Mastering product complexity

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Strategy Consultants

Düsseldorf, November 2012
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A. Key findings
A. KEY FINDINGS

Our study shows how different industries are coping with customer appetite for differentiation

1. Complexity has increased dramatically: The variety of products has more than doubled in the past 15 years, while product lifecycles have shortened significantly (by about 25%).

2. This raises challenges for manufacturers: Product variety drives costs throughout the entire value chain. Inventory management, more volatile demand and differentiation in customer requirements are key issues.

3. Cross-industry comparison reveals different performance levels: In the discrete industries, automotive leads the field in product complexity management, while FMCG is the most advanced of the process industries.

4. Four major optimization approaches have been confirmed across industry segments: Supply chain segmentation, supply chain integration, production flexibility and product structure optimization all rank as highly relevant. Although implementation still lags behind overall, automotive and FMCG are the most advanced industries in this respect. Other industries should adopt the best practices developed there.

5. Huge savings potential: Examples in the automotive and consumer goods industries show that good complexity management reduces production and sourcing costs by roughly 2.5-3.5%. Machinery companies worldwide could save approx. EUR 39-54 bn, chemical companies EUR 29-49 bn and the pharmaceutical industry EUR 6-9 bn.
A. KEY FINDINGS

Product variety has more than doubled in the past 15 years – Product lifecycles have shortened by about 25%

Increase of product variety across all industries

> Complexity has increased dramatically. Product variety more than doubled between 1997 and 2012, while the number of raw materials and components increased only to a lesser extent.

> The smaller rate of increase in raw materials and components is due to the standardization and modularization efforts of leading industries such as automotive and FMCG.

1) Automotive, chemicals, machinery, FMCG, pharmaceuticals
A. **KEY FINDINGS**

**Increasing product variety drives costs and value – Operations and Sales have different views**

Cost and value of product variety

<table>
<thead>
<tr>
<th>COST</th>
<th>VALUE</th>
</tr>
</thead>
</table>

**"Operations view" on product variety**
- Higher raw material **stock levels**
- Smaller purchasing **lot sizes**
- More **changeovers** in production (scrap, downtime)
- Higher **stock levels** of finished goods
- More **complexity** in logistics
- Higher **planning complexity**
- Lower **service level**
- ...

**"Sales view" on product variety**
- Conquer **new customer** groups
- Have a **complete portfolio** (no gateway for competitors)
- Improve brand **image**
- Develop **new product** to be profitable in the medium/long term
- Retailers demand **complete product portfolio**
- ...

"**You can paint it any color, as long as it’s black.**”  
H. Ford

"**Endless choice is creating unlimited demand**”  
C. Anderson

> Increasing product variety drives value chain costs

> On the other hand, product variety is a key differentiator in the market. Using it can unlock further sales potential
A. KEY FINDINGS

Product variety and ever shorter product lifecycles push up costs throughout the entire value chain

Product variety costs in the value chain

<table>
<thead>
<tr>
<th>Product development</th>
<th>Planning</th>
<th>Procurement</th>
<th>Manufacturing</th>
<th>Warehousing &amp; distribution</th>
<th>Marketing &amp; sales</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt; Additional design drawings</td>
<td>&gt; Decreased effectiveness – Multiple tasks – Crisis management</td>
<td>&gt; Higher purchase prices on broader range of materials</td>
<td>&gt; More frequent downtime – Change-over – Process-related problems</td>
<td>&gt; Increased space and labor</td>
<td>&gt; Additional staff training</td>
</tr>
<tr>
<td>&gt; Additional bills of materials</td>
<td>&gt; Systems maintenance</td>
<td>&gt; Higher raw material stocks and write-offs</td>
<td>&gt; Higher waste</td>
<td>&gt; Higher inventory levels (e.g., safety stocks)</td>
<td>&gt; Additional sales materials</td>
</tr>
<tr>
<td>&gt; More tests</td>
<td>&gt; Forecasting</td>
<td>&gt; Increased handling and inspection costs</td>
<td>&gt; Additional tools</td>
<td>&gt; Increased handling and shipping costs (smaller quantities)</td>
<td>&gt; Higher promotion costs and write-offs</td>
</tr>
<tr>
<td>&gt; Lower productivity</td>
<td>&gt; Planning tasks</td>
<td>&gt; Packaging</td>
<td>&gt; Additional work schedules</td>
<td>&gt; Inventories</td>
<td>&gt; More mistakes in order processing</td>
</tr>
<tr>
<td>&gt; Market testing</td>
<td>&gt; Scheduling</td>
<td></td>
<td>&gt; More complex production control</td>
<td>&gt; Transport cost accounting</td>
<td>&gt; Documentation</td>
</tr>
<tr>
<td>&gt; Product specs</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>&gt; Availability/service level</td>
</tr>
<tr>
<td>&gt; Bill of materials</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>&gt; Samples cost increase</td>
</tr>
</tbody>
</table>

