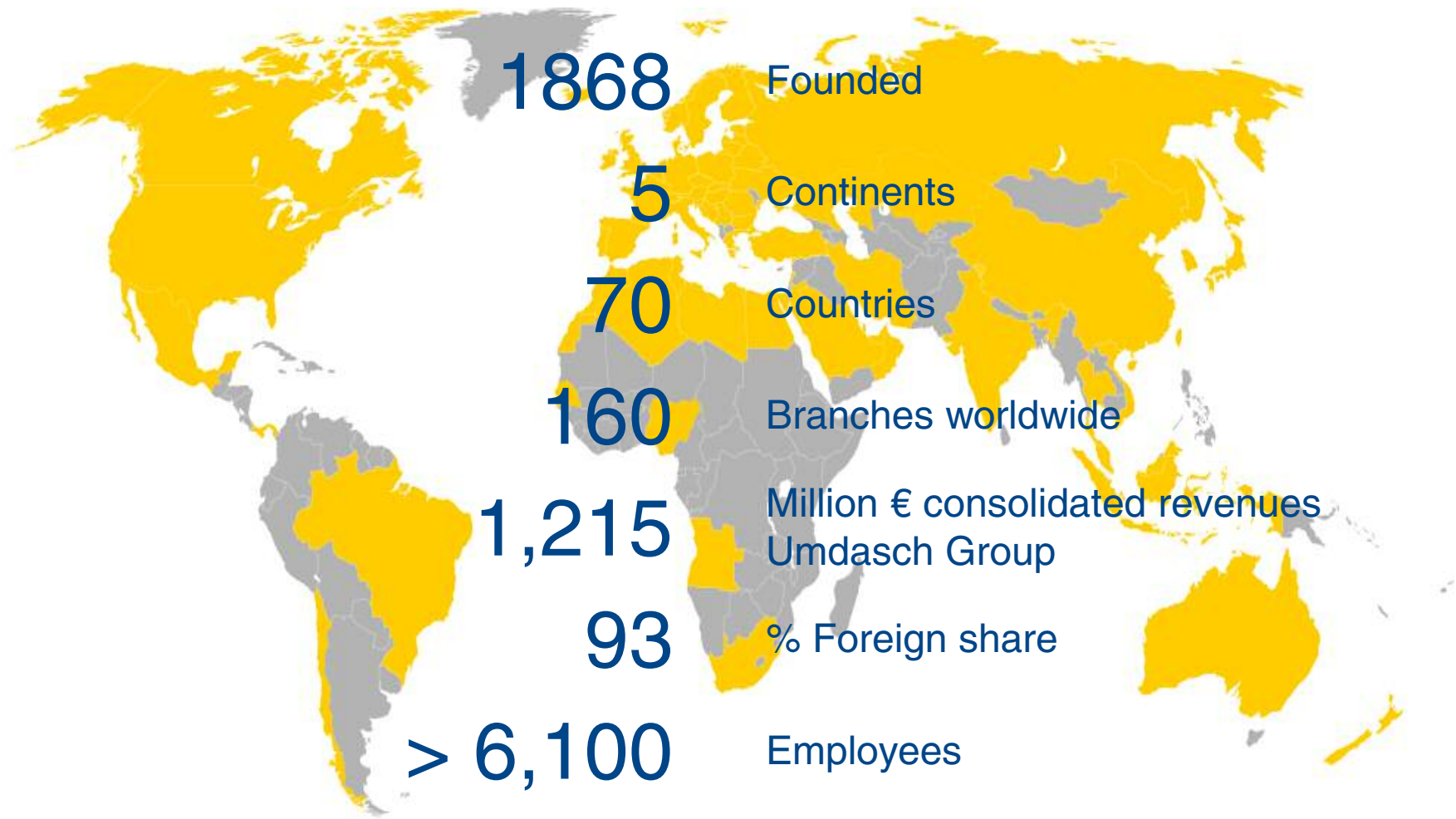
Contact

eMail: markus.bittner@doka.com

Telephone: +43 7472 605-2073

Doka GmbH

Facts and Figures



Doka GmbH



What we do ... forming of cast-in-place concrete



Modeling of Formwork

Two different ways of thinking

... **Temporary works like formwork**, false work, propping, façade retention, needling, edge protection, temporary bridges, site hoarding & signage, site fencing, scaffolding, tower cranes, loading bays and shoring **is not required to be modeled except for structures intended to be permanently installed and not dismantled after construction.** ...

