Brief introduction of the new Quality Assurance (QA) concept

(Editorial adjustments of the presentation on 26.04.2016)
Foundation of the new QA Concept is the production site in the risk dimension „safety“, further extention (development) is planned.

Relevant criterion for the production site:

- **Basis**
  - Consistent vehicle-structure agreement within all Deutsche Bahn departments
- **Reference system Security relevance**
  - DB Regio
  - DB FV
  - DB Cargo
  - DB Netz
  - IQQ
  - I.IVI 5(3)
- **Comparison with common and new safety understanding**
  - Safety
    - Personal damage
    - Environmental damage
  - Freedom from unacceptable risks to human health or to the environment¹

**Safety**

- **Quality**
  - Official stance
  - Customer satisfaction

**Economic efficiency**

- Real value
- Reliability
- Availability
- Maintainability

% share of material number of rail vehicle parts

Possible stages

1 pr EN 50126

Source: IQQ

Picture: DB AG, ICE 3 BR 403, 2. Serie

The classification of the products carried in the 120.0381V16 for rail vehicles according to new test categories

<table>
<thead>
<tr>
<th>Product instances</th>
<th>Test category 1</th>
<th>Test category 2</th>
<th>Test category 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>EMP</td>
<td>Quality-dependent supplier monitoring (QLÜ) (Monitoring in accordance with supplier’s quality performance)</td>
<td>EMP</td>
<td>APZ 3.1</td>
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<td>Complete vehicle roof</td>
<td>Locomotive magnet</td>
<td>Tachometer</td>
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<tr>
<td>Central buffer coupling</td>
<td>Wheel gear</td>
<td>Pressure tank, pressure vessel</td>
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<tr>
<td>Transformer tank</td>
<td>Leading signal</td>
<td>Air pipe</td>
<td></td>
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<tr>
<td>SIRF System-Hazards (primary)</td>
<td>The classification in the testing categories basing on risk management on the basis of safety in railway industry. 1_Control over train movement decreased or lost 2_Braking ability not timely sufficient, restricted or lost 3_Track guiding not sufficient 4_Risks of endangerment when entering and getting off the train 5_Inflammation/Fire/Smoke emission 6_Risk of explosion 7_Violation of vehicle clearance gauge 8_Interference by electrical interaction with other facilities and vehicles 9_Unwanted train separation 10_Unwarranted residence conditions in the vehicles 11_Risks of personal damage outside the train or on the track 12_Lack of emergencies handling capability/ability</td>
<td></td>
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</tr>
</tbody>
</table>
The contractor monitors his subcontractors—bogy and car body production is monitored by DB

Responsibility for QA in vehicle projects

Suppliers for bogies and car body parts will be treated in the QS-concept as direct suppliers

Changes of QA
- Current quality assurance measures (not in the future)
- Current quality assurance measures (remain in the future)

Constants of the QA
- First article inspections
- Production qualification

Source: IQQ /FS.EF4
Picture: DB Systemtechnik
Spare parts: The frequency of testing depends on the quality capability of the supplier - the checks in the supply chain are reduced

Quality assurance in vehicle spare parts

**Impacts on price intensity**

- **Extent**
  - Status Quo: dependent on supplies
  - from 2016 time-dependent

**Flexibility in examination**

- **Delivery lot inspection**
- Clearance for supplies in a defined period of time basing on a certain amount of delivery lots inspection
- Q1 Supplier = Time-based lot delivery + 3.1 Certificate
- Q2 Supplier = Lot inspection document + 3.1 Certificate
- Q3/No status = Procurement is not allowed/qualified

**Adjustment illustration using the example of wheelsets**

- **Wheelset procurement**: The DB checks the wheels from the direct supplier, but not their components from the sub-contractors
- **Monobloc wheel procurement**: The DB examines the disc at direct suppliers but not raw material at sub-contractors

**Legend**

- Current quality assurance measures (not in the future)
- First article Inspections with DB AG participation
- First article inspections by DB AG alone
- Product qualification

**Deviations (for example, at the dealers) are individually handled in accordance with the supply chain structure**

Source: IQQ, Pictures: DB Systemtechnik