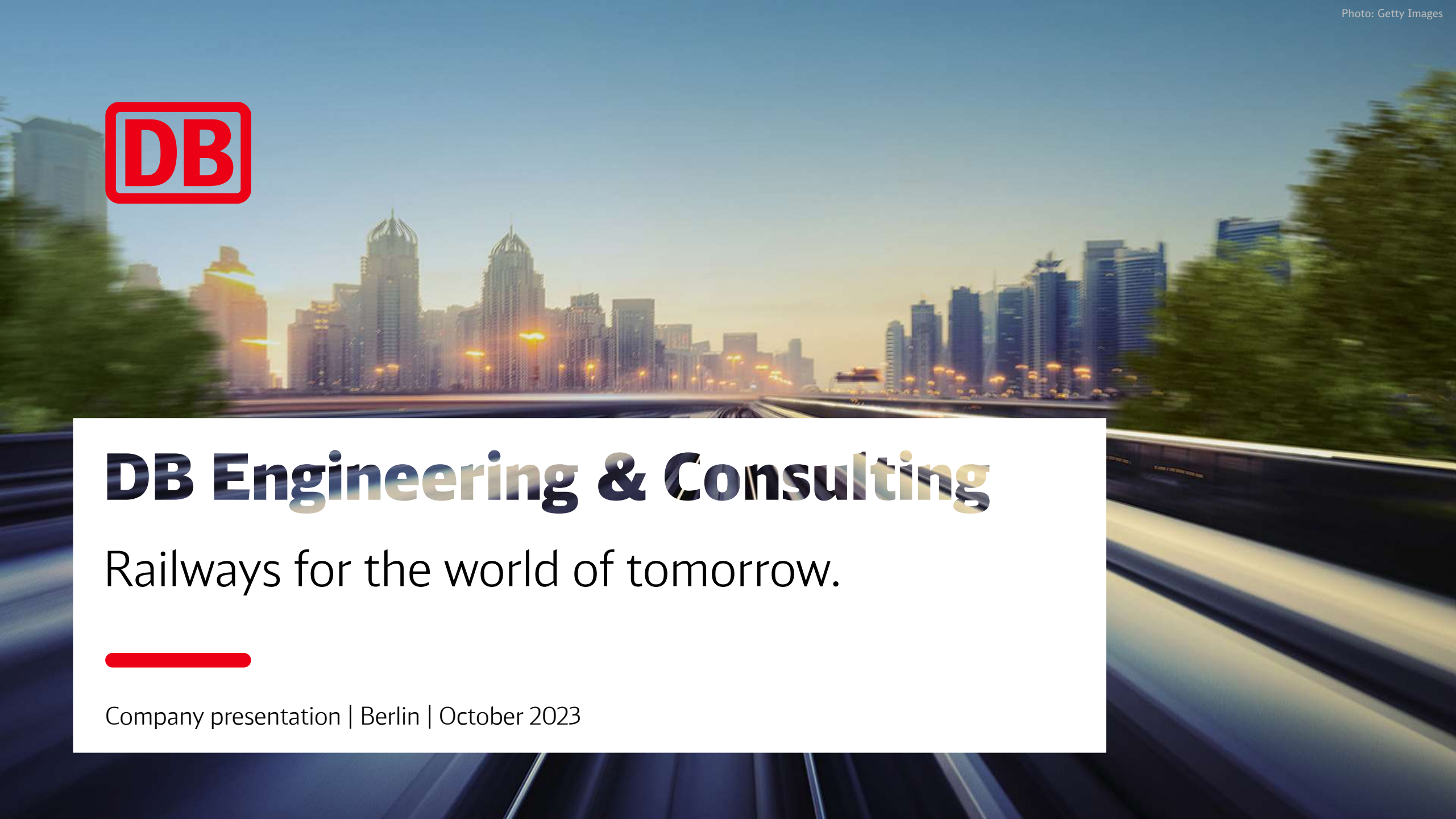


Photo: Getty Images

DB Engineering & Consulting

Railways for the world of tomorrow.

Company presentation | Berlin | October 2023

Topics

- **Our group: Deutsche Bahn**
- DB Engineering & Consulting – Who we are
- DB Engineering & Consulting – Our services
- DB Engineering & Consulting – Our references

Photo: Max Lautenschläger

The DB history

1835
The beginning: Rail line connecting Nuremberg and Fürth with the steam train „Adler“

1920
German Imperial Railway (Deutsche Reichsbahn) established

1933
First DMU trains from Hamburg to Berlin

1949
Split into Deutsche Bundesbahn and Deutsche Reichsbahn

1991
With the ICE (Inter City Express) starts the first regular high-speed traffic in Germany

1994
Deutsche Bundesbahn and Deutsche Reichsbahn merge to form Deutsche Bahn AG

2002–2010
Various acquisitions, i.a. Arriva, BAX Global, NS Cargo, DSB Gods, Spain-TIR, Romtrans ...

