How to built just-in-time logistics for the automotive industry with intermodal solutions?

28.10.2011, Market place seminar Hamburg
Under the roof of the Volkswagen Group there are currently nine strong brands
The Volkswagen Group has a worldwide production network of 62 production plants.
2010 was a successful year for the Volkswagen Group with a new delivery record of 7,2 Mio. cars

<table>
<thead>
<tr>
<th>Category</th>
<th>Value</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deliveries to customers</td>
<td>7,2m vehicles</td>
<td>+13,7%</td>
</tr>
<tr>
<td>Global market share</td>
<td>11,4%</td>
<td>+1,8%</td>
</tr>
<tr>
<td>Employees worldwide</td>
<td>400,000</td>
<td>+8,4%</td>
</tr>
<tr>
<td>Sales revenue</td>
<td>€126,9bn</td>
<td>+20,6%</td>
</tr>
<tr>
<td>Profit after tax</td>
<td>€7,2bn</td>
<td></td>
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</tbody>
</table>
The Volkswagen Group continues its successful growth in the first half of 2011

| Deliveries to customers – 4.1m vehicles | +14.3% |
| Global market share – 12.4% | +0.7% |
| Sales revenue – €77.8bn | +25.8% |
| Profit after tax – €6.5bn |  |
Because of the technical diversity and the offered individuality of a Volkswagen car the complexity is very high

<table>
<thead>
<tr>
<th>Complexity of the product and the supply chain</th>
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<tbody>
<tr>
<td>~ 7.2m cars</td>
</tr>
<tr>
<td>~ 30.000 cars/day</td>
</tr>
<tr>
<td>~ 10.000 parts/car</td>
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<tr>
<td>~ 300.000.000 parts/day</td>
</tr>
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<td>~ 72.000.000.000 parts/year</td>
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</table>
The complexity continues across all levels of the supply chain

- 7,2 Mio. cars
- 6,000 1st-tier supplier
- 2nd-tier supplier
- n-tier supplier
Volkswagen with its largest inbound network in Europe has to manage an increasing complexity

No. of plants: 40
No. of suppliers: 5.869
Transport Volume (in Mio cbm): 47,1
Transport weight (in Mio tons): 13,0
Complete train loads (per day): 36
Length of train (in meter per day): 16.682
No. of wagons rented: 1.460
No. of own wagons: 295

All figures based on 2010

Supplier location for the Volkswagen Group in Europe
For the next years Volkswagen will face some internal challenges

- **Increasement of production**: 2018 => >10 Mio. vehicles
- **Introduction of new models**
- **Opening of new plants**: Foshan, Silao, Yizheng
- **Improvement of production efficiency and flexibility**
Furthermore it will be important to handle the external influences on the transport logistics

- Natural disasters
- Political influences, e.g. strikes
- Extreme weather conditions
- Financial crisis
Multimodal solutions can help to deal with these influence

- Ecological aspects

- Solution for international traffic bottlenecks

- Strong benefit from advantage of each transport mode

- Advantages in terms of quality and costs

- Investment in the future to reduce the traffic on the road
For a successful multimodal transport the service providers have to consider specific requirements.

- Innovative solutions
- High frequency
- Multiclient trains
- European availability
- Economic processes
- Process cooperations

Requirements for Intermodal solutions
Volkswagen is ready to take over responsibility and wants to play an important roll at multimodal transports

Technology leader for transport logistics

Test of innovative transport technologies under market conditions

Partner to develop the business together
Since 2008 Volkswagen Logistics successfully runs multimodal solutions for the supply of the Volkswagen plant Kaluga (Russia)
Due to the positive sales figures the demand of transportation to Kaluga (Russia) is growing

**Trains**

- 40 per month

**Train lengths**

- 14.797 m per month

**Volumes**

- 36.100 cbm per month
Together with DB Schenker Automotive Railnet Volkswagen Logistics developed a dedicated equipment for this multimodal transport

Wingliner

<table>
<thead>
<tr>
<th>Measurements outside:</th>
<th>Length: 12.192 mm</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Wide: 2.600 mm</td>
</tr>
<tr>
<td></td>
<td>Height: 3.400 mm</td>
</tr>
<tr>
<td>Weight:</td>
<td>8.750 kg</td>
</tr>
<tr>
<td>Payload:</td>
<td>25.250 kg</td>
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Curtainsider

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Volkswagen Logistics service providers have to meet specific requirements for multimodal solutions

Intermodal process networks

Transnational use of new technologies

Robust and economically efficient intermodal solutions

Take over responsibility for multimodal solutions
Thank you for your attention.
Disclaimer

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