



InfraGO

Building in Sync

For more predictability, stability and quality

DB InfraGO AG | Building in Sync | InnoTrans Berlin | 24th - 27th September 2024

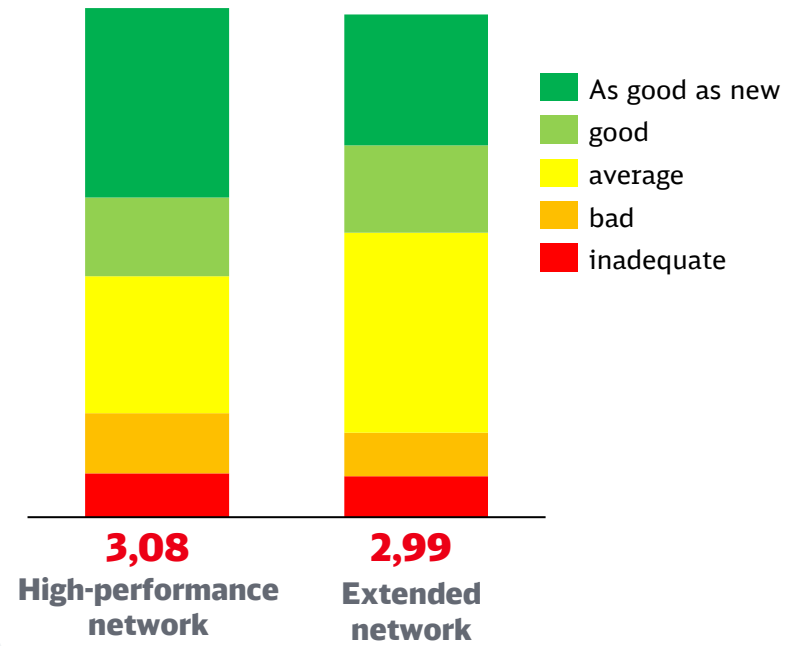
The rail network is getting on in years and is therefore particularly susceptible to disruption



Rail as a mode of transport shows problems with capacity and quality

The infrastructure is outdated

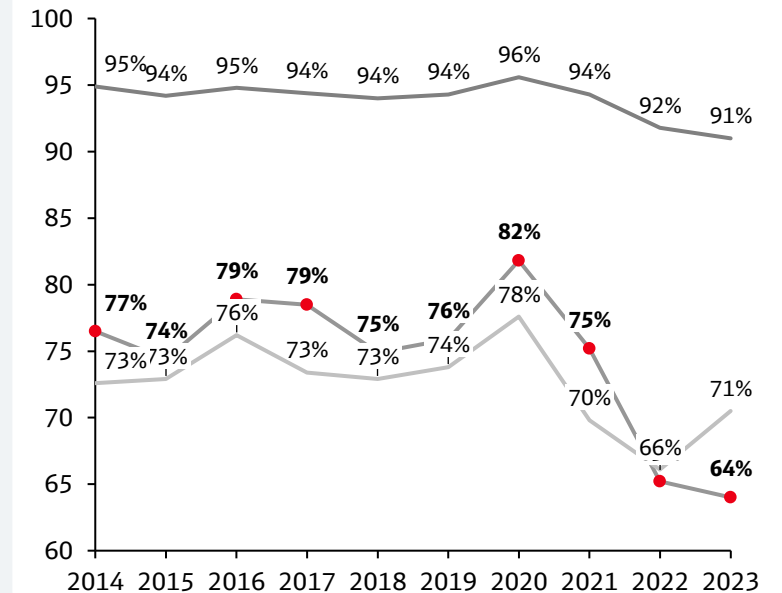
Network status grade 2023



Punctuality is at a record low

Punctuality DB in %

Regio, FV, Cargo



Reduced capacity due to increasing construction requirements conflicts with the increase in demand from RUs and transport policy objectives



Goals of all stakeholders currently difficult to reconcile



Operational performance

+13%

Train-path kilometres¹



Construction volume

+103%

Gross investments in infrastructure¹



+70%

Transport volume in rail freight transport

vs. +1 bn

Passengers in regional and local rail passenger transport

+100%

Transport volume in long distance rail passenger transport

(1) 1994-2022

Future volume requirements demand a sustainable solution for all parties involved



It can't go on like this, as the system has reached its limit

The process of constructing on an active rail line is not sustainable

- “Fight” for work window durations:
 - Investment measures vs. large number of short-term measures vs. transport
- Complex, small-scale coordination
- Customer communication often too late



Photo: Deutsche Bahn AG / Uwe Mierthe

Employees are operating at the limit, customer dissatisfaction

- Short-term reprioritisation and rescheduling of “finished” measures
- Unstable rosters
- High unreliability throughout the system



Photo: Deutsche Bahn AG / Volker Emersleben

Goal: Stable construction processes enable planning through timely schedules and thus stability and peace in the system



Goal ...