Source: Building and Construction Authority, Singapore

Modeling of Formwork

Two different ways of thinking

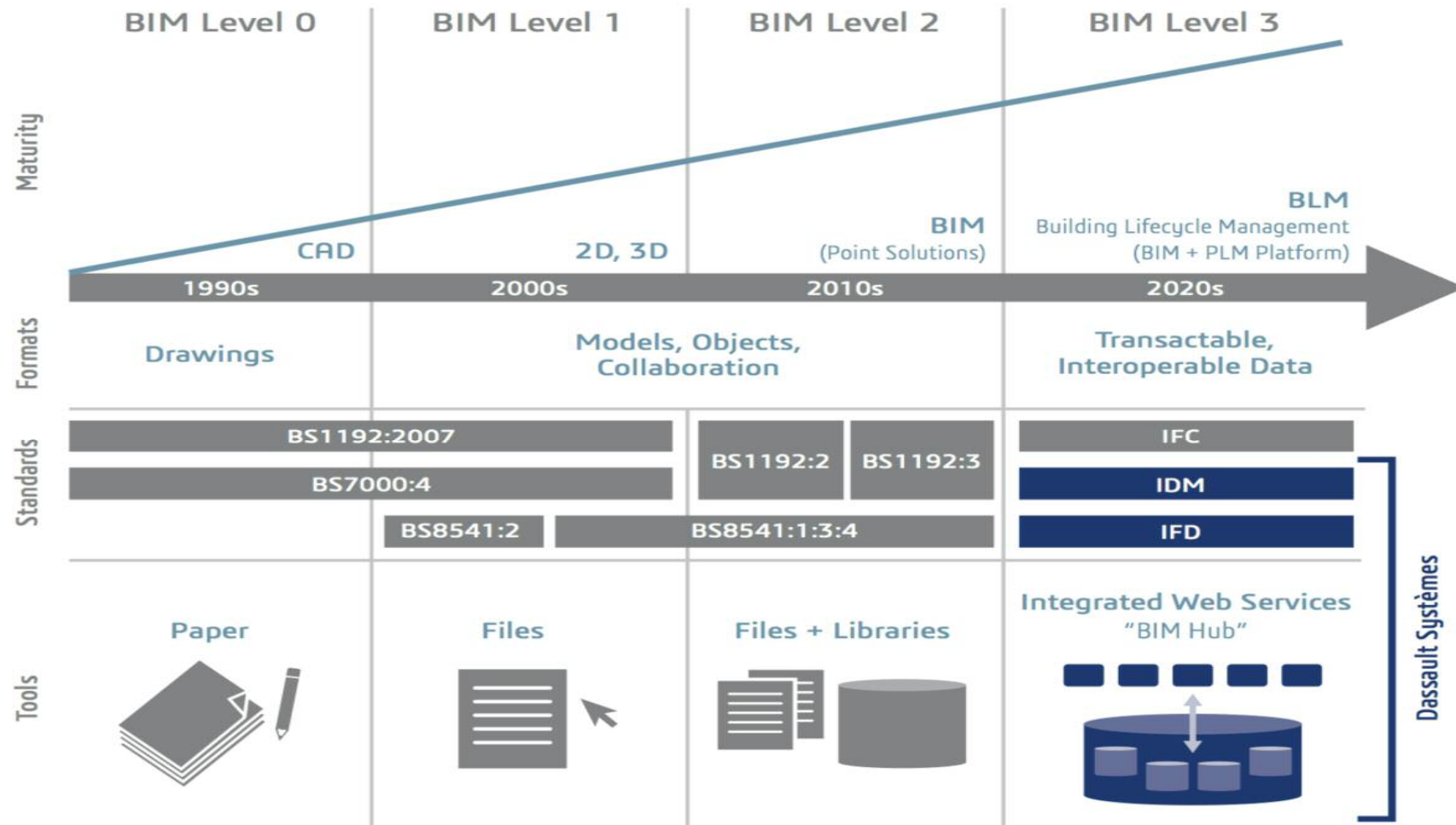
... By using BIM tools, architects are potentially able to provide models earlier in the procurement process that contractors can use for estimating, coordination, construction planning, fabrication, procurement, and other functions. At a minimum, the contractor can use this model to quickly add detailed information. To permit these capabilities, ideally a building model would provide contractors with the following types of information:

Temporary components to represent equipment, formwork, and other temporary components that are critical to the sequencing and planning of the project. ...

