Programme (version 5.0)

BIM for Rail Bootcamp 2025

Co-hosted by ProRail

June 11 - 12 @Railcenter, Soesterweg 244 Amersfoort, The Netherlands

The venue is in walking distance from Amersfoort Central station.

Day 1 – Wednesday 11 June 2025

Time	Duration	Programme item
09.30 – 10.00	**0:30**	**Walk-in and registration**
10.00 – 10.15	**0:15**	**Welcome and introduction of the programme for day 1 – A101/102**
10.15 – 10.45	**0:30**	**Opening panel discussion: the role of BIM in the digital transformation of Rail Asset Management**
10.45 – 11.15	**0:30**	**Keynote by Marjoleine Jonker, ProRail** Enabling Digital Design, Construction, and Management: The ProRail BIM Program Approach
11.15 – 11.30	**0:15**	**Coffee and networking break**
11.30 – 12.00	**0:30**	**Keynote by Martin Laursen, Banedanmark** How is 3D used and how is BIM used in improving the BIM environment and project quality, on a Banedanmark project. Where are we, what is needed and what are we testing, and how are we moving towards enriched OpenBIM and IFC
12.00 – 12.30	**0:30**	**Keynote by Dr. Nathan Darroch MA SFHEA, Rail & Rail Systems Engineering College of Technology & Environment, London South Bank University** Nathan will address the need for effective interface management, from project and asset management perspectives
12.30 – 13.00	**0:30**	**Keynote by Albert van der Beek, TenneT en Jeroen Mackaij, SPIE** Without BIM there would be no electricity and subsequently no running trains in the Netherlands
13.00 – 13.45	**0:45**	**Lunch and networking break**
13.45 – 14.30	**0:45**	**Workshops round 1** 1  **BIM as key to functional infrastructure design - A101/102** Christian von Normann and Marc Eschenbacher, Otimon <u>Key points:</u> • Every Stakeholder provides and needs Data • Data from different sources has to be unified and structured • Evaluated, structured Data is key for efficent functional infrastructure design 2  **Developing the vision and implementing BIM and digital engineering with HS2 – A103** Andrew Robinson, Bentley <u>Key points:</u>

			Sharing the Bentley UK experience of BIM, digital engineering and creating digital twins at scale that delivers value to railway owner/operators and their supply chains through the asset lifecycle
		3	**How OTL & Open Standards support a clear transversal BIM use across the asset life cycles – A203** Josefien Vanhuyse and Maarten van den Berg, Neanex Key points: • What is OTL and why would we use this as critical asset owners? • How are open standards and your standards related to this and how can you leverage more on their use today and in the future? • How does this support your BIM as a transversal process and approach?
		4	**Modular Design and Construction of Rail-Related Buildings and the Application of BIM – A104** Stijn Debets, ProRail Key points: • LEGO, IKEA and the automobile industry as our inspiration • Standardizing the design of Railbound buildings • Great chances to further professionalize Asset Management
14.30 – 15.15	**0:45**	**Workshops round 2**	
		1	**Design authoring through iTwin – A101/102** Andreas Klemens Kjaergard, NIRAS Key points: • Learn how iTwin can be used as a shared model and collaboration platform in large interdisciplinary projects. • Using the Ny Bane Vestfyn and Hillerød Station projects as examples, we explore the practical setup and use of iTwin for interdisciplinary coordination, including reality data, clash detection, and consistency checks. • Gain insights into how iTwin supports interface reviews between disciplines and quality assurance within individual disciplines.
		2	**Drones for bridge inspection – A104** Marlies van der Goot, ProRail Key points: • The use of drones in the ProRail organisation • Drones for making 3D meshes of bridges and share the results within organisation and with contractors • AI algorithms to detect defects
		3	**Information Need on the Construction Site – case Deutsche Bahn - A103** Asse Boerties, Clone:it Key points: • Live demonstration of how Augmented Reality combined with BIM enables intuitive, on-site visualization and interaction with 3D models — directly on mobile devices. • Real-life use case: Insights from a Deutsche Bahn pilot project involving a railway station and rebar-based railroad bridge construction, showcasing AR-supported execution and inspection. • Discussion on reducing reliance on complex 2D paper plans by leveraging BIM access via iPad/iPhone, leading to

