Information Quality Management for Traveller Information

EU EIP MMTIS Quality Workshop, Amsterdam

Deutsche Bahn AG | Ingo Ritter & Andreas Bliemeister | Traveller Information | March 21, 2018

The German public transport* sector in a nutshell

Public Transport

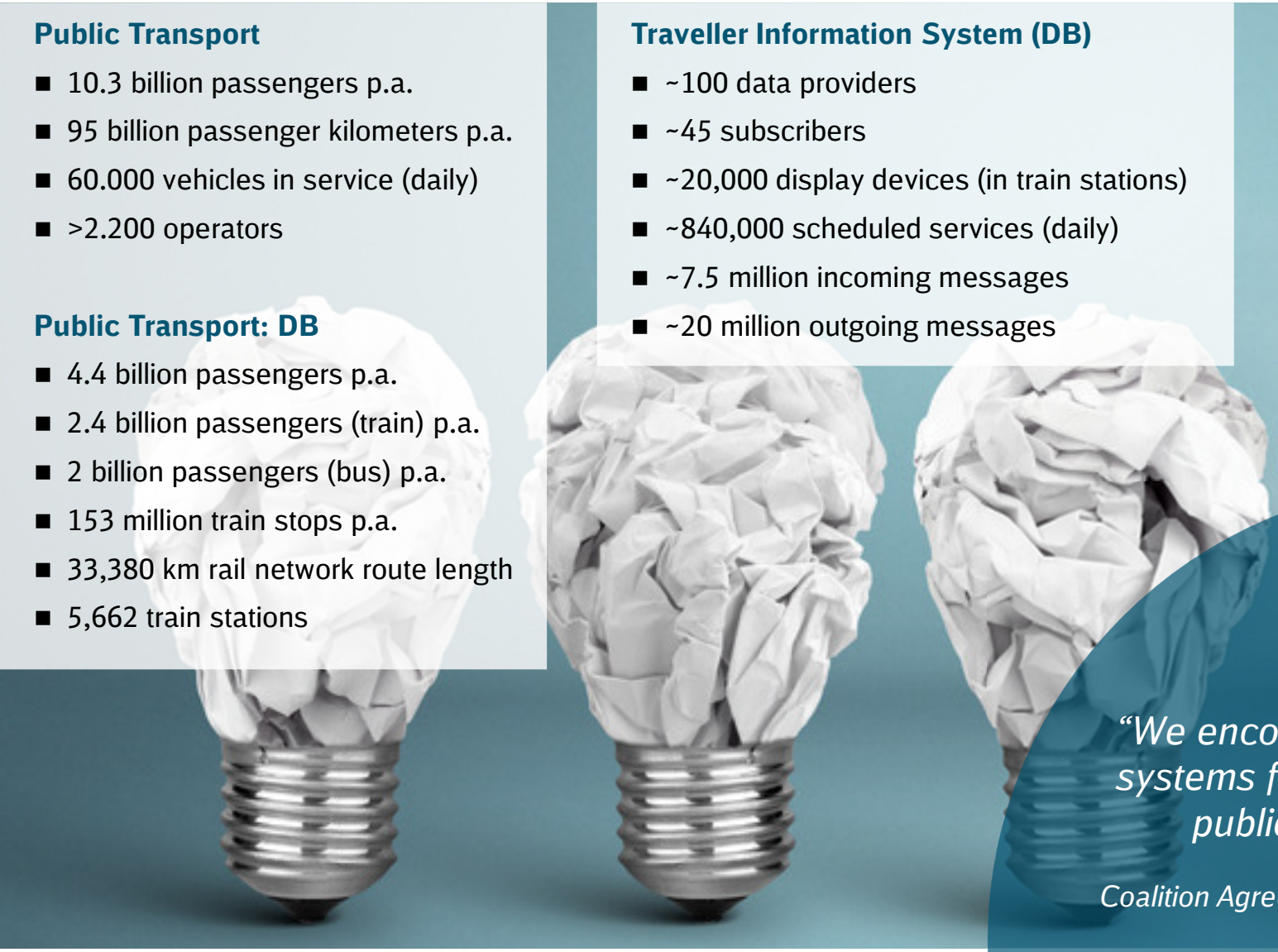
- 10.3 billion passengers p.a.
- 95 billion passenger kilometers p.a.
- 60.000 vehicles in service (daily)
- >2.200 operators

Public Transport: DB

- 4.4 billion passengers p.a.
- 2.4 billion passengers (train) p.a.
- 2 billion passengers (bus) p.a.
- 153 million train stops p.a.
- 33,380 km rail network route length
- 5,662 train stations

Traveller Information System (DB)

- ~100 data providers
- ~45 subscribers
- ~20,000 display devices (in train stations)
- ~840,000 scheduled services (daily)
- ~7.5 million incoming messages
- ~20 million outgoing messages



"We encourage new digital information systems for an appealing and effective public transportation system."