Fewer construction conflicts

More building efficiency

More route availability

Forward planning

Fewer regulations during the year

More time for planning

... is achieved by...

- 4 transport subnets for maintenance (IH) containers
- Clear rules for conflict resolution
- Cross-trade bundling
- More building volume per restricted hour
- Construction freedoms
- Junction/route managers are responsible for infrastructure development
- Mapping invest containers in the working timetable
- High container conformity
- More processing time for regulations during the year
- Standard adjustments for IH containers



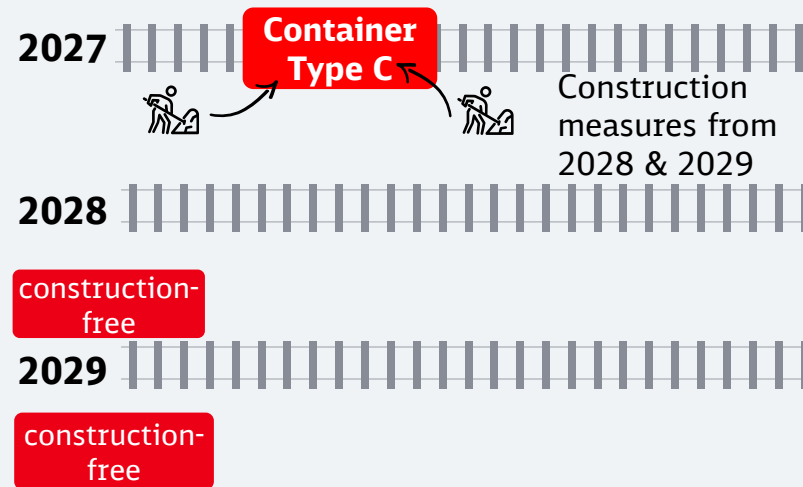
Building in clocked and standardised containers
enables reduction of the impact of construction work during the year and timely timetable products

NEW: In the future, both large and small construction projects will be implemented with the help of standardised, pre-scheduled blocking time containers



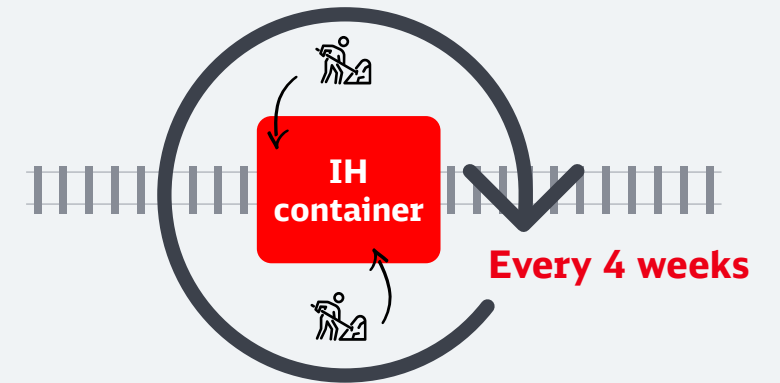
Bundling construction measures in containers - also for passenger stations

Invest container on corridor xyz



Scheduled classification
Cross-trade bundling
Multi-year bundling
Subsequent construction freedom

Maintenance container on network xy



Scheduled classification
Regular rhythm
Can be used at short notice
Easy to remember

From 2024 onwards, general overhauls will begin on the highly utilised core network to create the new high-performance network



**41 heavily
utilised corridors
which are in
particularly poor
condition
earmarked for
general overhaul**

- Frankfurt – Mannheim
- Emmerich – Oberhausen
- Hamburg – Berlin
- Hagen – Wuppertal – Köln
- Nürnberg – Regensburg
- Obertraubling – Passau
- Troisdorf – Koblenz
- Koblenz – Wiesbaden
- Frankfurt – Heidelberg
- Rosenheim – Salzburg
- Lehrte – Berlin
- Bremerhaven – Bremen
- Lübeck – Hamburg
- Fulda – Hanau
- Hamm – Düsseldorf – Köln
- München – Rosenheim
- Bremen – Hamburg
- Nordstemmen – Göttingen
- Uelzen – Stendal
- Stendal – Magdeburg
- Hagen – Unna – Hamm
- Köln – Bonn – Koblenz
- Koblenz – Mainz
- Bebra – Fulda
- Würzburg – Nürnberg
- Hamburg – Hannover
- Lehrte – Groß Gleidingen
- Aachen – Köln
- Bebra – Erfurt
- Forbach – Ludwigshafen
- Stuttgart – Ulm
- Bremen – Osnabrück
- Osnabrück – Münster
- Münster – Recklinghausen
- Minden – Wunstorf
- Weddel – Magdeburg
- Kassel – Friedberg
- Würzburg – Ansbach – Treuchtlingen
- Mannheim – Karlsruhe
- Ulm – Augsburg
- Flensburg – Hamburg

