



Brief introduction of the new Quality Assurance (QA) concept

(Editorial adjustments of the presentation on 26.04.2016)

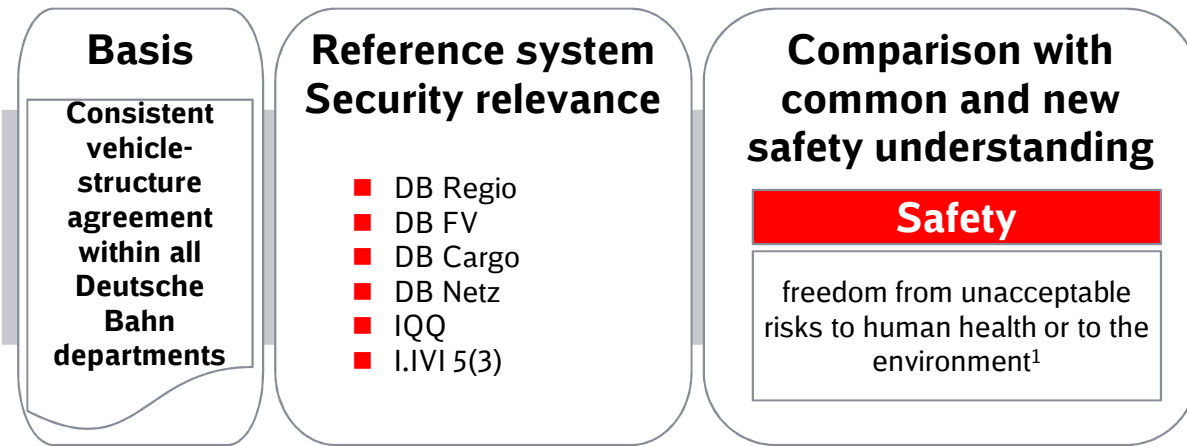
Deutsche Bahn AG | 01.08.2016

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FS.EF 4

Foundation of the new QA Concept is the production site in the risk dimension „safety“, further extention (development) is planned

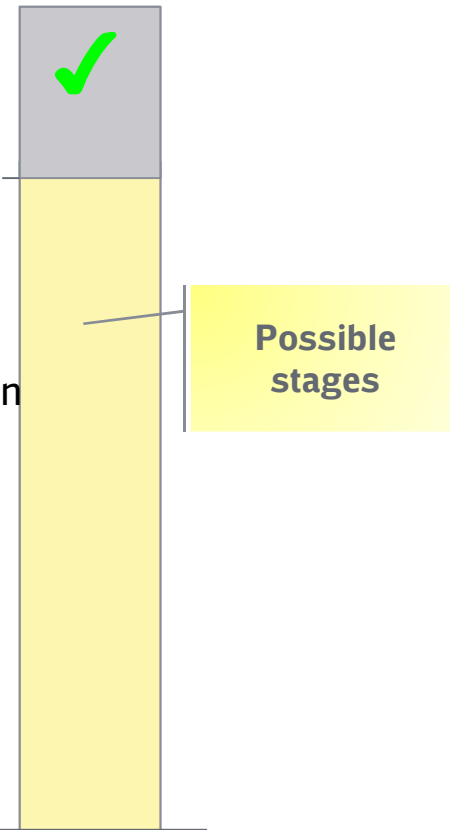
Relevant criterion for the production site



- Safety**
- Personal damage
 - Environmental damage

- Quality**
- Official stance
 - Customer satisfaction

- Economic efficiency**
- Real value
 - Reliability
 - Availability
 - Maintainability



Components for regulation, handling of front-end latch

(Efficiency)



Bogy (Safety)



WC-facilities (Quality)

