over view

two different business fields in one location

EVZ / external purchase part center

One logistic provider for VWN to manage the external purchase part center using VWN-systems (GLT/KLT, body parts and empties)

Supplier park (LP-T5)

One logistic provider for all jis-supplier (actual 15) using own systems (here SAP)
Supplier Park has benefits for both VWN and Schenker

<table>
<thead>
<tr>
<th>VWN</th>
<th>Schenker</th>
</tr>
</thead>
<tbody>
<tr>
<td>new chances to supply the production line by service providers directly</td>
<td>possibility of all traffic modes (trucks, ships, railway)</td>
</tr>
<tr>
<td>higher process reliability caused by minimizing the transports by truck on the VWN area</td>
<td>direct connection to VWN by the bridge</td>
</tr>
<tr>
<td>possibilities to shorten order frequencies</td>
<td>fulfillment of all quality requirements (f.e. unloading without influence of the weather)</td>
</tr>
<tr>
<td>potentials to save costs in the internal material flow</td>
<td>competitive edge by realizing the supply concept by bridge</td>
</tr>
<tr>
<td>potentials to optimize processes in the supply chain</td>
<td>good chances to enlarge the used area for new projects</td>
</tr>
</tbody>
</table>
External purchase part center (EVZ)
VW Nutzfahrzeuge T5/LT2
metrics EVZ

- **inbound**
  - 90 trucks / d
  - 2,000 GLT / d
  - 6,500 KLT / d

- **warehouse**
  - 19,000 sqm
  - 95 em

- **outbound**
  - 2,200 JIT-trailer / d
  - 600 convoy-tours / d
technical equipment

small part shelving system EVZ
1.000 sqm area
47m x 21m x 12m

construction of storage systems
10 shelving rows
113.940 boxes capacity
c. 24.300 VDA 6428
c. 19.800 VDA 4328
c. 9.360 VDA 4314
c. 60.480 VDA 3214

Storage and disbursement
9 storage and retrieval machines
- 540 boxes per h
- 6.000 boxes per day

shelving system „Bordnetze“
540 sqm area
57m x 9,5m x 12m

construction of storage system
4 shelving rows
20.000 boxes capacity
13.000 VDA 6428
7.000 VDA 6420

Storage and disbursement
3 storage and retrieval machines
- 200 boxes per h
- 4.800 boxes per day
Bordnetze T5

cable systems

VW Nutzfahrzeuge T5
metrics Bordnetze

- **inbound**
  - 10 trucks / d
  - 200 GLT / d
  - 2,300 KLT / d

- **warehouse**
  - 2,500 sqm
  - 40 em

- **Cable systems**

- **outbound**
  - 130 JIS-trailer / d
  - 50 convoy-tours / d
Supplier park
VW Nutzfahrzeuge T5/LT2
### Supplier & Modules & Services

<table>
<thead>
<tr>
<th>Supplier</th>
<th>Modules</th>
<th>Services with SAP</th>
<th>Services without SAP</th>
<th>Other Services</th>
</tr>
</thead>
<tbody>
<tr>
<td>AKT</td>
<td>Panels</td>
<td></td>
<td></td>
<td>open</td>
</tr>
<tr>
<td>Arvato</td>
<td>manuals</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lear Lozorno</td>
<td>Panels (hatch bags, ...)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Faurecia</td>
<td>floor</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wilke/Ficosa</td>
<td>mirrors</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Friedola</td>
<td>panels</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Johnson Controls</td>
<td>roof pannels</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Faurecia</td>
<td>door panels</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stankiewicz</td>
<td>floor</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tenneco/Monroe</td>
<td>bumpers</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Labradio</td>
<td>lighting brackets</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Volkswagen NFZ</td>
<td>instrument panel</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Valeo</td>
<td>radiator (LT2)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EM Fiebergglas</td>
<td>roofs</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fasmer</td>
<td>roofs</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
metrics supplier park

inbound

37 trucks / d
1,100 boxes / d

storage/sequencing/assembly
15,500 parts / d
75 em / d

outbound

1,030 JIS-trailers / d
260 convoy-tours / d
material flow JIS-modules

LP-T5
8,000 sqm

transfer point II

bridge to VWN
length 360 m

LP-T5
sector 4
9,000 sqm

transfer point I

Distribution to different points of demand
IT- concept
VW Nutzfahrzeuge T5
Each supplier needs his own world of IT (server, hardware, ...)

