GLOBAL SCM EXCELLENCE STUDY
How Supply Chain Management can boost company performance – Summary of study results

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Letter from the authors

In a globalized world with continuously increasing competition and cost pressure, supply chain management (SCM) remains a hot topic across all industries. While visible value generation and sustainable firm performance are demanded from all stakeholders, management is under pressure to prove financial impact resulting from business decisions and actions. This also accounts for supply chain management activities. Especially in today’s economy, where declining sales threaten companies’ profitability and banks have limited ability to make financial resources available, supply chain management is a key lever for increasing efficiency and optimizing working capital.

In order to illustrate the influence of supply chain management on firm performance, Roland Berger Strategy Consultants in cooperation with WHU and Stanford University, conducted for the first time this global supply chain excellence study. The study aims to show the relation between product characteristics, supply chain structure and firm performance. How should the supply chain be structured to best fit to product characteristics – achieving a Supply Chain Fit? Is there a positive financial impact related to operating with a Supply Chain Fit? These questions have driven the study and have been answered.

A lot of companies are already aware of the relation between product and supply chain structure and seek the "Supply Chain Fit". Nevertheless, many have not yet strategically optimized their supply chain management.

The results of this study are based on two sources: On one hand, supply chain managers who represent bluechip manufacturing companies all over the world – participated in a questionnaire-based survey. This provided us with valuable quantitative and qualitative primary source insights about supply chain structure, product characteristics and trends. On the other hand, we used financial performance data from financial databases. This gave us the link from supply chain performance to firm performance.

General study results will never be able to create specific and customized guidelines for individual companies. Nevertheless, we trust that the findings of this report can give valuable direction for best fit supply chain design and its impact on firm performance.

We would like to express our gratitude to everyone who contributed to this study. By responding to our questionnaires you made this possible.

Robert Ohmayer
Dr. Steffen Kilimann
SETUP, SCOPE and OBJECTIVES
Our Global SCM excellence study was conducted with 234 mostly stock-listed manufacturing companies

SETUP AND SCOPE

• Global study on excellence in SCM conducted from end of 2007 until mid of 2008 in cooperation with the universities WHU, Stanford University and ETH Zürich

• Surveying mainly stock listed manufacturing companies in Europe and USA on product and supply chain characteristics based on a standardized questionnaire1)

• Survey results were combined with publicly available financial data

• Total sample consists of 234 different companies2) from 16 countries, 5 industry groups, & with average sales of approx. EUR 11.5 bn

1) Focusing on the main product line (sales driver) of the firm
2) Respondents: Top management of SCM, Purchasing or Logistics Department
The main objective of the study was to analyze the impact of strategic supply chain fit on firm performance

OBJECTIVES

- Identify relevant supply chain design characteristics corresponding to the existing product characteristics
- Analyze, if companies design their supply chain according their product characteristics to achieve "supply chain fit"
- Analyze if companies with supply chain fit achieve higher firm performance (measured in return on assets, EBIT, sales growth, return on capital employed) than companies without fit

KEY QUESTION: How should supply chains be structured to achieve superior performance?

Product characteristics

Supply chain fit

Firm performance

Supply chain structure
We focused on European and US manufacturing companies in various industries – 64% of companies with turnover >EUR 1 bn

Overview of study sample

**BY COUNTRY**

234 Companies

- USA: 32%
- GER: 28%
- UK: 13%
- FRA: 9%
- CH: 6%
- AUT: 5%
- Other: 7%

Survey was conducted mainly in USA and Western Europe

**BY INDUSTRY**

- Engineered products: 29%
- Process industry: 23%
- Consumer goods: 21%
- Electrical equipment: 18%
- Automotive: 9%

Focus on manufacturing industries

**BY TURNOVER**

- 50-100 mio.: 29%
- 100-250 mio.: 23%
- 250-500 mio.: 18%
- 500-1,000 mio.: 9%
- 1-10 bn: 8%
- 0-50 mio.: 7%
- 10 bn and more: 4%

64% of blue chips with sales turnover >EUR 1 bn
We surveyed blue chips in all industry clusters – Examples

CONSUMER GOODS (49)

- Uniliver
- P&G
- Kraftfoods.com
- Nestlé
- Diageo
- Coca-Cola
- Whitbread

ENGINEERED PRODUCTS (66)

- Boeing
- Aker Solutions
- Voith
- Airbus
- Northrop Grumman
- Rexroth

PROCESS INDUSTRY (54)

- Evonik Industries
- Chevron
- BASF
- PEMEX
- Saint-Gobain
- BP

ELECTRICAL EQUIPMENT (43)

- HP
- Dell
- Siemens
- Alstom
- Cisco
- Conergy
- ABB

AUTOMOTIVE PRODUCTS (22)

- VDO
- VW
- Renault Trucks
- BMW
- Valeo
- Leoni

( ) Total number of companies per industry segment
METHODOLOGY and KEY FINDINGS
Based on the questionnaire survey and financial data the impact of strategic supply chain fit on firm performance was measured.