1) Work in progress
A. KEY FINDINGS

We identified inventory management, differentiation in customer requirements and more volatile demand as the key challenges facing manufacturers.

Relevance of complexity related challenges across all industries

1. Increasing importance of inventory management
2. Stronger differentiation in customer requirements (delivery time, flexibility, etc.)
3. More volatile demand driven by a more fragmented product portfolio
4. Greater complexity in global supply chains (suppliers, customers)
5. Rising process costs caused by more complex planning
6. More frequent product phase-in and phase-out, plus shorter product lifecycles

<table>
<thead>
<tr>
<th></th>
<th>Low</th>
<th>3</th>
<th>4</th>
<th>High</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td>4.1</td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td>3.6</td>
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<tr>
<td>3</td>
<td></td>
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<td></td>
<td>3.5</td>
</tr>
<tr>
<td>4</td>
<td></td>
<td></td>
<td></td>
<td>3.4</td>
</tr>
<tr>
<td>5</td>
<td></td>
<td></td>
<td></td>
<td>3.3</td>
</tr>
<tr>
<td>6</td>
<td></td>
<td></td>
<td></td>
<td>3.1</td>
</tr>
</tbody>
</table>
A. KEY FINDINGS

In the discrete industries, automotive leads in mastering product complexity

Increase of product variety in discrete industries [%]

- **Automotive**: Companies in the machinery industry started later but are adopting standardization and modularization concepts to cope with complexity.

- **Machinery**: Heavy investment in standardization and modularization in recent years has taken the automotive industry to a very mature level of product complexity management.

> The automotive industry started launching standardization and modularization efforts early on to fight increasing variety in raw materials and components. Machinery companies, on the other hand, started to optimize their product structure only in the past few years.
A. KEY FINDINGS

FMCG is most advanced in product complexity management in the process industries

Increase of product variety in process industries [%]

- **FMCG**
  - In light of the economic crisis, FMCG companies have focused even more strongly on product complexity management and are now ahead of other process industries.

- **CHEMICALS**
  - Only in the past 10 years, strategic customer focus has led chemical companies to diversify their product portfolio – Little complexity management in place yet.

- **PHARMA**
  - In the past, pharmaceutical companies have faced less severe economic pressure, and have therefore so far done less to reduce complexity.

> The chemicals industry is late in the process – Product variety has exploded in the past 10 years, little complexity management in place yet.

> At pharmaceutical companies, raw materials/components have increased more strongly than sales products due to a need for second sources and regulatory requirements (e.g. differentiated leaflets).
Four optimization approaches improve companies’ flexibility and responsiveness in light of increasing product variety

A. KEY FINDINGS

<table>
<thead>
<tr>
<th>Approaches to optimization</th>
<th>Principle</th>
<th>Effect</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PRODUCT STRUCTURE OPTIMIZATION</strong></td>
<td>Share and increase common parts, e.g. through option pricing, and move the point of product differentiation toward the end of the supply chain</td>
<td>Economies of scale in upstream supply chain</td>
</tr>
<tr>
<td><strong>SUPPLY CHAIN SEGMENTATION</strong></td>
<td>Split and adapt supply chains in line with customer requirements</td>
<td>Superior supply chain performance</td>
</tr>
<tr>
<td><strong>SUPPLY CHAIN INTEGRATION</strong></td>
<td>Integrate processes and information flows across functions and supply chain partners</td>
<td>Greater transparency regarding supply performance</td>
</tr>
<tr>
<td><strong>PRODUCTION FLEXIBILITY</strong></td>
<td>Segment production and increase flexibility</td>
<td>Reduced delivery lead times</td>
</tr>
</tbody>
</table>