- logistics provider IT
- server-hardware
- personnel (staff)
- different solutions
- projects
- partner (contacts) to VWN
- standards of quality requirements

consequences

- uncoordinated systems and deliveries

n „group solutions“ by higher costs
Schenker as an central IT- provider for supplier

advantages

- lower IT- costs
- direct persons to turn to
- no IT staff of suppliers
- one point of delivery
- available hard- and software
- support
- one emergency programm

minimizing costs by utilization Schenker ISP
Quality management
VW Nutzfahrzeuge T5
quality management / kinds of audit

**System audit**
- analyzing the stipulated elements of the quality management systems
- analyzing the company organization structure
- stage of using the existing documentations (QMH, QMV, QMA)
- evidence of fulfillment of the requirements

**Process audit**
- verification of process capability
- evaluation of the process referring to iterative results
- assessment of management methods to improve and control the processes

**Product audit**
- verification of process capability regarding one product
- evaluation of the process referring to iterative results
- assessment of conformity of processed product and planned product
quality management / method to avoid errors

**FMEA (Failure Mode and Effects Analysis)**

- analytical method to list all potential errors regarding stages of planning and processing
- avoidance of potential errors at the earliest moment
quality concepts / certificates

- sequenzing
- assembly services
- external production supplying
- just-in-time delivery
- process FMEA (Failure Mode and Effects Analysis)
- process audit by VWN
- product audit by customer/VWN
QM automotive – process audit VWN

**Prozessaudit Ergebnis**

<table>
<thead>
<tr>
<th>Thema: Materialfluß vom Wareneingang bis zum Verkaufsort</th>
<th>Bericht-Nr.: PAS 1.2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bereich: Lager 22 u. 26, Punkt Halle 1</td>
<td></td>
</tr>
<tr>
<td>Grund und Umfang des Audits: Planmäßige Nachbegehung des ereignisorientierten Prozessaudits aufgrund von Qualitätsanforderungen</td>
<td></td>
</tr>
</tbody>
</table>

**Gesamterfüllungsgrad:** 94%

Prozess erfüllt Grüne Ampel

Ziel: > 90%

**Kurzergebnis:**

**Positive Punkte:**
- Systematische und engagierte Abarbeitung der Verbesserungspotentiale (NP-F7 und Fa. Schenker)
- Vorbereitung und Information der Mitarbeiter von NP-F7 hinsichtlich des Prozessaudits (Aushänge, Flyer)
- Einrichtung eines EDV-gestützten Schichtbuches (NP-F7)
- Ordnung und Sauberkeit (NP-F7 und Fa. Schenker)
- Durchgängiges Sperrverfahren für beschädigte Behälter (NP-F7 und Fa. Schenker)
- Deutliche Verringerung des Teilebeschädigungsrisikos durch Einsatz neuer Spezialgestelle

**Verbesserungspotentiale:**
- Einsatz eines Gabelstaplers mit erheblichen Mängeln (Fa. Schenker)
- LT-Radhausschalen unterliegen weiterhin einem Beschädigungsrisiko (NP-F7)
- T4-Schalen- und Dachverkleidungen unterliegen weiterhin einem Beschädigungsrisiko (NP-F7)
- Hohes Beschädigungsrisiko bei T4-Cupholdern: Mehrere Kartons z.T. stark beschädigt.

**Verantwortlich:**
- P. Quickert
- K. Brüggemann

**Vertreter:**
- H. Schramm
- H. Diedenhof
- H. Kleinschmidt
- H. Kalmierzak
- H. Brinswitz
- H. Hesse
- H. Gödecke
- H. Buch
- Fr. Dr. Colia

**Abteilungsleiter:**
- Dr. Flor

**Zuständig:**
- siehe "Verantwortliche im Einzelbericht" im Einzelbericht der Berichte/Prozessaudit/Materialbereitstellung

---

Successfull audits VDA 6.3 in regional sites of VW:

- Hanover and
- Brunswick
Ford Supplier Park
Supplier  Park Ford Cologne
Supplier Park

Layout Ford Plant 1Y/ Supplier Park

Supplier Park

Ford Assembly Plant
Supplier Park

Products: Fiesta, Fusion

Production: 400,000 cars per annum
1,800 day (3 shifts)

Location: 800 m to the point of fit

Transportation-system: Conveyor System (total lengths 11km)

Modules:
- Instrumentpanel: Collins & Aikman
- Looms: Siemens Yazaki
- Fastening Systems: Textron Fastening Systems
<table>
<thead>
<tr>
<th>Supplier Park</th>
<th>Instrumentpanel</th>
</tr>
</thead>
<tbody>
<tr>
<td>Employees:</td>
<td><strong>180</strong></td>
</tr>
<tr>
<td>Components:</td>
<td><strong>250</strong></td>
</tr>
<tr>
<td></td>
<td>e.g. IP, Air condition, Radio, Airbags, Steering module</td>
</tr>
<tr>
<td>Tact time:</td>
<td><strong>39 sec, 90 min time between ordering and assembly</strong></td>
</tr>
<tr>
<td>Plant area:</td>
<td><strong>5,767 m²</strong></td>
</tr>
<tr>
<td>Inbound deliveries</td>
<td><strong>50 Trucks/day</strong></td>
</tr>
<tr>
<td>Responsibilities:</td>
<td>- Assembly</td>
</tr>
<tr>
<td></td>
<td>- Maintenance</td>
</tr>
<tr>
<td></td>
<td>- Quality Control</td>
</tr>
<tr>
<td></td>
<td>- Receiving/ Linefeeding</td>
</tr>
</tbody>
</table>
### Supplier Park

