



TRIMBLE DIGITAL CONSTRUCTION SUMMIT

The Bridge to BIM | 2019



The Program

November 18 – 19

Tivoli Hotel and Congress Center, Copenhagen

November 18

On day one of the Summit, international industry champions will update you on the vision and roadmap of BIM and how BIM requirements are moving the industry. Learn more about contract standards, the role of BIM in the circular economy, and how openness, standardization and digitalization are creating priceless collaboration and value across industry domains, players and project phases.

Not the least, envision the future: Discover the instrumental means of producing a digital twin for the whole project lifecycle, and the use of VR and Mixed Reality to speed up the building process.

09.00 - 10.00

Coffee & Tea, Registration

10.00 - 10.25

P1

Welcome to Trimble Digital Construction Summit

Our commitment to Constructible BIM

Rosalind Buick, Senior Vice president Trimble Buildings Division and Michael Bank, Senior Vice president Trimble Civil Engineering and Construction Division

10.25 - 10.50	P2	<p>The role of BIM in the circular economy of the construction sector Half of global raw materials are used in construction. Without a strong and rapid transition into circular economy, it does not seem likely that we can meet the climate goals of the Paris Agreement or avoid a global resource crisis. To ensure this transition, the potential of BIM needs to be fully utilised in the design, financing, procurement, maintenance and recycling of buildings.</p> <p><i>Dr. Matti Kuittinen, Senior Specialist at the Ministry of the Environment, Finland and Adjunct Professor of Resource-efficient Construction, Aalto University, Finland</i></p>
10.50 - 11.15	P3	<p>One open format for Building and Infrastructure – where are we and where are we going Open standards for exchanging BIM is essential for collaboration and innovation in our industry. What is the status of the standardisation today, and what are the focus areas in the coming years.</p> <p><i>Richard Kelly, Operations Director, buildingSMART International, United Kingdom</i></p>
11.15 - 11.40		Coffee and exhibition
11.40 - 12.05	P4	<p>BIM methodology is moving the industry - contract standards must be changed Norwegian Rail and Road authorities require BIM models as the state of the art in infrastructure projects in Norway. The contract standards need to follow up the change from drawings to models. RIF (Norwegian Federation of Engineering Consultancy Associations) is working with contract standardisation to handle the digital shift.</p> <p><i>Liv Kari Hansteen, Vice President EFCA (European Federation of Engineering Consultancy Associations) and CEO RIF (Norwegian Federation of Engineering Consultancy Associations), Norway</i></p>

12.05 - 12.30	P5	<p>Creating value with digital fabrication and constructible 1:1 model</p> <p>This presentation will cover highly developed and constructible 1:1 model flows into digital fabrication allowing transparency and openness throughout all project phases. The constructible BIM process is a vital tool to have an agile design and construction process. This enables implementations of unforeseen changes and design iterations.</p> <p><i>Jens Fobian-Larsen, VDC Specialist, CN3, Denmark</i></p>
12.30 - 13.30	Lunch	
13.30 - 13.50	P6	<p>Transparent and live collaboration in a shared model environment on a Design Build Operate Road project</p> <p>For the road projects RV3/RV25 the design and construction processes are carried out simultaneously. Digitalisation of the construction site was a clear requirement from the owner and contractor. What are the benefits of a shared, transparent BIM environment and how to get all people on board?</p> <p><i>Katrin Johannesdottir, Digitalization, VDC and BIM Manager, Skanska, Norway</i></p>
13.50 - 14.20	P7	<p>Construction Case Study using design workflow - BIM for Infrastructure Pilot Project S19 in Poland</p> <p>BIM workflow supporting from the design to the execution. Robust collaboration through the full construction lifecycle including multi-standard design input, management, and machine control progress feedback using the Quadri platform.</p> <p><i>Michał Latała, Design Coordinator, Strabag, Poland and Chris Dheere, Technical Director, Arkance Systems, Belgium</i></p>