1) Product portfolio streamlining not in scope, since a differentiated product portfolio is seen as a given framework condition for which appropriate complexity levers need to be established.
A. KEY FINDINGS

Detailed levers for mastering product variety are addressed in our study

<table>
<thead>
<tr>
<th>Optimization approach</th>
<th>Levers</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PRODUCT STRUCTURE OPTIMIZATION</strong></td>
<td>1 Sharing common parts and processes</td>
</tr>
<tr>
<td></td>
<td>2 Adopting modular product structures</td>
</tr>
<tr>
<td></td>
<td>3 Differentiating products after production, packaging or logistics processes</td>
</tr>
<tr>
<td><strong>SUPPLY CHAIN SEGMENTATION</strong></td>
<td>1 Segmenting the product portfolio and identifying market characteristics for differentiated products</td>
</tr>
<tr>
<td></td>
<td>2 Segmenting and adopting the supply chain for differentiated processes</td>
</tr>
<tr>
<td><strong>SUPPLY CHAIN INTEGRATION</strong></td>
<td>1 Measuring speed, efficiency and flexibility with a set of end-to-end performance KPIs</td>
</tr>
<tr>
<td></td>
<td>2 Creating common incentives for all functions; SC partners to optimize supply chain performance</td>
</tr>
<tr>
<td></td>
<td>3 Aligning roles and responsibilities to optimize collaboration between SC functions and partners</td>
</tr>
<tr>
<td></td>
<td>4 Integrating global IT systems and sharing data platforms with customers and suppliers</td>
</tr>
<tr>
<td></td>
<td>5 Operating supply hubs with vendor-managed inventory close to assembly plants</td>
</tr>
<tr>
<td><strong>PRODUCTION FLEXIBILITY</strong></td>
<td>1 Segmenting production and flexibilization of manufacturing equipment</td>
</tr>
<tr>
<td></td>
<td>2 Reducing order throughput time</td>
</tr>
<tr>
<td></td>
<td>3 Executing processes simultaneously</td>
</tr>
</tbody>
</table>
A. KEY FINDINGS

Relevance of optimization approaches was confirmed across all industry segments – Implementation still lags behind

Optimization approaches across all industries

<table>
<thead>
<tr>
<th>Segmentation</th>
<th>Relevance</th>
<th>Degree of Implementation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supply Chain Segmentation</td>
<td>Low 2.7</td>
<td>High 3.9</td>
</tr>
<tr>
<td>Split and adapt supply chains in line with customer requirements</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Supply Chain Integration</td>
<td>Low 2.6</td>
<td>High 3.7</td>
</tr>
<tr>
<td>Integrate processes and information flows across functions and supply chain partners</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Production Flexibility</td>
<td>Low 2.8</td>
<td>High 3.7</td>
</tr>
<tr>
<td>Increase production flexibility and reduce cycle times in order processing and production</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Product Structure Optimization</td>
<td>Low 2.6</td>
<td>High 3.4</td>
</tr>
<tr>
<td>Share common parts and move the point of product differentiation towards the end of the value chain</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
A. KEY FINDINGS

The lead industries automotive and FMCG are superior in mastering complexity – Other industries can apply best practices to catch up

<table>
<thead>
<tr>
<th>Degree of implementation by industry</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DISCRETE INDUSTRIES</strong></td>
</tr>
<tr>
<td>SUPPLY CHAIN SEGMENTATION</td>
</tr>
<tr>
<td>SUPPLY CHAIN INTEGRATION</td>
</tr>
<tr>
<td>PRODUCTION FLEXIBILITY</td>
</tr>
<tr>
<td>PRODUCT STRUCTURE OPTIMIZATION</td>
</tr>
<tr>
<td><strong>PROCESS INDUSTRIES</strong></td>
</tr>
</tbody>
</table>

Whereas in discrete industries car companies are at the forefront in terms of level of implementation, in the process industries FMCG companies have reached a very high level of implementation.

Machinery, chemical and pharmaceutical companies can learn from the best practices of front-runner industries to catch up with implementation, especially in terms of optimizing product structures and supply chain integration.
A. KEY FINDINGS

Automotive and FMCG demonstrate the savings impact of complexity management – Huge potential exists for other industries too.

