Executive Presentation

UIC / Fiata – Market Place Seminar

Barcelona, Spain, November 2nd, 2010

Michael Diehl, SAP

Director Railway + Metropolitan Transportation, Airport + Seaport Industries
Agenda

- SAP’s footprint in Freight Transportation Industries
- SAP’s view on Hinterland Transportation – the IT perspective
- SAP Customer Cases related to Cargo / Hinterland Transportation
- Strategic Industry Innovation – SAP
Facts Dec 31st 2009 and Business Outlook 2010

SAP starting 1972 arrived 2010 at:

- SAP headquartered in Walldorf, Germany, listed on the Stock exchanges at Frankfurt + New York is today Europe’s largest software company (no3 worldwide)
- SAP has 53,000 employees worldwide (after acquiring Sybase Aug 2010)
- SAP’s annual revenue 2009 exceed €10.7 BN
- Over 105,000 (Sep 2010) companies in over 120 countries run SAP software

SAP is providing the following outlook for the full-year 2010

- SAP expects full-year 2010 Non-IFRS software + software related service revenue to increase in a range of 4% to 8% at constant currencies (2009: €8.2 bn)
- SAP expects its full-year 2010 Non-IFRS operating margin to be in a range of 30% to 31% at constant currencies (2009: 27.4%)
- SAP projects an effective tax rate of 27.5% to 28.5% (based on IFRS) for 2010 (2009: 28.1%)
### SAP Rail Industry customer examples

(after acquiring Business Objects)

#### Asia / Pacific
- JR East + JR West, J
- QR, AUS
- TranzRail, NZ
- India Railway, INDIA
- Kowloon Kanton Rail, CHINA
- Korail, KOREA

#### North America:
**6 of the top 7 run SAP**
- Norfolk Southern, US
- Ferromex, MEX
- Canadian Pacific Railway, CA
- Canadian National Railway, CA
- Union Pacific, US
- Kansas City Southern
- AMTRAK, US
- Centro Atlantica, BR
- BNSF, US
- Watco Rail, US

#### CIS/Eastern Europe:
**8 of the top 10 run SAP**
- Slovak Railway, SL
- MAV, HU
- Belarus Railway, BL
- Croatian Railway, HR
- Ceske Drahy, a.s., CZ
- Kazakhstan Railway, KZ
- Lithuanian Railway, LT
- RZD Russian Railways, RU
- PKP, PL
- Latvian Railway, LV

#### 7 of 7 X-Rails
- Deutsche Bahn, D
- SBB/CFF, CH
- ÖBB, A
- Coras Iompair Eireann, IRL
- Ferrovie dello Stato, IT
- DSB, DK
- SJ Swedish Rail, S
- VR, Finnish Rail
- Nederlandse Spoorwegen, NL
- SNCF, F
- Veolia Transport, F
- Green Cargo, SE
- NMBS/SNCB, BE
- CFL, LU
- First Group, U.K.
- NSB, NO.
- Eurotunnel, U.K., F
- REFER, P
- Turkiye CDD, TR
- BLS, CH
- Prorail B.V., NL
- Refer, P

#### Western Europe:
**10 of the top 10 Run SAP**
- Transnet, ZA
- ENR Egyptian Natl Railway, EG
- PRASA, ZA
- Israel Railway, IL
### SAP Port Industry customer examples (after acquiring Business Objects)

<table>
<thead>
<tr>
<th>Region</th>
<th>Customers</th>
</tr>
</thead>
</table>
| **Asia / Pacific** | Cairns Port Authority, AUS  
Modern Terminal, Hongkong, CHINA  
Penang Port Berhaid, Malaysia  
Sydney Ports Cooperation, AUS  
Port Authority of Thailand |
| **America**      | Ports de Montréal, CA  
Canadian National Bulk Terminals Great Lakes, CA  
PANY, Port authority of New York and New Jersey, US  
San Diego Unified Port, US  
Georgia Port Authority, US |
| **Europe**       | Luka Koper, Slovenia  
Port of Hamburg, D  
Bremer Lagerhaus, D  
Basler Rheinhäfen, CH  
Bremenports, D  
Häfen und Güter, Köln, D  
Lübecker Hafengesellschaft, D  
Port of Rotterdam, NL  
Port du Havre, F  
Wiener Hafen- Lager- und Umschlaggesellschaft, AT  
Eurotunnel (Europorte) Terminal, F / UK  
Berliner Hafen- und Lagerhausgesellschaft, D  
Hafenbetriebe Frankfurt am Main, D  
Tarento Port Terminals, I |
| **Middle East / India** | Ashdod Port, Israel  
Elat Port, Israel  
Haifa Port, Israel  
Cochin Port, India  
Mormugao Port, India  
Mundrai Port, India |
| **Africa**       | Transnet Port operations, ZA  
Namibian Port Authority  
Maputo Port Terminal,  
Kenya Port Authority |
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Hamburg: Multimodal Logistic Hub