14.20 - 14.40	P8	<p>Creating amazing environments using digital construction techniques How do we create the best environment for our workforce, and what effects does this have? How digital construction techniques are helping to create amazing environments. This will track our journey in virtual design and construction and into better information.</p> <p><i>Cambell Brown, Head of Design, PJ Carey, United Kingdom</i></p>
14.40- 15.10		Coffee and exhibition
15.10- 15.30	P9	<p>Information flow in megaprojects: Platform of trust In mega size projects there are thousands of issues to be dealt with – and two that lie behind all curtains: trust and flow of information. Timely decisions are based both on product- and process information, but the data creates no value if it doesn't flow and if it is not disposed transparently and distributed. How will the preconditions of success be covered in the Helsinki-Tallinn -railway tunnel megaproject? The tunnel is a € 15 bn endeavor where information flow and trust between people are essential.</p> <p><i>Jyrki Keinänen, CEO & Partner, AINS Group (A-Insinöörit), Finland</i></p>
15.30 - 15.50	P10	<p>Technology from 2020 and beyond How technology can help the path to BIM</p> <p><i>Kim Nyberg, Technology Director, Trimble</i></p>
15.50 - 16.10	P11	<p>Microsoft HoloLens 2 XR-10 with constructible BIM Mixed Realty brings value to the whole construction and constructible BIM workflow especially in training and prefabrication. Trimble is Microsoft's first partner to launch a customisable version of HoloLens. This device</p>

brings constructible BIM to the field. In this presentation you will see the latest developments and HoloLens latest version in action.

Aviad Almagor, Senior Director for Mixed Reality and Brain Computer Interface and Jordan Lawer, Portfolio Manger Mixed reality, Trimble

16.10 - 17.00

P12

Producing a digital twin using tools from all major vendors

Through open standards, open API's and integrated software connectors, Trimble Quadri is a unique solution to integrate model data from your preferred solution in a collaborative multiuser BIM environment. Resulting in one common, constructible model, ready to be shared with the site.

Multiple design solutions (Trimble, Autodesk, Bentley, ESRI....) working interactively.

Live demo, Trimble

17.00 - 18.00

Exhibitors' Hour

19.30

Aperitif

20.00

Conference dinner

Conference dinner and entertainment. During the evening the winner of the Constructible BIM Award 2019 will be announced.

Dresscode: Business smart



November 19

The second day of the Summit offers tailored content for BIM Managers and Super-Users of Trimble software, with the following vertical sessions:

A | for BIM/Project Managers, Infrastructure

Learn about international projects' successful model collaboration between designer, contractor and owner; collaboration across borders, domains, and design tools; and how collaboration in a common Quadri environment can help you build a constructible BIM and digital twin. Likewise, how seamless dataflow and standards like IFC and CoClass can benefit the BIM process.

C | for BIM/Project Management and Decision Makers, Buildings

Presentations of international exemplary building and construction projects will give you insight into successful BIM implementations – from the office desk to the construction site, and using lean and smart data, digitalization of the construction workflow, interoperability with IFC4, intelligent building information management, and more.

B | for BIM Designers and Contractors, Infrastructure

Learn from real live projects how to plan, design and construct a road or rail faster – using Quantm for automated alignment optimization; ensuring constructible modelling of road, rail, water and sewer in a multiuser BIM environment using Novapoint and Quadri; and to schedule and optimize the construction phase with TILOS. Learn also how Quadri helps all stakeholders to communicate within the BIM model, providing the extra project confidence.

D | for BIM Designers, Super/Main Software Users and Contractors, Buildings

Learn how to use Tekla Structures to do algorithmic/parametric design of complex building structures, interoperability with IFC4 to build truly constructible models, digital model deliveries, and designing bridges using BrIM, a game changer in bridge engineering, plus more.

09.00 - 09.35

- A1 **The digital transformation of the Danish infrastructure industry**
The goals and aims for digital transformation within the Danish infrastructure sector.
Gita Mohshizadeh, Bane Danmark and Rasmus Lyng Fuglsang, Vejdirektoratet, Denmark
- B1 **Finding the optimal road corridor based on a complex set of input parameters**
Using Trimble Quantm to automatically evaluate a wide range of corridors in a 3 km road project, just outside Gothenburg, Sweden.
Victor Cronsby, BIM Specialist, COWI, Sweden
- C1 **How to increase site productivity with a full BIM environment**
Based on several projects from GA Smart Building, this session will show you how using a full BIM process and offsite production allows the company to shorten its construction time and increase the quality of its buildings. Two specific case studies, focused on Amazon Platform @Bretigny (FR) and MBDA Headquarters @Le Plessis (FR), will illustrate the coordinated use of Tekla and Trimble Connect state-of-the-art tools, enhanced with API based on developments.
Remi Visiere, Director of Research, Development and Innovation, and Oliveier Pellegrin, BIM Manager, GA Engineering, France
- D1 **Algorithmic modelling for Tekla software using Rhino/Grasshopper**
The Grasshopper-Tekla live link is a set of Grasshopper components that can create and interact with objects live in Tekla Structures. The link enables structural engineers who create complex structures to efficiently support the design vision early in the project lifecycle.
Sebastian Lindholm, Advanced BIM Consultant, Trimble

