

**2<sup>nd</sup> Finnish-German BIM-Workshop:**  
**Shaping the Future of Built Environment through BIM and Digital Twins**  
5/9/2023, online-Seminar

## **From BIM Implementation to establishing Digital Twins for a comprehensive data universe for infrastructure provision and management**

Christian Schlosser, Ph.D.  
Head of Unit - Digital Transformation of the Infrastructure Sector  
German Federal Ministry for Digital and Transport

[www.bmdv.bund.de](http://www.bmdv.bund.de)



## Policy Goals and envisaged Impacts in the Digital Transformation of Infrastructure Provision

Key: Supporting the digital transformation of the infrastructure, planning and construction sectors through advancing deployment of BIM and Digital Twins

Contributing to:

- Enhanced efficiency and reducing emissions across the entire life cycle of infrastructure, public, commercial and residential buildings
- Extending the overall data space for infrastructure and buildings
- Improved public consultation processes in planning and transport
- Supporting market participation of SMEs and international competitiveness of Construction Companies and Developers

## BIM-Implementation Strategies at Federal Level in Germany

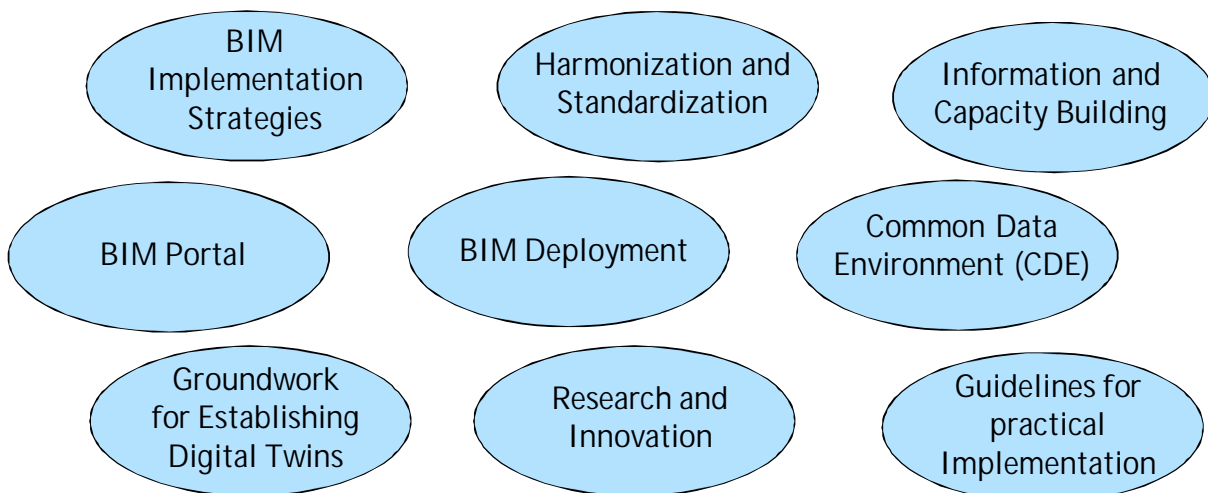


Implementierung von Building Information Modeling (BIM) im Vorstandsressort Infrastruktur der Deutschen Bahn AG



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## From BIM to Digital Twins - Policy Initiatives to support the Digital Transformation of Planning, Construction, Maintenance and Management of Infrastructure



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## From BIM Deployment to Digital Twins

...From the design and construction stage of new projects to the entire life cycle of (existing) facilities

...from static inputs and sources to comprehensive (real-time) operational data and analysis

...extending the focus from buildings and objects to users and other data sources and inputs

Summary based on: <https://www.iotforall.com/digital-twin-vs-bim>

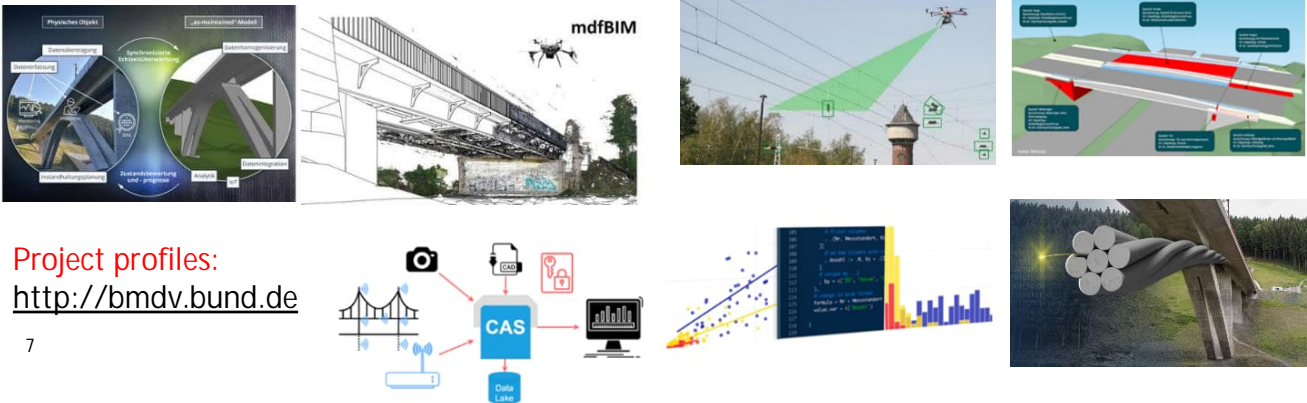
## Towards a Definition of digital Twins