Out of 100 Containers, going through the Port of Hamburg ...

- 10 Container
  - Are loaded/unloaded At the Port (LCL)

- 45 Container
  - Are related to european long distance Hinterland transport (70% rail)

- 15 Container
  - Are coming from/are forwarded to the Hamburg metropolitan agglomeration (80% truck)

- 30 Container
  - Transit to Baltic Sea + Scandinavia (80% feeder ship)

I would like to thank Port of Hamburg for providing informative slides !!!

www.portofhamburg.com
Weekly Container train connections leaving Port of Hamburg

**Port of Hamburg:**
Europe's largest Cargo Rail Hub: 1300 trains per week, (750 Container)

- Niederlande: 16 Züge/Woche
- Norwegen: 32 Züge/Woche
- Schweden: 22 Züge/Woche
- Dänemark: 12 Züge/Woche
- Litauen: 10 Züge/Woche
- Polen: 40 Züge/Woche
- Tschechien: 83 Züge/Woche
- Slowakei: 9 Züge/Woche
- Österreich: 57 Züge/Woche
- Ungarn: 51 Züge/Woche
- Italien: 46 Züge/Woche
- Deutschland: 340 Züge/Woche
- Russland: 16 Züge/Woche
- Schweiz: 50 Züge/Woche
- Ukraine: 12 Züge/Woche

© Hafen Hamburg Marketing

Fahrplanmäßige wöchentliche KV- und Containerzugverbindungen von/nach Hamburg (Stand: 01/2008).
Development of Container ship sizes since 1960
But what comes next?

1. Gen. 1960
   1.000

2. Gen. 1969
   2.000

3. Gen. 1980
   Panamax 3.000

   Post-Panamax 5.000

5. Gen. 1999
   Super Postpanamax 8.000

   Suezmax 12.000

160 m
210 m
270 m
290 m
350 m
390 m

28 m
28 m
32 m
36 m
44 m
54 m

11,5 m
12,0 m
13,5 m
14,5 m
15,5 m

Quelle: Lloyd’s Register, TU Delft

www.portofhamburg.com
First 11,000-TEU-Ship in Hamburg:
CMA CGM Vela Nov 2008

French-Asia-Line 1:
Region: Far East
Number of ships: 10
Round trip: 70 days
Abfahrtsfrequenz: 7 days
Ø capacity: 9,600 TEU
Tiefgang: 15.5 m
Typical CEO questions

- How do I provide seamless terminal services?
- How do I customize freight services?
- How do I provide integrated shunting yard services?
- How do I reduce risk to compliance?
- How do I reduce cost and increase customer satisfaction?
- How do I reduce impact and heighten sustainability?
- How do I ensure value from IT?
Industry’s challenges

IT Landscape
Homegrown and Best of Breed, Many Custom Interfaces

The IT Landscape is the Challenge
Industry’s objectives uniquely enabled by SAP

- Increased productivity
- Improved customer care
- Offer customer services tailored to the needs of different customer segments
- Utilize existing platform to create 360 degree view of the customer
- Improved maintenance planning and execution
- Improved balanced capacity utilization
- Increased productivity
- Establish single transportation platform
  - Quoting, ordering and invoicing across all lines of business
- Integrated Platform of Business Intelligence tools
  - Provide management visibility
- Operational Excellence
  - Visibility across your end-to-end supply chain

