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Railway technology and rail transport in Germany

Sarah Stark, Managing Director & Pauline Maître, Head of Public Affairs
German Railway Industry Association (VDB)

The German Railway Industry Association



MEMBER COMPANIES

~ 220



EMPLOYEES

+ 54.000



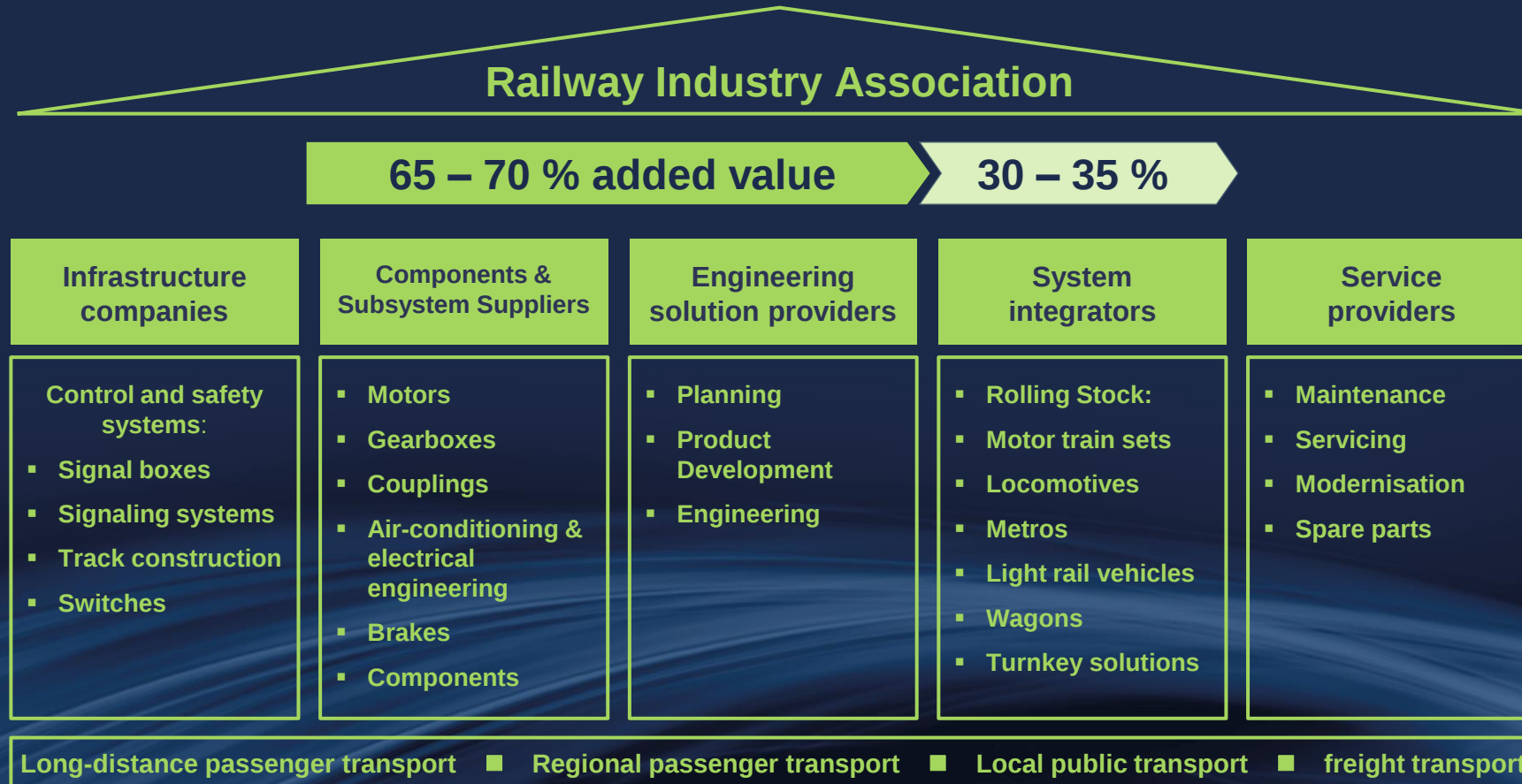
TURNOVER

14,4 bn. EUR p.a.

