



JOHANNES KEPLEI UNIVERSITÄT LIN



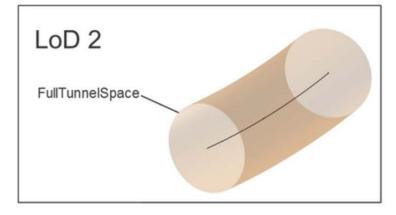


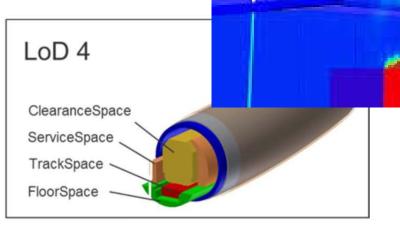
Planning in 2D THEORETISCHE AUSBRUCHSGRENZE SPRITZBETON ds NACH STAT. ERFORDERNIS OSTULME WESTULME M5 -TOLERANZBEREICH REGELPROFIL = MINIMALPROFIL ERDUNGSFAHNE V4A ERDUNGSFAHNE V4A PUTZSCHACHT (ALLE 50m) (ALLE 50m) DN 1000 CA. ALLE 100 m EINLAUFSCHACHT FUNDAMENTERDER DN 1000 CA, ALLE 50 m (RUNDERDER 10mm SAMMELLEITUNG: FEUERVERZINKT) FAHRBAHNWÄSSER VOLLROHR DN/OD 400 4 KSR DN/OD 110 4 KSR DN/OD 110 FUNDAMENTERDER -(RUNDDRAHT 10mm FEUERVERZINKT) GASLEITUNG IM SANDBETT QUERVERBINDUNG ALLE 50m LK0,1; BAUTYPE AS1; GEM. RVS 03.08.63,2016 AUSBRUCHSFLÄCHE 85.51m² VERLEGT- MIT VLIES UMMANTELT 12cm BITUMINÖSE TRAGSCHICHTE UND DECKE GEM. RVS 08.16.01 VERKEHRSRAUM DRAINAGEKIES 16/32 20cm UNGEBUNDENE OBERE TRAGSCHICHTE BERGWASSERSAMMELLEITUNG GEM. RVS 08.15.01 (CNR) >30cm UNGEBUNDENE UNTERE TRAGSCHICHT KOMBINIERT MIT TRAGSCHICHT-DRAINAGE, MZR DN/OD 315 GEM. RVS 08.15.01 (CNR) BETONBETTUNG DRAINAGEKIES -FÜLLBETON -THEOR. AUSBRUCH-4,13 SPRITZRETONSTÚTZGEWÓLRE-8,27 NORDULME SÜDULME 2 FAHRSTREIFEN 1 FAHRSTREIFEN LICHTRAUMPROFIL FAHRFLÄCHE 7.00m/4.70m LICHTRAUMPROFIL -REGELPROFIL = MINIMALPROFIL ERHÖHTER SEITENSTREIFEN 3.50 25.30 70 LK0,1; BAUTYPE AS1; GEM. RVS 03.08.63.2016 12cm BITUMINOSE DECK- UND TRAGSCHICHT GEM. RVS 08.16.01 - 20cm UNGEBUNDENE OBERE TRAGSCHICHT — ≥30cm UNGEBUNDENE UNTERE TI ERDUNGSFAHNE V4A ERDUNGSFAHNE V4A (ALLE 50m) (ALLE 50m) - ≥15cm DRAINAGEKIES 16/32 RUNDERDER Ø10mm V4A RUNDERDER Ø10mm V4A 4 KSR DN/OD 110-EINLAUFSCHACHT DN 1000-QUERVERBINDUNG ALLE 50m MIT TEILUMMANTELUNG BETONUMMANTELT PE-DRUCKLEITUNG