TODAY
A leading international mobility and logistics company

Integrated group

Photo: Deutsche Bahn AG / Volker Emersleben

Top market positions – in Europe and worldwide

Freight Transport and Logistics

1 Rail freight transport

1 Land transport

3 Contract logistics

4 Air freight

5 Ocean freight

Infrastructure

1 Rail infrastructure

Contract logistics

Passenger Transport

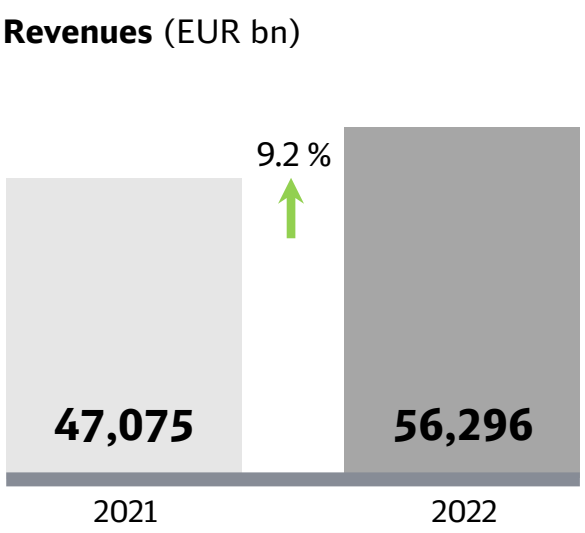
1 Regional and local rail

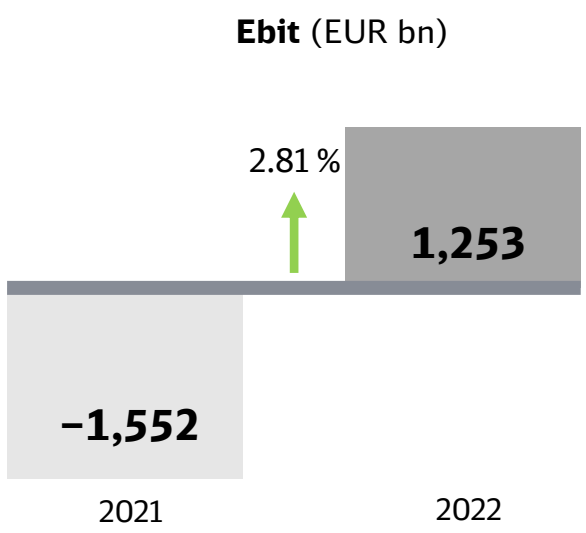
1 Long distance rail

1 Public road transport

Data as of Dec. 31, 2022

Revenue and EBIT



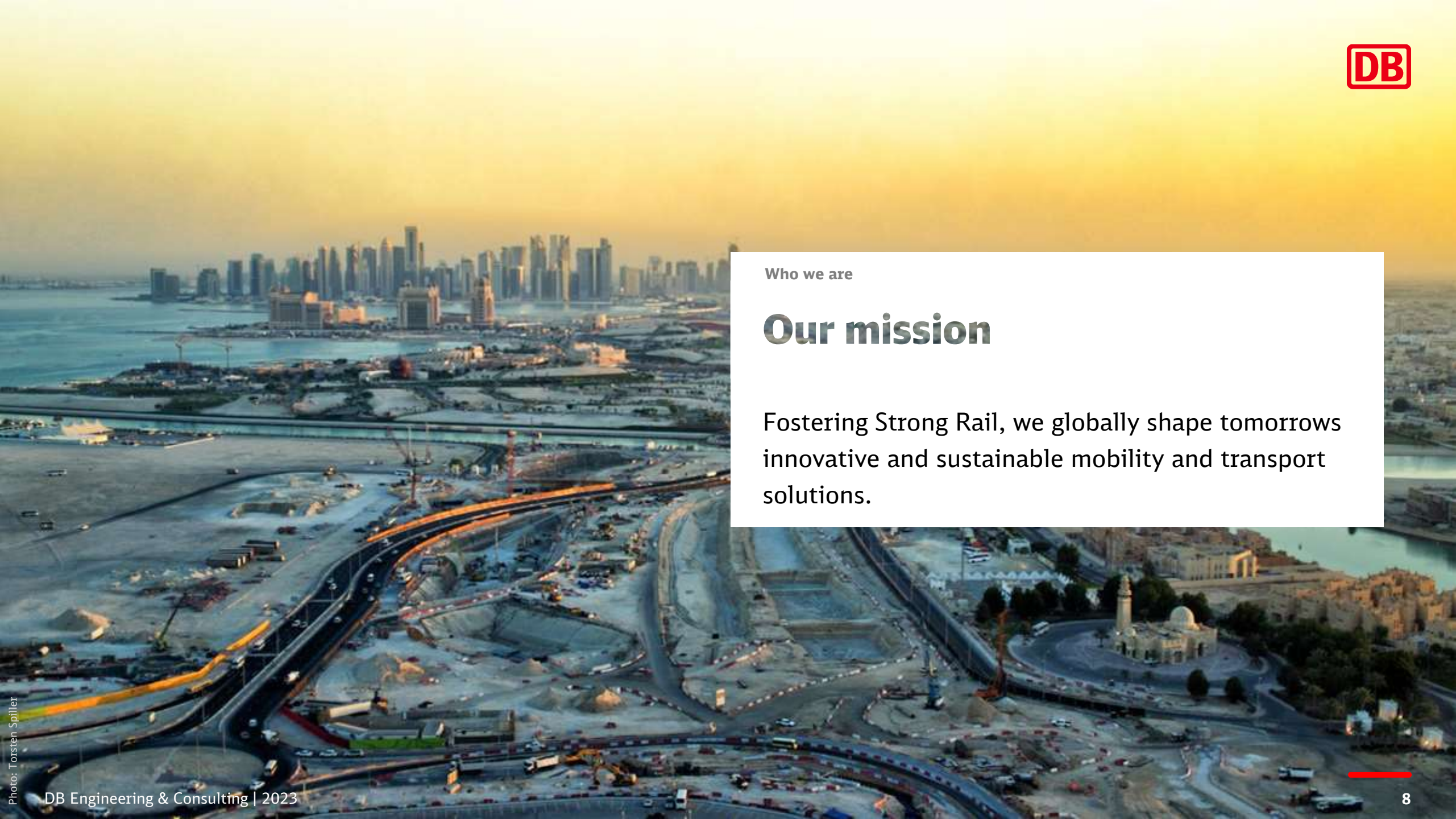


Data as of Dec. 31, 2022

Topics

- Our group: Deutsche Bahn
- **DB Engineering & Consulting – Who we are**
- DB Engineering & Consulting – Our services
- DB Engineering & Consulting – Our references

Photo: Deutsche Bahn AG / Max Lautenschläger



Who we are

Our mission

Fostering Strong Rail, we globally shape tomorrows innovative and sustainable mobility and transport solutions.

Photo: Torsten Spiller

What we offer

Advising, designing and implementing infrastructure projects, from the idea to operations.

185 years of
rail expertise

Cutting-edge
technologies and construction

Economic and environmental aspects
always taken into account

Always the right solution –
for individual jobs and large-scale projects alike

Photo: Ben Bergh

Our history

1966
Deutsche Eisenbahn-Consulting founded

2002
DE-Consult is wholly owned by DB

2003
DE-Consult is made an affiliate of the new DB company DB ProjektBau

2007/2008
DE-Consult becomes DB International and operates as an independent company within the DB Group. DB ProjektBau works on DB's domestic projects, while DB International focuses on non-DB client business in Germany and international projects.

2016
DB ProjektBau and DB International merge, forming **DB Engineering & Consulting**

2018
DB Engineering & Consulting acquires infraView GmbH

2019
Merger of DB Engineering & Consulting, Deutsche Bahn International Operations, and infraView under the roof of the DB E.C.O. Group

2020/2021
DB Engineering & Consulting acquires engineering and software developer ESE GmbH and inno2grid GmbH

Foto: Lothar Mantel

Who we are

Part of the DB Group

Deutsche Bahn

- Chairman
- Finance and Logistics
- Digitalization and Technology
- HR and Legal Affairs

Infrastructure

- Passenger Transport
- Regional Transport
- Freight Transport

- DB Netze Fahrweg
- DB Netze Personenbahnhöfe
- DB Netze Energie

DB Engineering & Consulting
(Part of DB E.C.O. Group)

Deutsche Bahn International Operations
(Part of DB E.C.O. Group)

- DB Bahnbau Gruppe
- DB Services
- DB Kommunikationstechnik
- ...

Photo: Getty Images

DB Engineering & Consulting: our divisions

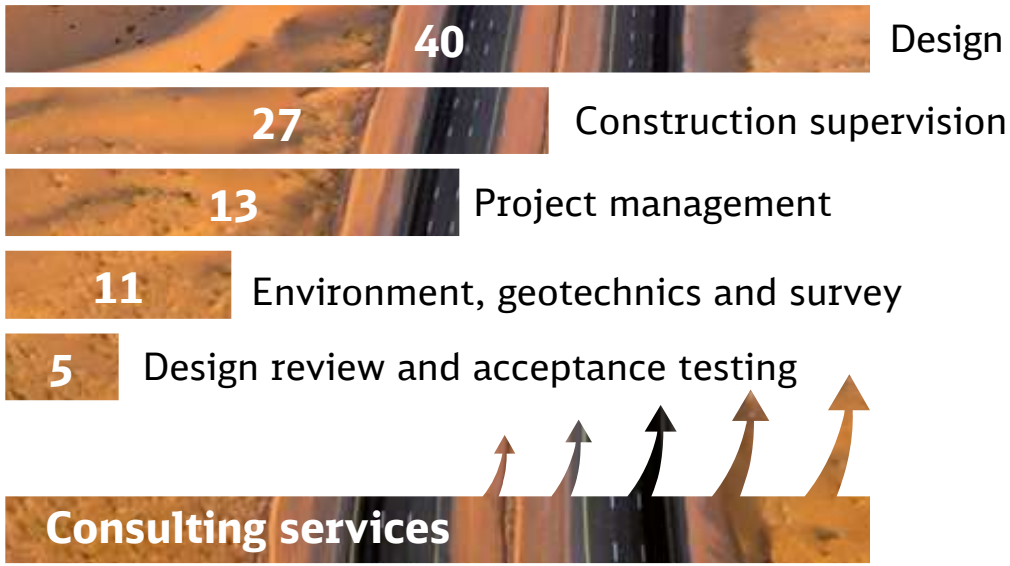
Chairman	German Market	International Markets and Consulting	Finance/ Controlling	Human Resources
				
Niko Warbanoff	Andrea Bertallot	Stefan Geisperger	Dr. Ulla Kopp	Jeroen Hansmann

Photo: Getty Images

5,900 employees from 94 countries for all technical disciplines

Who we are

Our specialists



Functional percentage of production staff, 4 % other (as of March 31, 2023)