		better coordination, fewer errors, and faster documentation workflows.
		4  **How digital wireless monitoring solutions could integrate with BIM systems to create digital twins – A203** Niels Juul and Christen Gregersen, Railmonitor Key points: • How digital wireless monitoring solutions could integrate with BIM systems to create digital twins. • The role of real-time data in updating and optimizing digital twin models. • Practical applications: predictive maintenance, resource management, and scenario simulations.
15.15– 15.30	**0:15**	**Coffee and networking break**
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15.30 – 16.15	**0:35**	**Workshops round 3**
		1  **How to Use Generative Artificial Intelligence to generate powerful insights in Rail/Infrastructure engineering projects – A101/102** Edmundo Herrera, Autodesk and Kevin O'Connor, Parsons Key points: Leveraging Generative AI to: - Optimize Horizontal & Vertical Alignment Corridor Alignments between two points in large-scale Infrastructure projects by minimizing costs and simultaneously complying with complex design constraints including Design Speed, Typical Section, Avoidance Areas, Grading Limits, Horizontal Curve Minimum Radius & Vertical Curve Maximum Grade. Optimization Algorithm may be used for Rail/ Road Planning & Design, - Innovate management in infrastructure by combining Generative AI's powerful insights, formatting capabilities, and APIs to enhance accountability. This innovation eliminates the complexity of creating and importing files, streamlines workflows, ensuring consistency and accuracy reducing the risk of human error - Enhance accuracy of drawing files by automating auditing drawing files training GPT models on comprehensive drawing standards detecting discrepancies and errors with unprecedented speed and accuracy. - Bring pdfs back to life by streamlining complex and tedious manual processes to verify design data including data extraction, duplication and overlapping in projects drawings before submittal. - Extract data from PDFs, CAD drawings, or BIM models and export it as structured assets to construction management systems using a combination of AI, OCR, and APIs.
		2  **Predictive maintenance and BIM - Opportunities and challenges – A103** Jesper Westerberg, Predge Key points: • Implementation of predictive maintenance strategies and realization of digital twins, introduces challenges that ranges all the way from data availability to operational decision making. • Data availability, interoperability and sensor integration are some of the key barriers to overcome, especially since railway assets tend to be dependent on legacy systems which limits the real-time insights.

			• This presentation examines some successful case studies and how these challenges can be turned into opportunities as well as how data integration and data fusion can enhance the predictive capabilities in our existing data sources, enabling predictive analytics to forecast the future condition of our assets.
		3	**Localisation - how multidimensional should it be?** **Linear positioning and topology – is this only a one- dimensional perspective?" – A203** Marc Pingoud, Rosenthaler + Partner AG Key points: • Which types of localisation concepts are suitable for which needs in the railway sector • Discussion of the most important use cases and their requirements for the practical localisation of assets and properties. • What role does data up-to-dateness and the frequency of updates play in railway processes?
		4	**Identifying research topics for developing BIM longer term capabilities** Jelle van Luipen, ProRail – **A104** Interactive brainstorm
16.15 – 17.00	**0:45**	**Workshops round 4**	
		1	**Geographical data for signalling and ETCS design: why do we hear so little about the Cenelec 50716 norm at BIM for Rail? – A104** Daan Rabijns, Infrabel Key points: • Why do we have to know about the Cenelec 50716 (previously 50128) norm when working with geographical data and digital twins for signalling and ETCS? • How did Infrabel apply the norm for its large scale ETCS roll-out? • Can we - as a group- find better ways than what Infrabel did?
		2	**Revolutionizing Railway Management with AI Classified Point Clouds** Linh Truong-Hong, PhD en Tim Berenschot, MSC, GeoNext **- A103** Key points: In this workshop GeoNext will cover: • The development and technology behind our AI model for point clouds. • The benefits and efficiency improvements in railway management. • Real-world example of using AI and Algorithms together in large project.
		3	**Mind the Gap: Closing the Gap between CAD and BIM – Data Enrichment from BIM Maturity Level 1 to 2, Through Speckle openBIM – A203** Morten Damm, Banedanmark Key points: This presentation highlights how effective data enrichment bridges the gap between CAD-based workflows and BIM. We'll explore how progressing from BIM Maturity Level 1 to Level 2 involves transforming simple 2D or 3D models into rich, data-driven assets. By "minding the gap" with metadata and intelligent model elements, teams enhance collaboration, reduce errors, and improve project outcomes. Discover how structured data can streamline communications, foster better decision-making, and ensure consistent project delivery. Finally, we'll delve into