SAP Integration Platform
Agenda

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### Solutions for Railway Operations

**Example: Container Yards Management**

**Operation:** Container Yard Management  
**Location:** Logistic Service Provider (Railway)  
**Product:** EWM 7.0.

**Dates:**  
- **Scope / Achievements:**
  - Logistics service provider and the provided EWM solution manages the stock visibility, billing, and reporting for the different customers.
  - The solution provides for the management of intermodal transport. This relates specifically to land traffic and train & rail-cart management.
  - Drag-and-drop planning of containers to rail-carts assignments.
    - Owner-specific put-away strategies, outbound train destination, unloading from a specific rail-track, etc.
    - Different put-away strategies for empty and full containers. Container Information, weight, length.
  - Custom Train & Rail-cart Planning:
    - Reservation engine for multi-modal transport:
      - Train & Road (using SAP PI) for receiving and sending electronic reservation data from and to the customers.
    - Train information and status management.
    - Use of SAP Calendar functionality for managing train appointments.
  - Reporting engine to send regular (daily) reports to the terminals customers (via PDF and email, FTP, Fax, and Printouts).

**Outlook:**
- After the successful go-live, the project will continue with a phase 2, where additional functionality will be added to the solution, e.g., VAS, Quality Management (SCM-QIE) and enhancements to the reservation engine.
- The implemented system will be used as a template for rollout into 30 other container terminals across Europe throughout the year 2010.

**Dates:**
- Nov. 16th, 2009: Go live of large Container Terminal Yard
- Implementation time: 5 months (!)
Concepts for managing the Container Terminal

Containers are represented as Handling Unit with “dummy”, serialized Material

Extra Characteristics for Containers are appended to the Handling Unit Header Table

Create Outbound Deliveries with reference to:
- Inbound delivery or
- Container in Stock
SAP EM -Why & How

- Customer demand for an track and trace solution within all business lines of Green Cargo
- Green Cargo Logistics implemented a "control tower" solution for their business – not taking the transport chain in consideration
- The former solution was not suitable for the rail business – functionally or technically
- Internal and external demand as well as system landscape complexity required a powerful solution to handle various demands
SAP (SupplyChain) Event Mgmt at Green Cargo – Tracking objects (hierarchy) + events in SAP

TrackingHierarchy in SAP EM

Customer Order / Train

Railcar

Container / Unit Load

Online
- Application System
- Internet (WCL)
- Phone (Voice Recognition)
- SMS
- Web enabled mobile devices (WAP/GPRS)
- Barcode Scanning via AS
- Manual input in EM
- Tracking Service Provider
- RFID

IDoc
XML
BAPI
EDI

Event Manager

Offline
- Mobile Devices (PDA etc.)
- Application System (I.e.: Batchmode)
- Tracking Service Provider
- RF

Tracking Events (example)

Sales Order created
ETA Empty Wagon
Ready to Pull
Arrival Notification
Free for Disposition

Sales Order confirmed
Consign- ment Note
Left Origin
Delivered
Customer satisfaction and added value

- Interaction with the customer reduces work/time/costs...
- Customer can report status/actions like Free for Disposition or other
- Customer interaction can change objects in source system
- Effort reduction due to direct communication with customer instead of Mail, Fax or Phone
- SAP EM enables to survey SEQUENCING, TEMPORAL + QUANTITATIVE + QUALITATIVE CORRECTNESS of the overall Business Process Execution by controlling the expected process step and comparing it with the predefined process step
- SAP EM reacts automatically according to predefined ”what-ifs” in case of non-occurrence and overdue
LPR Overview

- #2 pallet pooling company in Europe

- 40 millions pallets delivered p.a. to customers with a turnover >100 Mio €

- Headquarters in Toulouse (France) with subsidaries in Spain, Portugal, Benelux, the U.K., Germany and Italy

- Since 2006 owned by its management team and AtriA Capital Partenaires

- Very recently, LPR obtained PEFC which guarantees the use of pallets made of wood from sustainably-managed forest
LPR IT System Architecture

SAP

PURCHASES (MM)
- Suppliers master data management
- Purchase orders management
- Depot stocks management and inventories
- Stock movements management
- Suppliers specific management
- Customer dwelling time management