Photo: Abdullah Aledey

Who we are

Our clients

State-owned and
private rail companies

Regional and
municipal transport
operators

Construction
and industrial
companies

Municipal and
private investors

International and national
finance institutions

Selection of our clients

Photo: JFL Photography / fotolia.com

Who we are

In Germany

7 regions with more than 80 locations

Headquarters Berlin

Photo: Lothar Mantel

Represented on every
continent

Projects in over
100 countries
since **1966**

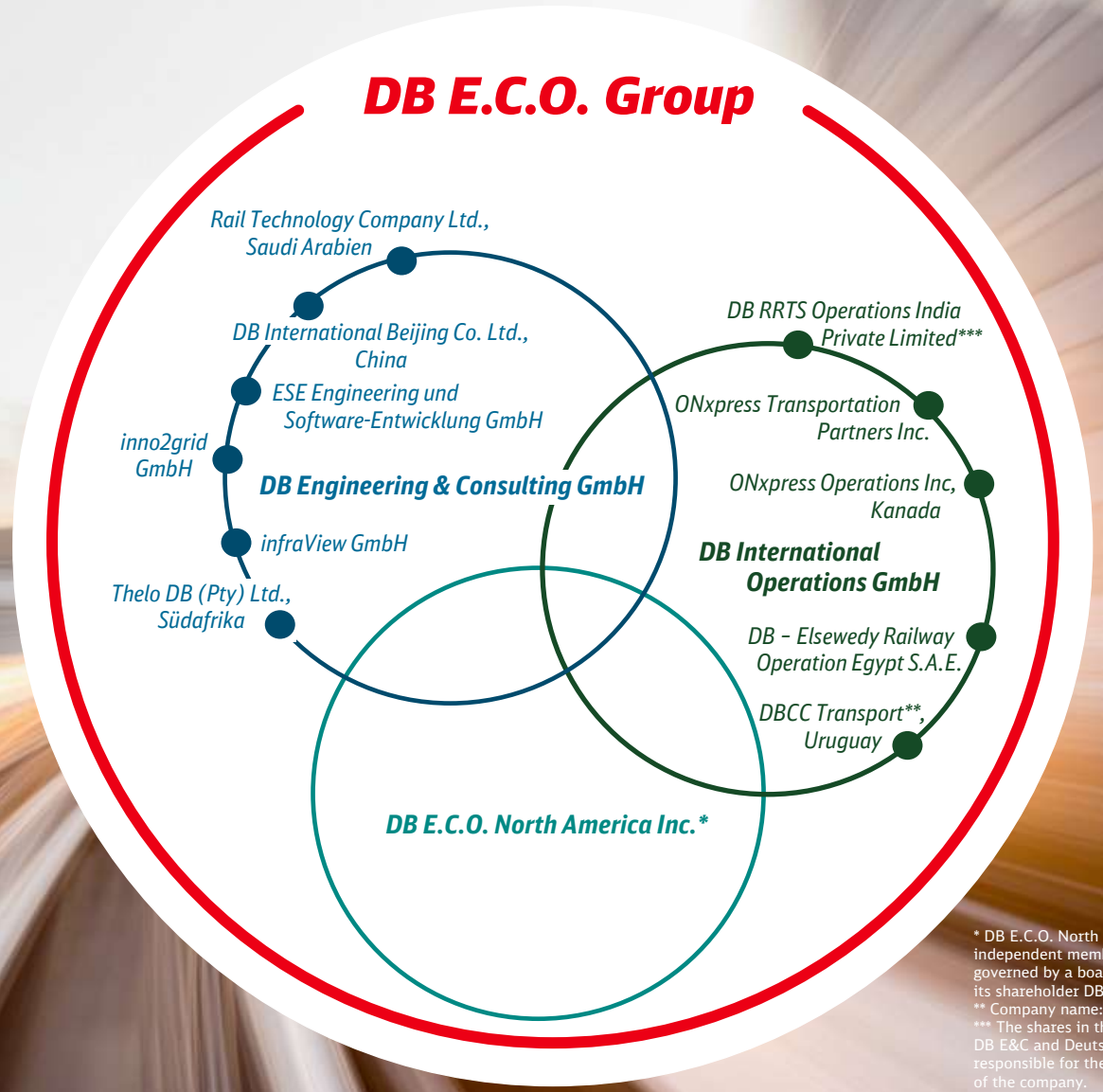
Who we are

Worldwide

Photo: Lothar Mantel

We are part of DB E.C.O. Group

The companies in the DB E.C.O. Group represent for engineering, consulting and operating services for the overall rail system.



* DB E.C.O. North America Inc. is an independent member of the DB E.C.O. Group governed by a board of directors appointed by its shareholder DB US Holding Corporation.
** Company name: Liropa S.A.
*** The shares in the company are held by DB E&C and Deutsche Bahn AG. DB IO is responsible for the operational management of the company.

As of: July 2023

Topics

- Our group: Deutsche Bahn
- DB Engineering & Consulting – Who we are
- **DB Engineering & Consulting – Our services**
- DB Engineering & Consulting – Our references

Photo: Deutsche Bahn AG / Max Lautenschläger

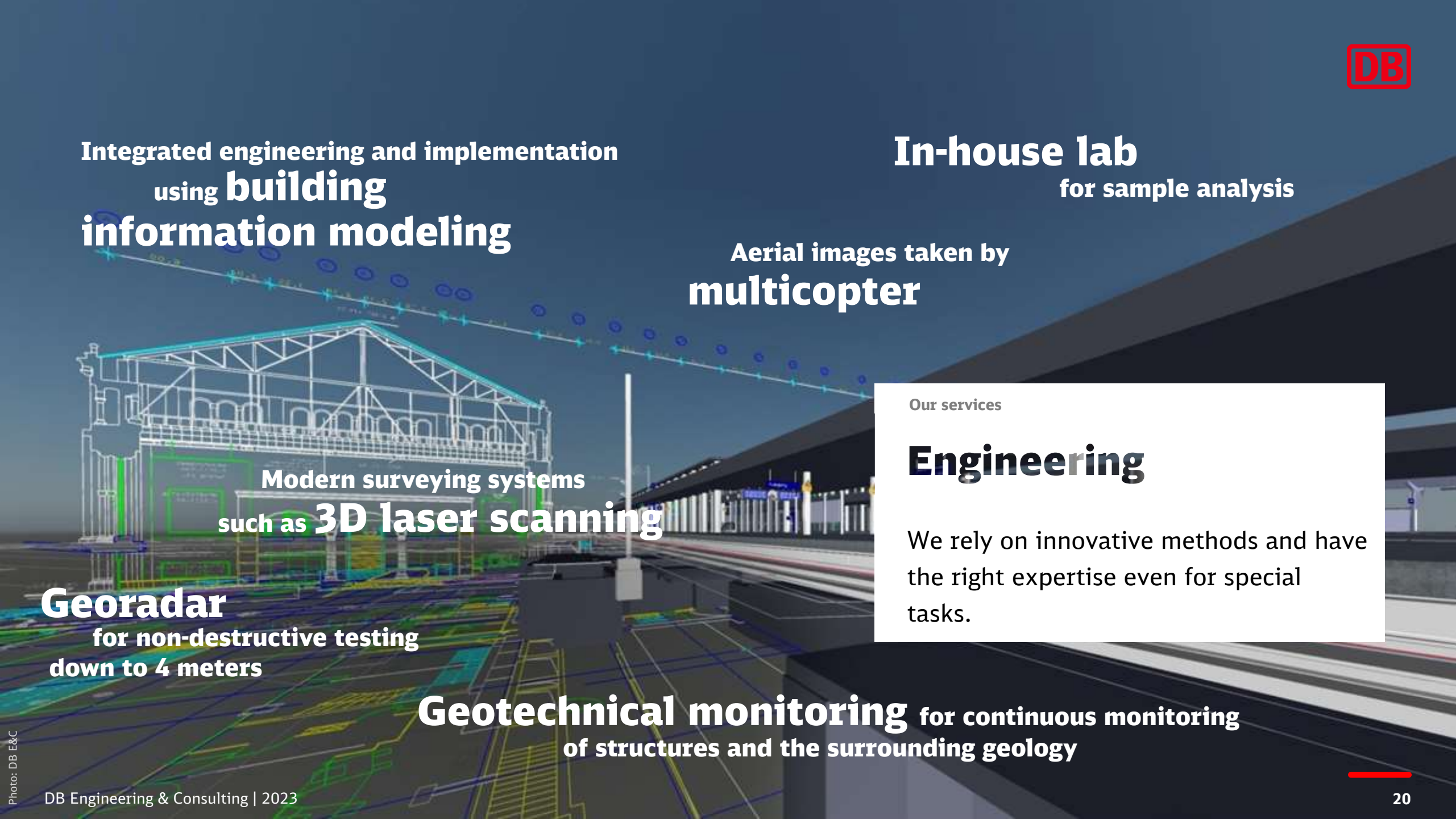
Engineering

New construction, conversion or deconstruction?
We can do it all for you!
We'll plan your project from A to Z
and make sure that everything goes smoothly.
We'll find the right balance between deadlines,
budget and quality.
If it's tested and approved by us, it's safe.

Our services for your project:

- Design
- Project management and project control
- Realization management and construction supervision
- Design review and acceptance test for rail systems

Photo: Frank Kniested



Our services

Engineering

We rely on innovative methods and have the right expertise even for special tasks.

Photo: DB E&C

Consulting

We make you a success!

We advise organizations and companies in all matters relating to infrastructure, mobility and logistics. We analyze strategic and operational requirements and find the right solutions.

Our services for your project:

- Strategy Consulting and Organizational Development
- Operations and maintenance consulting
- Logistics consulting
- Digitalization Consulting and Solutions
- Smart Mobility Development

Consulting

We’re constantly expanding our range of consulting services based on our clients’ needs.

Our DB Rail Academy

training program prepares your employees around the world for their responsibilities

Predictive maintenance

We use smart data networking to identify infrastructure and vehicle maintenance needs before problems occur

Our services

Customized products for every life cycle phase

Project management & Consulting

Shadow Operator / Early Operator

Feasibility studies → **Design** → **Construction Supervision** → **Testing & Commissioning** → **Operations** → **Maintenance**

- Innovative Mobility Concepts
- Operations Planning and Simulation
- Alternative Propulsion Systems
- and more ...

- Construction Engineering Design
- Realization Management
- Systems Engineering Design
- Systems Integration
- and more ...

- Design Review
- Independent Assessment
- Acceptance Testing
- and more ...

- Operation Passenger transport/ Freight Traffic
- Infrastructure Maintenance
- Optimization Operation and Maintenance
- Rolling Stock Maintenance
- Condition Monitoring and Diagnosis
- and more ...

Photo: Frank Kniestedt

Topics

- Our group: Deutsche Bahn
- DB Engineering & Consulting – Who we are
- DB Engineering & Consulting – Our services
- **DB Engineering & Consulting – Our references**

Photo: Deutsche Bahn AG / Max Lautenschläger

Our references

New construction Aurachtal bridge

Location: Emskirchen, Germany
Customer: DB Netz AG

New construction of an eleven-section concrete bridge in semi-integral design, rerouting of the existing line to 1,750 m, increase of the line speed, deconstruction of the old steel bridge.

Plan release by expert authorized to submit construction documents, construction operations planning, involvement with waste management, surveying, construction supervision for the entire project in all disciplines, environmental construction supervision.

