Real-time supply chain analytics

V. Ermoshin
BDO Unikon
BDO IN RUSSIA
BDO UNICON CONSULTING

1989
We have been operating on the Russian market since 1989

2 000
Near 2 000 people work in our network

50%
50% of the Top 100 Russian companies are our clients

2 000+
More than 2 000 projects

300+
More than 300 ERP projects

110 000+
More than 110 000 users in 200+ cities

BDO Unicon Consulting - the major business consulting and system integration company in Russia

BDO delivers services to companies of all the major economy sectors in Russia
BDO UNICON CONSULTING
OUR SERVICES

We offer the widest range of services and solutions targeted at upgrading of elements of business management system

We offer our clients exceptional services in the following main areas:

BA — Business Advisory, including, Strategy & Organization (S&O), Corporate Performance Management (CPM), Financial Performance Management (FPM), Supply Chain Management (SCM), CRM and Data Management, etc.

SI — System integration, including SAP, Oracle, Microsoft, EMC, etc.

DIS — Developments & Innovative solutions

ASO — Application Support Outsourcing

BPO — Business Process Outsourcing

We are the leading business consulting and system integration company specialized in implementation of such business applications as SAP, Oracle, EMC, etc.
TYPICAL CHALLENGES IN INBOUND SUPPLY CHAINS

- Overstocks
- Slow moving inventory
- Poor quality of parts demand
- Poor quality of supply (in volume and delivery dates)
- Poor quality of information

A possible approach
- Production demand and purchasing planning in a system
- Material management and stock level optimization
- Supply Chain Analytics to identify critical areas and control KPI’s
PECULIARITIES OF INBOUND SUPPLY CHAINS

- A complicated process of production demand formation
- Huge quantity of parts - some 100,000 SKU’s
- Parts interchangeability with complex application conditions
- Big number of plants and warehouses, many of them are geographically far away
- Complicated supply chains
- Several supply channels - distribution through a central warehouse, consignment, etc.
- A possibility of parts production in own plants
- A possibility of refurbishment
# Real-time supply chain analytics on the basis of SAP HANA

<table>
<thead>
<tr>
<th>Project Name</th>
<th>Real-Time Supply Chain Analytics</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Project Goals</strong></td>
<td></td>
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<tr>
<td>• To improve working capital turnover</td>
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<tr>
<td>• To get a system for a real-time analysis of KPI’s related to Supply Chain - stock levels, supplier service levels, ABC/XYZ, turnover, lead-time</td>
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<tr>
<td>• To speed up response time of SAP reports on a big database volumes (150 mln. records, 80 ERP tables)</td>
<td></td>
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<tr>
<td><strong>Project Results</strong></td>
<td></td>
</tr>
<tr>
<td>• Developed and implemented a system for a real-time analysis of KPI’s such as stock level, service levels of suppliers for central and plant warehouses, ABC/XYZ, turnover</td>
<td></td>
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<tr>
<td>• Response time is reduces by orders to about 2 - 40 seconds</td>
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</tbody>
</table>
SCOR - SUPPLY CHAIN OPERATIONS REFERENCE MODEL

PROCESSES

Supply Chain Operations Reference model
SCOR® V11.0 – Processes
SCM KPI’S IN SCOR MODEL

**Reaction Time**
- Order Lead Time and its components (purchase, deployment)

**Costs**
- Costs of SC management

**SC Reliability**
- Perfect Order Fulfillment (% of orders in full quantity, % of orders in time)

**Assets Management**
- Turnover
- Utilization of SC assets

**SC Flexibility**
- SC adaptability (Up)
- SC adaptability (Down)

Inbound Supply Chains
- Parts
- Fuel
- Overalls
- Raw materials
- Etc.
SAP HANA technological platform for supply chain analytics
REAL-TIME SUPPLY CHAIN ANALYTICS ON SAP HANA
FUNCTIONAL ARCHITECTURE

Portal
Manager Role

Analyst Role

Purchaser Role

Dashboards

Data Aggregation

Analytics Tools

Basic Reports

SAP HANA

SAP ERP

SAP SCM

Plant Month

Product Groups

Floor Shop Month

Requisitions, Orders

Material Movements

Day
Solutions
Common technical architecture

SAP R/3 4.7
- Transactional Data
  - Master Data

SAP HANA
- Data Warehouse
  - Treated Data
    - Transactional Data
      - Master Data
        - Multi-dimensional Structures

BO application server
- Authorization Check
  - Semantic layer-relation between tables and business terms

Client applications

SAP LT - Replication Server
## Developed Solutions

<table>
<thead>
<tr>
<th>Наименование</th>
<th>Описание</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABC</td>
<td>• ABC-analysis — a method to classify stocks on the value</td>
</tr>
<tr>
<td>XYZ</td>
<td>• XYZ-analysis - a method to classify materials and resources on the consumption behavior</td>
</tr>
<tr>
<td>ABC/XYZ</td>
<td>• ABC/XYZ matrix is an informative tool for material management</td>
</tr>
<tr>
<td>Turnover</td>
<td>• Stock Turnover is an important criterion of SC efficiency</td>
</tr>
<tr>
<td>Order Cycle Lead Time</td>
<td>• Supply Cycle Lead Time influences stock levels through safety stock and is also an important KPI of SC efficiency</td>
</tr>
<tr>
<td>Supply Service Level</td>
<td>• Supply Service Level in inbound logistics is an important KPI that describes the quality of inbound deliveries with respect to orders</td>
</tr>
<tr>
<td>Stock Levels</td>
<td>• Report on stock levels in real time</td>
</tr>
</tbody>
</table>
Показатель оборачиваемости товарной массы рассчитывается по формуле:

\[ V = \frac{D}{\overline{Z}} \]

где \( D \) — потребление в периоде, \( \overline{Z} \) — средний запас в периоде

\[ \overline{Z}_{\text{кл}} = \frac{1}{2} Z_0 + \sum_{i=1}^{N-1} Z_i + \frac{1}{2} Z_N \]

где \( Z_i \) — запас на начало месяца \( i \)

\[ \overline{Z}_i = \sum_{i=1}^{N-1} Z_i \]

где \( Z_i \) — запас на дату \( i \)
ANALYST’S WORKPLACE - SAP BUSINESS EXPLORER
STRUCTURAL AND COMPARATIVE ANALYSIS
Integration of reports with maps

Call of a route on a map from a report
Call of a report from a route node on a map
SAP SOLUTIONS FOR DASHBOARDS

EXAMPLE
COMPETENCE CENTER «SUPPLY CHAIN MANAGEMENT» AT BDO
BDO UNIKON IS A LEADER ON THE RUSSIAN MARKET OF SAP SCM SOLUTIONS IMPLEMENTATIONS

Among our clients are the most successful companies from leading industries of the Russian economy – metals, oil and gas, mining, pulp and paper.

Our main competitive edges in SCM area are:

✓ Rich experience in SAP SCM implementations gained in successful projects
✓ Strong team of experts including business consultants, SAP consultants, software developers
✓ Understanding of Russian specific planning and accounting methodology
✓ Deep knowledge of functional possibilities of SAP SCM solution to make an optimal choice of solution architecture for the Client
✓ Experience in integration of SAP SCM with SAP ERP and production MES systems, budgeting systems and business analytics systems
✓ Project Experience in new SAP Solutions such as SAP HANA, Fiori, etc.