Supply chain network optimization

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• Introduction Groenewout

• Supply chain optimization

• Project approach

• Data requirements

• References
Groenewout is an international, independent firm providing a comprehensive range of professional consulting services and transition support focused on business improvements related to supply chains and logistics across all industries.
Added value as perceived by our clients

- Multi-disciplinary supply chain & logistics consulting
- Business improvements based on quantification, simulation, visualization and modeling
- Realistic, pragmatic approach
- Hands-on experience in operational environments & implementation processes
- Independent & 40 years proven success.
- Pan-European marketplace, local expertise
- References within wide range of industries - long lasting client relations
Quality measured by our clients

Cross industries

- Pharmaceutical
- FMCG
- (Fine) chemical
- After market / spare parts
- Home-improvement
- Electronics
- And … … …
Supply chain network optimization - V2.0

Agenda

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Trade-off philosophy
Supply chain optimization

INBOUND TRANSPORTATION COSTS

INVENTORY & WAREHOUSE COSTS

CUSTOMER SERVICE REQUIREMENTS

OUTBOUND TRANSPORTATION COSTS

OPTIMAL SUPPLY CHAIN NETWORK
Trade-off philosophy
Supply chain optimization

- line haulage: less line hauls → costs decrease
- fine distribution: more final distribution km’s → costs increase
- handling factory WH: factory warehouse ‘as-is’ → no changes
- handling & storage DC’s: increasing economies of scale → costs decrease
- inventory costs: increasing economies of scale, lower working stock, lower safety stock required → costs decrease
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Goal
Supply Chain Network Study

TO DETERMINE THE MOST OPTIMAL SUPPLY CHAIN NETWORK:

MEETING CUSTOMER SERVICE REQUIREMENTS

THE MOST COSTS EFFECTIVE SOLUTION

FACILITATES THE FUTURE STRATEGY
Deliverables
Supply Chain Network Study

• Identification of Quick-wins for the current supply chain
• Identification of the optimal supply chain network in terms of function, size, location and service metrics for distribution centers, inbound and outbound transportation
• Illustration of the total operational costs associated with the optimal network
• Presentation of high-level rollout plan for the implementation of the optimal network
Project approach

Analysis current supply chain & Desired future supply chain

- Strategic assessment
- Volume & costs data
- Customer service metrics validation

Set-up & verification of distribution network model

Distribution concept analysis & simulation

Sensitivity analysis

Implementation & transition plan
Current & Future supply chain

**GOAL**
Create consensus on data, constraints, requirements and assumptions on which the distribution network optimization will be based:

- Level of detail modeling
- Warehousing & transportation related data
- Operational and customer service constraints
- Future trends
- Business requirements

**ACTIVITIES**
- Interviews and data collection:
  - Data workshop
  - Data gathering (warehousing, transportation)
  - Strategic assessment
- Data analysis
- Basic data document

**DELIVERABLES**
Data verification and presentation of results: Basic Design Document
Distribution network model

GOAL
Model of the distribution network in software simulation tool: Base Case Model

ACTIVITIES
Building the distribution network model, consisting of three steps:
- Building the current distribution model
- Verification of model with real-life figures (calibration of the model)
- Calculating current overall supply chain costs

DELIVERABLES
A distribution network model which will be used for further analysis of the different distribution network concepts (see next project phases)
GOAL

Simulation of several distribution concepts. The results per concept are:
- Number of warehouses
- Location (position) per warehouses
- Function of the warehouses (all SKU’s or subset)
- Service areas of the warehouses

ACTIVITIES

Simulation of the effect of different supply chain structures and concepts:
- Yearly operational costs: warehousing, transport, inventory
- Warehouse characteristics: sizing, market areas, etc.
- Impact on requirements: lead-time, customer service
- Evaluation of all distribution concepts against actual costs and performance

DELIVERABLES

Presentation of the various supply chain concepts: associated operational costs and customer service impact
Sensitivity analysis

Determine the “robustness” of the preferred solution

Carrying out sensitivity analyses on variables such as:
- Growth percentages
- Customer service metrics: lead-times, reliability, etc.
- Average order size
- Acquisition of new business

Validation of the robustness of the preferred supply chain & insight in the business parameters directly affecting the selection of a preferred supply chain concept
Implementation & Transition

**GOAL**

Implementation & transition plan to transfer from the current supply chain network to the preferred supply chain network

**ACTIVITIES**

Analysis and design of an implementation and transition plan:
- indication of the timing and effort the implementation of the new distribution network embeds
- high level investment estimate (insourcing versus outsourcing activities)
- risk mitigation for implementation of the new distribution network

**DELIVERABLES**

Presentation of the various supply chain concepts: associated operational costs and customer service impact
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VOLUMES
- Inbound (suppliers to plant)
- Primary (plant to DC)
- Inter-company
- Direct (plant to customers)
- Outbound (DC to customer)

INVENTORY
- Inventory volume & value
- SKU overlap between DC’s

WAREHOUSE
- Storage capacity
- Storage characteristics
- Logistics equipment
- Personnel
- Contracts (outsourced)

QUALITATIVE
- Customer service
- Lead-times
- Business requirements
- Future growth
- Customer strategy

FINANCIAL
- Transportation costs
- Warehouse costs
- Production costs
- Inventory costs

MASTER DATA
- Product codes
- Product grouping
- Unit of Measure

PRODUCTION
- Product portfolio
- Production capacity

Data requirements (1)