The German Railway Industry Association



Structure of the German Railway Industry



Solutions of the German Railway Industry - Rolling Stock



Intercity & High-speed transport

High-speed and very high-speed trains, passenger coaches



Regional transport

Single deck cars, double deck cars, double deck train sets, diesel multiple units, electric multiple units, passenger coaches



Local transport

Light rail vehicles, low-floor vehicles, metro cars, commuter rail cars,
- partly catenary free using energy recovery and storage technologies



Conventional Rail & Freight Transport

High-performance locomotives, multi-system locomotives, shunting locomotives,
- available with electric, battery-electric, diesel-electric, diesel-hydraulic engines

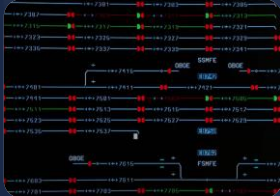


Solutions of the German Railway Industry - Infrastructure



Railway

Track systems, rail-fastening systems, crossing, sleepers, high-speed points



Operations Control-, Communication- and Information technology

Electronic interlockings, signal systems, train protections, control and communication systems, rail automation systems, information systems and devices



Energy Supply

Traction power supply and catenary systems, high-voltage contactors and fuses, energy management systems



Planning and development of infrastructure facilities

Turnkey systems – mobility solutions from a single source

Ambitious Climate Goals



Double **passenger numbers** in Germany by 2030



Double **high speed rail** traffic in Europe by 2030



Market share rail **freight** transportation by 2030

- EU: **30 percent**
- Germany: **25 percent**

How do **we** get there?

What do passengers expect?

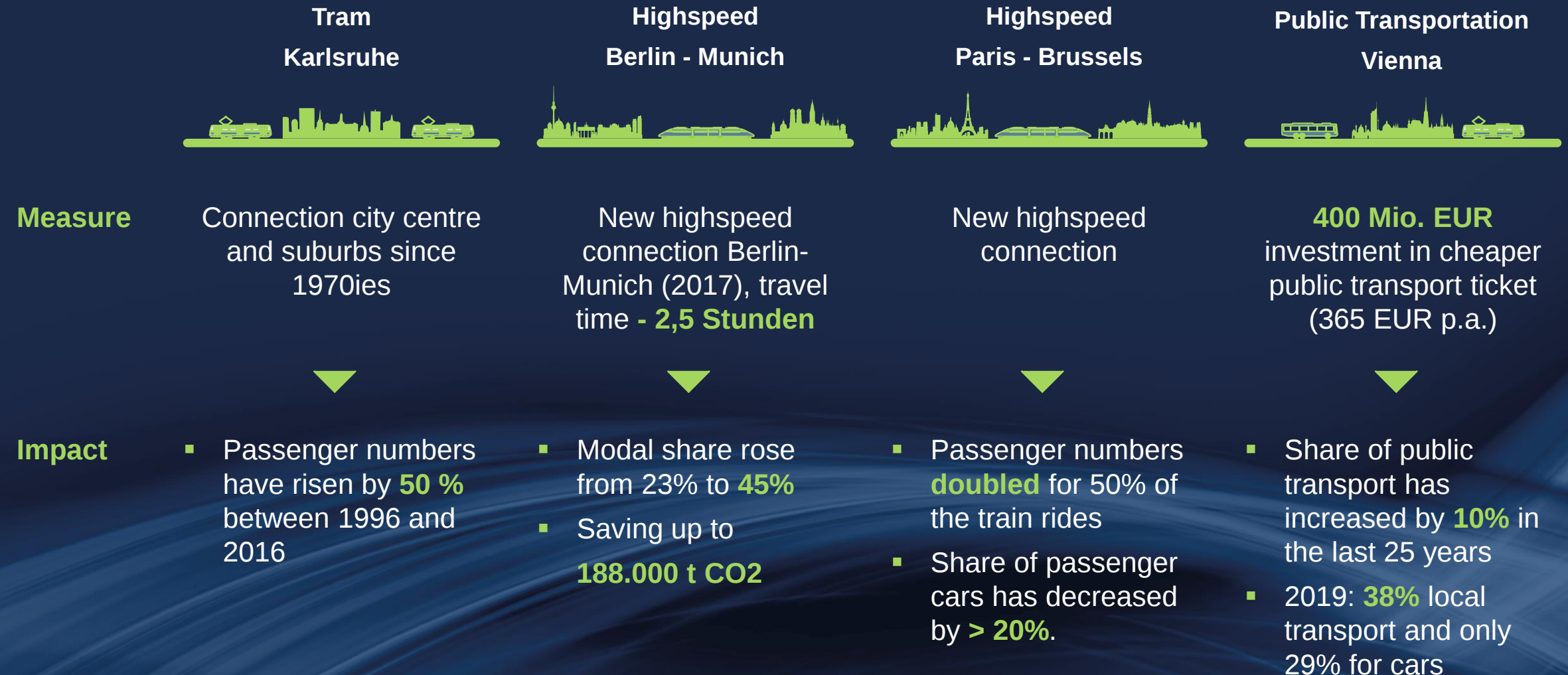
Most important reasons for modal choice of frequent public transport users (in percent)

