German Regional Passenger Rail Market

Information based on BAG-SPNV’s/BSL’s “Market Report 2013”

Hamburg, April 2014
On behalf of BAG-SPNV (the German Association of Passenger Rail Authorities), BSL created the market study “Marktreport 2013”

MARKET STUDY “MARKTREPORT 2013”

Aim

- Compilation of a comprehensive picture showing the current status of the German regional passenger rail market
- Presentation of market structures and of the competitive situation and competitors
- Outlook for future market developments

Basis

- Detailed market research by BSL Transportation Consultants
- Market survey and numerous expert discussions with authorities, politicians and operators conducted in 2013

Content

- Presentation of market developments 2002 – 2012
- Illustration of current challenges in the German regional passenger rail market
- Outline of the upcoming performance and framework for the future of regional rail services in Germany
Agenda

- Regional rail market at a glance
- Market analysis
- Regulatory framework
- Summary and outlook
Based on the number of passengers, Germany is ranked first in the European regional rail transport

MARKET OVERVIEW OF GERMAN REGIONAL RAIL TRANSPORT

- Germany is the biggest regional rail market in Europe with roughly one quarter of the total number of passengers carried
- Since 1994, liberalisation, regionalisation and transfer of responsibility to Federal State level (Länder) has led to the expansion of transport services and a steady increase in competitive tenders
- Surge in tender procedures: The volume of current tenders amount to ~ 70m train-km p.a. and this is awarded in roughly 30 procedures p.a.
- Market structure:
  - PTAs\(^1\) as contracting authorities with differing requirements
  - TOCs\(^2\) as service providers
    - Deutsche Bahn (DB) as the main operator
    - Meanwhile several competitors such as European state-owned railway companies

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1) Public Transport Authorities refer to Passenger Rail Authorities
2) Train Operating Company

Source: BSL Transportation research, ERRAC

BSL Transportation Consultants
Between 2002 and 2012, average utilisation rates in regional rail transport have increased by 20%.

PASSENGER DEMAND

Utilisation [passengers per train] in 2002

![67 passengers per train]

Utilisation [passengers per train] in 2012

![81 passengers per train]

Passenger volume has grown by approx. 30% within the last 10 years adding up to nearly 2.5 billion passengers.
The operating performance of competitors in regional rail services has more than tripled between 2002 and 2012.

**OPERATING PERFORMANCE IN REGIONAL RAIL SERVICES BASED ON TRAIN-KM**

In 2012, trains in regional rail services ran the equivalent of 45 times around the world.

<table>
<thead>
<tr>
<th></th>
<th>Competitors</th>
<th>DB</th>
</tr>
</thead>
<tbody>
<tr>
<td>2002</td>
<td>605</td>
<td>555</td>
</tr>
<tr>
<td></td>
<td>49</td>
<td>49</td>
</tr>
<tr>
<td>2012</td>
<td>653</td>
<td>493</td>
</tr>
<tr>
<td></td>
<td>159</td>
<td>159</td>
</tr>
</tbody>
</table>

Competitors (excl. DB) circled the world three times a day in 2002.

In 2012 the world was being circled 11 times per day.

Source: BAG-SPNV, Federal Statistical Office, Deutsche Bahn AG
Agenda

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Regional rail transport shows the highest growth rates; however, its overall market share is still less than 5 per cent

REGIONAL RAIL TRANSPORT GAINS MARKET SHARES AT A LOW LEVEL

Passenger transport performance
(bn passenger-km)


Regional passenger rail transport
Long-distance rail transport
Regional public road transport
Domestic air transport
Motorised individual transport

Growth in transport performance 2002 - 2012

Overall passenger transport
Regional rail transport
Long-distance rail transport
Regional public road transport
Domestic air transport
Motorised individual transport

Source: BMVBS 2012, Innoz 2012
In recent years, the volume of services awarded has increased and become more complex and diverse in terms of defined conditions.