Available from ERP-systems / shipment systems
Available through finance & controlling
Available through Interviews / workshops
Available through questionnaires / interviews local representatives
## Data requirements (2)

**VOLUMES Inbound**
- Supplier (shipping location - zip code)
- Destination (plant location - zip code)
- Volume shipped (m³ / kg / pallets)
- Transport mode (LTL/FTL, air/road, special conditions, ...)
- Transport conditions
- Number of shipments

**VOLUMES Outbound**
- Warehouse or plant location (zip code)
- Customer (ship-to location - zip code)
- Volume shipped (m³ / kg / pallets)
- Transport mode (LTL/FTL, air/road, special conditions, ...)
- Transport conditions
- Number of shipments

**VOLUMES Primary & Inter-company**
- Warehouse or plant location (Point of origin - zip code)
- Warehouse or plant location(ship-to location - zip code)
- Volume shipped (m³ / kg / pallets)
- Transport mode (LTL/FTL, air/road, special conditions, ...)
- Transport conditions
- Number of shipments
Data requirements (3)

WAREHOUSE

- Warehouse location
- Owned / outsourced
- Footprint: m² warehouse operations, m² offices
- Storage capacity: pallet locations, shelf locations etc.
- Storage conditions
- Fill rate per location type including maximum storage capacity
- VAL activities
- Personnel (receiving, picking, expedition, management, ...)
- Logistics equipment (rental/lease, book value, depreciation period, ....)
- Costs (personnel, building, equipment, packaging, others)
- Contract penalties if applicable
- Warehouse extension possibilities

PRODUCTION

- Plant location
- Product portfolio to be produced
- Production volume
- Production capacity (current occupation rate & maximum capacity)
- Shift patterns
- Total production costs (raw material, packaging, external, production costs variable/fixed, ...)

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Data requirements (4)

**INVENTORY**
- Warehouse location
- Inventory volumes
- Inventory value
- Stock turns
- Number of SKU's
- SKU overlap with other warehouses

**MASTER DATA**
- Product code
- Product group
- Unit-of-Measure transformation table
- Product value (COGS)

**FINANCIAL**
- Transportation costs
  - Per point of origin/destination
  - Per inbound / inter-company / outbound
- Inventory costs
- Warehouse costs (see warehouse)
- Production costs (see production)

**QUALITATIVE**
- Lead-time expectations
- Future sales growth
  Further to be defined during kick-off meeting
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**Description**

Supply chain project for JohnsonDiversey, an industry leader in cleaning and hygiene solutions to the institutional and industrial marketplace.

JohnsonDiversey serves customers in the lodging, food services, retail, health care, food and beverage sectors as well as building service contractors worldwide.

**Opportunities**

Recently, JohnsonDiversey commissioned a business study, resulting in an updated business strategy. In the area of supply chain management JohnsonDiversey defined three main improvement opportunities. JohnsonDiversey management was committed to improve their supply chain in terms of operational costs and optimize their product delivery by detailing and implementing the defined supply chain opportunities.

**Solution**

Groenewout analyzed different alternative logistics networks for different supply chains.

A sub-regional logistics model was determined to be the optimal solution for chemical products and utensils.

For machines and accessories products a centralized solution with maximization of central stock function and direct shipments was determined to be the optimal solution.

**Benefits**

- Substantial annual operational cost reduction in total supply chain costs
- Significant decrease of European inventory
- Increased flexibility
- One integrated logistics concept and organization as a shared service.
Description

Nestle Purina PetCare (formerly Friskies) is a producer and distributor of pet food and accessories. Nestle Purina PetCare owns several factories and numerous warehouses in Europe.

Opportunities

Friskies European Logistics team was committed to improve their distribution in terms of performance and costs for the Benelux countries and Germany.

Solution

Groenewout analyzed different alternative distribution networks. Caused by the uniqueness of articles per country market, consolidation per country was determined to be the optimal short term solution.

After executing a benchmark analysis Groenewout proved to Nestle that particular contracts for warehousing were too expensive. The decision was made to contract with one logistics service provider to consolidate the German warehouses.

Groenewout developed a RFP for selecting a new logistics service provider operating in a multi-client environment. Subsequently Groenewout supported Nestle in the development and negotiation of a new service level agreement.

Benefits

The selected service provider proposed:
- 10+% Cost reduction in German warehouse costs
- Increased quality and flexibility

Future opportunities

Creating overlap of articles between countries, product rationalization and changes in product sourcing will reduce the annual logistics costs significantly.
Description

Ideal Standard is the world’s largest manufacturer of bath & kitchen products. The range of products include: faucets, fixtures, whirlpools, accessories, showers and sinks. Brands include American Standard JADO, Borma, Armitage Shanks, Ceramica Dolomite, Porcher and Ideal Standard.

Opportunities

As a result of several mergers and acquisitions, the “AS-IS” network in Europe contained around 25 distribution centers.

Ideal Standard desired to optimize its existing European supply chain for fixtures and fittings. The preferred distribution structure should be streamlined:
• Minimize the total distribution costs
• Maximize customer service.

Solution

A detailed analysis of existing distribution network and customer service metrics characteristics was conducted. This provided a critical overview of the current supply chain.

Supply chain simulation models were used to determine the optimal distribution structure: number, location, market region and function of the European distribution centers.

Benefits

• Insight into current supply chain characteristics and performance provided by the systematic analysis
• 15% savings on the total European transportation and warehousing costs were identified.
MAKING SUPPLY CHAINS YOUR COMPETITIVE ADVANTAGE!