### Examples

**Car manufacturer**
- Modular construction based on MQB platform and further standardization measures
- COGS reduction [%]: 3.0%

**Diary producer**
- Complexity reduction based on single variant cost model
- COGS reduction [%]: 2.8%

**Chocolate manufacturer**
- Complexity reduction based on single variant cost model
- COGS reduction [%]: 3.2%

### Approximation

**Projection for other global industries**

<table>
<thead>
<tr>
<th>Industry</th>
<th>COGS Reduction [EUR bn]</th>
<th>COGS Reduction [%]</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>MACHINERY</strong></td>
<td>39-54</td>
<td>(2.5-3.5%)</td>
</tr>
<tr>
<td><strong>PHARMA</strong></td>
<td>6-9</td>
<td>(2.5-3.5%)</td>
</tr>
<tr>
<td><strong>CHEMICALS</strong></td>
<td>29-49</td>
<td>(1.5-2.5%)</td>
</tr>
</tbody>
</table>
We investigated European companies in five industry clusters

**METHODOLOGY**
- Survey based on structured questionnaire
- Three sections:
  - Development of complexity indicators from 1997 through 2015
  - No. of different sales products
  - No. of different raw materials and components
  - Product lifecycle duration
  - Relevance of challenges to supply chain management
  - Relevance and degree of implementation of supply chain levers
- Results, summarized on a global level and by industry

**SCOPE**
- Europe
- More than 100 respondents
- Five industry clusters

- Pharmaceuticals: 13%
- Chemicals: 16%
- Automotive: 17%
- FMCG: 21%
- Machinery: 33%
B.

Examples of product complexity management in practice
B.1

Customer-oriented car retailing
B.1 CUSTOMER-ORIENTED CAR RETAILING

One leading car manufacturer optimized its supply chain to enable customer-oriented retailing

CHALLENGES for a car manufacturer

- Constantly growing model variety and complexity of product offering
- Limited space at dealerships – higher number of demo cars reduces space for unused stock cars
- Sales planning focus has shifted toward mix optimization and contribution – decentralized stock management unable to tap market potential

OBJECTIVE

Customer-oriented car retailing

“*The right car for my customer, not a customer for my car*”

A Centralized stock management

B Retail-oriented planning and ordering
Customer-oriented retailing was achieved through central stock management and retail-oriented planning and ordering.

**A** Pooling cars in central warehouses and optimizing the car mix improves availability in downstream warehouses and reduces swapping costs.

**CENTRAL STOCK MANAGEMENT**

**B** Integrated ordering and planning process makes the order pipeline more transparent, takes account of restrictions on the production and supply sides and creates a feasible supply plan in line with market demand.
Six levers allow car stock management to be centralized

<table>
<thead>
<tr>
<th>LEVERS</th>
<th>BENEFITS</th>
</tr>
</thead>
</table>
| 1. Template-based configuration | > Optimized engine, model and option mix  
> Increased stock variety  
> Fewer specification mistakes |
| 2. Stock Advisory Circle | > Ensures integration of market know-how/trends and future orientation for conscious decisions  
> Secures dealer buy-in for template generation process |
| 3. Central compound logic | > Reduces total stock  
> Increases variety offered to customer  
> Lowers amount of aging stock  
> Optimized customer needs assessment for search inquiry |
| 4. Sales front-end enhancement | > Optimized offer for customer according to preferences  
> No or fewer ageing cars  
> FIFO principle enforced |
| 5. Pipeline search | > Aging stock more transparent  
> Incentive to sell aging stock (e.g. Dutch auction) |
| 6. Aging stock management |
Retail-oriented planning and ordering is based on full process integration to better coordinate demand and supply side factors.

**LEVERS**

1. Template-based configuration
2. Volume planning process
3. Option planning
4. Market roundtable philosophy

**BENEFITS**

- Orders can be **better prioritized** (no more automatic build-to-order prioritization)
- Planning & order pipeline more transparent
- Increased **market transparency**
- Reduced planning effort
- Increased **planning quality and efficiency**
- **Restrictions are more transparent** and can be detected earlier to reduce order delays
- **Market trends** and opportunities integrated into the planning process
- **Proactive measures** coordinated to ensure volume and financial targets
B.2

Modularization strategy for a leading car manufacturer
Depending on their culture and past standardization strategy, OEMs pursue different modularization pathways.