N = 1.647



Source: McKinsey Future of Mobility

Relation innovative offers & increase in modal share



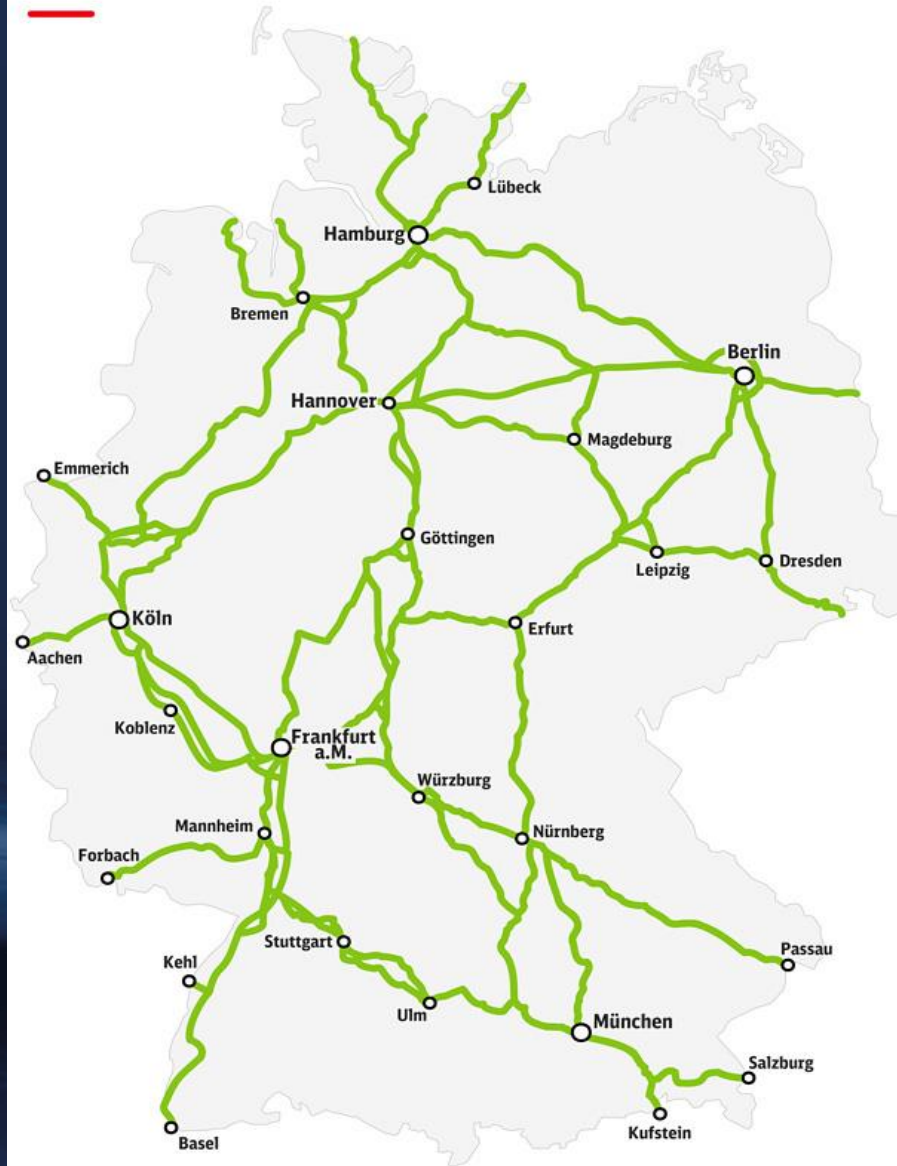
1 Infrastructure

General Refurbishment

- 1) rehabilitation of the highly congested network to a **high-performance network** (9,000 km)
- 2) clearing **investment backlog** to upgrade railway network
- 3) **capacity-increasing measures** (additional transfer points, switches and denser signalling) for more stability and better train service
- 4) **digitalisation** of the rail network with the Germany-wide ETCS-rollout
- 5) targeted **expansion and new construction** of lines to eliminate bottlenecks (“Deutschlandtakt”)
- 6) large-scale **modernisation of stations** throughout Germany

Das Hochleistungsnetz der DB im Jahr 2030

Leistungsfähige Strecken für pünktliche Züge



Electrification

Network electrification in %



Electrification

DIE BAHNINDUSTRIE.

VDB VERBAND DER BAHNINDUSTRIE IN DEUTSCHLAND E.V.