SALES (SD)
- Customers master data management
- Customers orders management
- Customer stocks management
- Invoicing management
- Customers accounting

FINANCE (FI)
- General accounting
- Suppliers accounting
- Customers accounting
- Immobilizations

CONTROLLING (CO)
- F&L account analysis
- Profit analysis
- Forecast
- Investment follow up

QUALITY (QM)
- Customers non-conformities management
- Suppliers non-conformities management
- Internal non-conformities management
- Audit non-conformities management
- Preventive actions management

WAS

WEB ACCESS
- LPR employee
- Depot
- Manufacturer
- Carrier
- Customer
- Drop points master data management
- Follow-ups, visits and collections management
- Drop points stocks and inventories management
- Customers movements integration
- Marching tables and flows parameterization
- Customers movements management
- Customers deliveries and returns validation
- Deposits activities and relocations management
- Delivery and transport dates management

NEO²
- KPI Group reports
- AOS reports
- Assets reports
- Operation reports
- Inventories reports
- Controlling reports
- Quality reports
- General information and IT reports

CARTESIS
- Budget
- Consolidated monthly report
- Forecast
NEO² Architecture

**Transactional System**
- SAP
- WAS
- Intranet

**Data Warehouse**
- ENT (70Go)
- ODS (2Go)
- ETL (ODI)
- Database (SQLSERVER V5)

**Reporting (SAP/BUSINESS OBJECTS XI 3.0)**

1. Daily data extraction SAP (50,000 rows), WAS (3,000,000 rows) **40’**
2. Consistency check and adaptation **20’**
3. Data Warehouse upload **30’**
4. Aggregation calculation **120’**
5. Reporting (100 reports), touch almost all company business domains **130’**

130 SAP/BO licenses for a company of 220 people
Example: Collect Execution
La Palette Rouge Optimizes Pallet Utilization with SAP® Software

QUICK FACTS

La Palette Rouge
- Industry: Transportation and logistics
- Products and services: Pallet pooling
- Revenue: €100 million
- Employees: 220
- Website: www.lpr.eu
- SAP® solutions and services: SAP BusinessObjects™ Enterprise software (now SAP BusinessObjects Business Intelligence platform), SAP BusinessObjects Web Intelligence®, SAP BusinessObjects Financial Consolidation application, SAP Enterprise Support services

Challenges and Opportunities
- Ensure pallets are available to satisfy customer contracts
- Maximize pallet utilization
- Minimize pallet loss
- Optimize use of infrastructure for collecting and transporting pallets
- Empower planners to access the information needed without IT help

Objectives
- Implement a strong IT environment for delivering business intelligence to navigate scheduling complexity
- Provide self-service reporting for ordinary business users

Implementation Highlights
- Performed implementation with no need for third-party assistance

Why SAP
- Comprehensive integration of SAP® software
- Intuitive nature of SAP software
- Highly graphical reporting environment
- Security provisions

Benefits
- Increase pallet utilization from 3 cycles per year to nearly 4
- Reduce pallet loss rate from 7% to 5% a year, saving millions of euros
- Avoid need to purchase new pallets during financial crisis
- Equip nearly two-thirds of employees to generate their own reports without help from IT
- Attain substantial ROI

“We have seen immense payback from our IT infrastructure, especially our SAP BusinessObjects business intelligence solutions – the mainstay tools we use to support our operations.”

Patrick Sigwalt
CIO and Quality Manager
La Palette Rouge
QUICK FACTS

Transnet Freight Rail Limited
- Location: Johannesburg, South Africa
- Industry: Cargo Railways
- Turnover: €1.3 bn
- Employees: 24,577
- Web Site: www.transnet.net
- Implementation Partners: SAP Consulting

Transnet Ltd.
- Location: Johannesburg, South Africa
- Industry: Railways, service providers
- Turnover: €2.589 bn
- Web Site: www.transnet.net
- Implementation Partners: SAP, Accenture, HCL-Axon

Transnet is responsible for
- Rail Cargo Operations
- Rail Infrastructure
- Pipelines
- Port Management
- Terminal Management
- Port Authority
- Rail Engineering