### OEM maturity level in modularization strategies

- **Carry-over approaches** (1)
  - Sharing complex components across platforms
  - Sharing complex components on one platform
  - Sharing simple components

- **Platform approaches** (2)

- **Module approaches** (3)

**Most advanced OEMs**

- PSA Peugeot Citroën
- Daimler
- Renault
- Ford
### The different pathways address different scopes of standardization

#### Modularization pathways

<table>
<thead>
<tr>
<th>PATHWAY</th>
<th>1: Carry-over approaches</th>
<th>2: Platform approaches</th>
<th>3: Module approaches</th>
</tr>
</thead>
<tbody>
<tr>
<td>SCOPE</td>
<td>Basic components</td>
<td>Common technical perimeter for several models (unperceived underbody)</td>
<td>Complex systems or subsystems dedicated to an entire function</td>
</tr>
<tr>
<td>PRINCIPLE</td>
<td>Same component used across models or for model renewals to facilitate development and increase commonality</td>
<td>Platforms with a maximum number of common parts shared between different models &amp; brands</td>
<td>Vehicle structure divided into modules, sharing standard interfaces and base components but allowing differentiation within variants</td>
</tr>
<tr>
<td>GOVERNANCE</td>
<td>Standardization plans managed by technical departments</td>
<td>Engineering organized according to technical platforms</td>
<td>Modular architecture organization</td>
</tr>
</tbody>
</table>
Modularization generates cost savings and speeds up time to market

Modularization effects

1. Significant cost reduction in purchasing & manufacturing
2. Increased number and frequency of new model launches
3. Reduction of time to market and associated R&D spending
4. Improvement of product/process quality
5. Enables global engineering with module expert centers
A leading car manufacturer has successfully introduced a modularization strategy

PROJECT PROFILE

- Client: Leading car manufacturer
- Goal: Significantly increase re-use of parts across vehicle lines by establishing a modular approach
- Scope covered: All major modules and vehicle lines
- Roland Berger support: Concept phase and implementation, in total more than 1 year
- Results I: Modular shelf established, variant/part numbers significantly reduced
- Results II: Organization transformed – new methodology, processes and cross-functional collaboration established
The modularization concept is based on five elements

Modularization concept

1. **Portfolio concept**
   Brand, segment and product approach for the various markets

2. **Vehicle architecture**
   Anchor points and interfaces designed to decouple vehicle and module development

3. **Functional strategies**
   Functional requirements for vehicles, systems and modules

4. **Module strategies**
   Modular shelf and cycle plan

5. **Enablers**
   Requirements for engineering framework, organization, governance and development process
B.2 MODULARIZATION STRATEGY FOR A LEADING CAR MANUFACTURER

The modular structure is the backbone of the approach

Modularization scheme

**Modular product architecture**

**Module substructure**

**EXTERIOR MIRROR** (example)

- Blinker
- Housing
- Frame
- Glass adjustment drive
- Glass
B.2 MODULARIZATION STRATEGY FOR A LEADING CAR MANUFACTURER

The standardization of modules/components led to significant benefits

**Standardization/modularization – HVAC**

**Commonization of components**
- Car segment 1
  - Model 1...
- Car segment 2
  - Model 2
  - Model 3
  - Model...

**Unique designs**
- Actual: 7
- Target: 1
- -86%

**Part numbers**
- Actual: 104
- Target: 36
- -57%

**Investment**
- Actual: 5
- Target: 3
- -40%

**Variable costs**
- Actual: 140
- Target: 96
- -31%

> Engineering
> Manufacturing
  - Production facilities
  - Tools
> Material cost
> Manufacturing cost
> Warranty & goodwill
> Logistics
Complexity reduction for an FMCG company
For one leading FMCG manufacturer, complexity management was a key enabler to increase company performance.
The company activated three levers to optimize complexity

**Portfolio optimization**
- Assessment of product portfolio based on contribution margin and turnover
- Evaluation of scenarios for portfolio streamlining
- Implementation of "exit" list

**Product complexity management**
- Complexity reduction based on single variant cost model
- Optimization of product costs for top 25 SKUs
- Product standardization across all links in value chain based on single variant cost model
- Formulation of catalog for standard assortment

**Target cost product development process**
- A target-cost-oriented process was defined
- Implementation of a new organizational structure with a central product management department
- Process integration
- Adaptation of calculation design (volume-based)
The variant tree highlights how complexity increases with each link in the value chain – 60% of SKUs represent only 20% of the total volume.