Methodology

**A**
Classification of companies according to product characteristics into
- Standardized products
- Customized products

**B**
Classification of supply chains according to design characteristics into
- Efficient supply chains
- Responsive supply chains

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**QUESTIONNAIRE SURVEY**
Measurement of strategic supply chain fit and firm performance
- Return on assets (ROA)
- Sales growth
- EBIT margin

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**FINANCIAL DATA (BLOOMBERG)**

1) For main product line, sales driver of the company
Key criteria for classification are product life cycle, product variants, forecast error and frequency of order changes

Criteria for supply chain fit

<table>
<thead>
<tr>
<th>PRODUCT CHARACTERISTICS</th>
<th>STANDARDIZED PRODUCTS</th>
<th>CUSTOMIZED PRODUCTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product life cycle</td>
<td>&gt;24 months</td>
<td>&lt;24 months</td>
</tr>
<tr>
<td>Product variants</td>
<td>≤ 50 variants</td>
<td>&gt;50 variants</td>
</tr>
<tr>
<td>Forecast error</td>
<td>≤ 9%</td>
<td>&gt;10%</td>
</tr>
<tr>
<td>Frequency of order changes</td>
<td>extremely low – low</td>
<td>medium – extremely high</td>
</tr>
</tbody>
</table>

COMPANY EXAMPLES¹)
(MAIN PRODUCT LINE)

1) Classification based on main product line and its characteristics as responded in the questionnaire. Therefore classification represents the self-perception of potentially one business segment of a company
According to the design characteristics supply chains can be classified into efficient or responsive.

Classification according to design characteristics

<table>
<thead>
<tr>
<th>DESIGN CHARACTERISTICS¹</th>
<th>EFFICIENT SUPPLY CHAIN</th>
<th>RESPONSIVE SUPPLY CHAIN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supply chain cost minimization</td>
<td>Low importance</td>
<td>Low importance</td>
</tr>
<tr>
<td>Inventory turnover</td>
<td>HIGH IMPORTANCE</td>
<td>HIGH IMPORTANCE</td>
</tr>
<tr>
<td>Utilization rate</td>
<td>HIGH IMPORTANCE</td>
<td>HIGH IMPORTANCE</td>
</tr>
<tr>
<td>Delivery reliability</td>
<td>HIGH IMPORTANCE</td>
<td>HIGH IMPORTANCE</td>
</tr>
<tr>
<td>Buffer inventory²</td>
<td>LOW IMPORTANCE</td>
<td>LOW IMPORTANCE</td>
</tr>
<tr>
<td>Buffer capacity</td>
<td>LOW IMPORTANCE</td>
<td>LOW IMPORTANCE</td>
</tr>
<tr>
<td>Customer service level</td>
<td>LOW IMPORTANCE</td>
<td>LOW IMPORTANCE</td>
</tr>
<tr>
<td>Demand reaction capability</td>
<td>LOW IMPORTANCE</td>
<td>LOW IMPORTANCE</td>
</tr>
<tr>
<td>Product launch frequency</td>
<td>LOW IMPORTANCE</td>
<td>LOW IMPORTANCE</td>
</tr>
</tbody>
</table>

¹) High/low indicates the importance of the respective characteristic for strategic supply chain design
²) On a component level
Strategic supply chain fit and impact on firm performance is measured – ROA is the key indicator

**SUPPLY CHAIN FIT**

**PRODUCT CHARACTERISTICS**

- Standardized products
- Customized products

**FIT**

**SUPPLY CHAIN STRUCTURE**

- Efficient
- Responsive

- Standardized products require an efficient supply chain
- Customized products require a responsible supply chain

**INCREASE FIRM PERFORMANCE**

**OPTIMIZE ROA DRIVER**

- Fixed assets → Asset turn
- Inventory
- Supply chain costs → EBIT margin
- Service level