Almost identical construction phases are repeated annually due to fixed, synchronised periods for investment measures



More predictability thanks to early determination of when and where routes will be built on with the help of six invest container types



Only four timetable time slots left

(1) TSP = Full line closure | ESP = single-track closure

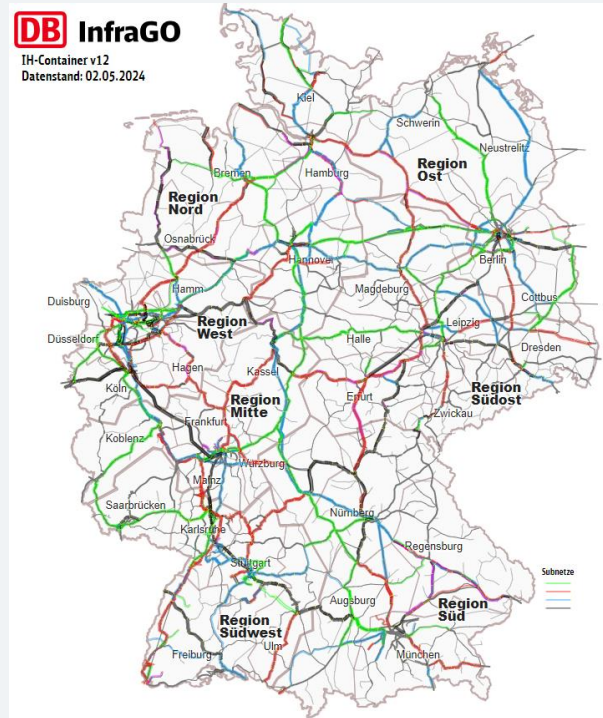
IH containers are repeated every 4 weeks on the same route section



Easy-to-remember rhythm for maintenance work never affects several subnets at the same time

Division into 4 subnets¹

Subnet Green ■ Subnet Red ■
Subnet Blue ■ Subnet Black ■



Recurring 4-week cycle per direction and subnet (9 pm - 5 am)

	Example Week			
	01	02	03	04
Subnet Green	Start: 15 th July			
- Direction	■			
- Counter-direction			1 st August ■	
Subnet Blue	18 th July			
- Direction	■			
- Counter-direction			29 th July ■	
Subnet Red	22 nd July			
- Direction		■		
- Counter-direction				8 th August ■
Subnet Black	25 th July			
- Direction		■		
- Counter-direction				5 th August ■

(1) Coverage of IH containers on the whole highly prioritised (hA+) and high availability (hA) network as well as focus routes on the extended (mA) network with special importance

We have defined four maintenance container types that will be successively introduced from July 2024 onwards



We standardise the maintenance system and introduce four container types



Route
from July 2024

- 8h
- Single-track closure (ESP) via approx. 2 transition sections (approx. 12-18 km)
- 1 container every 4 weeks



Knot¹
Timetable period 2025

- 8h
- Full line closure (TSP) for work area basic section (overhead line equipment, OL)
- 1 container every 4 weeks



Prevention²
Timetable period 2025

- 8h
- Multiplication of route containers (max. 18 km³)
- Twice a year (over 16 weeks)



S-Bahn
Timetable period 2025

- Depending on S-Bahn cluster (4-6h or 8h)⁴
- ESP/ TSP via individually defined sections⁴
- 1 container every 4 weeks or individually⁴

(1) All main tracks of hA+, hA and mA network focus lines in stations or knots, which are not covered by route or S-Bahn containers

(2) Extension of concept to include e.g. MSS and DUA switches coming soon

(3) In exceptional cases up to 25 km possible to ensure coverage

(4) Three S-Bahn clusters: core route ("Stammstrecke"), "Pure" ("Reine") S-Bahn and mixed S-Bahn operations ("Mischbetrieb"). For Stammstrecke individual design, for Mischbetrieb analogue to route containers

We have never been as far along with “constructing on an active rail line” as we are now, but we still have critical issues to resolve



Ensure stable operations through standardised planning

Full effect from investment containers only from 2027 onwards

30% of investment measures currently not yet containerisable

Subject areas

Dealing with resource requirements during construction peaks

Ensure effective control of container usage

Further information on the topic “Availability and operation” you can find on our website: <https://www.dbinfrago.com/web/unternehmen/zielbild-infrastruktur/verfuegbarkeit-und-betrieb> and for the topic “Annex VII” here: <https://www.dbinfrago.com/web/schienenetz/fahren-und-bauen/annex-vii-richtlinie-2012-34-eu-11857512>



Thank You.