• Challenges and Opportunities
  - Create a standardized system across all work streams related to Customer Relationship Management (CRM)
  - Improve sales and opportunity-related analytics for sales & financial management,
  - Implement standardized business processes same time with implementing IT-solution

• Implementation Highlights
  - Developed a change management and communication strategy detailing the approach to the work stream
  - Functional gaps were identified and resolved with a future state business ‘blueprint’ created.
  - Smart system configuration
  - Employees from various locations involved in the project
  - Senior management sponsorship
  - Building up strategic Roadmap e.g. To integrate Call Centers
  - Frequent CRM refresh trainings

Why SAP
- Comprehensive functionality
- SAP focus on process excellence and innovation
- Several options could be configured, possibility to adapt to future requirements easily
- Future functional innovation for rail
- Robust platform

Benefits
- Reduced total cost of ownership of the system landscape and infrastructure
- Improved accuracy of information for regulatory requirements
- Seamless integration of sales & opportunity information within the organization and with external partners
- Improved management of sales, and financials, across all areas of operation
- Single view on customer across the Group

Transnet is responsible for
- Rail Cargo Operations
- Rail Infrastructure
- Pipelines
- Port Management
- Terminal Management
- Port Authority
- Rail Engineering
Transnet Freight Rail Ltd. - operational details

Moves 17% of South Africa's freight annually
100% of **export Coal**
100% of **export Iron Ore**
Annual revenues of over **R14 billion**
**R35 billion capital investment** over the next 5 years

Other Statistics

- Employees - 24,577
- Rail Network - 22,241 km
- Fleet – 77,849
- Locomotives - 2,106

**COALlink**
Specialist business unit that provides world-class transport for South Africa's export coal from the Mpumalanga coalfields to the Richards Bay coal terminal. It is one of the world's most efficient bulk export logistic supply chains. 2010/2010 Budget – 72 million tons

**Orex**
Orex is a specialist business unit dealing with the transport of iron ore over a 861km railway line. In Oct 2010 they railed 844.388 tons of coal in a single week. Train length 4 km, 342 100-ton wagons, 10 locos
SAP Customer Case - Canadian National Rail

CN’s turn around between 1995 and 2010

A GREAT NORTH AMERICAN FRANCHISE

2008 RESULTS IN CDN $
- Number of Employees: 22,696
- Annual Revenues: $8.48 B
- Operating Income: $2.89 B
- Expenses: $5.59 B
- Operating Ratio: 65.9%
- Free Cash Flow: $ 794 M

1995
- Crown corporation
- Losing money+marketshare
- Costing taxpayers $millions
- Canada’s largest, most successful IPO
**SAP Customer Case - Canadian National Rail CN**

**CN eliminated 150 legacy systems**

**EVOLUTION OF SAP AT CN**

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<tbody>
<tr>
<td>Illinois Central</td>
<td>CN/CT Inventory Requisitioning Bar Coding Purchasing</td>
<td>Procurement Cards Expense &amp; Travel Field / Rail Shop Inventory</td>
<td>Fuel Management MyCN Vouchers SRM</td>
<td>CeDock Warehouses Aggregate Warehouses Vendor Portal</td>
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<td>SAP 4.0</td>
<td>Qualifications Employee Self-Service Net Payroll CDN &amp; US Benefits</td>
<td>SAP 4.5</td>
<td>Human Resources</td>
</tr>
</tbody>
</table>

- Elimination of 150 legacy systems
- 12,000 current SAP users

**Railway Integrations**

**Supply Management**

**Finance**

**Human Resources**

**SAP 4.7**

- Employee Health & Safety
- Incident/Accident Log Medical Solution
- Law Pack Replacement
- Police Optimization
- U.S. Medical Solution
- Traffic Condition
- Bridge Management
- Employee Maintenance
- Human Optimization
- Facility Maintenance
- Locomotive Optimization
- Mobile Assets (Loco/Car)
- Work Equipment
- SAP 4.6
- SAP ECC 6.0

**Engineering**

**Mechanical**

**Transportation**
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**SAP Rail User Group - “SUGRail”**

- Formed December 2008 under ASUG
- Bi-annual in-person meetings
- Working Groups
  - Car repair billing
  - Linear Asset Management
  - Lead to Cash (L2C)
- Future – Expand Globally