Source: BIM Handbook, Chuck Eastman

BIM ≠ BIM

The Discussion with Customers on different BIM Levels

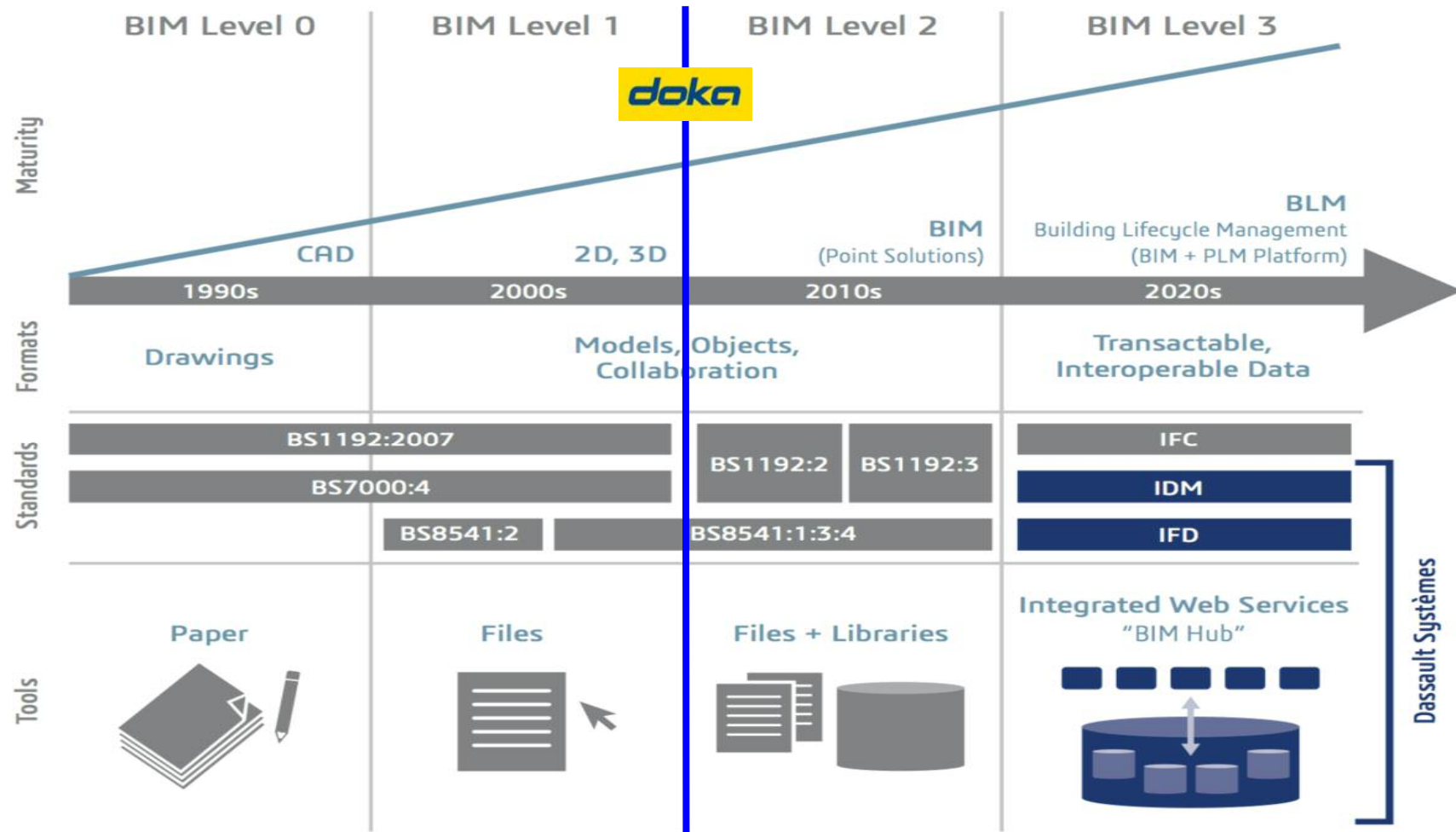


The BIM Maturity Model by Mark Bew and Mervyn Richards adapted to reflect BLM's relationship to Level 3.

Source: <http://perspectives.3ds.com/architecture-engineering-construction/what-is-bim-level-3/>