Photo: Lothar Mantel

288 km
route length

405
civil engineering structures

55 **stations**

Photo: DB AG / Frank Barteld

Our references

Line modernization Dresden/Leipzig–Werdau–Hof

Location: Germany
Customer: DB Netz AG

Upgrade of the twin-track, electrified Saxony-Franconia Magistrale line.

Design, realization management and construction supervision for individual project sections in all railroad disciplines.

Construction of new S-Bahn connection Gateway Gardens

Location: Frankfurt/Main, Germany
Client: DB Netz, DB Station&Services, DB Energie
End customer: Rhein-Main-Verkehrsverbund GmbH

S-Bahn connection with relocation of the rail line and construction of a new underground station in Frankfurt's new "Gateway Gardens" district to connect to the public rail network to Frankfurt Airport

Basic evaluation, design through to PT1 construction drawings for control-command and signaling, design review, acceptance, services of experts authorized to submit construction documents in accordance with VV Bau-STE, contractual and specialist-technical construction supervision, building-control services in accordance with VV Bau or VV Bau-STE (German Federal Railway Authority), railway-operational services and safety monitoring, coordination of Health & Safety, construction operations planning.

4 km route length
with a **2 km** tunnel

Photo: Daniel Saarbourg

Our references

Upgraded and new line Karlsruhe–Basel

Location: Germany
Customer: DB Netz AG

Four-track upgrade of the Rhine Valley Railway (Rheintalbahn) with the Katzenberg Tunnel, the Rastatt Tunnel and the Offenburg Tunnel.

Design, realization management and construction supervision, design review and acceptance testing for control-command and signaling, overhead line equipment, electrical power systems.

Photo: Erhard Hehl

Europe's biggest
tram-train network

From the region into the city
without having to change trains

477 km
tram-train lines in the traffic network

Photo: Daniel Saarbourg

Our references

Tram-train networks Karlsruhe and Heilbronn

Location: Germany
Customer: Karlsruher Verkehrsverbund GmbH (KVV) / Albtal-Verkehrs-Gesellschaft mbH (AVG) / Karlsruher Schieneninfrastruktur-Gesellschaft (KASIG) mbH

Numerous individual projects in different construction stages. Systems consulting, operating simulations, feasibility study, project management, engineering planning, design review for rail systems, construction site management and construction supervision.

Our references

High-speed line Nuremberg–Erfurt–Leipzig/Halle

Location: Germany
Customer: DB Netz AG

Part of the north/south corridor of the Trans-European Network (TEN 1) that runs from Scandinavia to Italy.

Project management, design, construction site management and construction supervision for various sections of the new and upgraded line, bridges and tunnels, design review and acceptance testing for control-command and signaling, overhead line equipment, electrical power systems.

Photo: Klaus Heinrich

Stuttgart-Ulm rail project

Location: Stuttgart, Germany
Customer: DB Netz AG,
DB Projekt Stuttgart-Ulm GmbH

Redesign of Stuttgart railway junction with conversion of Stuttgart main station terminus into an underground through station (Stuttgart 21) and a new Wendlingen-Ulm rail line with a connection to Stuttgart Airport.

Surveying, site planning for transport facilities and engineering structures, structural planning, specialist planning for railway equipment, environmental planning, construction operations planning, services of experts authorized to submit construction documents in accordance with VVBau/VVBau-STE, expert design review and acceptance test in accordance with VVBau-STE, building-control, railway-operational and specialist-technical construction supervision in various planning approval sections.

Overall planning and planning coordination for the demolition of the Stuttgart main station throat after start of operations in S21.

Stuttgart railway junction
4 stations, 18 bridges,
57 km rail line with a 33 km tunnel

Long-distance railway tunnel
with underground station concourse
4 tracks (420 m), 8 platforms

New Wendlingen–Ulm rail line
59.6 km rail line with a 30 km tunnel
37 bridges, 250 km/h maximum speed

Photo: Armin Kilgus | www.bahnprojekt-stuttgart-ulm.de

Three-track upgrade Emmerich–Oberhausen

Location: Germany
Customer: DB Netz AG

Section of the freight corridor from Rotterdam to Genoa; line upgrade (third track) with conversion of the system changeover point at the German/Dutch border, conversion of the Oberhausen hub and numerous railroad crossing replacement measures.

Design, realization management and construction supervision, design review of the overhead line equipment and electrical power systems, waste analysis.

73 km long line

Replacement of **55** railroad crossings with **38** bridges

ETCS Level 2 and **GSM-R**

Photo: Michael Neuhaus

8 million metric tons
transported per year

Handling of **33 wagon trains**
as long-term goal

90 km
track length

Our references

Operational and infrastructure analysis of the Leuna-Werke industrial siding

Location: Germany
Customer: InfraLeuna

Connection of the Leuna chemical site near Halle (Saale) to the Deutsche Bahn AG line network and supply of the individual companies at the site.

Identification of the factors that influence operation of the industrial siding and associated assessment, derivation of measures for optimum, future-proof operations from the perspective of customers and of the operator InfraLeuna.

Photo: InfraLeuna GmbH / LxPRESS Bildgestaltung

1852
year of construction
of the old arched bridge

14 months'
construction time

90.95 m long
tied arch bridge

Our references

New construction of Ottendorf viaduct

Location: Germany
Customer: DB Netz AG

Replacement of the railroad overpass on the Mittweida-Chemnitz line, with design and esthetics that blend in with the Ottendorf Valley without splitting the location.

Design of dual-track steel bridge as frame-reinforced tied arch, construction timetable and construction supervision for deconstructing the old viaduct and the sideways insertion of the new bridge preassembled on-site.

Photo: aeroSACHS

ICE plant Cologne

Location: Germany
Customer: DB Fernverkehr AG

State-of-the-art, CO_2-neutral maintenance plant in Europe for the ICE vehicle family.

Feasibility study; project control; overall design management (Building Information Modeling-oriented planning) including the peripheral equipment underfloor wheel lathe, ultrasound/light measurement (wheelset diagnostics) and exterior cleaning; construction supervision; design review for electrical power systems; acceptance testing for overhead line and electrical power systems.

4 maintenance tracks

3 km long company site

Photo: Scholz & Friends

New and reconstruction of
37 Bridges

Reconstruction of 120 km of track,
73 km of which are being expanded to 4 or 6 tracks

New construction of
6.5 km of retaining walls
23 km of noise barriers

Our references

Rhine-Ruhr metropolitan region to be linked with seven RRX lines

Location: Germany
Customer: DB Netz AG

In North Rhine-Westphalia, a Rhine-Ruhr Express (RRX) connection is planned which will run every 15 minutes on the Cologne-Düsseldorf-Duisburg-Essen-Dortmund core route starting in 2024. This requires a complex expansion and modernization of the infrastructure to include up to six tracks, additional platforms, new construction and conversion of crossings, adaptation of the route equipment and noise protection measures.

Planning coordination; Engineering planning for all disciplines and across all planning phases; Environmental design, surveying and geotechnical engineering; Authorization to submit construction documents for construction and electromechanical engineering; Technical construction supervision; Design review

Photo: Kompetenzcenter Marketing (CCM)/Smilla Schanker

Our references

Fehmarn Sound crossing

Today, traffic crossing the Fehmarn Sound uses a combined road and rail bridge. A new fixed connection between Fehmarn and the mainland is intended to meet performance and safety needs arising from future traffic expectations.

Working on planning activities together with ZPP, DB E&C among other things has been commissioned to deliver the preliminary design for the tunnel-based proposal. BIM is used parallel to conventional planning activities.

Location: Germany
Customer: DB Netz AG

- Planning consortium with ZPP; Basic evaluation, preliminary design
- BIM: 3D situation assessment, 3D situation modeling, visualizations, 3D planning model, 3D track and proposal comparison, drafting of 2D plans based on 3D models, 4D modeling for describing the construction process, 5D modeling for describing the cost trend, object-based identification of quantities, development of a dynamo-based script for the creation of clearance gauge / tracks, creation of a "virtual reality" (real-time visualization) as a desktop or HTC-Vive variant

Visualization: DB Engineering & Consulting

750 trains daily
(long-distance/local and S-Bahn)

250,000 visitors
and passengers daily

Built on
59 bridges

Our references

Hanover main station

Location: Germany
Customer: DB Station&Service AG

The replacement during operation of the station structure that has grown continually over 150 years includes all the transportation, engineering and building construction of the station.

Overall coordination, surveying services, basic evaluation, preliminary design; planning coordination for Building Information Modeling (BIM):
3-D survey, 3-D modeling, 3-D real-world modeling, visualization,
3-D collision testing, generation of 2-D plans from 3-D models,
3-D route and variant comparison, 4-D simulation.

