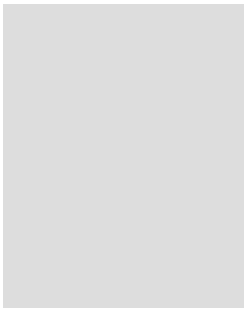




## Introduction to Supply Chain Management - Case study

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# Disposition

- Part 1 – SCM concept
  - Definition, potential, drivers
  - Conceptual basics
  - Approaches to Inventory Management
  - SCOR
  - The role of information technology: APS
  
- **Part 2 – SCM in practice**
  - **Global Supply Chain Strategy in the Hospital Supply Industry**

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## Layout of the case study

- Setting the scene
  - What happened before
  - Scope and goals
- Results from the analysis
- Overall SC design and Operating Model
- Process types and definitions, roles
- KPIs
- What happened next?

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## Company setting

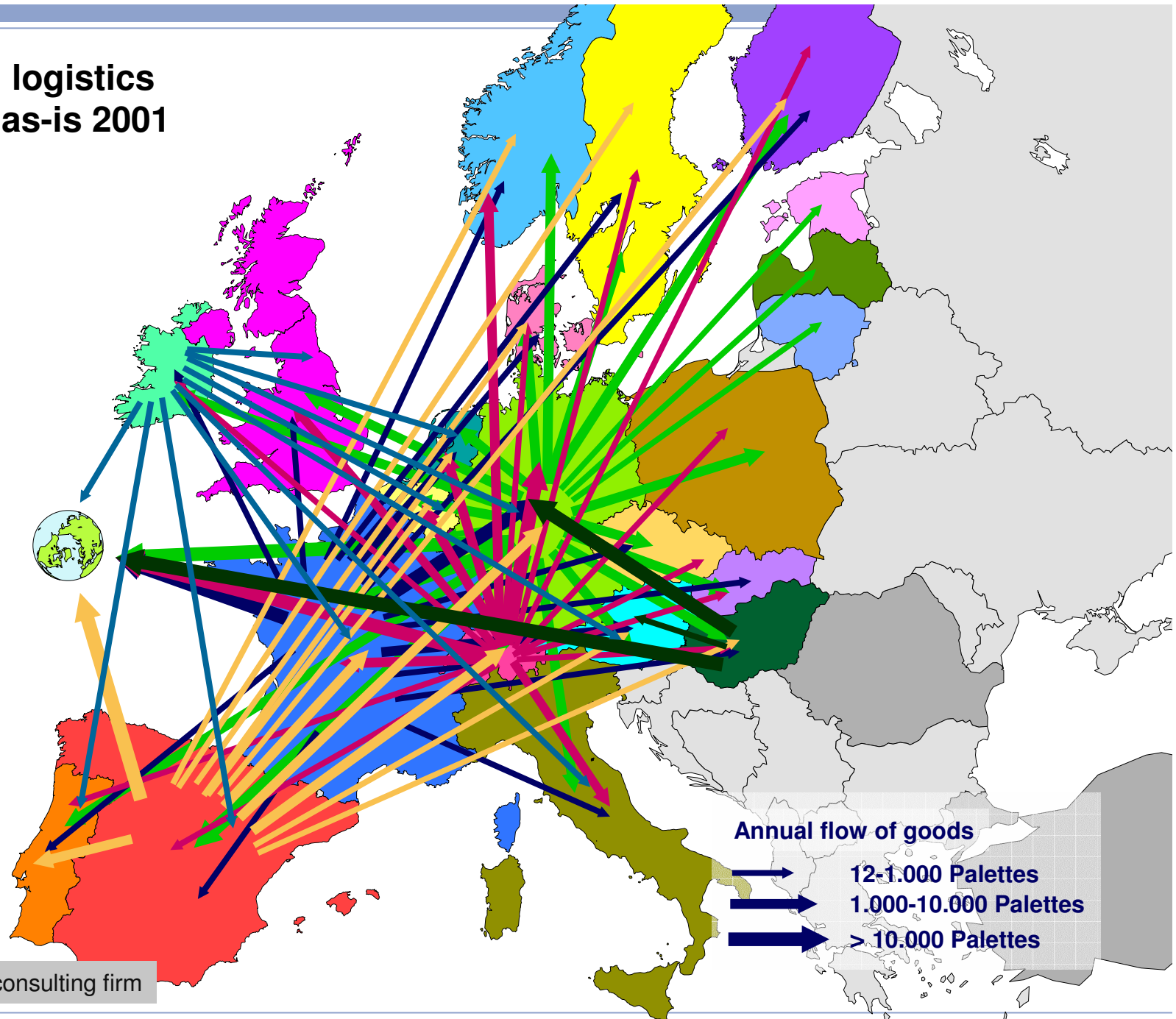
- Internationally active in the Hospital Supply Industry
  - Surgical instruments, syringes, ...
  - Medical and pharmaceutical products
  - Medical technology
- +20.000 employees world-wide
- ~USD 2.5 billion turnover