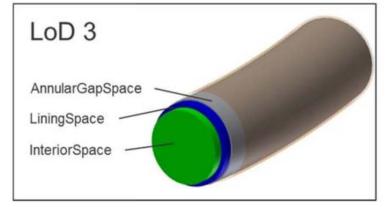
LÖWA DN 63

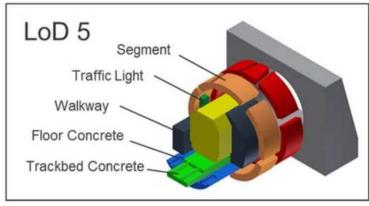


Planning in 3D and Simulation in 3D





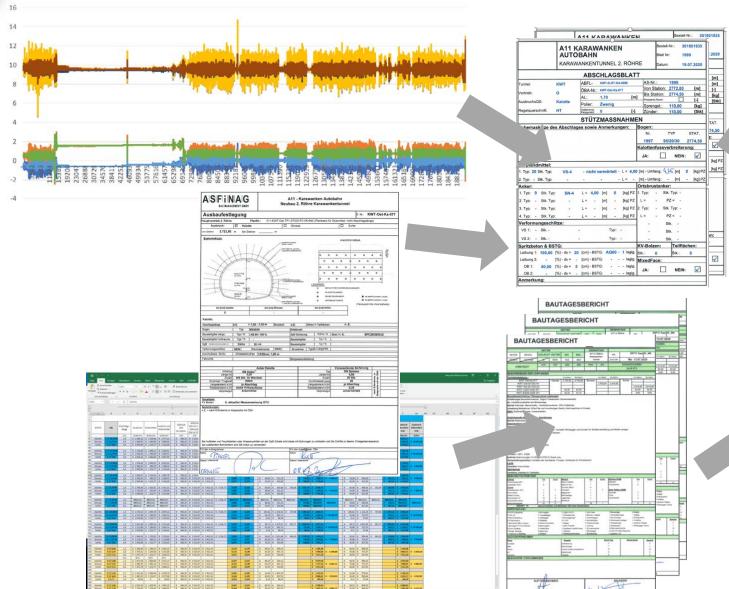




ZENTRUM # BERG



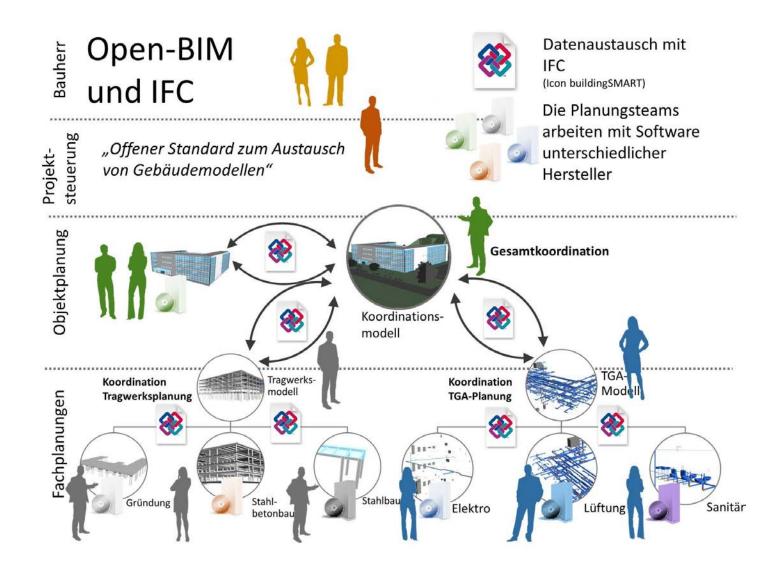
Document management and monitoring







The single source of truth vision of BIM





From digital model to digital twin

Digital model

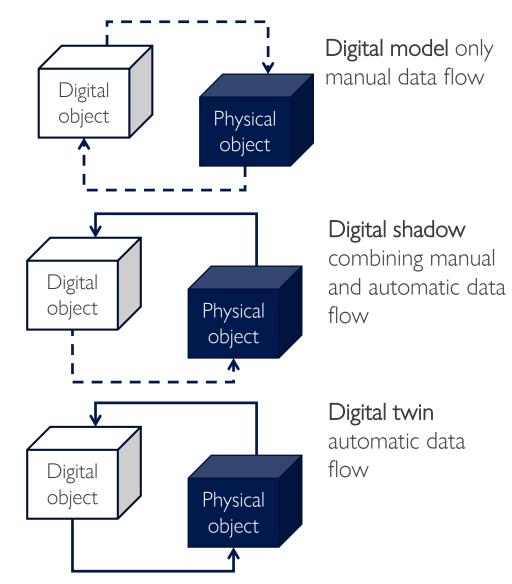
- documentation
- communication
- simulation
- design

Digital shadow

- state recognition
- runtime monitoring
- conformity checking

Digital twin

- continuous adaption
- rollback
- autonomous decision making

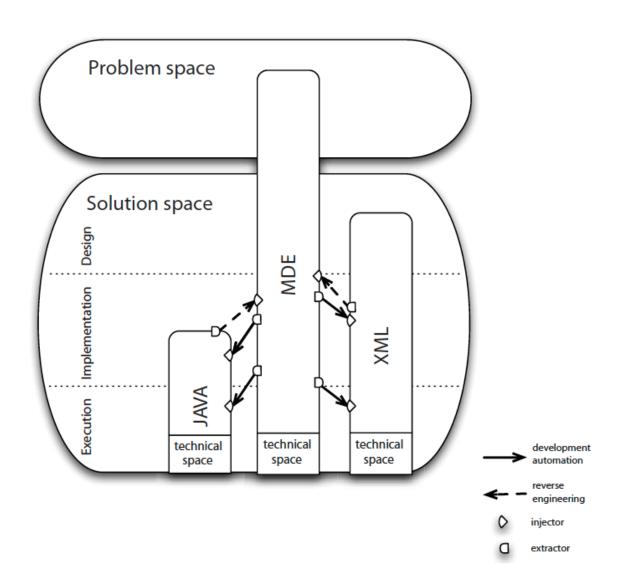