Visualization: DB Engineering & Consulting

BIM pilot project – first build digitally, then build physically

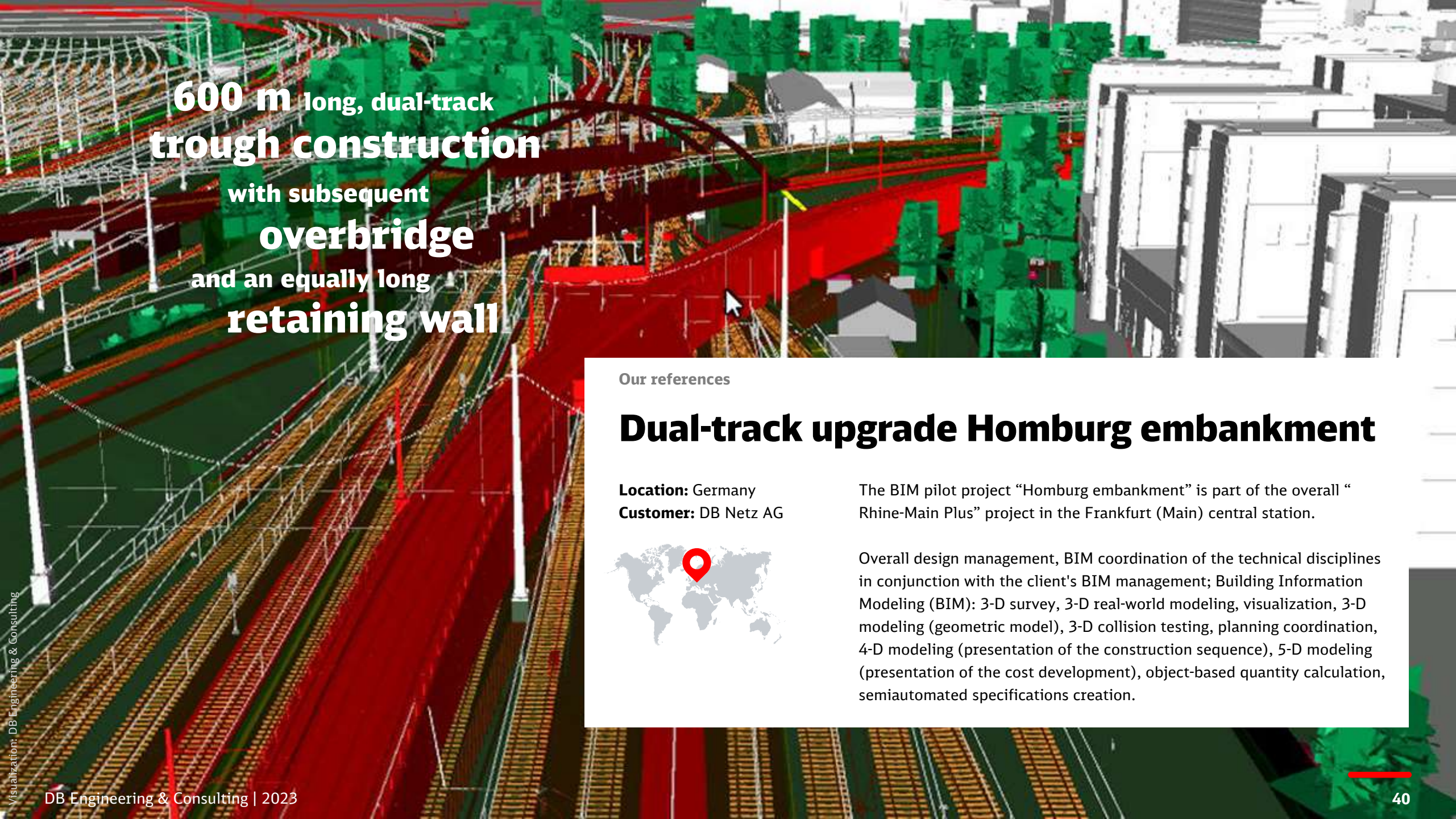
Our references

Doberlug-Kirchhain station

Location: Germany
Customer: DB Netz AG

As part of the second construction stage of the upgrade line Berlin–Dresden, the platform facilities in the multi-level interchange station are being modernized, new intercommunication staircases and lifts added.

Overall design management, BIM coordination of the technical disciplines in conjunction with the client's BIM management; basic evaluation, preliminary design; Building Information Modeling (BIM): 3-D survey, 3-D real-world modeling, visualization, 3-D planning model, 3-D route and variant comparison.



Visualization: DB Engineering & Consulting

Our references

Dual-track upgrade Homburg embankment

Location: Germany
Customer: DB Netz AG

The BIM pilot project “Homburg embankment” is part of the overall “ Rhine-Main Plus” project in the Frankfurt (Main) central station.

Overall design management, BIM coordination of the technical disciplines in conjunction with the client's BIM management; Building Information Modeling (BIM): 3-D survey, 3-D real-world modeling, visualization, 3-D modeling (geometric model), 3-D collision testing, planning coordination, 4-D modeling (presentation of the construction sequence), 5-D modeling (presentation of the cost development), object-based quantity calculation, semiautomated specifications creation.

154 new signals

Hundreds of
test devices

6 km
tunnel section,
7 stations

Photo: Richard Fitnges

Our references

S-Bahn core route tunnel Frankfurt (Main)

Location: Germany
Customer: DB Netz AG

Modernization of the control-command and signaling of the tunnel section with electronic interlocking technology to increase the route capacity and stabilize operations in the S-Bahn network.

Engineering planning across all disciplines and 30 PT1 plans, stage-of-construction and construction-operations planning, design timing management, design review, acceptance and expert authorized to submit construction documents services pursuant to VV Bau STE, construction supervision services pursuant to VV Bau or VV Bau-STE of the Federal Railway Authority (EBA) (rail construction supervisor), engineering authorized individual, interface coordination regarding adjacent projects, construction supervision and supervision of external planners.

Photo: Frank Nagel

Our references

Regional bypass West Frankfurt (Main) as regional tram-train

Location: Germany
Customer:
RTW Planungsgesellschaft mbH

The bypass supplements the urban and regional transport network of Frankfurt and the Rhine-Main area. It improves the transport links of the districts in western Frankfurt (Main) and of Frankfurt airport.

Consulting on concept for dual-system rolling stock 750 V DC / 15 kV 16.7 Hz AC; within planning community responsible for project control tasks, planning the railroad and machinery equipment; surveying and geotechnical engineering and geological survey.

474 m
length

160 km/h
in the area of the bridge

Photo: Zeljko Mandic

Our references

Žeželj-Brücke over the Danube

Location: Novi Sad, Serbia
Customer: EU Delegation of the Republic of Serbia

Construction of a rail and road bridge with two network arch bridges (180 m and 220 m span), which is co-financed by the EU and will traverse the Belgrade–Subotica–Budapest railway line of the pan-European transport corridor. Commissioning: March 2018.

Construction supervision together with Egis International, as well as checking and coordinating the workflows with the Spanish-Italian construction consortium.

26 km
route length

21 elevated stations

750 V DC
third rail

Our references

Metro Kochi

Location: India
Customer: Kochi Metro Rail Limited

Construction of a new elevated metro line in Kochi in the southern Indian state of Kerala.

Creation of a quality and safety plan, inspection of operations, maintenance and disaster management instructions, assistance with testing and commissioning the line.

Photo: Rejeesh Bhaskar / Tom Job

Photo: TfNSW

Our references

Sydney Metro Northwest

Location: Australia
Customer: Transport for New South Wales (TfNSW)

Construction of the 1st stage for Australia's first fully automatic metro system in Sydney. Sydney Metro City & Southwest will follow in the second stage.

Project management services in Rail System and Rolling Stock, Acceptance test/commissioning and operations.