BIM ≠ BIM

The Discussion with Customers on different BIM Levels

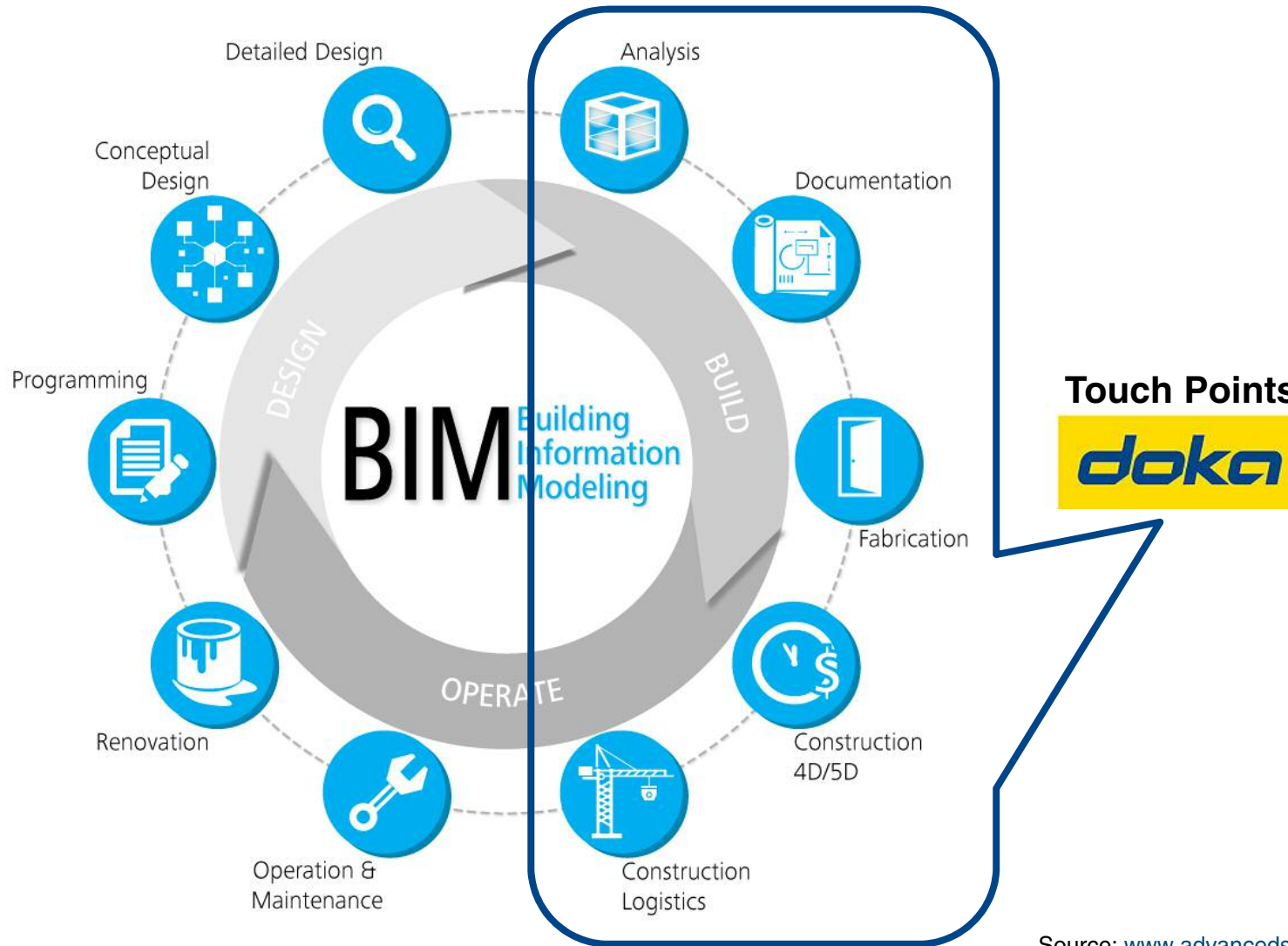


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Overview BIM Lifecycle

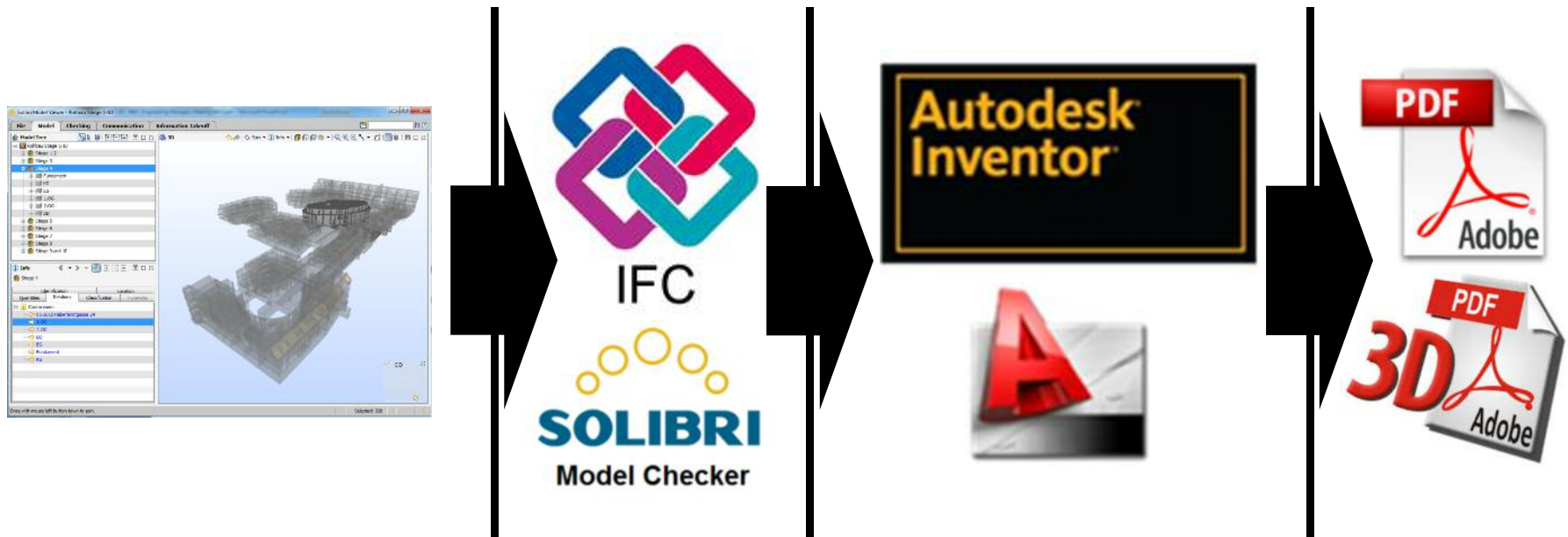
Touch Points of Doka



Source: www.advancedolutions.com

Process Model BIM@Doka

