Case Study On Network Analysis Tools And Techniques To Support Supply Chain And Business Alignment

The ConvaTec Story
Session Objectives

- Gain an understanding of the strategic and operational realignment ConvaTec undertook in spinning-out of Bristol-Myers Squibb
- Learn how supply chain network analysis enabled design of a new, optimized supply chain structure
- Gain insight on how ConvaTec simultaneously
  - Executed a spin-out from Bristol-Myers Squibb
  - Completed the acquisition of Unomedical
  - Implemented an optimized infrastructure for the combined companies
Today’s ConvaTec was formed through the divestiture of the ConvaTec division from Bristol-Myers Squibb and the acquisition of Unomedical.

- **4 business units**
  - Wound Therapeutics
  - Ostomy Care
  - Continence & Critical Care
  - Infusion Devices

- **14 manufacturing sites in 9 countries**

- **8,000 employees**

- **Sales in 90+ countries**
Both businesses had a global footprint which was enhanced by the combination

Sales presence in 90+ countries

8,000 employees -- 14 plants in 9 countries -- 33 distribution centers
ConvaTec had grown up within Bristol-Myers Squibb and was tightly integrated with the Pharmaceutical division

- Shared services environment with limited BU autonomy
  - Distribution
  - Strategic sourcing
  - IT

- Ability to leverage the resources of the larger company to achieve global reach, but little say in decisions

- History of market autonomy on distribution decisions
  - Mix of in-sourced and 3PL
  - Different 3PL in every location
  - No cross-border distribution
When BMS announced they were considering “strategic options” for ConvaTec we began scenario planning.

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<th>Event</th>
<th>Outcomes</th>
<th>Implications</th>
<th>Actions</th>
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<td>Divestiture</td>
<td>Acquisition by an industrial company</td>
<td>Integration into buyer’s infrastructure</td>
<td>No action possible until buyer known</td>
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<td>Acquisition by private equity</td>
<td>ConvaTec must establish its own infrastructure</td>
<td>Identify potential solutions and cost savings opportunities</td>
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We never anticipated having to integrate an acquisition at the same time …
The divestiture from BMS created an imperative to complete many activities on a fixed schedule

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<th>2007</th>
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<th>2009</th>
<th>2010</th>
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<td>Q4</td>
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- December 7 – BMS announces plan to consider “strategic options” for ConvaTec
- May 5 – Sale to Nordic Capital and Avista partners announced
- August 1 – Sale closes
- September 3 – Acquisition of Unomedical
- Network strategy development
- Implement SAP and back office functions
- Build Distribution, Sourcing teams
- Network implementation
- February 1 – Deadline to exit BMS DC’s
- February 1 – Deadline to exit BMS IT and back office support
The new company faced a number of SCM challenges

- Different distribution models
- Lack of infrastructure within ConvaTec
  - No systems or transactional support
  - Little distribution infrastructure
  - Almost no staff!
- Lack of integration within Unomedical
- Too many plants
The European distribution network became a focal point due to the large number of DC’s and significant overlaps.
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- 2008 ConvaTec distribution network (14)
- 2008 Unomedical distribution network (7)
- Cross dock

21 distribution centers in 16 countries

Approach = “green field” network analysis. Identify optimal structure for new company.
Network analysis was used to define the European distribution footprint for the combined companies

- Determine number, size and location of DC’s and Cross Docks that minimize total delivered cost while meeting service requirements

- Determine the optimal flow of products from source of Manufacture to Cross Docks and/or DC’s, and from DC’s to Customers

- Provide scenario and sensitivity analysis with review of cost/service trade-offs to support management consensus development
The “optimal” distribution network must balance distribution costs while meeting service objectives.
A structured approach was used over ~5 months: business issue framing through go-forward network definition

Key Challenges:
• Organization in “flux”
• Baseline Data Collection/Standardization
• Greenfield Transportation and Operations Rates
• Language “Buckets”
• Combining Models
Analysis was conducted in 3 Phases and incorporated a range of cost/service elements with a number of nuances

1. Convatec Stand-alone
   - Language buckets, alternative number of DC sites (w/Greenfield locations), service goals

2. Unomedical Stand-alone
   - EDC role (central, dual, all DCs), alternative number of DC sites (w/Greenfield locations)

3. Combined Convatec/Unomedical Operations
   - EDC role, alternative number of DC sites (w/Greenfield locations), service goals, DC cost sensitivity
An engaged cross-functional team with management synchronization was critical to the success of the project.