450 km of double-track line with **5** stations

320 km/h maximum speed

35 HSR multiple units

Our references

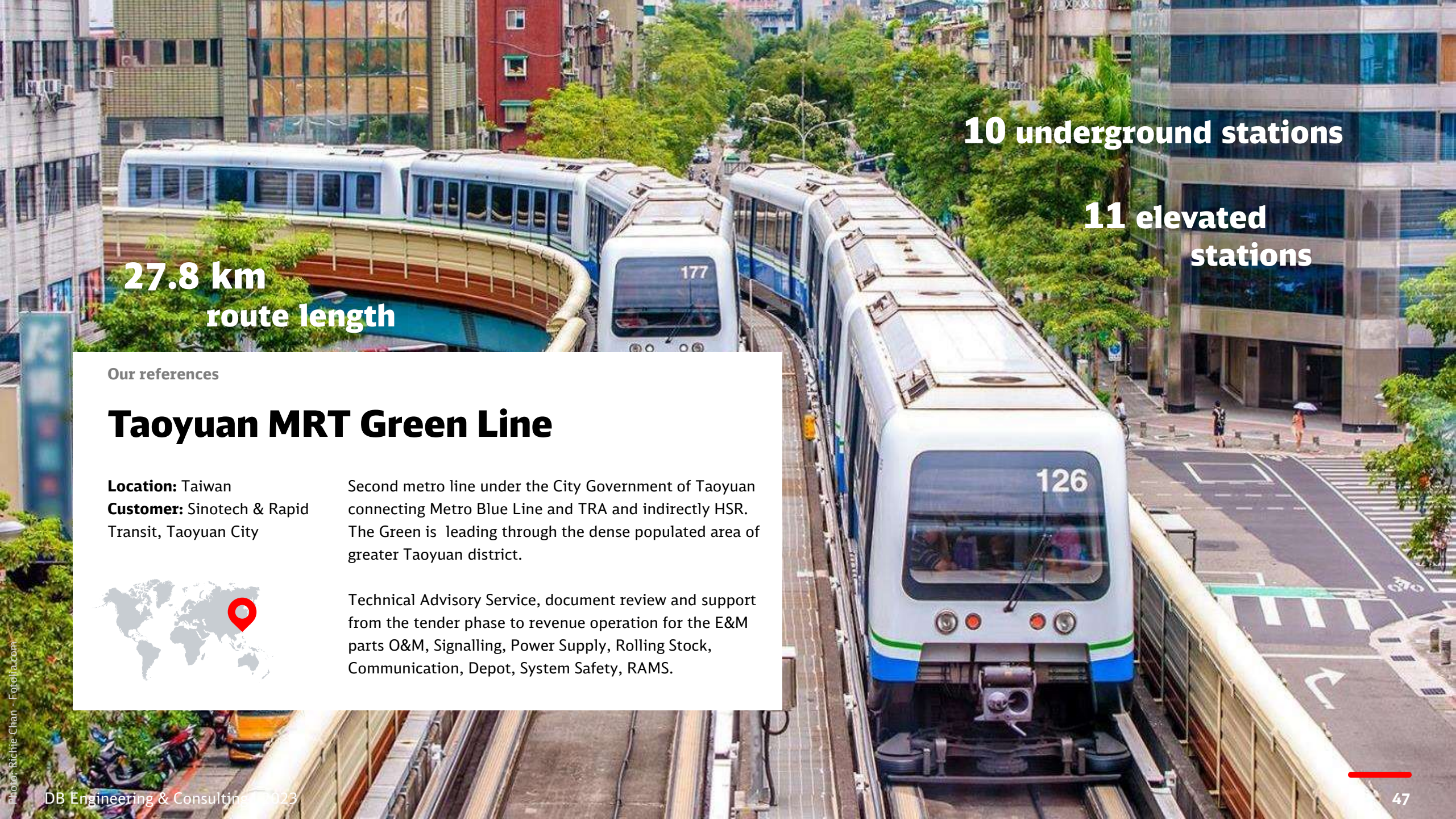
Haramain High-Speed Rail Project

Location: Saudi Arabia
Customer: Saudi Railways Organization (SRO)

First high-speed line with a reliable and convenient connection between Jeddah and the pilgrim sites of Makkah and Medina.

Design review and construction supervision for track and rail systems, operations control center and depot; site management (on-site planning), monitoring the production of multiple units, preparation of commissioning, support in the first operational year.

Photo: Jose Jurado



Our references

Taoyuan MRT Green Line

Location: Taiwan
Customer: Sinotech & Rapid Transit, Taoyuan City

Second metro line under the City Government of Taoyuan connecting Metro Blue Line and TRA and indirectly HSR. The Green is leading through the dense populated area of greater Taoyuan district.

Technical Advisory Service, document review and support from the tender phase to revenue operation for the E&M parts O&M, Signalling, Power Supply, Rolling Stock, Communication, Depot, System Safety, RAMS.

Photo: Richie Chan - Fotolia.com

Rail Baltica transport project

Location: Lithuania, Latvia, Estonia
Customer: RB Rail AS

New double-track, electrified high-speed line (track gauge: 1,435 mm) for direct connection of the Baltic States (Lithuania, Latvia and Estonia) to the European rail network.

- Development of a business plan with an economic framework as well as long-term business and financial planning perspectives for project and strategy implementation for Rail Baltica
- Study for a combined transport terminal with 1,435 and 1,520 mm track gauges at Muuga port in Tallinn
- Feasibility study for a combined rail/road bridge over the Daugava near Riga

240 km/h
operating speed

870 km route length

Photo: RB Rail AS

264 km
rail connection

11,000 metric tons
of granulated sulfur per train

1,700 m
long freight trains

Our references

Etihad Rail DB Operations LLC

Location: United Arab Emirates
Customer:
Etihad Rail Company PJSC

Development and operation of a freight line for transporting granulated sulfur from the mines in Shah via Habshan to the port city of Ruwais on the Arabian Gulf.

Organizational and personnel development of the infrastructure in the ERDB joint venture, support for functional tests, management of test runs; since 2016, assumption of infrastructure management and training of technical staff in scheduled operations.

Photo: Martin Hagen

Our references

Modernization of the Dugo Selo–Novska line

Location: Croatia
Customer: HZ Infrastruktura

Double-track extension of the TEN Corridor X section between Zagreb and Belgrade to EU standard (track system and rail systems).

Consultation, feasibility study, environmental impact assessment, assistance with EU funding application, operational infrastructure planning, project management, engineering planning.

83 km
route section

Upgrade to
160 km/h

Photo: Dragan Ipičanin

Photo: MMRDA/ Mumbai Metro Project

Our references

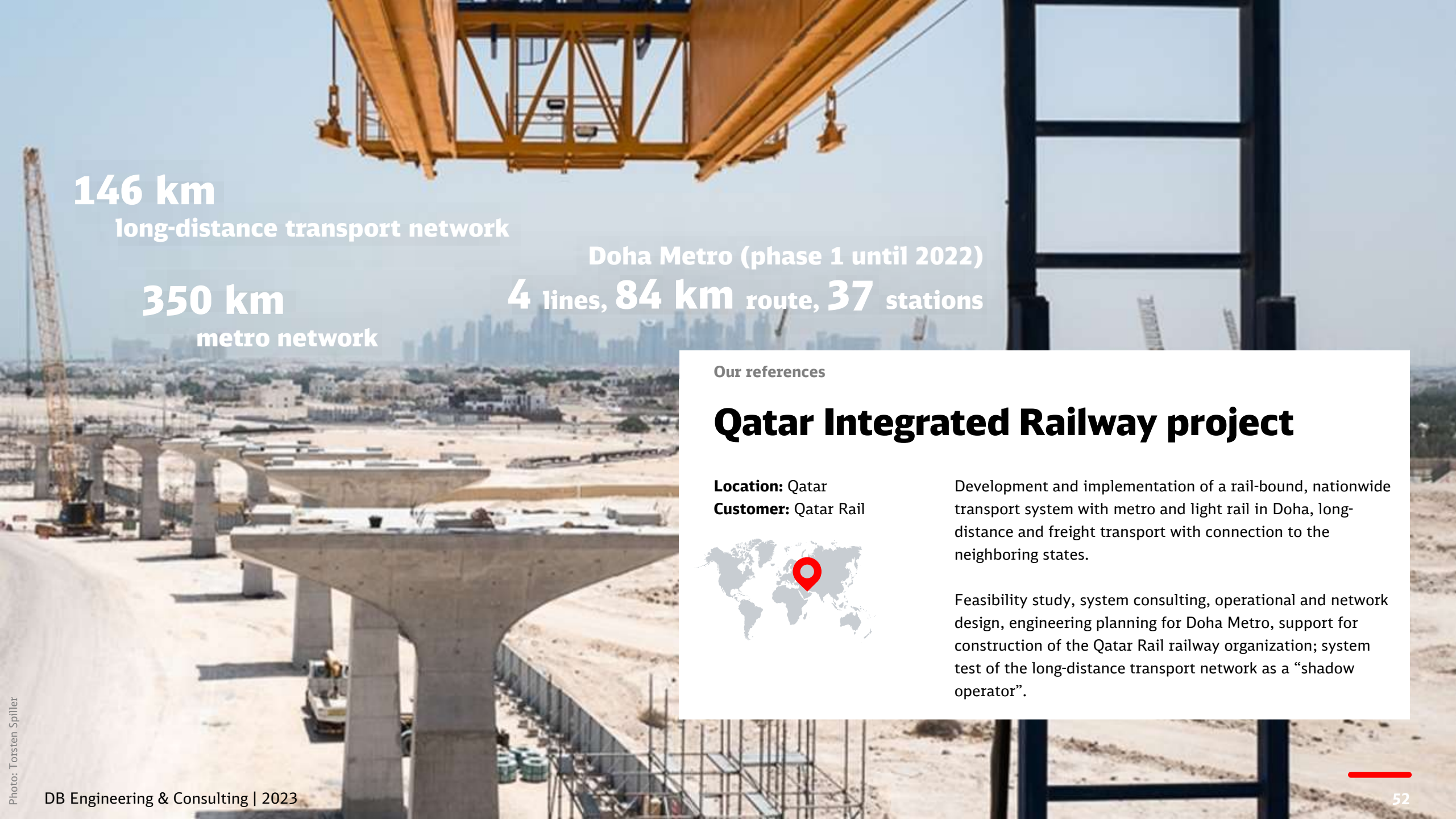
Mumbai Metro Line 4

Location: Mumbai, India
Customer: Mumbai Metropolitan Region Development Authority (MMRDA)

New elevated metro rail between Wadala- Ghatkopar- Mulund-Thane-Kasarvadavali Corridor of Mumbai Metro to increase the capacity of transportation.

General Consultancy Services in a DB-led consortium with Louis Berger India and Hill International Inc. (United States):

- Review of DPR
- Design Assitance in Procurement
- Construction & Project Management Support incl. Supervision & Project Planning;
- System Integration
- Interface Management
- Test & Commissioning



Our references

Qatar Integrated Railway project

Location: Qatar
Customer: Qatar Rail

Development and implementation of a rail-bound, nationwide transport system with metro and light rail in Doha, long-distance and freight transport with connection to the neighboring states.