**ROA**
Companies with supply chain fit achieve higher firm performance compared to companies without supply chain fit

Key findings – Summary

1. COMPANIES WITH SUPPLY CHAIN FIT ACHIEVE HIGHER FINANCIAL PERFORMANCE
   - 60% of companies have strategic supply chain fit – 40% without fit
   - ROA for 'fit-companies' is 4 to 6 percentage points higher on average

2. DIFFERENT STAGES OF DEVELOPMENT BETWEEN INDUSTRIES/COUNTRIES
   - Consumer goods best with 76% fit compared to only 56% fit in Engineered Products
   - USA/UK best with 73% fit vs. 57% in Germany/France

3. COMPANIES WITHOUT SUPPLY CHAIN FIT HAVE WRONG PRIORITIES IN SUPPLY CHAIN DESIGN
   - Companies with standardized products do not focus enough on cost, inventory management, utilization rates
   - Companies with customized products do not focus enough on flexibility, delivery reliability and service level improvement

4. DEMAND PLANNING AND FORECASTING BECOME CENTRAL OPTIMIZATION LEVERS
   - Besides cost reduction companies see highest focus in improving demand planning and forecasting
   - Most non-fit companies have recognized their deficits and will focus on the relevant improvement areas
Companies with supply chain fit outperform on all performance indicators

Key findings – Supply chain fit and firm performance

The survey shows that out of a total number of 180 companies with standardized products, 63% achieve a strategic supply chain fit. They focus on an efficient supply chain structure and prioritize cost, inventory reduction and improvement of utilization rates. The ROA performance of those companies is 6 percentage points higher compared to companies without a strategic supply chain fit. They also outperform on other performance indicators:

– Sales growth: + 8% points
– EBIT margin: + 4% points

Out of 54 companies with customized products, 63% achieve a strategic supply chain fit. They have designed their supply chains according responsive design characteristics and prioritize flexibility, delivery reliability and service levels. The ROA performance of those companies is 4 percentage points higher compared to companies without a strategic supply chain fit. They also outperform on other performance indicators:

– Sales growth: + 5% points
– EBIT margin: + 2% points
ROA is significantly higher for the approximately 60% of the companies that have supply chain fit

Supply chain fit and firm performance

<table>
<thead>
<tr>
<th>STANDARDIZED PRODUCTS</th>
<th>CUSTOMIZED PRODUCTS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Supply chain structure</strong></td>
<td><strong>No. of companies</strong></td>
</tr>
<tr>
<td><strong>FIT</strong></td>
<td></td>
</tr>
<tr>
<td>Efficient</td>
<td>114 (63%)</td>
</tr>
<tr>
<td>Responsive</td>
<td>66 (37%)</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>180</td>
</tr>
</tbody>
</table>

Companies with a supply chain fit also outperform on sales growth and EBIT margin

Sales growth, EBIT margin 2004-2006 [%]

<table>
<thead>
<tr>
<th></th>
<th>Standardized Products</th>
<th>Customized Products</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>FIT</strong></td>
<td>Sales growth</td>
<td>EBIT margin</td>
</tr>
<tr>
<td>Efficient</td>
<td>14%</td>
<td>10%</td>
</tr>
<tr>
<td>Responsive</td>
<td>6%</td>
<td>6%</td>
</tr>
<tr>
<td><strong>Δ % points</strong></td>
<td>+8%</td>
<td>+4%</td>
</tr>
</tbody>
</table>
The degree of strategic supply chain fit differs across countries and industry clusters

Key findings – Cross-country/-industry comparison

Since the USA are ahead in supply chain optimization, they have a higher share of companies with strategic supply chain fit compared to Europe: **73% for USA/UK** against 53% for Germany/France

Also the cross-industry comparison shows significant differences in strategic supply chain fit. With **76%**, **Consumer Goods** has the **highest share**, whereas in Engineered Products, "fit-companies" only reach a share of 56%

Companies **with supply chain fit perform significantly better** than companies without supply chain fit **in all industries**

Comparing the impact of strategic supply chain fit on **company performance across industries**, the survey shows that **automotive companies** have the highest delta to "non-fit companies" with **8 percentage points** **ROA** and Process Industries have the lowest gap with 3 percentage points
USA and UK ahead in supply chain optimization – With high share of 'fit-companies'