Current Situation



INPUT ← **OUTPUT**

Process Model BIM@Doka

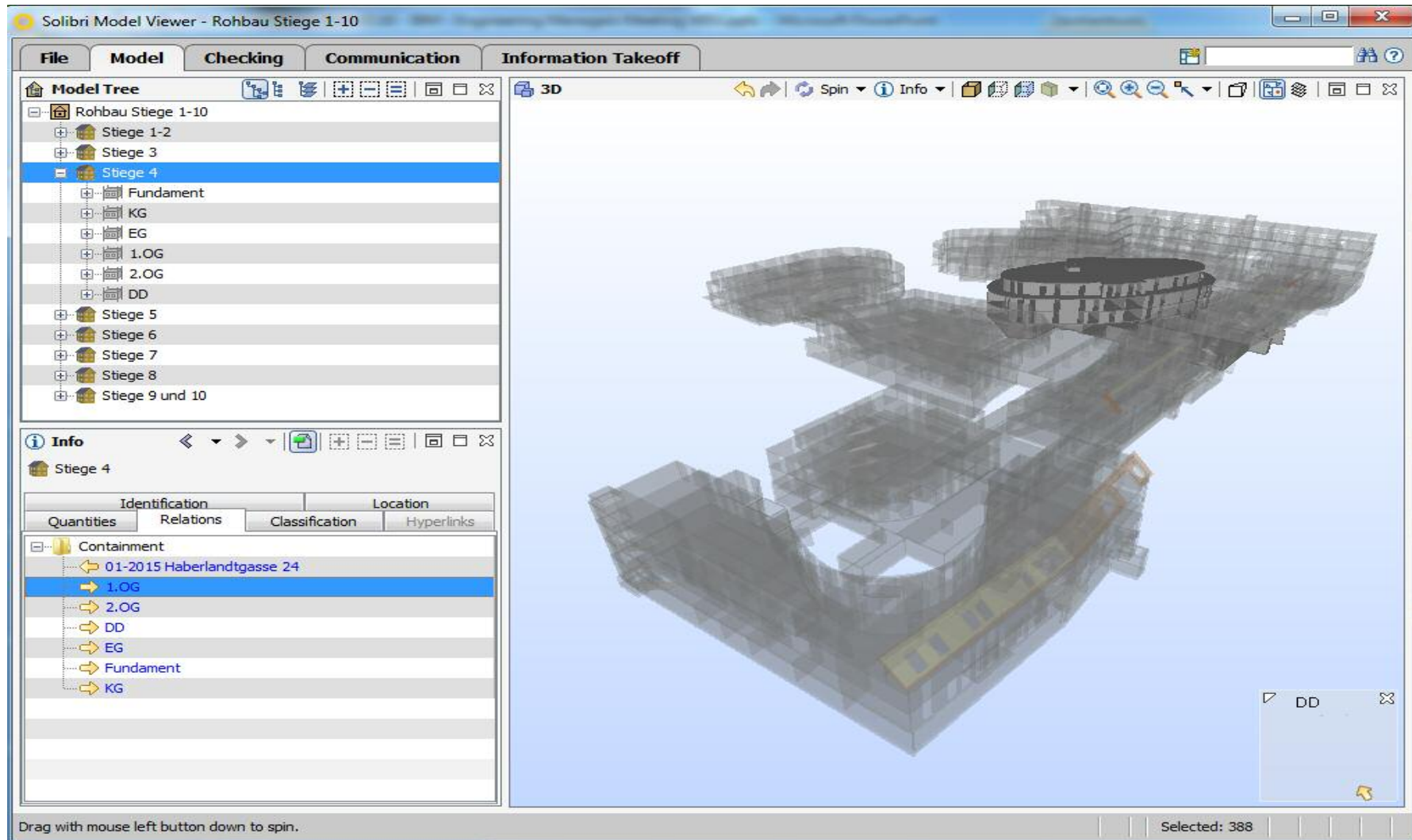
Future Outlook

OUTPUT | INPUT



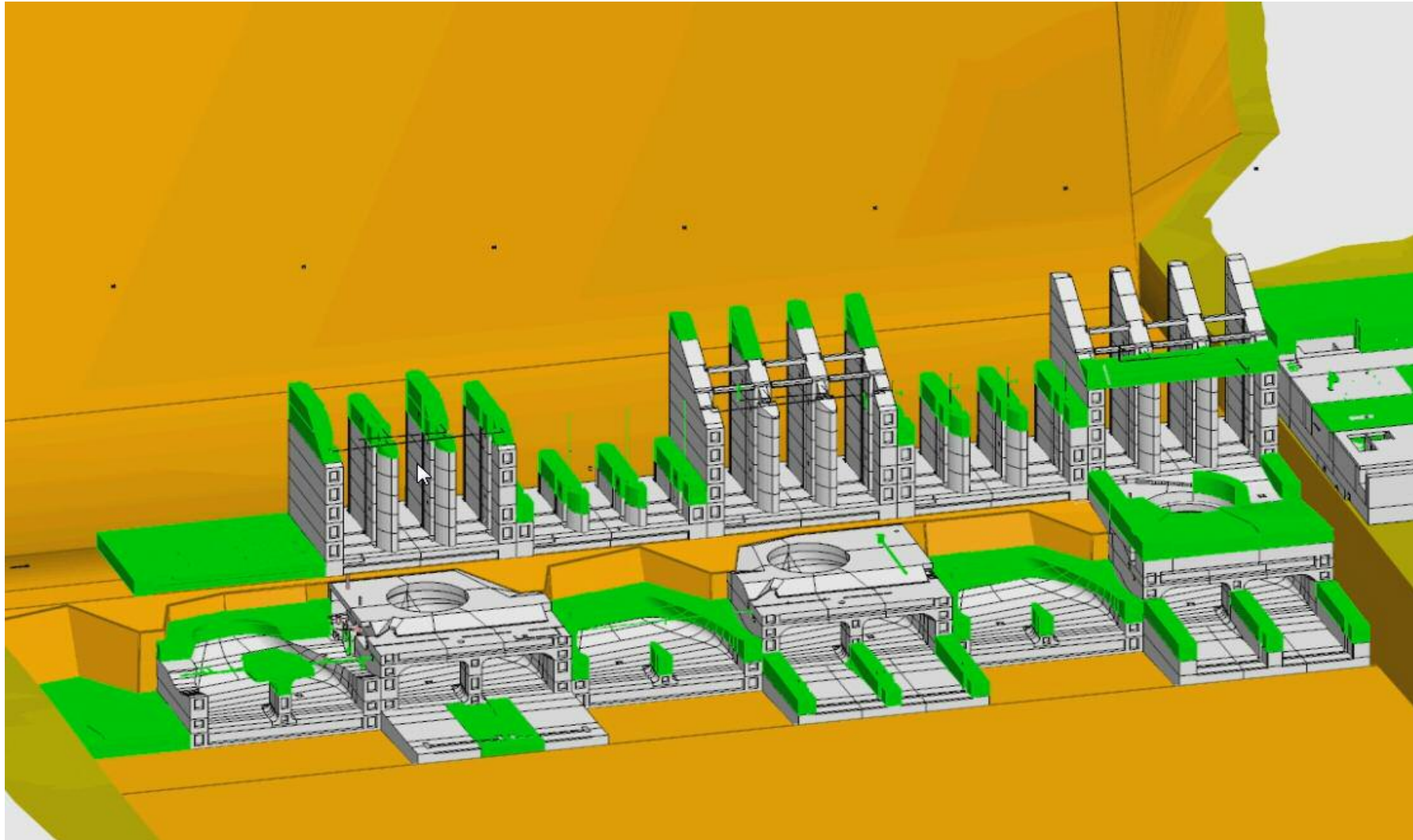
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Selected Customer Projects



BIM@Doka

Selected Customer Projects



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Current occurring problems with customer models

- **Development of Software Landscape**
 - ... Construction Industry vs. Formwork Industry

- **Heterogeneity of Software Landscape and Formats**
 - ... Internationally we can identify more than 100 different CAD Programs