Feasibility study, system consulting, operational and network design, engineering planning for Doha Metro, support for construction of the Qatar Rail railway organization; system test of the long-distance transport network as a “shadow operator”.

Photo: Torsten Spiller

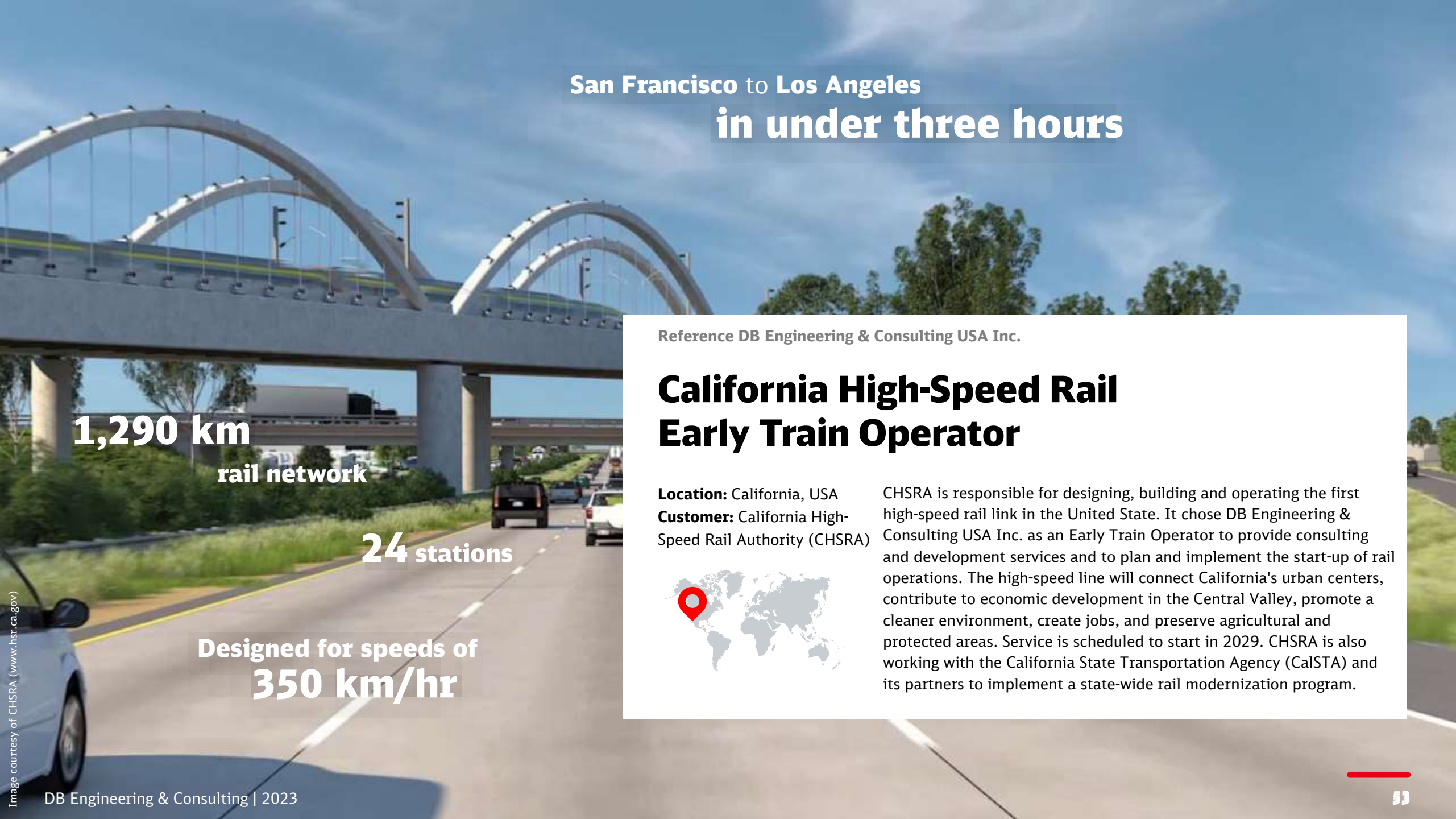


Image courtesy of CHSRA (www.hsr.ca.gov)

Reference DB Engineering & Consulting USA Inc.

California High-Speed Rail Early Train Operator

Location: California, USA
Customer: California High-Speed Rail Authority (CHSRA)

CHSRA is responsible for designing, building and operating the first high-speed rail link in the United State. It chose DB Engineering & Consulting USA Inc. as an Early Train Operator to provide consulting and development services and to plan and implement the start-up of rail operations. The high-speed line will connect California's urban centers, contribute to economic development in the Central Valley, promote a cleaner environment, create jobs, and preserve agricultural and protected areas. Service is scheduled to start in 2029. CHSRA is also working with the California State Transportation Agency (CalSTA) and its partners to implement a state-wide rail modernization program.

Our references

Redesign of metro vehicles

Location: Singapore
Customer: Land Transport Authority of Singapore (LTA)

Evaluation of modernization work carried out on three Siemens C651 trains of the vehicle fleet of the North-South East-West Line (NSEWL). The goal was to ensure that the work of the contractor, Singapore Rail Engineering Pte. Ltd. (SRE), was performed to the quality standards required by the LTA and the operator SMRT for the entire vehicle class.

- Audit of all relevant refurbishment procedures and instructions
- Identification of quality- and safety-critical systems and components
- Performance of the audit, including interviews and inspections
- Check of the applied processes and their implementation
- Review of project roles and responsibilities, qualification and configuration management, and testing and commissioning procedures

Photo: DB E&C/Roel Wachelder

Largest port
in Brazil and South America

3,779,999
TEU containers (2015)

120 million
metric tons
of cargo handling (2015)

Photo: Femke Grabbert

Our references

Performance analysis of Port of Santos, São Paulo

Location: Brazil
Customer: CentroNave (association of shipping companies)

The port's infrastructure, its technical equipment, and the organizational and administrative processes need to be improved for the growing volume of container traffic.

Analysis of the port infrastructure, seaport hinterland connections, and the logistical and administrative processes, identification of bottlenecks, derivation of recommended action to be taken.

Our references

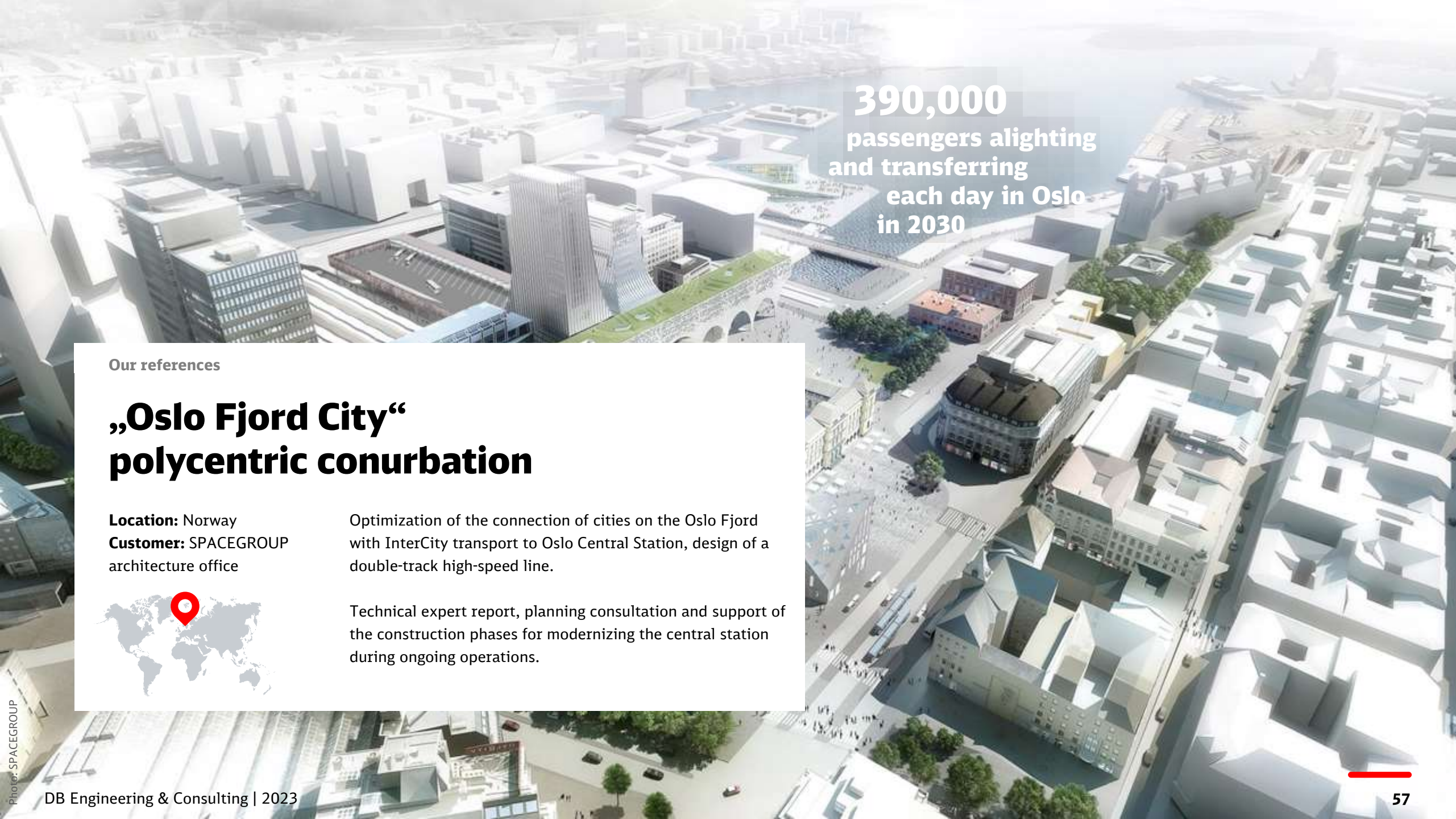
Al Mashaaer Al Mugaddasah Makkah metro project

Location: Saudi Arabia
Customer: DAR Al Handassah

An efficient regional transport system to accommodate the numerous pilgrims traveling between the Islamic holy places of Jamarat, Muzdalifah, the tent city of Mina, and Arafat.