### Variant tree analysis

#### Chocolate bars

<table>
<thead>
<tr>
<th>Ingredient</th>
<th># of variants</th>
<th>80% of tonnage [%]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cocoa mass</td>
<td>5</td>
<td>83%</td>
</tr>
<tr>
<td>Chocolate mass</td>
<td>30</td>
<td>37%</td>
</tr>
<tr>
<td>Fillings</td>
<td>46</td>
<td>45%</td>
</tr>
<tr>
<td>Semi-finished (unpacked)</td>
<td>134</td>
<td>31%</td>
</tr>
<tr>
<td>Primary packaging</td>
<td>320</td>
<td>45%</td>
</tr>
<tr>
<td>Secondary packaging</td>
<td>23</td>
<td>35%</td>
</tr>
<tr>
<td>Tertiary packaging</td>
<td>3</td>
<td>21%</td>
</tr>
</tbody>
</table>

#### Confectionery

<table>
<thead>
<tr>
<th>Ingredient</th>
<th># of variants</th>
<th>80% of tonnage [%]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chocolate mass</td>
<td>5</td>
<td>83%</td>
</tr>
<tr>
<td>Cocoa mass</td>
<td>17</td>
<td>31%</td>
</tr>
<tr>
<td>Fillings</td>
<td>20</td>
<td>34%</td>
</tr>
<tr>
<td>Semi-finished (unpacked)</td>
<td>62</td>
<td>25%</td>
</tr>
<tr>
<td>Primary packaging</td>
<td>134</td>
<td>31%</td>
</tr>
<tr>
<td>Secondary packaging</td>
<td>13</td>
<td>27%</td>
</tr>
<tr>
<td>Tertiary packaging</td>
<td>4</td>
<td>29%</td>
</tr>
</tbody>
</table>

**SKU**

- # of variants
- Share of variants that account for 80% of volume produced
- Share of variants that account for 100% of volume produced
B.3 COMPLEXITY REDUCTION FOR AN FMCG COMPANY

The single variant cost model enables complexity-related cost increases to be evaluated

Single-variant complexity cost model

<table>
<thead>
<tr>
<th>PURCHASING</th>
<th>PLANT</th>
<th>SUPPLY CHAIN</th>
</tr>
</thead>
<tbody>
<tr>
<td>188 6%</td>
<td>99 21%</td>
<td>39 34%</td>
</tr>
<tr>
<td>Cocoa beans &amp; butter 69 2%</td>
<td>Cocoa mass 11 5%</td>
<td>Co-packing 7 100%</td>
</tr>
<tr>
<td>Milk powder 22 1%</td>
<td>Chocolate mass 16 23%</td>
<td>Warehousing 21 29%</td>
</tr>
<tr>
<td>Sugar 17 1%</td>
<td>Fillings 19 31%</td>
<td>Transport 11 2%</td>
</tr>
<tr>
<td>Hazelnuts 9 4%</td>
<td>Semi-finished 25 23%</td>
<td></td>
</tr>
<tr>
<td>Other raw materials 33 19%</td>
<td>Primary packaging 19 19%</td>
<td></td>
</tr>
<tr>
<td>Packaging materials 33 6%</td>
<td>Secondary packaging 6 15%</td>
<td></td>
</tr>
<tr>
<td>R&amp;D 4 25%</td>
<td>Tertiary packaging 4 11%</td>
<td></td>
</tr>
<tr>
<td>MARKETING 5 27%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TOTAL 330</td>
<td>TOTAL COST OF COMPLEXITY EUR 47 m 14%</td>
<td>FTE impact 17%</td>
</tr>
<tr>
<td>D&amp;A impact 19%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

xx COGS [EUR m] xx Share of COGS when more than one variant is produced
**B.3 COMPLEXITY REDUCTION FOR AN FMCG COMPANY**