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## Starting point

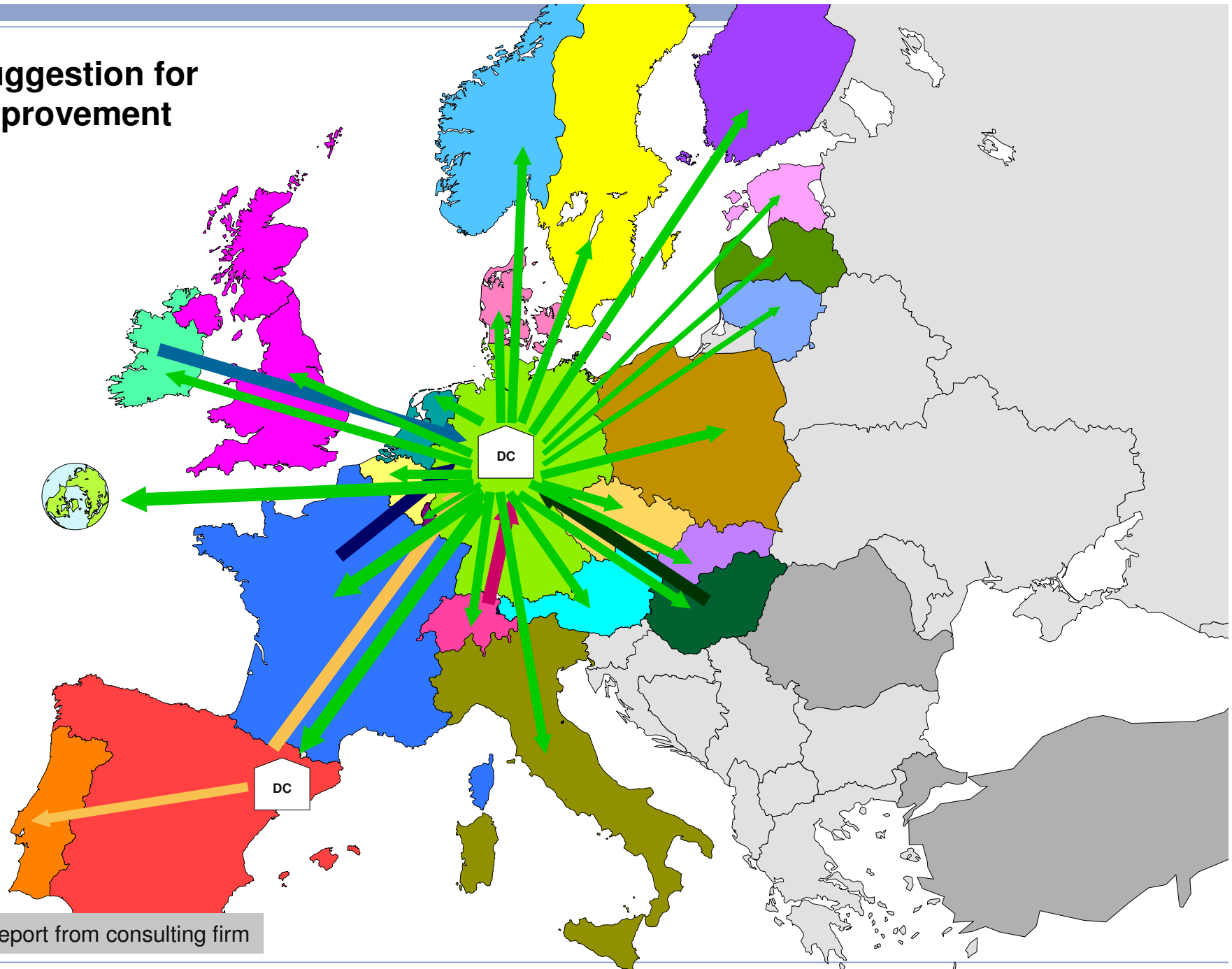
- A consulting company had developed a logistics concept for Europe, based on
  - DCs (Distribution Centers)
  - Regional Warehouses
  - Transfer points carrying inventory
- Focus: Inter-company logistics, i.e. between different companies within the group