**Wiring Harnesses**

<table>
<thead>
<tr>
<th>Employees:</th>
<th>20</th>
</tr>
</thead>
<tbody>
<tr>
<td>Articles:</td>
<td>267 <em>e.g.</em> Main-, Door-, Engine Looms</td>
</tr>
<tr>
<td>Tact time:</td>
<td>39 Sec, 26 min time between ordering and assembly</td>
</tr>
<tr>
<td>Plant area:</td>
<td>3,000 m²</td>
</tr>
<tr>
<td>Receiving Volume:</td>
<td>200 Pallets/day</td>
</tr>
</tbody>
</table>
| Responsibilities: | - Sequence delivery of Main looms  
|                  | - Linefeeding, Door Looms  
|                  | - Kanban delivery service within SP  
<p>|                  | - Stock control |</p>
<table>
<thead>
<tr>
<th>Supplier Park</th>
<th>Fastening Systems</th>
</tr>
</thead>
<tbody>
<tr>
<td>Employees:</td>
<td>17</td>
</tr>
<tr>
<td>Articles:</td>
<td>400 e.g. screws, clips, nuts, rivets</td>
</tr>
<tr>
<td>Time Window:</td>
<td>Delivery cycle 20 min</td>
</tr>
<tr>
<td>Space Capacity:</td>
<td>2.043 m², 2.000 pallets capacity</td>
</tr>
<tr>
<td>Turn over:</td>
<td>2.200 Klt’s / day</td>
</tr>
<tr>
<td>Responsibilities:</td>
<td></td>
</tr>
<tr>
<td>- Organization European Transports (Inbound)</td>
<td></td>
</tr>
<tr>
<td>- Follow up + stock control + scheduling</td>
<td></td>
</tr>
<tr>
<td>- File and system maintenance warehouse system</td>
<td></td>
</tr>
<tr>
<td>- Delivery Service to Ford + Supplier Park (Kanban)</td>
<td></td>
</tr>
<tr>
<td>- Linefeeding Instrumentpanel</td>
<td></td>
</tr>
</tbody>
</table>
Roles & Responsibilities

1st Tier Supplier

- Contractor to OEM
- Engineering
- Product Quality Components
- Purchase parts

Logistics Provider

- Projektmanagement Operations (Launchphase, CIP)
- Management Ressources (Personnel+Assets)
- Day to Day Management (Ensure supply of parts)
- Inventory- & Complexity-Management
Planning Assumptions

Volume data
- 405,000 vehicles/year
- 1,800 vehicles/day
- 3-shifts on 5 working days
- 39 sec. tact time
- 3 carlines, Programm data

Technical data
- Drawings (Modules)
- Packaging data (Modules)
- Complexity
- Facility ground plan
- Conveyor system description

Timing
- Pre Production phases
- Ramp up
Core Processes

I  Receiving: Unloading, Transport, Labeling, Stocking Pallet-Racks
II Replenishment Sequence Areas/ Point of Assemblies
III Picking/ Sequencing
IV Assembling
V Conveyor loading
VI Quality Inspection / Maintenance
VII Empty recycling: Collapse, Transport, Loading
VIII Emergency Service / Fallback routines
IX Cycle Counting, Stock Reconciliation, Stock Checks etc.
X Planning (Continuous Improvement, Launch new components, Organize+coordinate Suffix Changes)
Complexity
B-car Programm Cologne

3 Carlines

- Left-/Right Drive
- Countryspecific Features
- Engine Type
- Feature Packages
- Options
In addition to the regular running engineering changes there are deadline related changes of most of the partnumbers during running production.

- Organisation receipts of new partnumbers (space, labeling, etc.)
- Organisation of additional warehouses
- Preparation IT-Systems
- Coordination “time of usage”
- Coordination obsolete parts
- Training & Sensitization of employees
## Target
Extend the service level

<table>
<thead>
<tr>
<th>Customer Requirement</th>
<th>Service Offering</th>
<th>Service Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transport material to plant to agreed Quality, Cost &amp; Delivery</td>
<td>Transport Services</td>
<td>Deliver to Plant</td>
</tr>
<tr>
<td>Reduce capital stock of material.</td>
<td>Just in Time Services</td>
<td>Scheduled Deliveries to plant (max. 1 day production stock)</td>
</tr>
<tr>
<td>Reduce administration and material handling costs</td>
<td>Sequencing of complete modules</td>
<td>IT- Connection to customers ‘BOM and delivery in tact time deliveries</td>
</tr>
<tr>
<td>Eliminate planning and administration costs</td>
<td>Supply chain service</td>
<td>Follow up from 6 month EDI forecast to point of fit delivery</td>
</tr>
<tr>
<td>Reduce administration, material handling and production costs</td>
<td>Assembly of complete modules</td>
<td>Combining production and logistics services into a formal customer program</td>
</tr>
<tr>
<td>Supply of commodity items at market prices</td>
<td>Engineering Services Purchasing</td>
<td>• Engineering &amp;BOM Management&lt;br&gt;• Quality Management&lt;br&gt;• Application Engineering&lt;br&gt;• Automation</td>
</tr>
</tbody>
</table>
Schenker Logistics

Thank you for your attention