**BASIC FACTS CONCERNING THE COMPETITIVE AWARDING OF REGIONAL RAIL SERVICES**

- The **average service volume** per contract is currently **3.5 million train-km**, maximum **volume** of services awarded is approx. **10 million train-km**.
- The **average turnover** which corresponds to services with contract durations of about 10 years is **approx. EUR 500 million**.
- The **structure of services** tendered has become increasingly diverse and complex.
- The services **include smaller local networks in rural areas** as well as **Express and S-Bahn services in agglomerations**.
- The **framework set by transport authorities** underlines this complexity and diversity.
- E.g. **several alternatives** have been developed regarding the provisioning and financing of vehicles.
DB is increasingly losing market shares (train-km) to its competitors; however, this has only a small impact on its share in passenger volume

Prior to market liberalisation in 1994, the overall regional rail traffic volume was approx. 480 million train-km p.a.

The volume has since increased by 36% to 653 million train-km

Despite a reduction in DB’s relative share of total train-km, its share in the volume of passengers carried is still 85%

DB AG is still dominating the German regional passenger rail market with a market share of 75%.

MARKET SITUATION 2012 BASED ON TRAIN-KM

(Total volume approx. 650 million train-km)

DB AG 75%

- Veolia 4%
- BeNEX 3%
- Netinera 3%
- HLB 1%
- AVG 2%
- Keolis 2%
- Erfurter Bahn 1%
- Abellio 1%
- Rurtalbahn 6%
- Others

DB AG is followed by national and international operators such as:

- **Veolia** - the owner Transdev is currently selling its German transport operations “Veolia Verkehr GmbH”,
- **BeNEX** - owned by public transport company Hamburger HOCHBAHN (51%) and the infrastructure fund International Public Partnerships (49%), and
- **Netinera** - owned by the Italian railway Ferrovie dello Stato (51%) and the Cube infrastructure fund (49%) and public-owned transport companies (e.g. Hessische Landesbahn)

1) HLB = Hessische Landesbahn GmbH
2) AVG = Albtal Verkehrs Gesellschaft mbH

Source: BAG-SPNV, BSL Transportation research, Status: June 2013
The volume of commencements of operations to be awarded by tender until 2019 amounts to more than 250 million train-km

TOTAL STARTS OF REGIONAL PASSENGER RAIL OPERATIONS (IN MILLION TRAIN-KM)

- The tender phase usually starts about 2-3 years prior to the commencement of operations.
- In some cases, it can take up to 5 years in total until operation starts.
- It should be noted that there is a continuous adjustment and shift in tender activities as well as an additional number of tenders which have not yet been released.
Train operating companies are interested in tender activities but the number of bidders per tender is rather low

TENDER PARTICIPATION

- Between 2010 and 2012, on average seven TOCs have expressed their interest in award procedures which are already completed and start operations in the upcoming years.
- However, only 2.5 of those TOCs took part in the bidding process.
- The number of bidders has stabilised at a rather low level.
- By comparison, 3.8 bidders still participated on average in the bidding process between 2007 and 2009.
- Some of the potential reasons for the low number of bidders are:
  - High number of tender procedures
  - Abstinence of other bidders as a consequence of the financial crisis.

1) Expression of Interest

Source: BAG-SPNV, BSL Transportation
The competitors’ share in newly-started operations will rise steadily - total market shares, however, will only change moderately.

Tender results for operations started in...