# European logistics structure as-is 2001



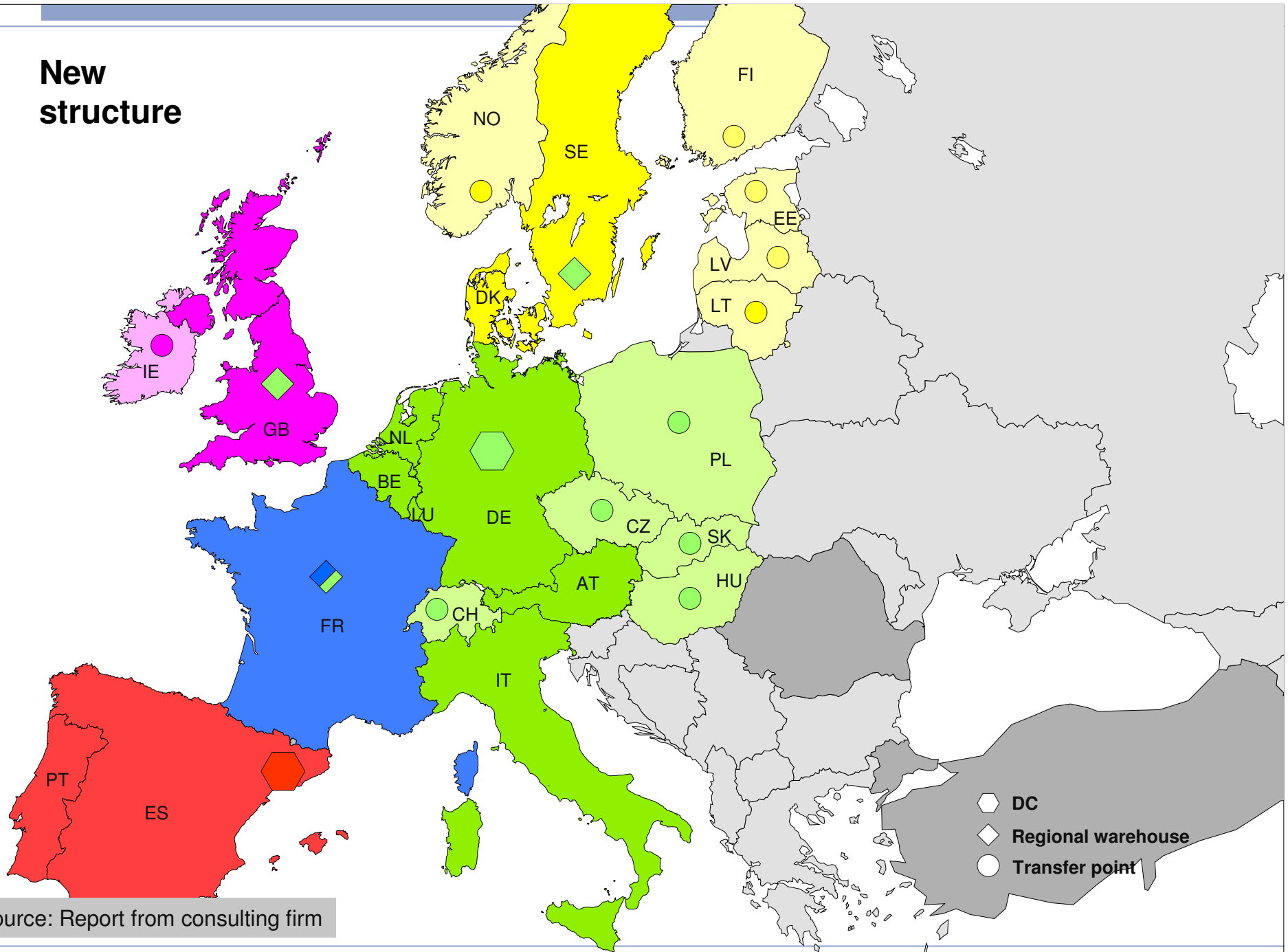
Source: Report from consulting firm

# Suggestion for improvement



Source: Report from consulting firm

# New structure



Source: Report from consulting firm

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## The European logistics concept went into implementation, however, ...

- the logistics concept had a geographical focus limited to Europe and did not consider the supply chain as a whole
- there was no global strategy behind the project
- the company realized that there was a need for a more holistic approach
  
- A core team of three IMG consultants assisted the client in defining and implementing
  - a global supply chain strategy
  - organizational structures for handling the supply chain
  - key performance indicators
  - product portfolio streamlining criteria

## Scope of the project

### Possible minimum and maximum scope

- Minimalistic scope: Material flow from factory gate to warehouse or customer
  - Limited scope; focusing on small number of activities
  - Organizational issues are frequently not addressed
  - Results can be implemented relatively fast
  - Limited focus does not allow to reap full benefits
- Maximalistic scope: Material, information and monetary flows from raw material to end customer
  - Extremely wide scope; almost all business activities addressed, except from R&D, strategic marketing and after-sales service
  - Difficult to address all issues
  - Long-term initiatives; considerable benefits can be realized