Coalition Agreement 2018, Germany (CDU/CSU/SPD)

* Including high-speed rail, conventional rail, metro, light rail, tram, bus, misc.

Quality assessment: what do we know today?

Our greatest challenge by far? Integrating all available data sources, e.g.:

- public transport timetables
- real-time sensor data (network, stations)
- vehicle sensor data
- additional manual real-time data (e.g. trip cancellation, rerouting)
- prediction data from various sources
- service-level-related information (uptime/availability, latency etc.)

Continuous quality assessment is crucial. Today we achieve this by means of “settled” measures such as:

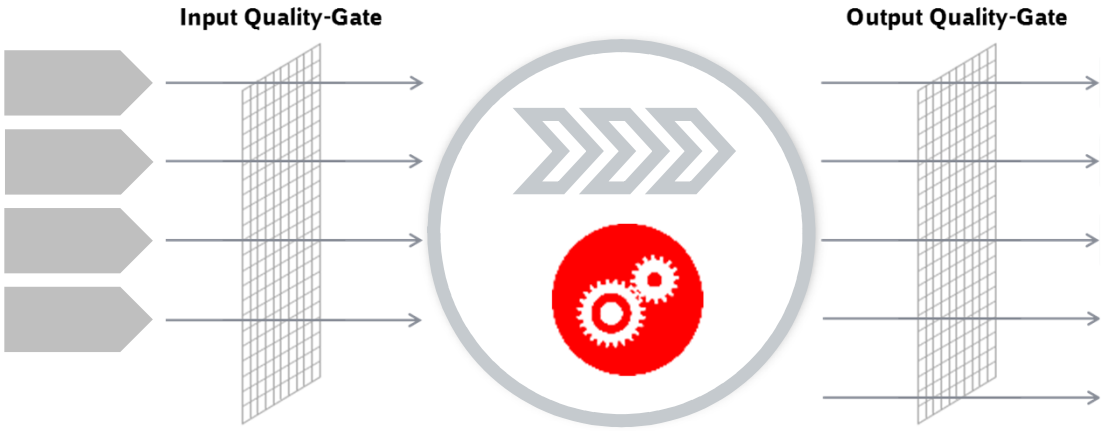
- DB quality reports for various data sources
- a monthly management summary (DB data management report)
- real-time monitoring platforms (DB TIS-Infoplatform)

IQM: main principles and our understanding

IQ principles

Our approach?

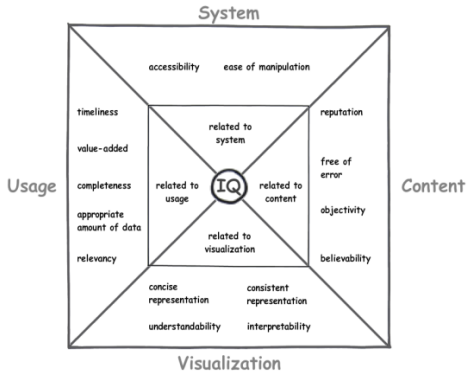
– from data to information quality assessment



Input-data quality

Processing quality

Information quality



IQM: main principles and our understanding

Our approach?

- focus on transparency in the sector, e.g.:
  - real-time dashboards with high-level summaries
  - deeper insights only for operators by granular drill-down into line or transport mode

Summary-level	Deep-dives

correctness

consistency

timeliness

daily	
01	96,4%
02	88,9%
03	81,5%
04	100,0%
05	81,2%
06	87,0%
07	72,9%
08	80,3%
09	57,4%
10	52,2%
11	85,4%
...	...

by category	
cat 1	97.2%
cat 2	98.1%
cat 3 & 4	91.2%
cat 5 to 7	91.5%
gross	95.1%
last 30 days	94,3%

by line	
RB1	98.2%
RB12	94.1%
RB34	96.8%
RB40	92.3%
RB42	92.8%
RB75	94,3%

IQM: main principles and our understanding

Our approach?

- fixed KPIs are important but may lead to KPI-oriented optimization
- therefore we need to set up varying challenges to cover multiple quality dimensions

Goal of the month!

IQM: main principles and our understanding

IQ principles

Our approach?