% share of material number of rail vehicle parts

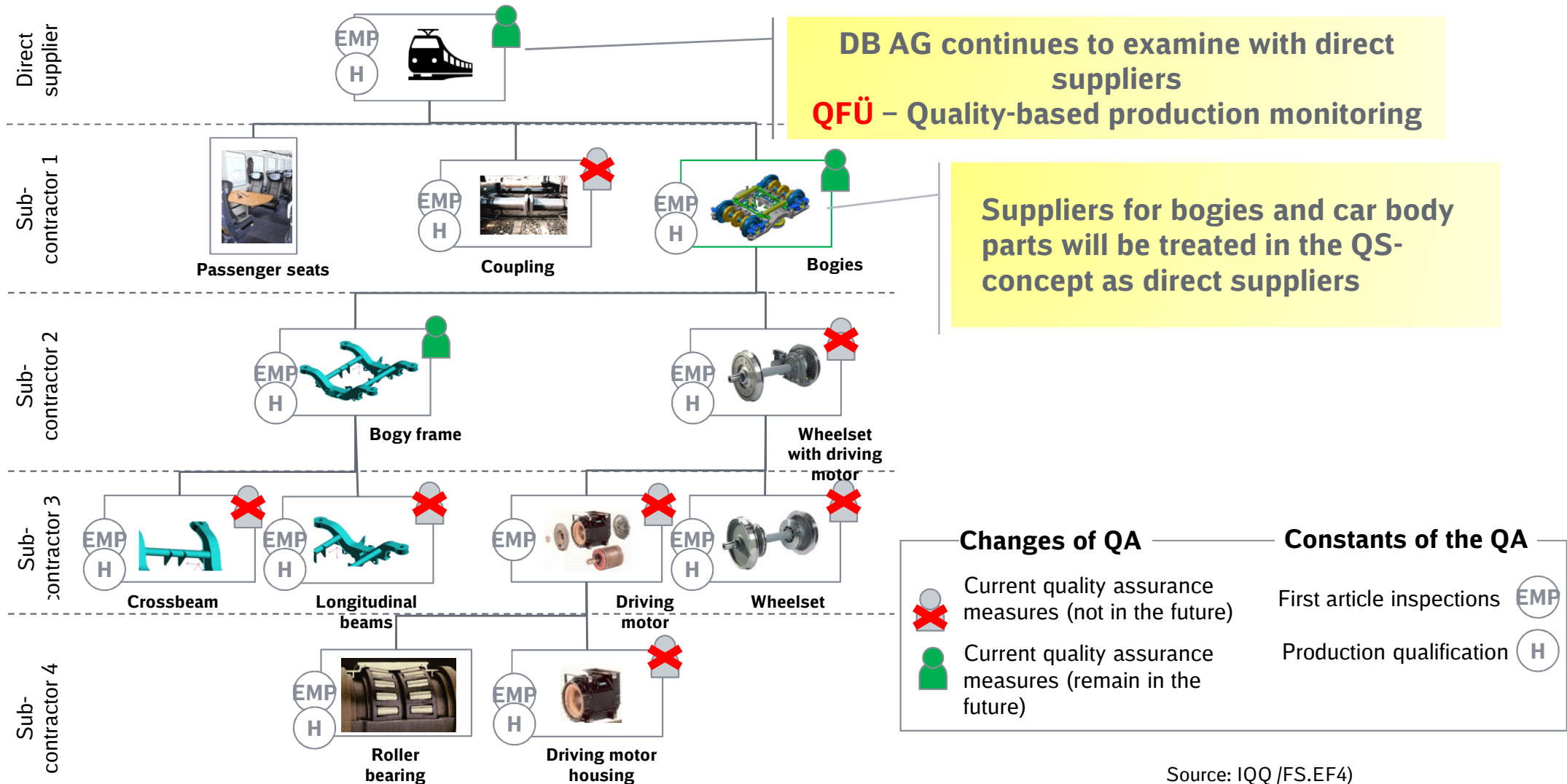
The classification of the products carried in the 120.0381V16 for rail vehicles according to new test categories

	Test category 1	Test category 2	Test category 3
	EMP Quality-dependent supplier monitoring (QLÜ) (Monitoring in accordance with supplier's quality performance) APZ 3.1	EMP APZ 3.1	APZ 3.1
Product instances	<ul style="list-style-type: none"> - Complete vehicle roof - Central buffer coupling - Transformer tank 	<ul style="list-style-type: none"> - Locomotive magnet - Wheel gear - Leading signal 	<ul style="list-style-type: none"> - Tachometer - Pressure tank, pressure vessel - Air pipe
SIRF System-Hazards (primary)	<p style="color: red;">The classification in the testing categories basing on risk management on the basis of safety in railway industry.</p> <ul style="list-style-type: none"> 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 		

The contractor monitors his subcontractors – bogie and car body production is monitored by DB



Responsibility for QA in vehicle projects



Source: IQQ /FS.EF4)

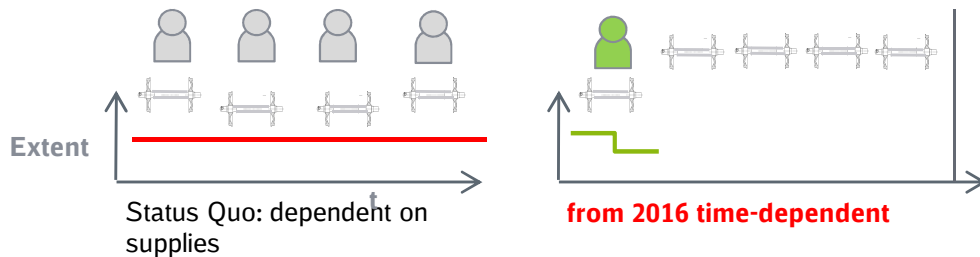
Picture: DB Systemtechnik

Spare parts: The frequency of testing depends on the quality capability of the supplier - the checks in the supply chain are reduced

Source: IQQ, Pictures: DB Systemtechnik

Quality assurance in vehicle spare parts

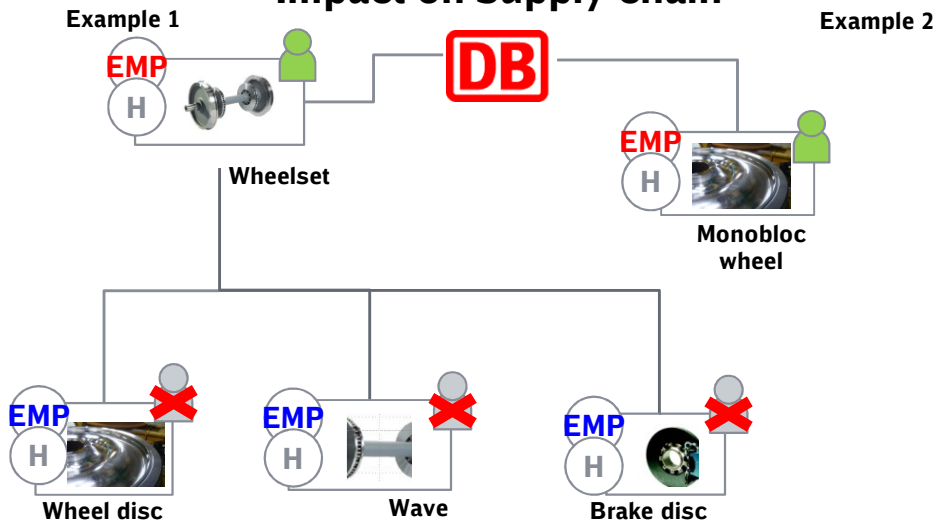
Impacts on price intensity



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 | |

Impact on supply chain



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