### Balanced approach used in the project

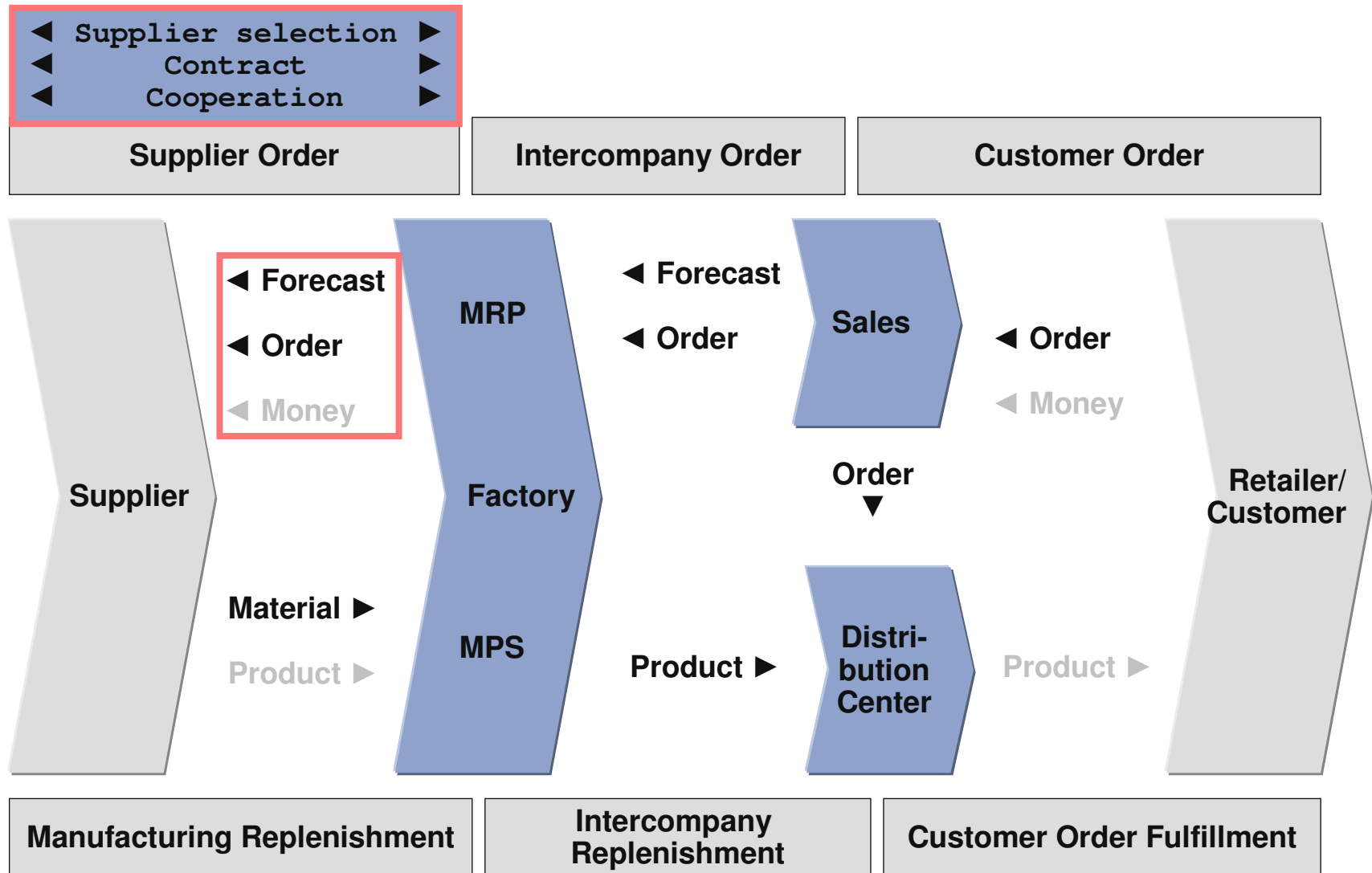
- The project includes the customer order cycle with a focus on intercompany orders and the intercompany replenishment cycle
- All material and information flows between strategic marketing, local subsidiaries, manufacturing and distribution centers
  - Inclusion of up-stream activities is not a primary issue due to high internal value-added
  - External customers and consumers are no primary issue due to the diversity of markets (regulations, channels, ...)
  - Down-stream focus, especially on inter-company activities

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## Quantitative and qualitative project goals

- Quantitative
  - Significant contribution to reduction of capital tied-up in inventory by 30% (150 of 500 M€)
  - No compromization of quality (delivery accuracy, available to promise)
  - Development and implementation of standardized KPIs and follow-up mechanisms
  
- Qualitative
  - Standardization of planning procedures and tools
  - Subsidiarity in decision-taking where possible
  - Rectification of process responsibilities in SC planning and execution

# Project scope – value system view



Scope extension, decided February 2002

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## In a first step, a series of country visits was performed

- Purpose
  - Identify critical supply chain issues as perceived by different parts of the organization
  - Create involvement throughout the organization
  - Bring knowledge from the client organization into the project
- Countries visited in the three major regions
  - Europe
    - Germany
    - Switzerland
    - France
    - Spain
    - Netherlands
  - Americas
    - USA
  - Asia/Pacific
    - Malaysia

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## Summary of results from the country visits

### Centralization/de-centralization

- Things look different viewed from HQ than they do viewed from the countries
- Thinking frozen in the “centralize” and “decentralize” opposition, where centralize stands for HQ
- Local German orders in the same order fulfillment process with country fulfillment orders
- Lack of trust between the countries and HQ: countries unwilling to reduce local safety stocks
- Much “doing business with ourselves” attitude: many think that the customer is the national company
- Many operational and communication problems

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## Summary of results from the country visits

### Processes

- Diverse planning processes in each country for short, mid, and long-term planning
- Many broken processes between HQ and the units
- No clear and consistent performance measures
- No data on current process performance
- Very long planning cycle (~5 months) for closing demand and supply planning

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## Summary of results from the country visits

### Customer service

- Problems with delivery reliability
- No global stock visibility
- Many customers have to wait for orders
- Coordination of service at customer served by multiple units