Technical consulting, construction supervision and approval management for the elevated double-track line with automatic train protection/automatic train operation, supervision of commissioning and operations for the annual Hajj.

Photo: Uwe Ramin



Our references

„Oslo Fjord City“ polycentric conurbation

Location: Norway
Customer: SPACEGROUP architecture office

Optimization of the connection of cities on the Oslo Fjord with InterCity transport to Oslo Central Station, design of a double-track high-speed line.

Technical expert report, planning consultation and support of the construction phases for modernizing the central station during ongoing operations.

Photo: SPACEGROUP

Digitalization of maintenance at CFL

Location: Luxembourg
Customer: CFL – Société nationale des chemins de fer Luxembourgeois

DB E&C together with CFL started a pilot installation of the DIANA-Platform in 2017, which included the analysis and diagnosis of point motors as well as the monitoring of temperature and humidity. This was followed in 2019 by the connection of earth leakage detection as well as the installation of point machine sensors in other interlockings. The plan for 2020 provides for all switches in Luxembourg to be fully equipped. In addition, further asset types, such as point heaters and level crossings, are to be included in the monitoring system in the future.

Work performed:

- Supply of sensor technology and DIANA-Platform
- Customizing & Tailoring
- Hardware installation in interlockings
- Integration of the DIANA-Platform into the existing IT landscape
- Fine adjustment of the diagnostic system and plausibility check of the measurement results
- Implementation of trainings, workshops and change management

Installation in more than 25 interlockings

Remote monitoring of more than 1,000 points and further assets

Photo: Thorsten Mühlhause

Nation-wide rollout of DIANA for remote monitoring of production means

Location: Germany
Customer: DB Netz AG

Based on state of the art IT architecture, own sensor technology and profound railway know-how, DB Engineering & Consulting supports the DB Netz AG in all phases of the project: planning, installation, calibration of the platform and sensors, qualification and project management.
DB Netz' objective is to enable the regional organization to apply predictive maintenance regime in order to gain the maximum asset quality with minimum costs.

Work performed:

- Development: Improvement of analytics, new applications, front-end design, process integration, sensor technology
- Operation: Configuration (incl. user administration), commissioning, 3rd level service
- Rollout: technical governance, procurement, trainings, workshops and change management

Key element of the digitalization strategy of DB Netz AG

28,000 switches

350 level crossings

1,000 point heating systems

Photo: Lothar Mante

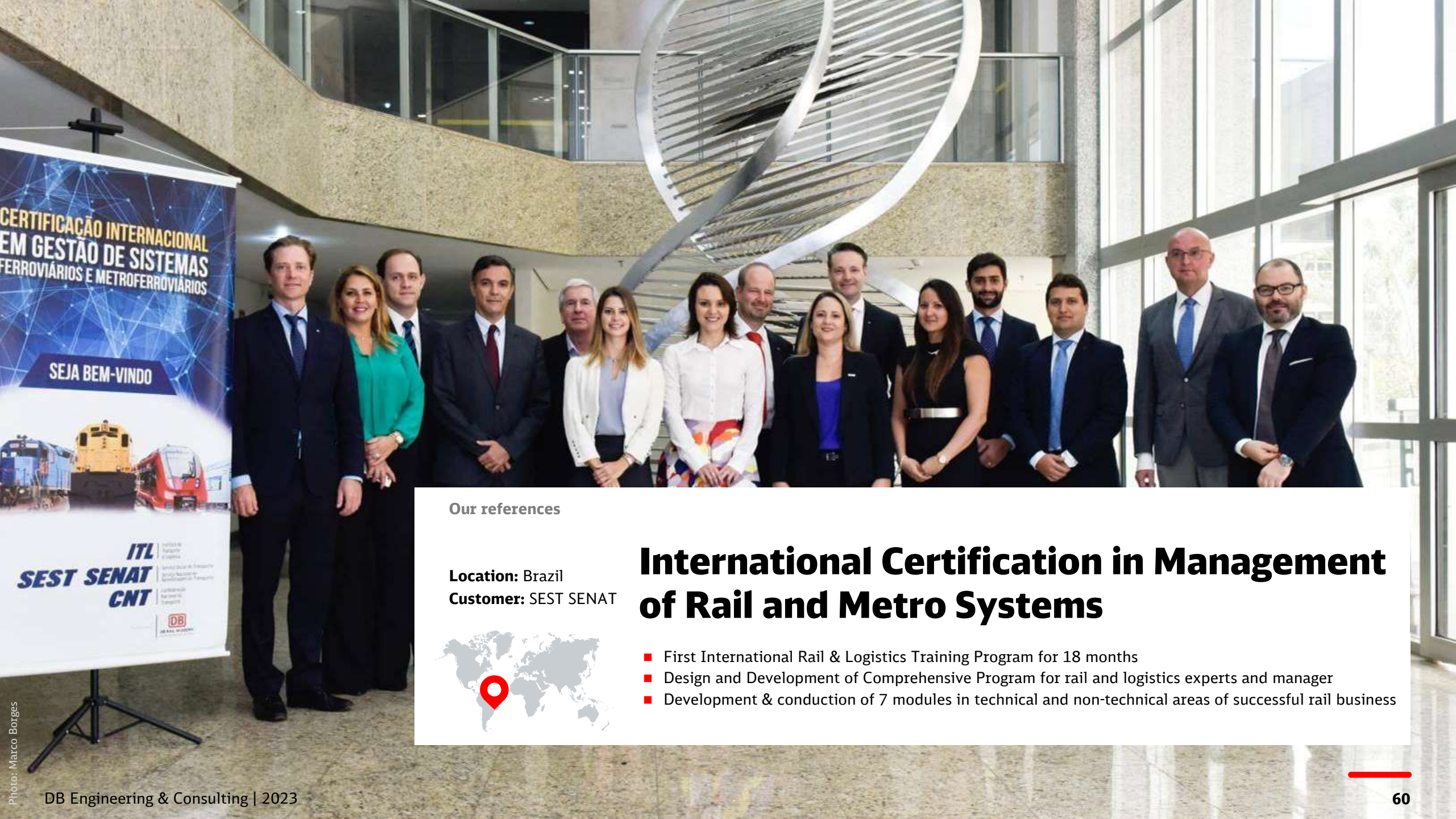


Photo: Marco Borges

Our references

Location: Brazil
Customer: SEST SENAT

International Certification in Management of Rail and Metro Systems

- First International Rail & Logistics Training Program for 18 months
- Design and Development of Comprehensive Program for rail and logistics experts and manager
- Development & conduction of 7 modules in technical and non-technical areas of successful rail business

Our references

Establishment of Transportation Center

Location: Dubai, United Arab Emirates
Customer: Road and Transport Authority (RTA)

- Conduction of Training Needs Analysis
- Design and Development of Training Architecture for Rail, Roads, Traffic and Bus related Professions
- Conduction of leadership and technical trainings
- In-depth analysis and market analysis for Dubai and neighboring countries
- Development of pro-active market strategy, business model and organizational structure for the establishment and implementation of the Transportation Center for all transport modes
- Development of strategy for Training Center establishment incl. Business Model and Organizational Structure

Photo: Heiko Scholz

„Canberra Metro“ Canberra Light Rail

Location: Canberra, Australia
Customer: Canberra Metro Operations PTY LTD (CMET)

Connecting the fast-growing suburb Gungahlin with the center of the Australian capital, the Light Rail is reviving and enhancing the attractiveness of Canberra.

DB Engineering & Consulting, as specialist partner for the Operations & Maintenance Joint Venture in this Public-private partnership project, ensures that the operating expertise of the DB Group is incorporated at an early stage to establish a safe and reliable operation until 2038.

13
stations

14
low-floor trams

12 km
route length

Photo: Robert Wagner

Thank you for your attention

Photo: Getty Images