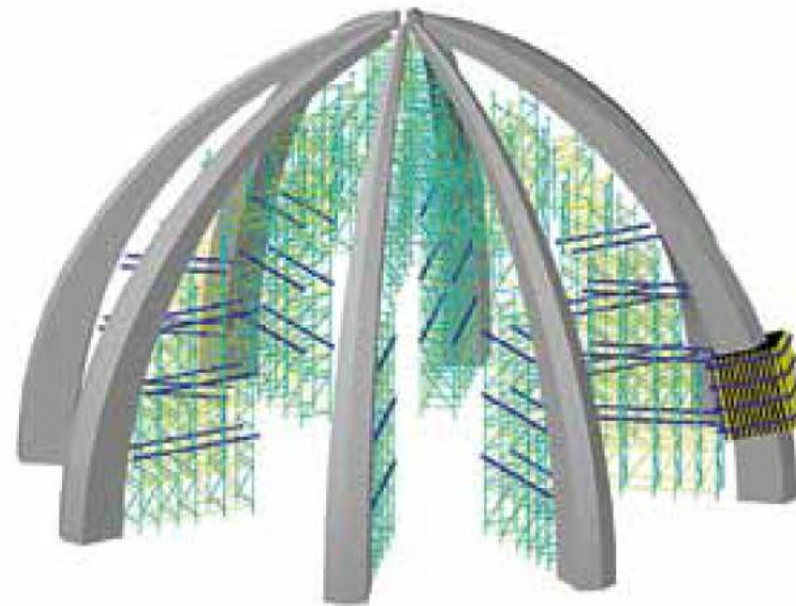
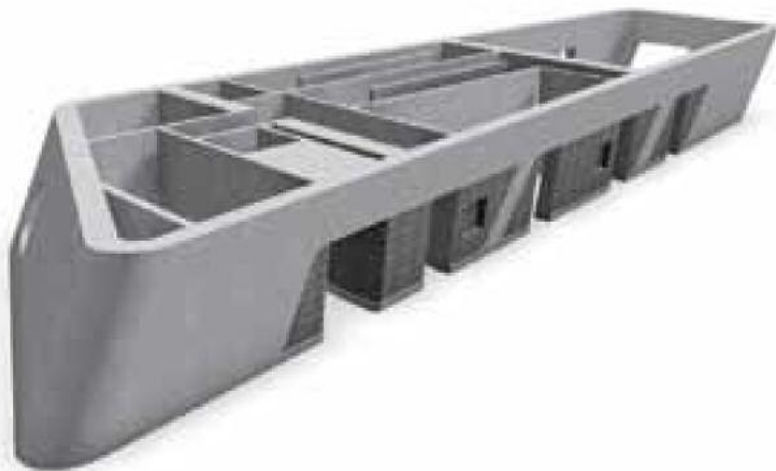
- **Missing Interfaces and Exchange Formats**
 - ... Inability of software programs to deal with different file formats
 - ... IFC not suitable for complex geometry and planning
 - ... Models not linked with the database

- **Transmitted Models not suitable for formwork planning**
 - ... Missing accuracy → unclosed contours ... no right usage of layer structure
 - ... Providing surface models instead of volume models
 - ... Models that contain every single detail
 - ... Models that have already been converted several times

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Extra work to get models suitable for formwork planning

▼ **Structure modelling** – for better visualisation of complex geometries



▲ **3D planning** – complex structure geometries call for special planning methods and expert knowledge. Doka technicians will develop 3D models for you as the basis for your project.

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Simulation Based Tender Planning – Example „KL118 – Merdeka Tower“



Doka Software Tools

The little daily Helpers to support your formwork related BIM processes on site



Doka Tools app

Plan wall and floor formwork: it takes just a couple of seconds to optimise the components for Dokaflex and to work out the

permitted rate of placing and maximum fresh-concrete pressure during pouring.

- wall and floor formwork planning
- Dokaflex optimisation and Dokaflex 30 tec calculation
- fresh-concrete pressure calculator
- „Share“ functions for all calculations



Tipos-Doka 8

Just enter the structure data using the „Schal-Igel®“ on-screen assistant and let Tipos form it for you automatically.

- cost optimisation with your formwork and safety platforms thanks to customised solutions
- complete plans and fast planning at the push of a button
- accurate piece-lists (incl. connectors and accessories)
- more than 40,000 proven solutions, high safety through statically accurate planning
- efficient planning with projects including several cycles/construction segments



DokaCAD 8

Combines the automatic formwork planning of Tipos Doka with the flexibility of CAD.