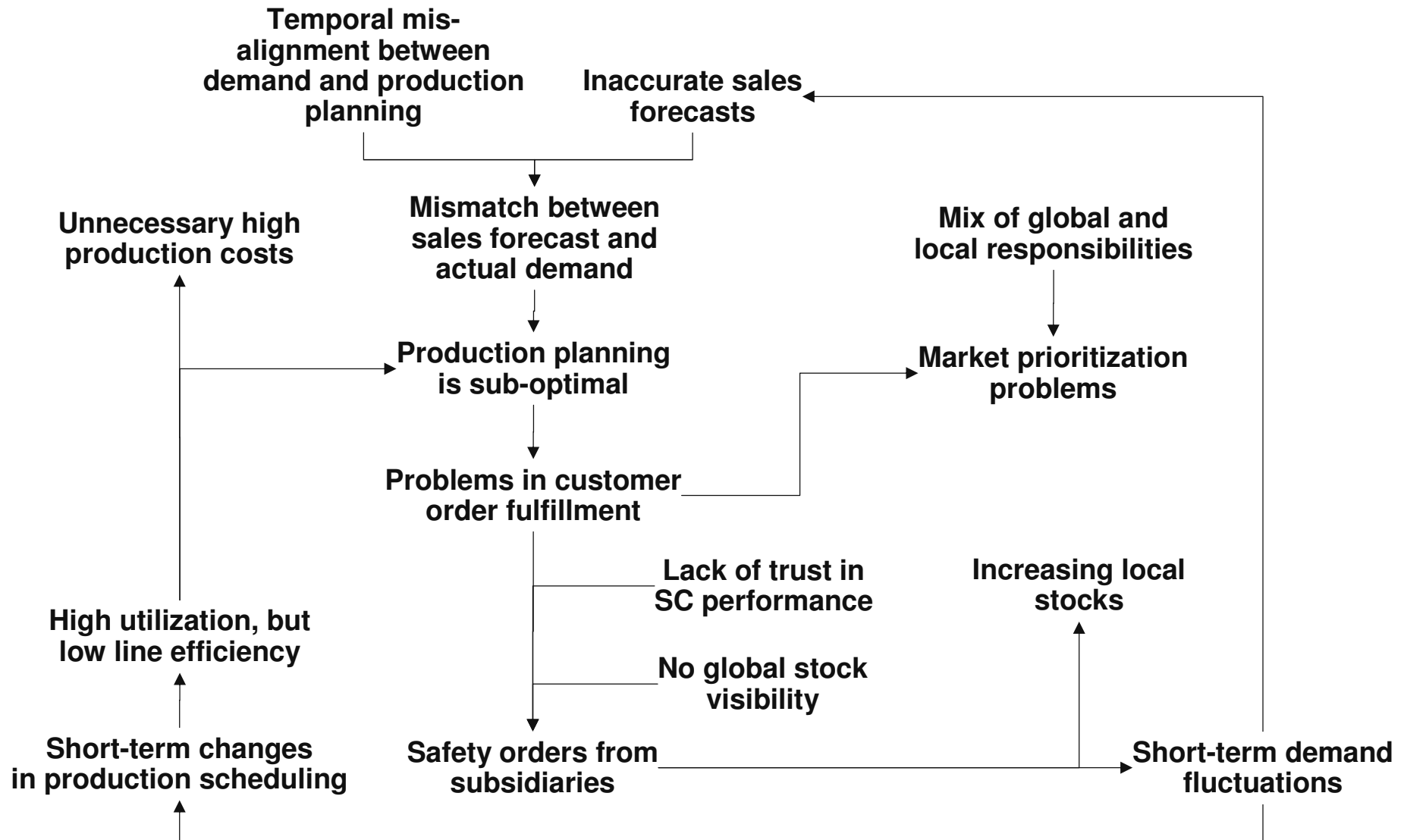
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## Summary of results from the country visits

### Priorities and focus

- Capacity constraints
- No clear categorization according to country, product, or customer profitability
- No segmentation in place; no clear priorities among local markets or products to assist in capacity allocation
- Have never attempted to prune or aggregate small customers
- Tender business is a major factor that is difficult to control