Digital model. Image adapted from Kritzinger, W. et al. (2018). "Digital Twin in manufacturing: A categorical literature review and classification.", Elsevier, IFAC-PapersOnLine, 51(11), 1016–1022



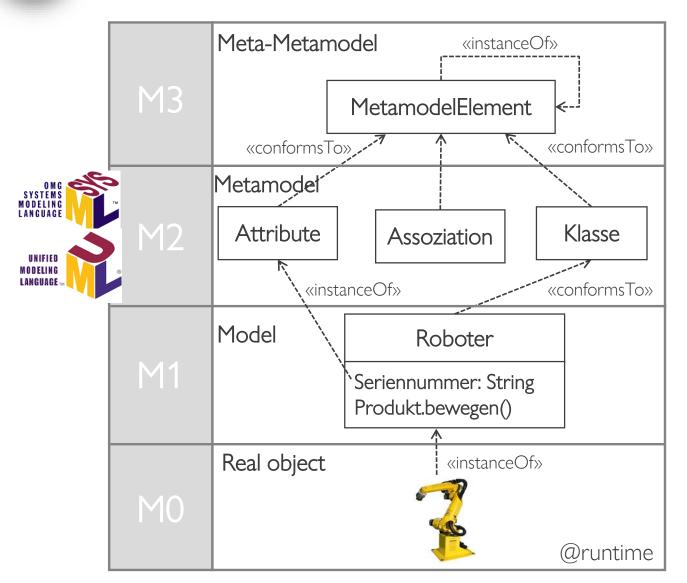
Model-driven software and system development as key

- The **problem space** is defined as the subject area that needs to be studied in order to solve a specific problem.
- The domain model is the conceptual model of the problem area (defining the scope).
- Technical spaces represent specific working contexts for the specification, implementation as well as deployment of the application.





Comparison of MDE and IFC







over 1000 types



unlimited property and quantity sets