**North America Freight Stats**
- Operate approximately 170,000/273,600 miles/KM of track
- Cars/wagons – 700,000 / 1,600,000 (railway/all)
- Carloads – 40,000,000 (~waybills)
- Revenue - $75b

**Major North American Railroads By 2008 Operating Revenue (million U.S. dollars)**

- BNSF: $10,132
- UP: $17,935
- NS: $10,661
- CSX: $10,219
- CN: $7,967
- CP: $4,692
- FXE: $1,062
- KCS: $1,036
- KCSM: $818
Why SAP?

Enable business strategy
- SAP is platform of choice of most commercial users of rail - share an IT strategy with your customers and partners

Best in Class
- Most widely adopted railways solution, with largest rail customer base SAP sets the industry standard

Lowest risk
- SAP's financial applications and core ERP offering are proven to work well, matching the industry specific needs of railways
- Continuous solution enhancements with largest R&D, you will never outgrow SAP

Lower TCO
- Strength of integration across the broadest of product offerings SAP provides a true business process platform for railways
- Open platform leverages use of legacy systems while providing IT strategy for the future
Prototype for a Rail subsidiary managing a shunting yard at a large European industry site

Project started end of 2009

Project is managed by SAP Consulting
Linear / Infrastructure Asset Management (LAM)
Initial Areas of Investments

Solution overview

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<tr>
<th>Technical Object Definition</th>
<th>Work Order Management</th>
<th>Operation Level Costing*</th>
<th>Connectors and Enterprise Services</th>
<th>BI Content</th>
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<td>Linear Data Modeling</td>
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<td>Geo-spatial Connectors</td>
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<td>Linear Assets Work Order Processing</td>
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<td>Linear Extensions for Enterprise Services</td>
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<tr>
<td>Inspections and Condition Recording</td>
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<tr>
<td>Linear Assets Plan Maintenance</td>
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<td>Asset Value Determination and Inv. Planning*</td>
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</tbody>
</table>

* OLC – Strong interdependency on OLC case which is addressed by IBU Utilities and is kept separate

Real-time information, role-based UI, industry data standards, process integration, optimization, simplification

Critical functional gap/Investment proposed

Critical integration gap/Investment proposed
Rail Industry Linear Assets Working Group

BNSF Railway Company

Enterprise Asset Management
Linear Asset Management

Thursday, May 20, 2010
Asim Ghanchi

Sub-Group Charter

- Develop and maintain a Linear Reference Model to determine gaps within SAP's current linear capability and influence SAP to address these gaps through future enhancements

- Define best practices for railroads to get started with SAP to manage linear assets
  - Modeling railroad Linear Assets leveraging SAP’s LAM capability

Developments since the Fall SUGRAIL meeting
LAM Testing Group

March 2010 Meeting

- Common scenarios in managing linear assets
  - Creation of new mainline & renaming assets
  - Dynamic segmentation
  - Defining relationships (intersects, under/over passes, etc)

- Linear Reference Model (LRM)

- Next Step was to develop a draft of the LRM for Railroads
SAP – A partner of choice to transform Cargo Transportation

What is SAP’s Specific Commitment to Passenger Ground Transportation Industry?

SAP - Industry Value Network to increase the value SAP and partners bring to the industry through specific solution development e.g. Partner solutions that seemlessly extend the SAP Industry solution or CDP-Customer Development Project.

SAP participation at annual industry gatherings like Innotrans - Fair.

Innovation with the industry to develop pilots and test use of new technologies

Initiating and Driving SAP User Group Railways - SUGRAIL
Leveraging Innovation for a Dynamic Business Environment

- Business Network Transformation
- Fully Enabled Business Process Platform
- Innovative Solutions
- SAP Business Suite

Core Apps within an enterprise
Industry white space
Cross-enterprise solutions

Extending the Core
Internal Process Automation
Networked Enterprise
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The logistics center is divided into two areas:

- **A. VW warehouse for assembly parts**
  - ca. 19,000 m²

- **B. Supplier park**
  - ca. 17,000 m²