# Overall cause-effect structure

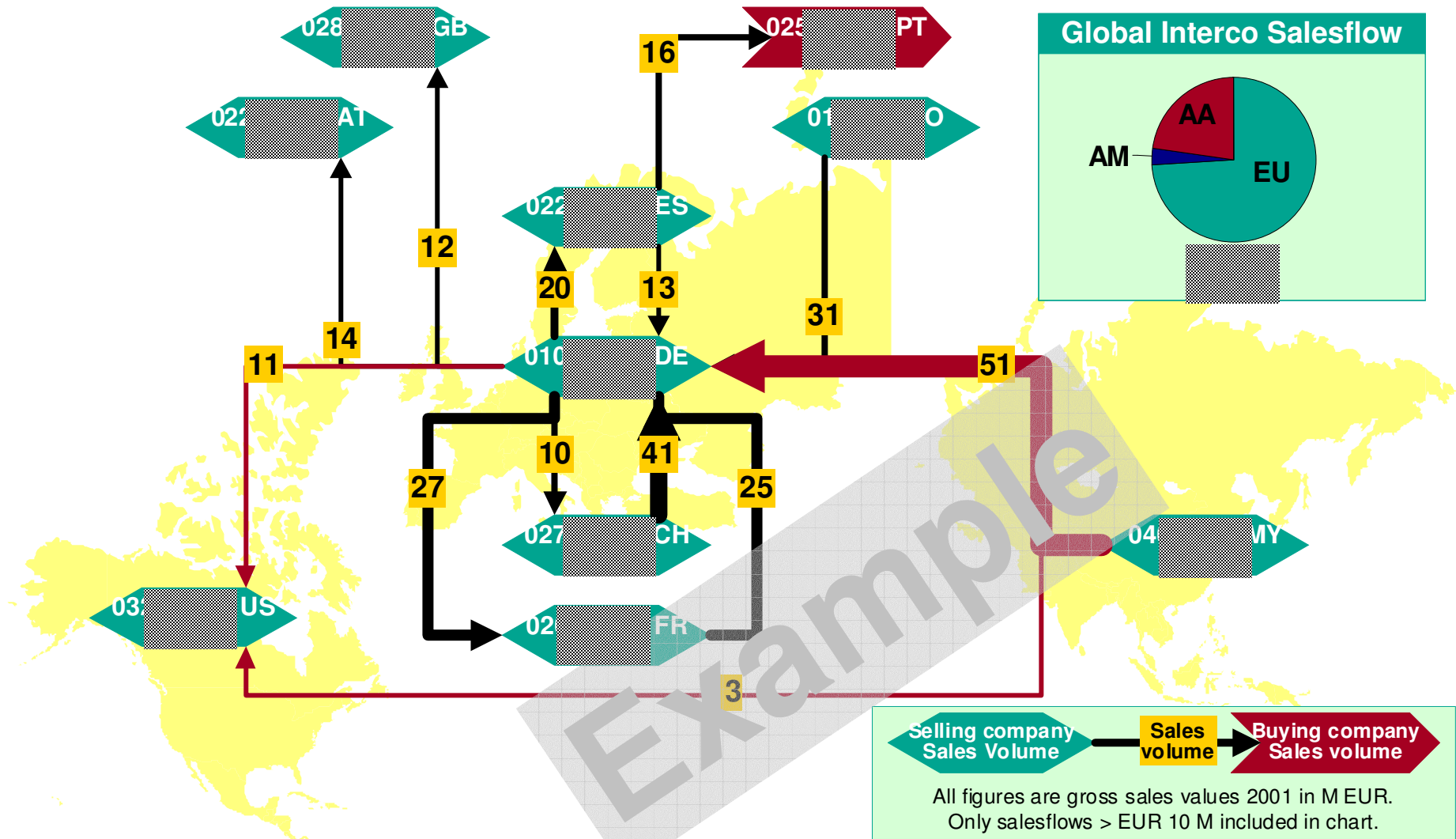


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## On the other hand, there were good pre-conditions

- Company is profitable enough to do things right
- Quality image in its markets
- Viable positions in all the major markets
- Strong sponsorship for SCM from multiple senior executives
- Key shift from country portfolio towards product lines already under way
- Single product numbering system across the countries in Europe and Asia, though units of measure need to be harmonized.
- Skills in demand forecasting
- Regional logistics concept is already being developed
- R/3 program under way to rationalize systems landscape

# In parallel, an analysis of the inter-company sales flows was conducted



Source: RolFo system, team analysis

The analysis revealed three main SC-circles, each of them with a main hub



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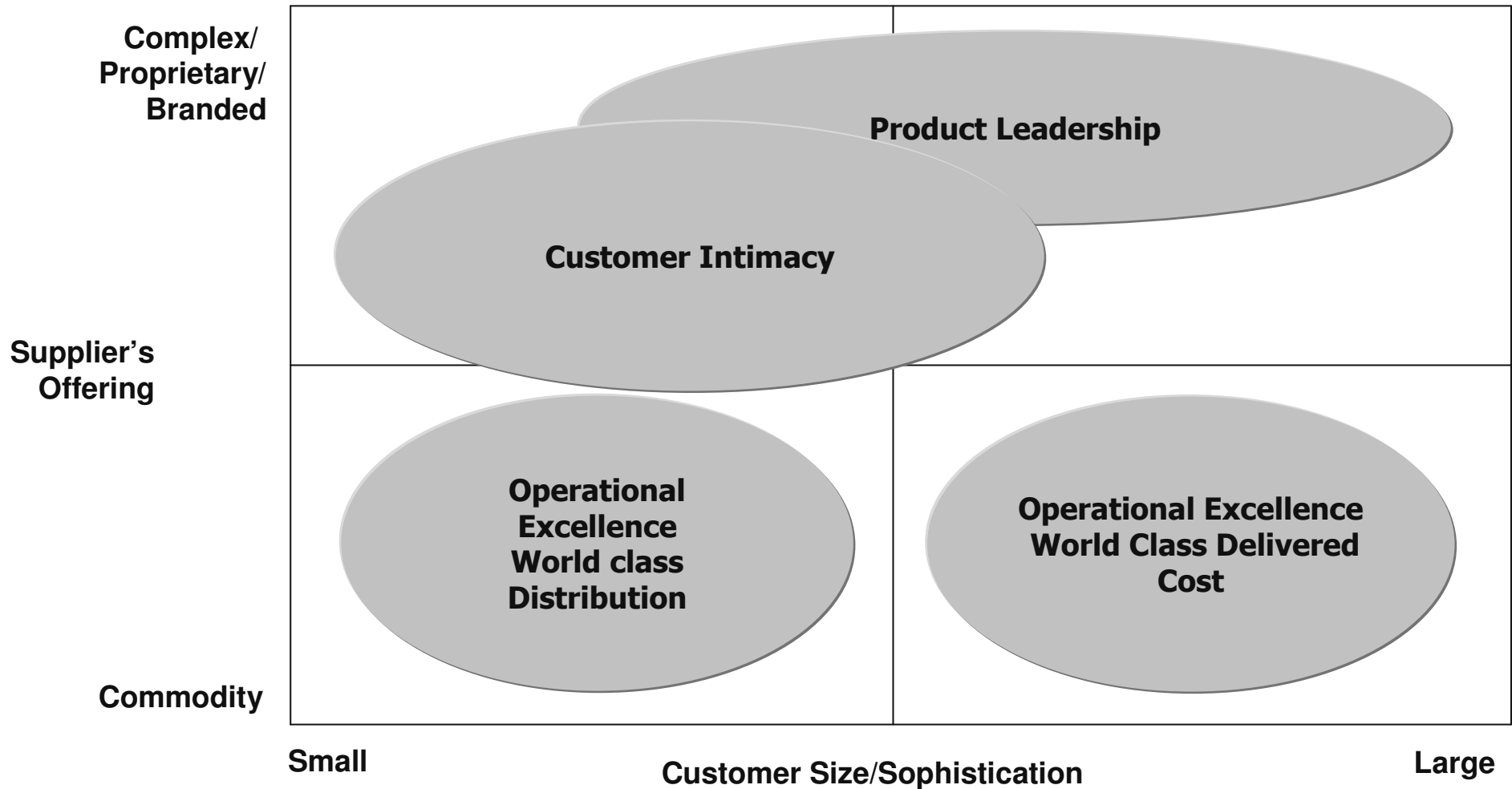
## Supply chain circle characteristics