... 2013/2014

- DB AG: 138, 67%
- Netinera: 91, 2%
- Veolia: 27, 9%
- BeNEX: 20, 2%
- Keolis: 4%
- Abellio: 2%
- Others: 5%

... 2015/2016

- DB AG: 143, 52%
- Abellio: 100, 16%
- Netinera: 67, 16%
- National Express/IntEgro: 37, 11%
- HLB: 32, 4%
- SNCF (via NEB): 22, 4%
- AVG: 8, 4%
- Keolis: 8, 4%
- Others: 8%

Source: BAG-SPNV, BSL Transportation research, Status: June 2013

Operations not yet assigned amounting to 8% of the total performance are not considered here.
Agenda

- Regional rail market at a glance
- Market analysis
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Germany has more than 25 rail authorities with differing characteristics and award procedures

RAILWAY AUTHORITIES AND CONTRACT DETAILS

- The contract volumes vary due to different functional set-ups
- Typical total revenues in regional passenger rail services are approx. EUR 15 per train-km
- These revenues cover the whole value chain (including infrastructure and stations)
- Among other things, the variation of TOCs’ revenues is determined by:
  - The inclusion or otherwise exclusion of infrastructure costs
  - The provision or otherwise procurement of new or used rolling stock
  - Use of existing or otherwise new depot infrastructure
  - Operational characteristics (e.g. train length, rural vs. urban, etc.)
Different models and options which differ with regard to their distribution of risks and responsibility have been developed for each area.

### CONTRACTUAL AND STRUCTURAL VARIETY

<table>
<thead>
<tr>
<th>PTA</th>
<th>share of risk and responsibility</th>
<th>Operator</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vehicle provisioning</td>
<td>Vehicle pool by PTA&lt;sup&gt;1&lt;/sup&gt;</td>
<td>Vehicle provisioning by TOC</td>
</tr>
<tr>
<td></td>
<td>PTA’s rolling stock financing model&lt;sup&gt;1&lt;/sup&gt;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Life cycle model&lt;sup&gt;1&lt;/sup&gt;</td>
<td></td>
</tr>
<tr>
<td>Vehicle financing</td>
<td>Debt service guarantee</td>
<td>TOC’s property or leasing model</td>
</tr>
<tr>
<td></td>
<td>Acceptance of interest rate risks by PTAs</td>
<td>(without the financial support of PTAs)</td>
</tr>
<tr>
<td></td>
<td>Guarantee for re-use/ readmission</td>
<td></td>
</tr>
<tr>
<td>Operations</td>
<td>Bonus-malus-contract for the</td>
<td>Bonus-malus-contract for the overall</td>
</tr>
<tr>
<td></td>
<td>operative area of responsibility</td>
<td>performance (e.g. including all delays)</td>
</tr>
<tr>
<td>Price indexing</td>
<td>Indexing of all types of costs</td>
<td>Partial indexing allowing for productivity</td>
</tr>
<tr>
<td></td>
<td>Indexing of costs of energy and labour</td>
<td>decreases</td>
</tr>
<tr>
<td>Fare revenues</td>
<td>Gross Cost Contract</td>
<td>Net Cost Contract</td>
</tr>
<tr>
<td></td>
<td>Corridor model / shared revenue risk&lt;sup&gt;1&lt;/sup&gt;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Initially Gross Cost, later Net Cost Contract&lt;sup&gt;1&lt;/sup&gt;</td>
<td></td>
</tr>
</tbody>
</table>

1) For further information see following pages.

Source: BAG-SPNV, BSL Transportation
Gross and Net Cost Contracts determine the way contract payments are calculated, a process which is increasingly diverse

TYPICAL CONTRACT REGULATIONS

<table>
<thead>
<tr>
<th>Gross Cost Contract</th>
<th>Gross Cost Contract incl. incentives</th>
</tr>
</thead>
<tbody>
<tr>
<td>Revenue risk completely with authority, TOC is not affected by changes in demand</td>
<td>Revenue risk with authority \  TOC is engaged in changes in demand via additional incentives in the transport contracts</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Start securing model (Gross Cost Contract, to be transferred into Net Cost Contract)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Revenue risk at first with authority, TOC can gather practical experience with revenues and revenue-sharing to participate in a Net Cost Contract after a pre-defined period</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Corridor model</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Revenue risk completely with operator to a defined extent</td>
<td>When operator’s risk limit is exceeded, the authority participates in the risk</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Net Cost Contract</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Revenue risk completely with operator</td>
<td></td>
</tr>
</tbody>
</table>
In addition to traditional financing options like leasing, several other alternatives are being discussed and established.