		how classification frameworks for quantity take-offs and tender lists create coherence across the entire project lifecycle.
		4  **Best practices to achieve goals in the different phases of Asset Life Cycle Management and its information supply – A101/102** Marcel de Rink, Esri <u>Key points:</u> • Esri will discuss its vision and role of GIS in the Asset Management Life Cycle. How can international technology companies contribute to handle the challenges. • Current challenges demand acceleration of the Asset Life Cycle Management processes. Best practices will be shared how GIS can support the different phases of ALC Management. • Discussion to learn from each other
17.00 – 17.05	**0:05**	**Final remarks of Day 1 – A101/102**
17.05 – 17.30	**0:25**	**Check-in hotels**
17.30 – 22.00		**Evening programme @the VR Room "de Proefzaak" Amersfoort**

Day 2 – Thursday 12 June 2025

<table>
<tr><th>Time</th><th>Duration</th><th>Programme item</th></tr>
<tr><td>8.30 – 8.45</td><td>0:15</td><td>Walk-in</td></tr>
<tr><td>8.45 – 9.00</td><td>0:15</td><td>Welcome and introduction of the programme for day 2 – A101/102</td></tr>
<tr><td>9.00 – 09.45</td><td>0:45</td><td>
Workshops round 5
<table>
<tr><td>1</td><td>Using AI to boost the BIM lifecycle – A101/102
Guido de Wit, Movares
<u>Key points:</u>
Using a use case at Schiphol, we demonstrate:
How we have provided insight in the real value of asset data,
How the concept of Linked Data delivers flexibility and scale,
How AI can boost the delivery of BIM and Asset data</td></tr>
<tr><td>2</td><td>Efficient working with data in the design, execution, and control of the Trackbot – A203
Wouter Groen, Strukton Rail and Stuart Kerkhof, Haskoning
<u>Key points:</u>
Design with IMX as backbone
The use of IMX-data in projects in combination with the Reality Model
Processing IMX-data to automate workflows.</td></tr>
<tr><td>3</td><td>The Glamorous Life of Asset Master Data (Not Really, But Still Important) – A103
Frank Dekervel, Kapernikov
<u>Key points:</u>
How data architecture of configuration data can be a foundation for maintenance planning, ERTMS, AI applications, and interoperability.
Real-life case: how correct master data helps Infrabel in asset management and maintenance planning.
Lessons learned: improving data quality in complex organisational structures.</td></tr>
<tr><td>4</td><td>Rail ecosystem innovation - the road to a digital Rail twin – A104
Pieter Kal, ICT InTraffic
<u>Key points:</u>
The digital innovations are maturing rapidly. Robotization, digitization and virtualization have been integrated into regular business processes in many environments. The rail sector is currently adopting these features, as much of the equipment purchased includes these capabilities, and various suppliers utilize these tools for railway contracts. However, the reuse, standardization, and embedding of these toolsets are lagging. This delay hinders the scaling up and widespread adoption. This workshop shows the wishes and reality of Digital innovation in the Dutch landscape based on market interviews and TU Delft research.</td></tr>
<tr><td>5</td><td>Collecting recommended practices – A105
Sakdirat Kaewunrun, BCRRE
Create an inventory of participants expectations/ requirements for a collection of recommended practices around the adoption of BIM in railways.</td></tr>
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09.45 – 10.30	**0:45**	**Workshops round 6**