**COGS were cut by 3% for chocolate bars and confectionery**

**COGS savings**

<table>
<thead>
<tr>
<th>Chocolate bars</th>
<th>Achievable reduction [% of variants; EUR m]</th>
<th>Confectionery</th>
<th>Achievable reduction [% of variants; EUR m]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cocoa mass</td>
<td>4 6 -33% 0.1</td>
<td>4 6 -33% 0.1</td>
<td></td>
</tr>
<tr>
<td>Chocolate mass</td>
<td>54 82 -34% 0.8</td>
<td>40 55 -27% 0.6</td>
<td></td>
</tr>
<tr>
<td>Fillings</td>
<td>62 102 -39% 1.7</td>
<td>41 60 -31% 1.3</td>
<td></td>
</tr>
<tr>
<td>Semi-finished (unpacked)</td>
<td>328 432 -24% 1.7</td>
<td>195 247 -21% 1.2</td>
<td></td>
</tr>
<tr>
<td>Primary packaging</td>
<td>598 712 -16% 1.0</td>
<td>358 279 -17% 0.6</td>
<td></td>
</tr>
<tr>
<td>Secondary packaging</td>
<td>48 67 -28% 0.2</td>
<td>43 49 -23% 0.1</td>
<td></td>
</tr>
<tr>
<td>Tertiary packaging</td>
<td>11 15 -30% 0.1</td>
<td>12 14 -40% 0.1</td>
<td></td>
</tr>
<tr>
<td>SKU</td>
<td>794 939 -15% 1) 0.5</td>
<td>360 405 -11% 1) 0.3</td>
<td></td>
</tr>
</tbody>
</table>

**EUR 6.0 m/3.1% COGS**

% of full potential: 22%

**EUR 4.4 m/3.5% COGS**

% of full potential: 22%

1) Affects supply chain and marketing only; purchasing and plant already taken into account in reduction of variants
B.3 COMPLEXITY REDUCTION FOR AN FMCG COMPANY

Complexity management generated savings of EUR 17 m

Total savings [EUR m]

- Product portfolio optimization: 1.8
- Product complexity management: 10.4
- Target cost product development: 5.0
- Total savings: 17.2
B.4

Product value management for a leading consumer goods manufacturer
One leading consumer goods manufacturer introduced product value management to increase its profitability

**SITUATION**

Leading consumer goods manufacturer

> Net sales growth significantly below benchmark
> Return on sales clearly below competitors
> Potential from product performance improvement not leveraged

**OBJECTIVE:** Introduce product value management

> Optimize overall product value (cost/performance) and improve product profitability

**APPRAOCH:**

> Definition of 23 methods to be applied during the product development process
> Systematic application of methods in cross-functional teams (R&D, Procurement, SC, Quality, Controlling, etc.) in pilot projects
> Methods solidly anchored by communication, training, etc.
A four-step approach was used to integrate customer and company perspectives – Customer view as starting point and end point

**Approach**

**A.** Which features do customers prefer? In which order of priority? At what cost?
- Feature check
- Focus groups
- ...

**B.** What drives cost and how can we influence it early on?
- Value-based featuring
- Cost driver analysis
- ...

**C.** What alternatives can optimize product cost/performance?
- Product teardown
- Product convention
- ...

**D.** What alternatives are valued by customers and maximize profitability?
- Sales volume testing
- Price positioning
- ...

**Customer view**

**Company view**

> We started by analyzing customer preferences
> We then identified cost drivers
> In a product workshop, we defined alternative solutions to reduce product costs and increase performance
> Lastly, the solution was evaluated and optimized from the customer's perspective
The company applied a broad range of tools to optimize product value in all four steps.
Examples demonstrate that product value management reduces product costs and drives sales

Benefits (excerpt)

**BODY CARE**

-10-15% of packaging costs

- Switch from silk screen printing technology to offset printing
- No negative impact on consumer value perception (no visible difference)

**FACIAL CARE**

-15% folding box costs

- Size of folding box reduced by 20%
- Positive effect on logistics costs
- Optimization of interior design, elimination of glue dots, etc.
- Positive customer impact (driven by sustainability)

**HAIR COLORING PRODUCTS**

+ 1.6% market share

- Differentiation of hair coloring products by market to meet local price standards and consumer needs
  - Smaller packaging and elimination of deep conditioner inserts in CEE, India, for example
  - Lower cost of goods sold
  - Lower price points
Implementing 10 pilot projects enabled the company to reduce the cost of sales by EUR 60 m

RESULTS:

> Products with the right features at the right cost thanks to
  > Better transparency
  > Better alternatives
  > Better decisions

> >100 people from various functions involved in pilot projects

> Savings potential of over EUR 60 m identified and realized

> Additional potential through sales push
It's character that creates impact