### ROLLING STOCK FINANCING FORMS AND RELEVANCE

<table>
<thead>
<tr>
<th></th>
<th>Life cycle model</th>
<th>Authorities’ rolling stock pool</th>
<th>Authorities’ rolling stock financing model</th>
<th>Leasing</th>
<th>TOC’s property</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Owner</strong></td>
<td>PTA or third party</td>
<td>PTA</td>
<td>PTA</td>
<td>Leasing company /TOC</td>
<td>TOC</td>
</tr>
<tr>
<td><strong>Responsibility for vehicle selection</strong></td>
<td>PTA</td>
<td>PTA</td>
<td>TOC</td>
<td>TOC and leasing company respectively</td>
<td>TOC</td>
</tr>
<tr>
<td><strong>Procurement structure</strong></td>
<td>Tender process by PTA</td>
<td>Tender process by PTA</td>
<td>TOC sells vehicles to PTA, PTA leases vehicles back to TOC</td>
<td>Responsibility of leasing company</td>
<td>Responsibility of TOC</td>
</tr>
<tr>
<td><strong>Vehicle financing</strong></td>
<td>Local authority loan (in case PTA is the owner, if possible)</td>
<td>Local authority loan or regionalisation funds</td>
<td>Local authority loan (if possible)</td>
<td>Via leasing company</td>
<td>TOC</td>
</tr>
<tr>
<td><strong>Vehicle maintenance</strong></td>
<td>By PTA, tendered together with vehicle provision</td>
<td>By PTA, tendered together with vehicle provision</td>
<td>TOC under the control of an asset manager</td>
<td>TOC under the control of an asset manager</td>
<td>TOC</td>
</tr>
<tr>
<td><strong>Variants</strong></td>
<td>Alternative vehicle financing depending on owner</td>
<td>Federal state owns rolling stock pool</td>
<td>Maintenance by third party (manufacturer)</td>
<td>Finance Lease (accounting at lessee/TOC)</td>
<td>Model adjustments freely selectable by TOC</td>
</tr>
</tbody>
</table>

*BSL Transportation Consultants*
The market participants mostly consider innovative forms of financing rolling stock to be highly effective for a positive market development.

ASSESSMENT OF...

...risk taking in respect of vehicles by PTA/third party

- All participants:
  - 7% not at all/hardly effective
  - 9% moderate
  - 9% effective/highly effective
  - 84% effective/highly effective

- PTAs:
  - 5% not at all/hardly effective
  - 9% moderate
  - 11% effective/highly effective
  - 86% effective/highly effective

- TOCs:
  - 11% not at all/hardly effective
  - 11% moderate
  - 78% effective/highly effective

...implementation of a life cycle model (decoupling of vehicle procurement and maintenance from operations)

- All participants:
  - 7% not at all/hardly effective
  - 16% moderate
  - 28% effective/highly effective
  - 56% effective/highly effective

- PTAs:
  - 9% not at all/hardly effective
  - 23% moderate
  - 68% effective/highly effective

- TOCs:
  - 56% not at all/hardly effective
  - 22% moderate
  - 22% effective/highly effective

- The life cycle model is basically comparable to the structure in other countries, e.g. the UK.
- Implementation in Germany is not yet common.
- There is a crucial discussion as to whether and in what cases the life cycle model is a useful vehicle provisioning and financing model.

Source: BSL Transportation market survey
The volume of the German regional rail market amounts to nearly EUR 10bn, with fare revenues accounting for approx. 40% of this.