1	**Lessons learned when managing the Rail Baltica project, using BIM** Urmas Alber, Rail Baltica **– A103** Key points: • Importance of realistic BIM requirements • Rail Baltica's toolbox • automatic validation of BIM deliverables • BIM2GIS process • digital shadow vs. digital twin
2	**BIM assisting advanced Asset Management for Trafikverket – A101/102** Niklas Nilsson, Vossloh Key points: • Vossloh and BIM • BIM as key for Asset Management • BIM projects for Trafikverket (Sweden)
3	**BIM Information standards for decentralised data management – A105** Marco van Onzen, ProRail Key points: • ProRail's journey of the past years to develop and apply information standards • BIM Information standards and the federated data model and what does this yield for ProRail • How do you do this?
4	**Positioning of assets for efficient supervision – A104** Stéphane Callet, SNCF Réseau Key points: • Good asset positioning is mandatory for efficient asset supervision • Consider a balance between localisations costs (sensors, digital map…) vs positioning performances (accuracy) • Harsh GNSS environment (tunnels,..) can be overcome thanks to additional sensors
5	**BIM Communities: What role does the community play in your field and how can it be further developed? – A203** Yvonne Kiener, SBB Key points: At SBB, the community is an essential part of change management. This workshop focuses on exchanging best practices with members of other BIM communities. It also aims to gather ideas on how to strengthen engagement and further develop collaboration within the community.

10.30 – 10.45	**0:15**	**Coffee break**
10.45 – 11.30	**0:45**	**Workshops round 7**

1	**Synergy between GIS and BIM in the project Rotterdam Stadionpark** Nicolas Carvajal and Jan Henk Oldenburg, Haskoning **– A101/102** Key points: • Short introduction about the Stadionpark project • Interaction between GIS (geographic) and BIM data • Demo about the Stadionpark project viewer

		3 **IFC Rail Feedback Process: Practical stakeholder expectations for the ongoing project – A103** Stefan Reiser, SBB and Matthias Gubser, Rosenthaler + Partner Key points: • Detecting the most important fields of action to ensure the successful use of IfcRail. • Identifying the feedback options on BIM currently used in the daily work and the potential for improvement. • Ideas for tracking the feedback. • Providing the best practice to the rail industry • Stakeholders can contribute to the development of the IfcRail feedback process and provide their expectations and requirements into this ongoing project.
		4 **AI Risk Management in rail industry – A203** Pieter Zuiddam and Jorge Aldegunde Piñeiro, DNV Key points: • Understanding AI risks • General and Industry-Specific AI Risks Importance of AI Risk Management
		5 **An approach to leveling up BIM-Model Usage in Operations of DB Energy** Janek Pfeifer, Deutsche Bahn Engineering & Consulting and Marcus Lüdemann of DB Energy **– A104** Key points: • How DB Energy is planning to use BIM models in Asset Management, Maintenance and Operations • What methods they are planning to use to get models of their assets • How they will link operational data to the models and which software they are considering to test
11.30 – 11.45	**0:15**	**Plenary Keynote BIM, an essential element in ProRail's digital transformation** Julien Cayet, ProRail – A101/102
11.45 – 13.15	**1:30**	**Workshops round 8**
11.45 – 12.30	**0:45**	1 **Digitalization in Building and Maintaining the Permanent Way: A Machine Builder's Perspective – A101/102** Krzysztof Wilczek, Plasser & Theurer Key points: • Digital workflows for track-maintenance machines • Survey and inspection techniques • Lessons learned from BIM projects
12.30 – 13.15	**0:45**	2 **Unified Library of 3D Assets – an interactive panel discussion – A105** Robin de Rooy, HorEyeZon; Rene Wubbels, ProRail; Martijn Dekker, Sweco and Ron Rijkers, Movares
11.45 – 13.15	**1:30**	3 **Introduction ISO 19650 – serious game (90 mins) – A103** Jan-Henk Oldenburg and Roy van Hattem, Haskoning
11.45 – 13.15	**1:30**	4 **Wicked Problems in Rail; can AI help? Discussion groups (90 mins)** Jugal Makwana, Autodesk/ buildingSMART **– A203**
13.15 – 13.45	**0:30**	**Lunch and networking**
13.45 – 14.00	**0:15**	**Conclusions and Introduction for the technical tour A101/102**

14.00 – 16.00	**2:00**	**Technical tour - Rotations of demos in groups** - **Tour of Railcenter premises** - **GeoNext demo: BIM inside = outside, Pointcloudscanning** - **SIM center** - **Trackbot Strukton** - **Clone:it demo**
Legend		**Workshop content is focussed on project life stages and indicated with icons:**  **Design and Build**  **Operate and Maintain**  **Generic / across stages**