09.45 - 10.20

A2 **The path to the "I" in BIM**

How to combine CoClass with IFC, classification and information.

Mikael Malmkvist, Product Manager CoClass, Svensk Byggtjänst, Sweden

B2 **Scheduling the execution phase for the railway track connection to the Fehmarn Belt tunnel**

Deutsche Bahn has used TILOS for digital scheduling for the railway track connection to the Fehmarn Belt tunnel between Denmark and Germany, optimizing the execution of earthworks and other relevant operations.

Josef Sen, Project Engineer, Deutsche Bahn, Germany

C2 **Tripla of Pasila - An extensive BIM based project**

Finland's largest house construction project, the Central Pasila in Helsinki. An exceptionally extensive BIM based project that utilized pioneering, close collaboration and an open-minded approach to BIM. The project tested the latest technological solutions, which selected the most effective alternatives and, if necessary, built them themselves through Open API. The accurate model was used in a versatile and participatory way, taking into account the customers of the project. The various fields of construction were widely combined with data modeling.

Max Levander, Head of BIM, Ramboll, Finland Janne Selin, BIM/VDC/xR Specialist, YIT Finland

D2 **BrIM – BIM for bridges - It is here to stay**

The presentation includes a demonstration of how road and bridge designers can collaborate via Trimble Connect. The presenter will demonstrate how to bring in the road alignment to Tekla Structures; easily model a double curved complex concrete deck; apply complex reinforcement; create some drawings and bar bending schedules.

The presentation will finish with all the data, such as IFC model, drawings and reports being exported back to Trimble Connect for truly collaborative BrIM.

Gabriel Neves, Trimble

10.20 - 10.50

Coffee and exhibition

10.50 - 11.25

A3

Unbreakable data flow in a BIM based design, construction and maintenance project (Design-Build project delivery)

In Ringroad 1, Keilaniemi Highway and Tunneling project, SRV Infra, Sweco and the City of Espoo have worked closely together with several other stakeholders. In this project those three main stakeholders have used a range of Trimble Design software, including the Quadri Server. This together with new working methods have ensured continuous data and information flow between designers, contractor, client and other stakeholders throughout the project.

Olli Sihvola, Project Manager, SRV Infra, Finland and Juho Siipo, Managing Director, SWECO Infra, Finland

B3

Constructible modelling of Road, Rail, and Water & Sewer in a multiuser BIM environment

Designing multiple domains in a live constructible BIM model, with the purpose of delivering straight to construction - Live Demo

Inge Tørnes, Trimble

C3 **Lean and smart data for a clear design-build-supply chain process view**

Transparency of communication, speed and quality of decision-making between project participants often determine its success. This presentation will show how the utilization of BIM data saves time, improves quality, helps prevent human error and uses less management resources to carry out precast building sales-design-fabrication-logistics-construction work. Through examples we will show how easy it is to understand the current project situation, and to make the right decisions at the right time. We will also show some examples of how BIM data in the supply chain helps to automate planning, quality control and other processes. Key takeaways from this session are to understand how BIM data can be used in design-build supply chain management, in quality control of structural engineering solutions and in precast element manufacturing and assembly processes.

Audrius Tulaba, CEO, INHUS UAB, Lithuania

D3 **Intelligent Information Management**

This presentation addresses the challenges, using real case examples, on how the different kinds of data such as 3D/BIM models, 2D drawings, and contracts, etc. can be managed so that the right information is available to the right person at any time and on any device. Information should be organised based on WHAT is required instead of WHERE it's stored. The same philosophy works both for BIM objects, files and documents.