A digital twin is a virtual representation of an object or system that spans its lifecycle, is updated from real-time data, and uses simulation, machine learning and reasoning to help decision making

<https://www.ibm.com/topics/what-is-a-digital-twin>

## Research and Innovation - preparing the ground for Digital Twins and data-based Infrastructure Management

- Since 2017, BMDV funded a wide range of projects (est. total grant volume > 50 Mill. Euros)
- addressing innovations for BIM deployment and digital Twins, integration with GIS, AI and new surveying methods and sensor technologies



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## Practical applications and benefits of Digital Twins in Infrastructure

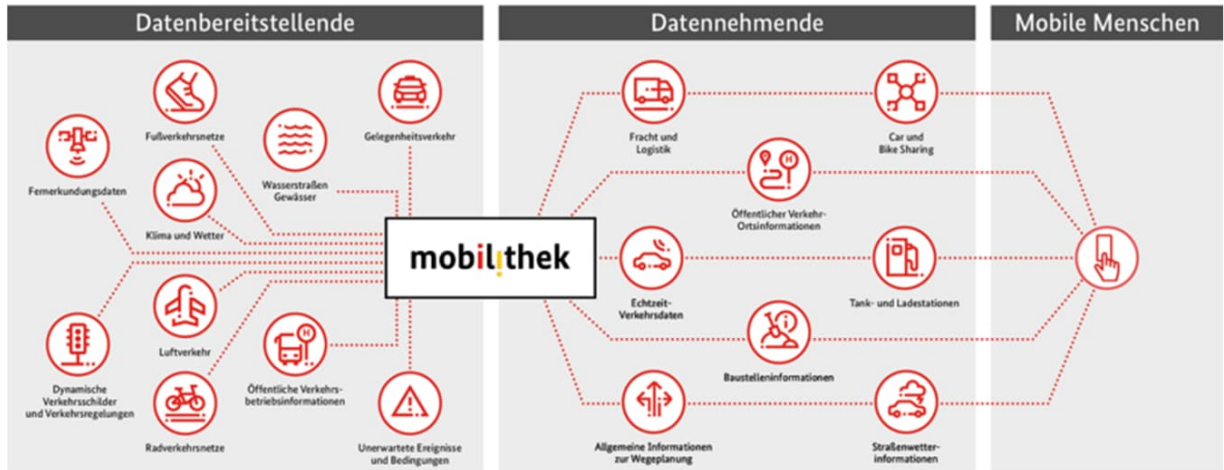
- Planning, simulation, dynamic monitoring of network capacity and usage, emissions or energy consumption
- Using data and analytics for more efficient technical maintenance of networks, tracks, bridges, systems
- Visualization for public consultations/information

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## Digital Twins in infrastructure – the wider data universe

<https://www.bmdv.bund.de/>

# mobilithek



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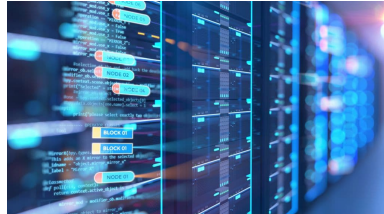
## Digital Twins in infrastructure – the wider data universe

<https://mobility-dataspace.eu/>



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## Federal Government National Data Strategy 2023



<https://bmdv.bund.de/>  
[https://bmdv.bund.de/SharedDocs/DE/Anlage/K/nationale-datenstrategie.pdf?\\_\\_blob=publicationFile](https://bmdv.bund.de/SharedDocs/DE/Anlage/K/nationale-datenstrategie.pdf?__blob=publicationFile)

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## Moving Digital Twins to practical implementation – Key Elements and Steps

1. Identifying and defining cross-sector/sector-specific demands
2. Systematic review of current research and case studies
3. Developing strategic approaches and implementation plans
4. Dialogue and stakeholder consultation
5. Establishing technical standards, systems, data governance
6. Defining owners and operators of digital twins
7. Enabling people and implementing organizational arrangements

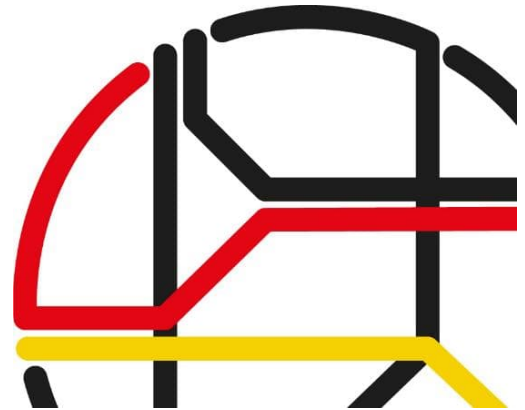
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[www.bimdeutschland.de](http://www.bimdeutschland.de)

- Jointly established and financed by the Federal Ministry for Digital and Transport and the Federal Ministry of Housing, Urban Development and Building
- so support harmonized and coordinated BIM-deployment across Sectors and preparing the basis for digital Twins

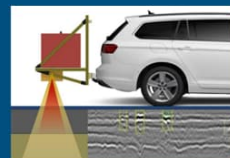
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Contact:  
Bundesministerium für  
Digitales und Verkehr  
Referat DK24  
Invalidenstraße 44  
10115 Berlin  
[ref-dk24@bmdv.bund.de](mailto:ref-dk24@bmdv.bund.de)  
[www.bmdv.bund.de](http://www.bmdv.bund.de)



A+S Consult GmbH



TU Kaiserslautern



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## Thank you for your attention !



EasyDigiTwin2



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Photos/further Information: <https://bmdv.bund.de/>