**FUEL CELL /
HYDROGEN**



BATTERY



**HYBRID/
DUAL POWER**

2 Rolling Stock

European Train Control System (ETCS)



INCREASED CAPACITY



SHORTER TRAVEL TIME



HIGHER AVAILABILITY

Automatic Train Operation (ATO)

99 %

PUNCTUALITY



PASSENGERS



ENERGY EFFECIENCY

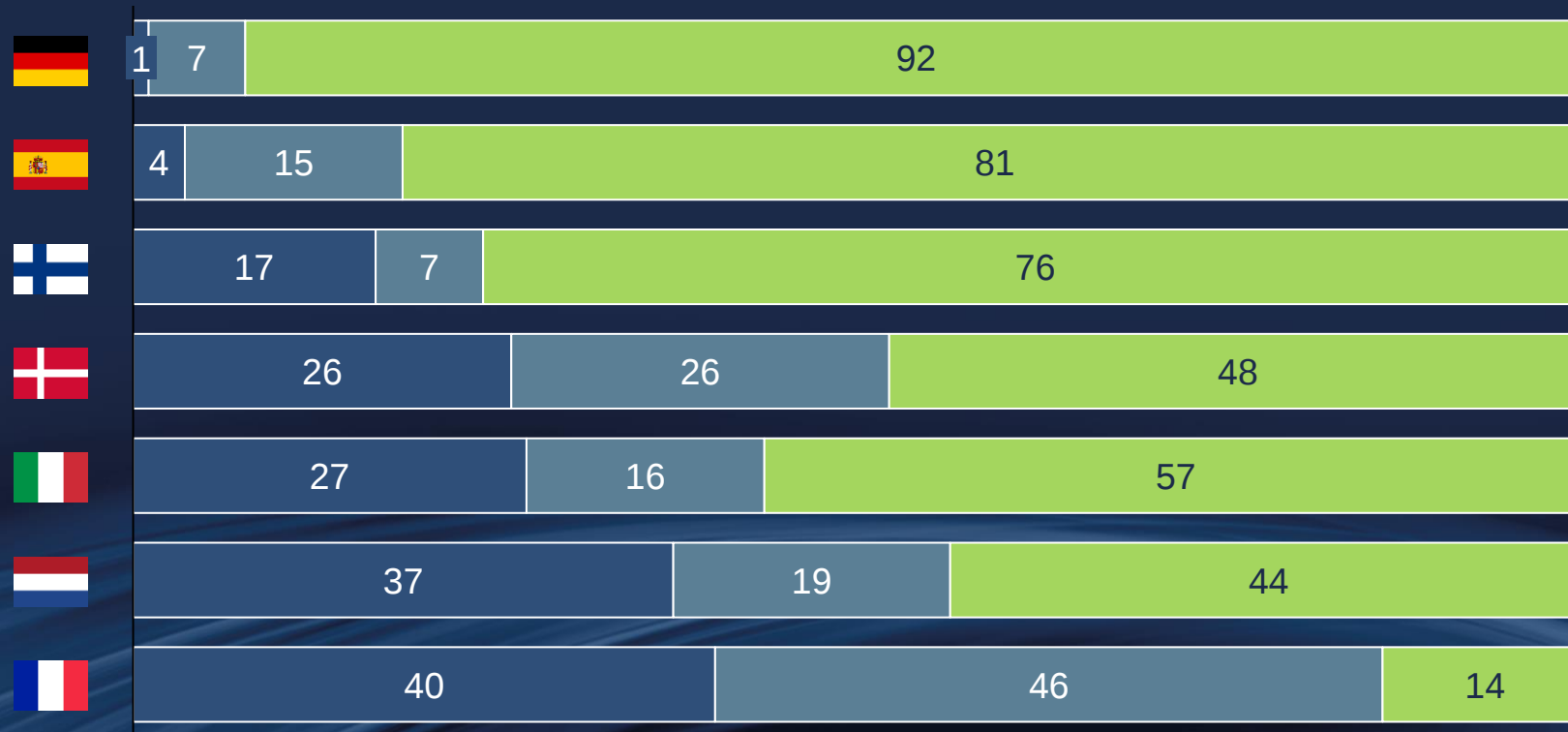
3 Public Procurement

Public Procurement Today

Distribution of tenders in the rail sector according to price weighting in the evaluation

Price weighting, in percent

0-49 50-99 100



Quelle: McKinsey | Tenders Electronic Daily

MEAT: **M**ost **E**conomically **A**dventageous **T**ender



Life-cycle-costs and sustainability



Quality in implementation and operation



Functionality & technological innovation



Design

An aerial view of a high-speed train traveling through a dense forest. The train is white and sleek, moving along a track that cuts through the green trees. The perspective is from above, looking down at the train as it recedes into the distance.

THE FUTURE OF MOBILITY

STARTS WITH US.

Mobility. Reinvented.

 www.bahnindustrie.info