**THE GERMAN REGIONAL RAIL MARKET SYSTEM [FIGURES 2012 IN EUR P.A.]**

Volume of the German regional passenger rail market

- **~ EUR 5.8bn** Regional authorities (PTAs)
- **~ EUR 3.8bn** Passengers
- **~ EUR 2.9bn** Infrastructure
- **~ EUR 0.7bn** Stations
- **~ EUR 6.0bn** TOCs (DB Regio and competitors)

**Source:** BSL Transportation, Bundesnetzagentur 2012
The most relevant aspects for the rail market are the development of financing and the future composition of subsidies.

**ASSESSMENT OF FINANCING IN THE GERMAN REGIONAL PASSENGER RAIL MARKET**

<table>
<thead>
<tr>
<th>Current assessment</th>
<th>Assessment of past development</th>
<th>Total market relevance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total volume of subsidies</td>
<td>35% 40% 25%</td>
<td>48% 45% 8%</td>
</tr>
<tr>
<td>Development/predictability</td>
<td>53% 40% -8%</td>
<td>45% 45% 10%</td>
</tr>
<tr>
<td>Financing assessment base</td>
<td>38% 54% -8%</td>
<td>26% 74% 2%</td>
</tr>
</tbody>
</table>

- poor/very poor
- moderate
- good/very good

- low/ not relevant
- moderately relevant
- relevant/highly relevant

**Current assessment**
- Total volume of subsidies: 35% good, 40% moderate, 25% poor
- Development/predictability: 53% good, 40% moderate, -8% poor
- Financing assessment base: 38% moderate, 54% good, -8% poor

**Assessment of past development**
- Total volume of subsidies: 48% good, 45% moderate, 8% poor
- Development/predictability: 45% good, 45% moderate, 10% poor
- Financing assessment base: 26% good, 74% moderate, 2% poor

**Total market relevance**
- Low/not relevant: 15%
- Moderately relevant: 2%
- Relevant/highly relevant: 83%
Regulation is currently one of the main challenges as DB’s market share is still high as regards the total value added in regional rail services.

**TOTAL VALUE ADDED REGIONAL RAIL SERVICES (2012)**

- **Operations**
  - DB Regio: 38%
  - Competitors: 9%
  - Others: 6%

- **Other sectors**
  - Infrastructure (Network and stations): 38%
  - Energy: 9%
  - Sales and distribution: 9%

Of this, over 95% in each case is generated by DB companies.

Source: BAG-SPNV, BSL Transportation research
All market participants are currently discussing controversially regarding future orientation and standardisation in the regional rail market.

### STANDARDISATION VS. MODEL DIVERSITY

#### Selected market sectors

<table>
<thead>
<tr>
<th></th>
<th>Requirements for TOCs vary due to different structures in the award procedures</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Increasing (financial) effort for TOCs and PTAs</td>
</tr>
<tr>
<td></td>
<td>High risk of formal errors and misinterpretation as well as additional number of detailed inquiries</td>
</tr>
<tr>
<td>Award procedure</td>
<td></td>
</tr>
</tbody>
</table>

|                | Requirements of PTAs should make standardisation possible but not mandatory |
|                | Detailed design in the sense of entrepreneurial freedom should be reserved for TOCs |
| Vehicles and their equipment |                                                                                  |

|                | Several existing models starting from holistic sales concepts to separate award procedures for certain distribution channels |
| Sales and Distribution | A reduction in potential discrimination and increase in competition often involves higher coordination effort |

#### Opinion of market participants

- Majority of market participants favour **standardisation** in terms of:
  - Process of prequalification
  - Award procedure and
  - Vehicle requirements

- On the other hand, **model diversity** is supported by most market participants with regard to:
  - Vehicle procurement
  - Vehicle financing as well as
  - Contract types (Gross Cost or Net Cost Contracts)

Source: BSL Transportation research and market survey
Agenda

- Regional rail market at a glance
- Market analysis
- Regulatory framework

- Summary and outlook
The development and current challenges of the German regional rail market will lead to a more differentiated regional rail market in the future