- DokaCAD 8 is very user-friendly for both complex and straightforward project-planning jobs.
- parts such as panel struts and screw jacks can be moved around realistically
- three-dimensional presentation of planning results
- integrated wizards, even for custom formwork solutions
- full integration in AutoCAD®

3D Object Libraries

Tekla Structures – Tekla Warehouse (BUT only for US Parts)

Trimble International Tekla Online Login Search

Tekla SOLUTIONS PRODUCTS REFERENCES SERVICES ABOUT CONTACT

HOME ABOUT NEWS **REAL DOKA FORMWORK COMPONENTS NOW AVAILABLE TEKLA STRUCTURES**

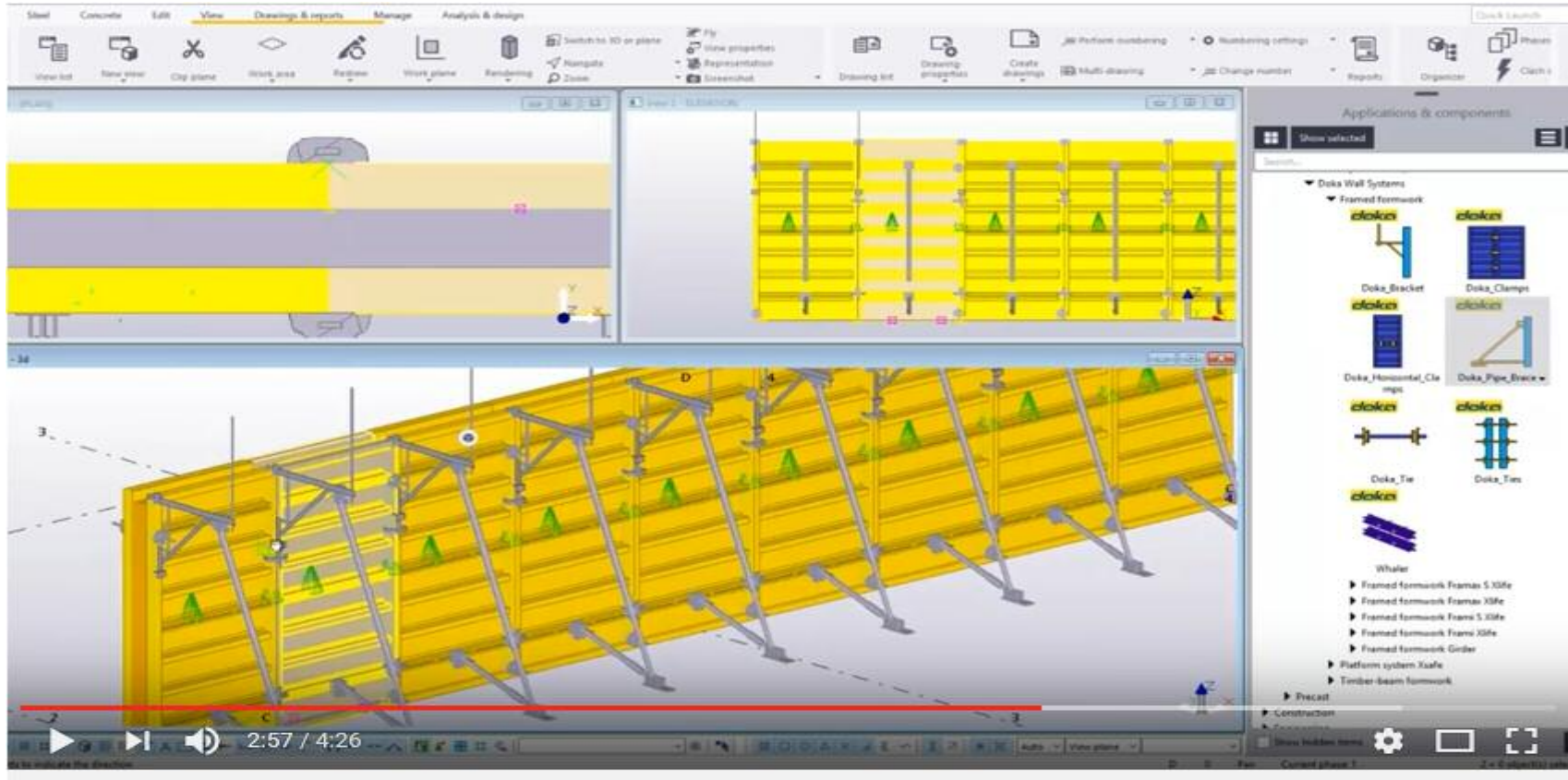
August 17, 2016

Real DOKA Formwork Components Now Available for Tekla Structures



3D Object Libraries

Tekla Structures – Tekla Warehouse (BUT only for US Parts)



Doka Formwork Components for Tekla BIM Warehouse



DokaNorthAmerica

Abonnieren

1.059

364 Aufrufe

Hinzufügen Teilen Mehr

7 0

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What`s next

- Doka BIM-Libraries will be created and provided free of charge
 - We work on **Libraries for additional software formats**
- Expansion of Doka Planning Tools with BIM Functionality and BIM Interfaces
 - For **DokaCAD** and **TiposDoka**
- Development of a BIM Standard for the Formwork Industry based on IFC
 - Project out of buildingSMART / GSV → „**BIM Fachmodell Schalungstechnik**“
- **More to come ...**



Discussion

Now it`s Time for ...



THANK YOU for your attention!!!