Teemu Nivell, General Manager, BuildPoint, Finland

11.30 - 12.05

A4 **Digital twin in a Common Data Environment. BIM for asset information management**

How to handle the model transition from design, through construction and further to an asset information model. Examples of systems where Quadri is used as a core for both design and asset information models.

Idar Kirkhorn, Trimble

- B4 **The "I" in BIM accross all domains accessible from a common BIM for Infrastructure server**
From soil mechanics to road sign, all stored and shared as rich objects in a live BIM model. Accessable through open standard formats like IFC.
- Erling Tronsmoen and Patrick Mc Gloin, Trimble*
- C4 **Critical upward extension of a luxury hotel in New Delhi**
Discover how we used BIM design with the upward extension of the hotel in New Delhi. BIM was a crucial tool in planning the reinforcement of existing columns and the application of seismic technologies, as well as efficiently managing the difficult site conditions. Data comparing BIM and conventional design softwares will be presented, showing BIM advantages in terms of time-saving and productivity improvements.
- Stefano China, Technical Director, Tecnostrutture, Italy*
- D4 **BrIM – BIM for bridges - It is here to stay**
The presentation will include a demonstration of how road and bridge designers can collaborate via Trimble Connect. The presenter will demonstrate how to bring in the road alignment to Tekla Structures; easily model a double curved complex concrete deck; apply complex reinforcement; create some drawings and bar bending schedules. The presentation will finish with all the data, such as IFC model, drawings and reports being exported back to Trimble Connect for truly collaborative BrIM.
- Gabriel Neves, Product Manager, Trimble*

12.05- 13.15

Lunch

13.15 - 13.50

A5 **Collaboration across borders, domains, and design tools when planning the Fornebu Subway Line outside Oslo**

Multiple design companies from different countries and across all domains collaborate daily in a Quadri BIM cloud environment.

Magnus Jacob Christensen, Technical Director, digitalization & innovation, COWI, Denmark

B5 **From design to construction - integration to field**

Constructible models to field is now a requirement. In this presentation we look at experiences with existing solutions and the path forward.

Heidi Berg and Brian Sweeney, Trimble

C5 **How early digital design adds value for building owners**

Presenting a case study from the Hong Kong International Airport showing the benefits of TDS's collaborative digital design. Improving the certainty of success in construction and residential projects.

Daniel Leech, CEO, Technical Design Services Group (TDS), United Kingdom

D5 **IFC4precast - modern model-based data exchange for precast industry**

Overcoming the challenges of existing file formats, and disconnecting the factory constraints from the detailing phase, IFC4precast is the future way of communicating the constructible model to manufacturing systems based on the IFC4 data format. The IFC4precast project, supported by buildingSMART, aims at combining the best abilities of each existing precast fabrication format to create a modern process for collaboration that serves the needs of construction lifecycle and even beyond. In this session, we take a closer look at the IFC4precast concept and benefits, as well as the practical implementation with Tekla Structures down to Manufacturing Execution Systems (MES).

Thorsten Hertel, Trimble

13.55 - 14.30

- A6 **Collaboration between designer, contractor and owner in a major Alliance project: Jokeri Light Rail**
Jokeri Light Rail line is in design phase. The line will be built in the Finland Metropolitan area between Itäkeskus in Helsinki and Keilaniemi in Espoo. The planned length of the line is approximately 25 km (15.5 miles), of which 16 km will be in Helsinki and the remaining 9 km in Espoo. The light rail will replace the trunk bus line 550, which is the busiest bus line in the Helsinki region.
- Jyrki Oinaanoja, Group Manager, Ramboll, Finland*
- B6 **Dynamic link between Tekla Structures and the live BIM infrastructure model.**
Designing a bridge based on live road data that changes throughout the design process. Quadri Connector for Tekla Structures.
- Jan Erik Hoel and Gabriel Neves, Trimble*
- C6 **Digitalisation of construction workflows - the DiCtion project**
In the DiCtion (Digitalizing Construction Workflows) project Trimble is looking forward to plan and create a digital environment and tools for creating, sharing and consuming the production phase process data linked to BIM objects. Work is done in co-operation with the key Finnish research organisations and industry representatives. The presentation gives an overview of the DiCtion project and discusses the technological concepts and key features of the future digital environment to be used for managing the workflows in a collaborative manner.
- Jukka Suomi, Trimble*
- D6 **Rebar Control and Detailing in Tekla Structures**
See the best practices for applying rebar sets to concrete geometry in real project scenarios. Attending this presentation is an opportunity to look at the latest workflow developments from setting up options and

dialogues for rapid modelling to controlling drawings using new rebar related features. Open Q&A session at the end to discuss application of sets, future developments and current functionality feedback.