- 3 SC main circles
  - Europe
  - USA/Canada
  - Asia-Pacific
- Other areas
  - South-America not considered due to relative self-containment of markets
  - Other markets not considered due to small volume
- Inter-region SC between RDCs only
- Inter-company replenishment within circle
  - 48 hours within Europe
  - 72 hours within US/Canada and Asia-Pacific
- Distribution centers
  - HQ warehouse in Europe serves as RDC
  - 2 RDCs (and additional DCs) in USA/Canada
  - 1 RDC (and 2 bounded warehouses) in Asia-Pacific

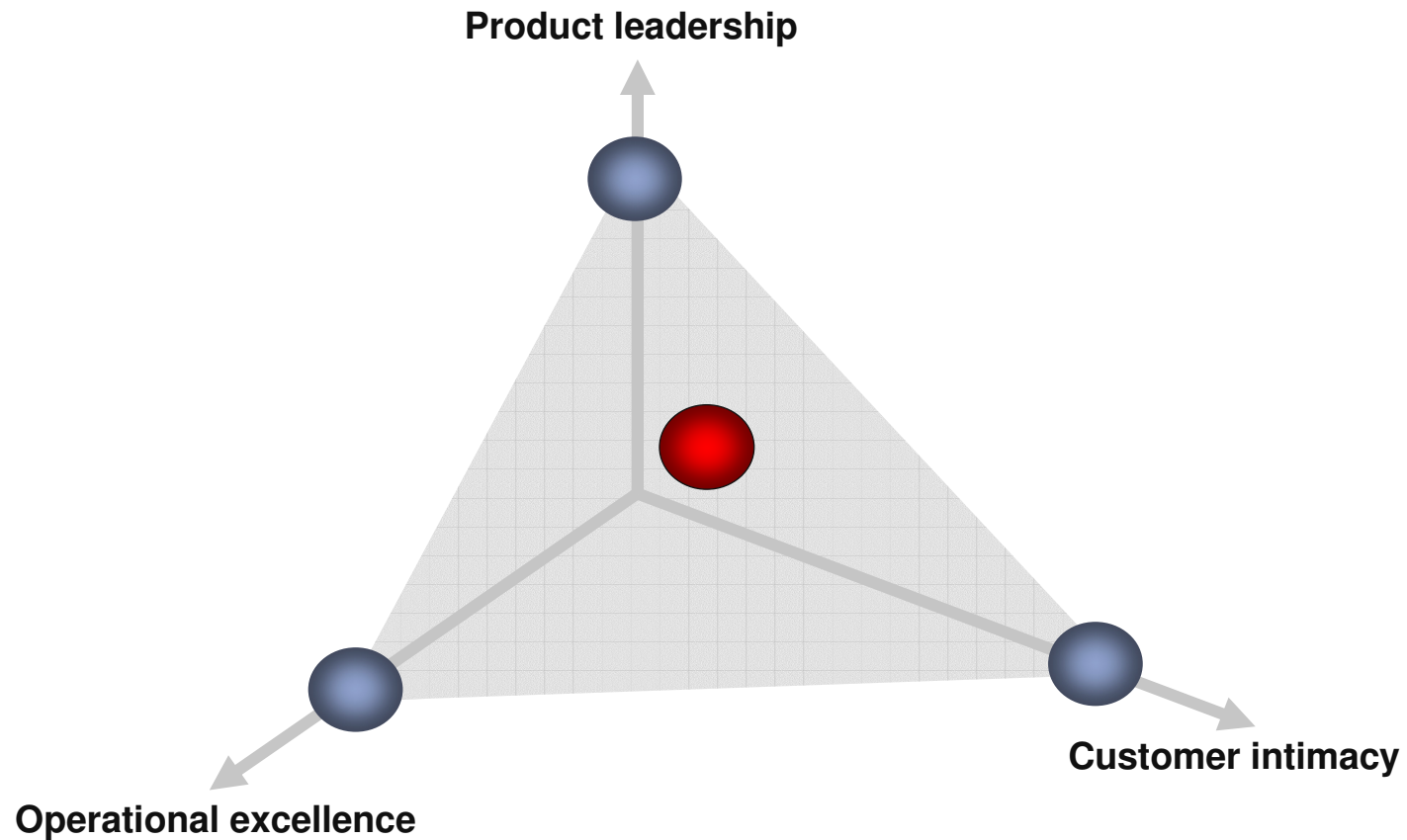
# In a management workshop, the future operating model was defined