Supply chain fit per country

<table>
<thead>
<tr>
<th>COUNTRY</th>
<th>NO. OF COMPANIES</th>
<th>SHARE OF COMPANIES WITH SUPPLY CHAIN FIT</th>
</tr>
</thead>
<tbody>
<tr>
<td>USA / UK</td>
<td>94</td>
<td>73%</td>
</tr>
<tr>
<td>Germany / France</td>
<td>96</td>
<td>53%</td>
</tr>
</tbody>
</table>

SCM most advanced in the USA

- Transfer of logistics principles from military into business operations
- Adoption of Japanese SCM innovations
Supply chain fit has a significantly positive impact on firm performance in all industries

Supply chain fit and firm performance per industry

**SHARE OF COMPANIES WITH SUPPLY CHAIN FIT**

<table>
<thead>
<tr>
<th>Industry</th>
<th>Share</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consumer goods</td>
<td>76%</td>
</tr>
<tr>
<td>Automotive</td>
<td>64%</td>
</tr>
<tr>
<td>Process industry</td>
<td>61%</td>
</tr>
<tr>
<td>Electrical equipment</td>
<td>60%</td>
</tr>
<tr>
<td>Engineered products</td>
<td>56%</td>
</tr>
</tbody>
</table>

**DIFFERENCE IN FIRM PERFORMANCE BETWEEN FIT AND NON-FIT COMPANIES [%-POINTS]**

<table>
<thead>
<tr>
<th></th>
<th>ROA</th>
<th>Sales growth</th>
<th>EBIT margin</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consumer goods</td>
<td>+7%</td>
<td>+5%</td>
<td>+7%</td>
</tr>
<tr>
<td>Automotive</td>
<td>+8%</td>
<td>+13%</td>
<td>+4%</td>
</tr>
<tr>
<td>Process industry</td>
<td>+3%</td>
<td>+3%</td>
<td>+2%</td>
</tr>
<tr>
<td>Electrical equipment</td>
<td>+6%</td>
<td>+13%</td>
<td>+4%</td>
</tr>
<tr>
<td>Engineered products</td>
<td>+5%</td>
<td>+9%</td>
<td>+4%</td>
</tr>
</tbody>
</table>
Approximately 40% of companies do not achieve supply chain fit and do not focus on right priorities

Key findings

Companies without a strategic supply chain fit lack a sufficient focus on the relevant key design characteristics.

37% of companies with standardized products do not have a strategic supply chain fit. They have a lower focus on minimization of supply chain costs, increasing inventory turnover and utilization rates.

39% of companies with customized products do not have a strategic supply chain fit. They do not focus enough on responsiveness, e.g. high buffer capacity, buffer inventory and quick response capability. On the other hand those companies focus too much on efficient design criteria like minimization of supply chain costs and increase of inventory turnover.
Standardized products require an efficient supply chain – Non-fit companies focus too much on flexibility

Deficits of non-fit companies

<table>
<thead>
<tr>
<th>SUPPLY CHAIN DESIGN CHARACTERISTICS</th>
<th>STANDARDIZED PRODUCTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Efficient supply chain</td>
<td></td>
</tr>
<tr>
<td>Supply chain cost minimization</td>
<td>3,92</td>
</tr>
<tr>
<td>Inventory turn over</td>
<td>4,44</td>
</tr>
<tr>
<td>Utilization rate</td>
<td>3,67</td>
</tr>
<tr>
<td>Delivery reliability</td>
<td>3,67</td>
</tr>
<tr>
<td>Customer service level</td>
<td>3,92</td>
</tr>
<tr>
<td>Demand reaction capability</td>
<td>4,25</td>
</tr>
<tr>
<td>Buffer inventory</td>
<td>3,35</td>
</tr>
<tr>
<td>Buffer capacity</td>
<td>3,33</td>
</tr>
<tr>
<td>Product launch frequency</td>
<td>3,17</td>
</tr>
<tr>
<td>Product launch frequency</td>
<td>3,26</td>
</tr>
<tr>
<td>Product launch frequency</td>
<td>2,98</td>
</tr>
<tr>
<td></td>
<td>2,95</td>
</tr>
</tbody>
</table>

Companies with SC fit: 
- Efficient supply chain
  - Supply chain cost minimization
  - Inventory turn over
  - Utilization rate
  - Delivery reliability
  - Customer service level
  - Demand reaction capability
  - Buffer inventory
  - Buffer capacity
  - Product launch frequency