**Steering Committee**
- COO
- VP Global Supply Chain
- Chainalytics Principal

**Core Team**
- ConvaTec and Chainalytics PM’s
- Director of Logistics
- Chainalytics Consultants

**Extended Team (both ConvaTec and Unomedical)**
- Distribution Operations
- Transporation Procurement
- Replenishment Planning
- Sales
- Accounting/Finance
- Manufacturing
- Information Technology
- Customer Service
Multi-country distribution with multi-continent sourcing and disparate distribution models equals complexity

- 21 ConvaTec/Unomedical DC locations, two ports, and four European plant locations
- Copenhagen & Antwerp ports replenish the local DC’s directly
- Two UK plants also replenish local DC’s directly
- Markets are time-sensitive
The multi-country, multi-company, shared services, 3PL-supported environment created a perfect “data storm”

- Shared Services – facility operating costs attributed to divisions many ways
- 3PL’s – contract terms/activity costing varied by location
- Countries – differences in defining/accounting cost components
- Companies – differences in accounting detail plus everything above X 2
- Customer/Product – different mode mix/shipment sizes and channels

- Greenfield Locations – relative facility real estate and labor estimates
- Greenfield Transportation Rates – multiple approaches taken (regression on existing, extrapolate from tariffs, use of recent carrier bid responses)
The individual units have significantly different business shipping profiles – driven by differing operating models.

- **Convatec product** = low density, high value
- **Unomedical product** = high density, low value

Distributor markets
Analysis includes nuances of products, channels & markets while providing a comparative view of scenarios.
Network optimization tools are essential to manage the complexity of the analytical trade-offs

- There are a number of tools on the market to support network analysis
- Provide end-to-end support of scenario analysis
  - Model construction/input data management
  - Algorithms: optimization, component cost calculations, constraint pre-screening, etc.
  - Reference data: GIS, mileage, transportation rates, other tool specific elements
  - Scenario management: scenario definition; scenario batches; scenario output tables/graphs/reports
  - Graphics: maps, flows, high-level processes, pie charts/bar charts, etc.
- Optiant’s Powerchain® Network Design was used on this project
The network analysis considered a mix of existing and potential future “greenfield” locations

- Map displays current and candidate DC locations, as well as plant and port sites
- ConvaTec stand-alone model considered candidate & ConvaTec DC locations
- Unomedical stand-alone model and combined model considered all DC sites
- DC costs varied by country and type of product per order characteristics
Scenarios were analyzed along a number of dimensions both high-level and detailed to identify high potentials.
A number of graphical views were used to help drive management consensus development.
Analysis of ConvaTec network alternatives led to identification of a fairly typical range of indifference.

- Significant savings are possible by consolidating 21 current DCs through increased **economies-of-scale** and selection of **lower cost DC sites**.
- Primary trade-off: increased Outbound cost with fewer DCs versus Inbound and Inventory costs.
- Current delivery performance within response window maintained:
  - Service decreases rapidly when drop below 5 DCs.
  - Cost increases rapidly when drop below 8 DCs.
The team ultimately selected a structure which reduced the number of DC’s by 50%

- Network comprised of 8 DC’s and three satellites
  - High Demand Countries Warrant DC’s as Expected
  - Smaller countries served via cross-border distribution
  - Satellites required to support higher service requirements and other issues in three countries
  - Eastern Europe DC moved from Poland to Czech Republic due to high volumes from Slovakia plant
  - Antwerp cross dock remains pending further analysis

- Provides 10% savings over baseline while meeting service requirements
We leveraged the network analysis in the process of selecting 3PL’s to operate the new network.

Data Collection

Data Validation

Network Analysis

Recommended Solution

Compare networks proposed by 3PL’s to analysis results:

- Too many: Challenge cost
- Too few: Challenge service
- Alternate locations: Evaluate

Request for Proposal

3PL Proposals

3PL Selection
The implementation plan was largely constrained by system changes needed to support cross-border distribution.

- **Possible if DC serves local market only**
- **Not possible for cross border distribution**

- **Desirable for markets that will no longer have a DC**
- **But risky: Too much change at once**

- **Longest time to benefit, but lowest risk**
- **Desirable where DC provider change only**
We are now well into an implementation that will stretch into the middle of 2010

September, 2008
We are now well into an implementation that will stretch into the middle of 2010.

- Original network
- End state network
- Satellite DC’s to remain

February, 2009
We are now well into an implementation that will stretch into the middle of 2010

- Original network
- End state network
- Satellite DC’s to remain

January, 2010
We are now well into an implementation that will stretch into the middle of 2010