Sam Cumings, Trimble

14.35 - 15.10

A7 **Collaborating in a common BIM environment on urban infrastructure projects**

Experiences with using the Quadri BIM for Infrastructure server for collaboration between domains, in urban infrastructure projects.

Erlend Melhus, Civil Engineer and Gjermund Dahl, BIM Strategist, Norconsult, Norway

B7 **Construction Business Intelligence and analytics**

Today, the contractor must analyse information from many disparate sources to determine project progress: model based data, machine performance and productivity data, geospatial and other sources of information. Trimble Construction Dashboard can consume data from multiple sources and perform detailed spatial analysis to deliver single source of true reporting for the project to the contractor.

Chris Richardson, Trimble

C7 **Delivering Digital in the UK**

In this presentation we will look at what worked and what hasn't been so successful in the digital transformation for an often sceptical industry. How has the creation of standards and processes helped the UK construction industry to adopt digital transformation and can these ideas be transferred to other countries too? Key takeaways –1. Delegates will gain a better understanding how the UK has adopted digital processes. 2. A review of the BIM standards through the adoption of suite of UK BIM standards contributing to the adoption of global digital construction standards. 3. How learning from the UK can be applied to other projects and processes across the world.

Duncan Reed, Trimble

D7 **Precast concrete from model to manufacturing**

In this presentation you will see how Ramboll applies a full design of structural components, including fabrication detailing in Tekla Structures.

In Denmark industry actors mostly provide general design to LOD 300-350 typically in Revit and let the contractor do the rest. This presentation shows how the complete package to LOD400 including fabrication files and drawings from Tekla Structures have been used. By using this method it is possible to reduce costs, optimize time schedules, and reduce risks for the client.

Carsten Rune Ellendersen, Chief Project Manager, Ramboll, Denmark

15.10 - 15.40

Coffee and exhibition

15.40 - 16.15

A8 **Constructible BIM to field**

What is needed to ensure that the BIM model is constructible and ready to be used in field? Experience from using Trimble Novapoint and Quadri to deliver on site.

Jonas Wenner, Trimble and Christian Karlsson, Veidekke, Sweden

B8 **Easy access to the BIM model on web helps the different stakeholders to communicate in the BIM model**

In BIM level 3 projects the number of drawings are almost down to zero. Quadri Easy Access is used for communicating the designed solution to all stakeholders involved in a project, and facilitate for commenting and questions related to objects in the model.

Tone R. Kritiansen, BIM Coordinator and Andreas Haugbotn, BIM Coordinator, ViaNova Plan og Trafikk, Norway

C8 **From office desk to construction site: Case histories of BIM implementation**

The presentation includes description of key challenges faced by a consulting engineering firm, working both for contractors and for final clients. Through a description of several case histories of projects completed/ongoing we will show how constructible models allow smooth information flow from design to execution, enhancing communication between consultants, client and contractors. Through KPI and comparison with traditional design methodology we will show the benefits obtained. Through the link between Tekla and algorithmic design software and using visual programming language and BIM authoring software we will show how this allows us both to fast-track the optioneering process in the conceptual design phase, and to rapidly adapt models in order to deal with uncertainties during the execution phase.

Stefano Bilosi and Claudio Demattia, Enser, Italy

D8 **How to boost your productivity using Tekla APIs**

The Construction industry is the least digitised industry in Europe. An API doesn't digitise. But APIs play a large role in digital transformation and are key tools to boost productivity. This session explains what Tekla APIs are, how others have succeeded in using Tekla APIs, and what kind of alternatives there are for you to get started with Tekla application development.

Jaana Hannila, Trimble

16.20 - 16.45

P13

Summary and closing - a look into the future for Building and Infrastructure hand in hand