Companies without SC fit: 
- Responsive supply chain
  - Supply chain cost minimization
  - Inventory turn over
  - Utilization rate
  - Delivery reliability
  - Customer service level
  - Demand reaction capability
  - Buffer inventory
  - Buffer capacity
  - Product launch frequency
Customized products require a responsive supply chain – Non-fit companies focus too much on cost

Deficits of non-fit companies

**SUPPLY CHAIN DESIGN CHARACTERISTICS**

- Efficient supply chain
  - Supply chain cost minimization
  - Inventory turn over
  - Utilization rate
  - Delivery reliability
  - Customer service level
  - Demand reaction capability
  - Buffer inventory
  - Buffer capacity
  - Product launch frequency

- Responsive supply chain

**CUSTOMIZED PRODUCTS**

- Low
- High

Companies with SC fit — Companies without SC fit
Optimization focus will shift in the future towards demand planning and forecasting

Key findings

Across all companies in the last two years, the main focus of supply chain optimization was on cost reduction and purchasing/sourcing optimization. Besides cost reduction, companies see the highest focus for the future on improving demand planning and forecasting.

Companies without a strategic supply chain fit have recognized their deficits and will therefore focus on the relevant improvement areas in the future.

- Companies with standardized products will focus on demand planning and forecast improvement as well as on inventory reduction to build up a more efficient supply chain.

- Companies with customized products will focus on demand planning and forecast improvement as well as on cost reduction to build up a responsive supply chain.
In the future, Demand Planning & Forecasting will get more attention …

Top 5 improvement areas – All companies

<table>
<thead>
<tr>
<th>PAST OPTIMIZATION</th>
<th>FUTURE OPTIMIZATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1  Cost Reduction</td>
<td>1  Cost Reduction</td>
</tr>
<tr>
<td>2  Purchasing/Sourcing</td>
<td>2  Demand Planning &amp; Forecasting</td>
</tr>
<tr>
<td>3  Demand Planning &amp; Forecasting</td>
<td>3  Purchasing/Sourcing</td>
</tr>
<tr>
<td>4  Inventory Reduction</td>
<td>4  Inventory Reduction</td>
</tr>
<tr>
<td>5  Customer Service Improvement</td>
<td>5  Customer Service Improvement</td>
</tr>
</tbody>
</table>

1) Comprising all 234 companies regardless of supply chain fit
... especially for companies without supply chain fit – They have recognized improvement needs

Supply chain optimization – Companies w/o supply chain fit¹)

<table>
<thead>
<tr>
<th>PAST OPTIMIZATION</th>
<th>FUTURE OPTIMIZATION</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>TOP 5 – Standardized non-fit</strong></td>
<td></td>
</tr>
<tr>
<td>1. Cost Reduction</td>
<td>1. Demand Planning &amp; Forecasting</td>
</tr>
<tr>
<td>2. Purchasing/Sourcing</td>
<td>2. Inventory Reduction</td>
</tr>
<tr>
<td>3. Demand Planning &amp; Forecasting</td>
<td>2. Cost Reduction</td>
</tr>
<tr>
<td>4. Inventory Reduction</td>
<td>4. Purchasing/Sourcing</td>
</tr>
<tr>
<td><strong>TOP 5 – Customized non-fit</strong></td>
<td></td>
</tr>
<tr>
<td>1. Cost Reduction</td>
<td>1. Demand Planning &amp; Forecasting</td>
</tr>
<tr>
<td>1. Demand Planning &amp; Forecasting</td>
<td>2. Cost Reduction</td>
</tr>
<tr>
<td>3. Inventory Reduction</td>
<td>3. Purchasing/Sourcing</td>
</tr>
<tr>
<td>4. Outbound Transportation</td>
<td>3. Inventory Reduction</td>
</tr>
</tbody>
</table>

¹) Comprising 87 companies, among which 66 have standardized and 21 have customized products
Supply chain fit is also relevant for sourcing processes

Key findings

Regarding the main supply chain optimization areas the survey looked more deeply into sourcing related priorities with the result that supplier selection and information sharing are essential elements to achieve sourcing flexibility. Moreover the results of the survey indicate that companies with supply chain fit also consider this fit in optimizing their supplier base.

- Fit companies with an efficient supply chain focus less on flexibility and more on efficient supply processes.

- Fit companies with a responsive supply chain build up highly flexible supplier processes.
Please contact us for further information

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