SUMMARY OF CURRENT MARKET SITUATION (1)

<table>
<thead>
<tr>
<th>PASSENGER MARKET</th>
<th>DEVELOPMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Passenger increase of 30% over the past 10 years</td>
<td></td>
</tr>
<tr>
<td>Increase of utilisation by 21%</td>
<td></td>
</tr>
<tr>
<td>Usage of modern vehicle fleets</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CHALLENGES</th>
<th>AWARDING STRUCTURES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alignment towards competition vs. providing a simple system for passengers</td>
<td></td>
</tr>
<tr>
<td>Increasing demand vs. population decrease</td>
<td></td>
</tr>
<tr>
<td>Modal share can be increased by a further 50% to 7.5%</td>
<td></td>
</tr>
<tr>
<td>Change from optimisation of the awarding structures towards a stronger orientation to the passenger market</td>
<td></td>
</tr>
<tr>
<td>Market is more diverse and highly competitive</td>
<td></td>
</tr>
<tr>
<td>High volatility in operators</td>
<td></td>
</tr>
<tr>
<td>Increased transport performance and efficiency</td>
<td></td>
</tr>
<tr>
<td>High volume of tenders vs. low number of bidders</td>
<td></td>
</tr>
<tr>
<td>Increased risk-taking of transport authorities</td>
<td></td>
</tr>
<tr>
<td>Diversified tendering models and increased standardisation</td>
<td></td>
</tr>
<tr>
<td>Efficient award procedures for operations, sales, energy and infrastructure</td>
<td></td>
</tr>
<tr>
<td>Structured variety of tendering models with standardised formal requirements for bidders</td>
<td></td>
</tr>
</tbody>
</table>

SCENARIO „REGIONAL RAIL IN 2030“
The development and current challenges of the German regional rail market will lead to a more differentiated regional rail market in the future

**SUMMARY OF CURRENT MARKET SITUATION (2)**

<table>
<thead>
<tr>
<th>DEVELOPMENT</th>
<th>CHALLENGES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rising equality of opportunities regarding access to infrastructure</td>
<td>Increased user financing</td>
</tr>
<tr>
<td>Infrastructure increasingly financed by regional rail services, however, usage of funds is not fully transparent</td>
<td>Regionalisation funds increased less than actual costs</td>
</tr>
<tr>
<td>Share of regionalisation funds used for infrastructure amounts to 50%</td>
<td>User financing is limited</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>REGULATION</th>
<th>FINANCING</th>
</tr>
</thead>
<tbody>
<tr>
<td>Further opening of the sales market required</td>
<td>Long-term planning is lacking due to revisions/time limit for important sources of financing</td>
</tr>
<tr>
<td>Need for regulation due to high overall market share of DB</td>
<td>Financial allocation is adjusted to cost developments and service volumes</td>
</tr>
<tr>
<td>Regulation is limited to a minimum level due to equality of opportunity for all competitors</td>
<td>Common aims in environmental, transport and financial policies result in a long-term strategy for regional rail services</td>
</tr>
<tr>
<td>Open market access in all sectors of regional rail services</td>
<td></td>
</tr>
</tbody>
</table>

**SCENARIO „REGIONAL RAIL IN 2030“**

*BSL Transportation Consultants*
The German regional rail market has an attractive volume with promising competition and diverse awarding structures

TOCS’ OPPORTUNITIES AND CHALLENGES

**Opportunities**
- Ongoing high level of tender procedures
- Various tender, financing and operating models
- Differentiated awarding structure concerning volume and requirements
- Market participation is facilitated through the risk taking by PTAs
- Increased competition due to developed regulation

**Challenges**
- Postponing and prolonging of tender activities
- Differentiated market analysis required
- Detailed expertise in tender participation necessary
- Limited entrepreneurial freedom for operators
- Continuing strong market position of DB
We would be happy to provide more information on the German regional rail market and to answer any upcoming questions.