– customer centricity as leading mindset

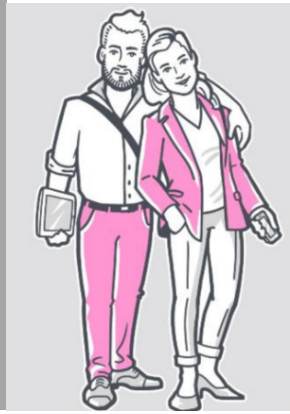
Customer centricity in action: Track change

Example

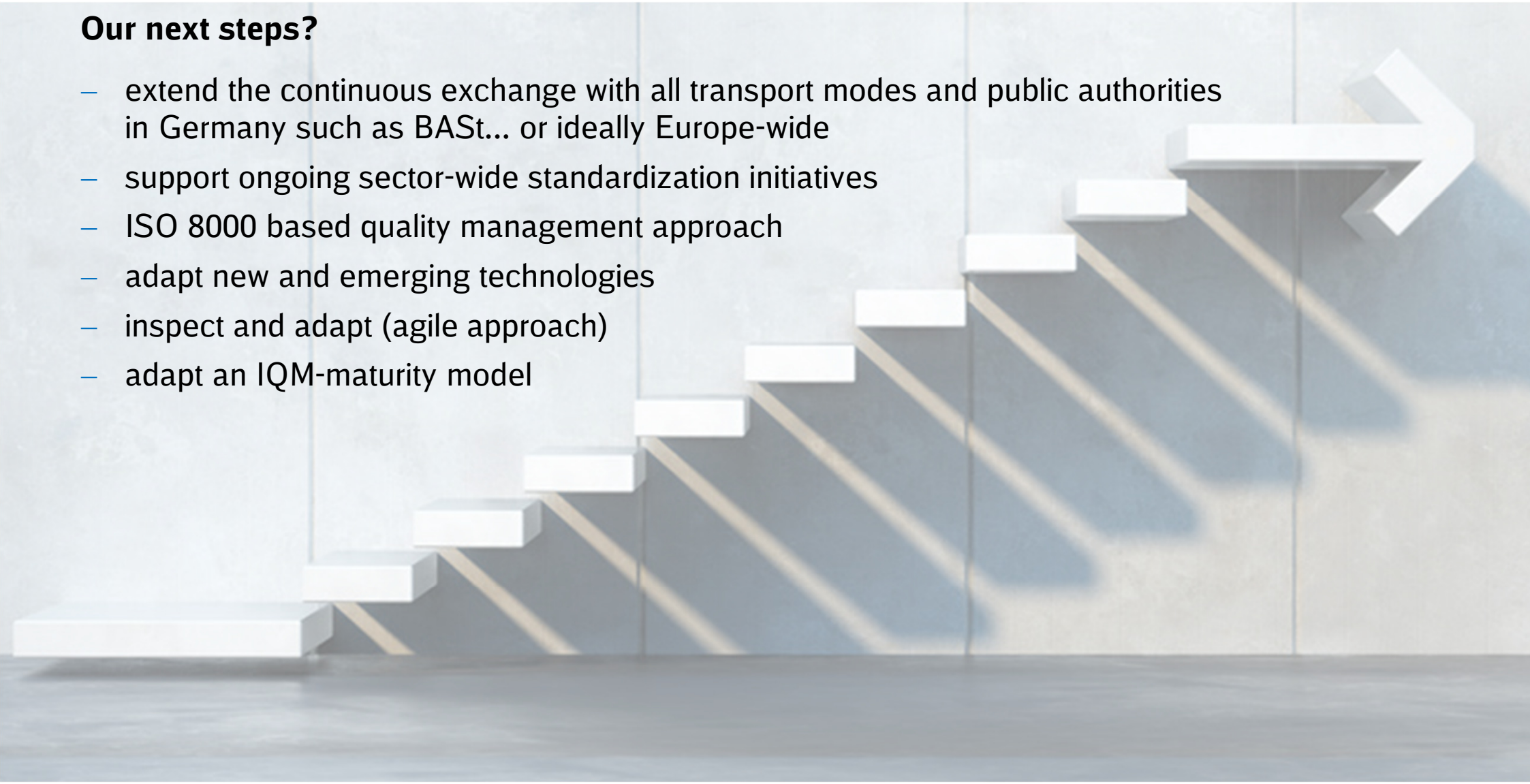
Passengers can reach their train on time because the track change is communicated no later than five minutes before train departure.

Counterexample

Passengers cannot reach their train on time because the track change is communicated less than five minutes before train departure.



IQM: how do we get there?



Our next steps?

- extend the continuous exchange with all transport modes and public authorities in Germany such as BASt… or ideally Europe-wide
- support ongoing sector-wide standardization initiatives
- ISO 8000 based quality management approach
- adapt new and emerging technologies
- inspect and adapt (agile approach)
- adapt an IQM-maturity model

No need to reinvent the railway:
Let’s discuss our experiences and ideas!

Let’s keep in Touch!

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