# Market Power Matrix shows which operating model to choose in different competitive settings



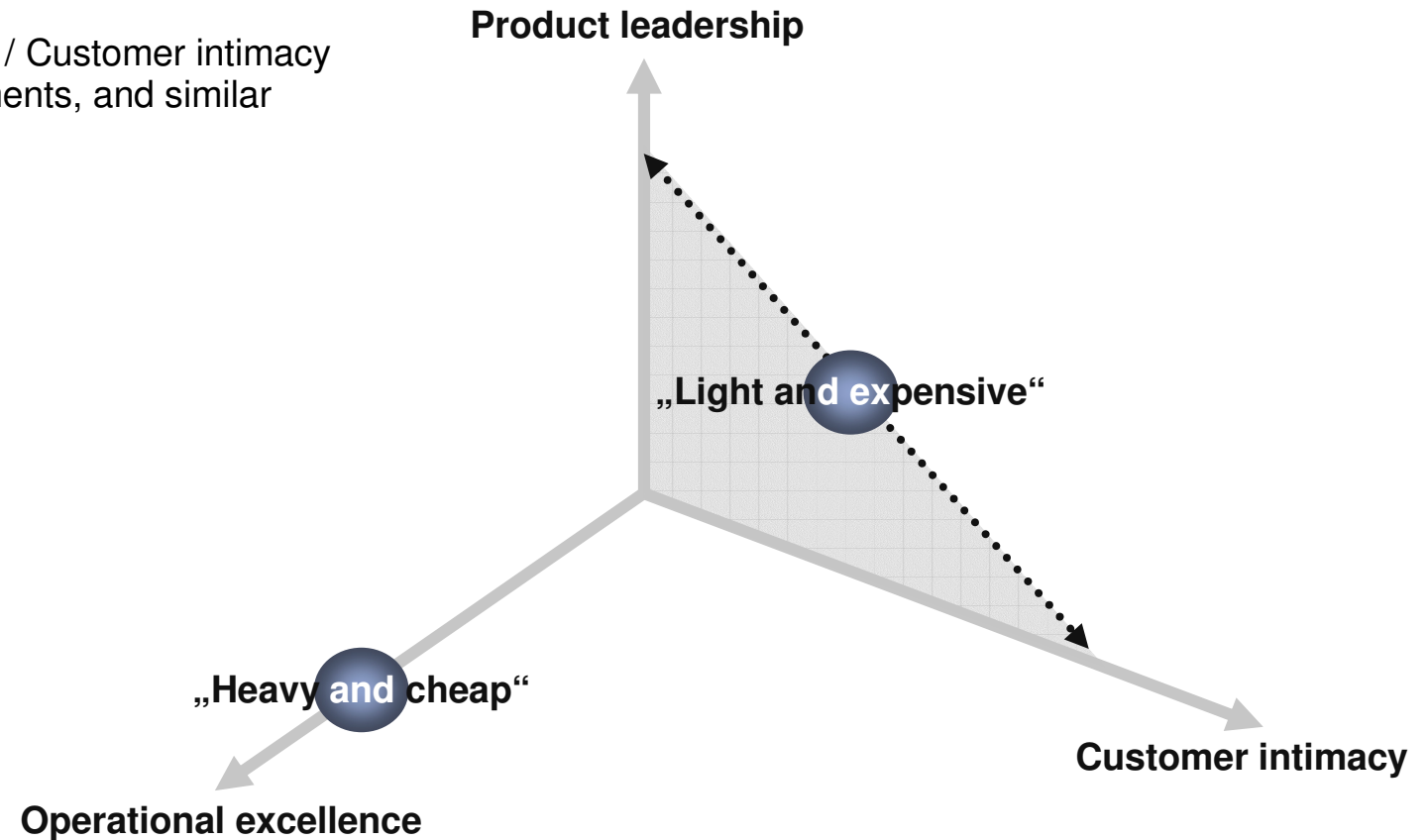
## In principle, go for a focused model



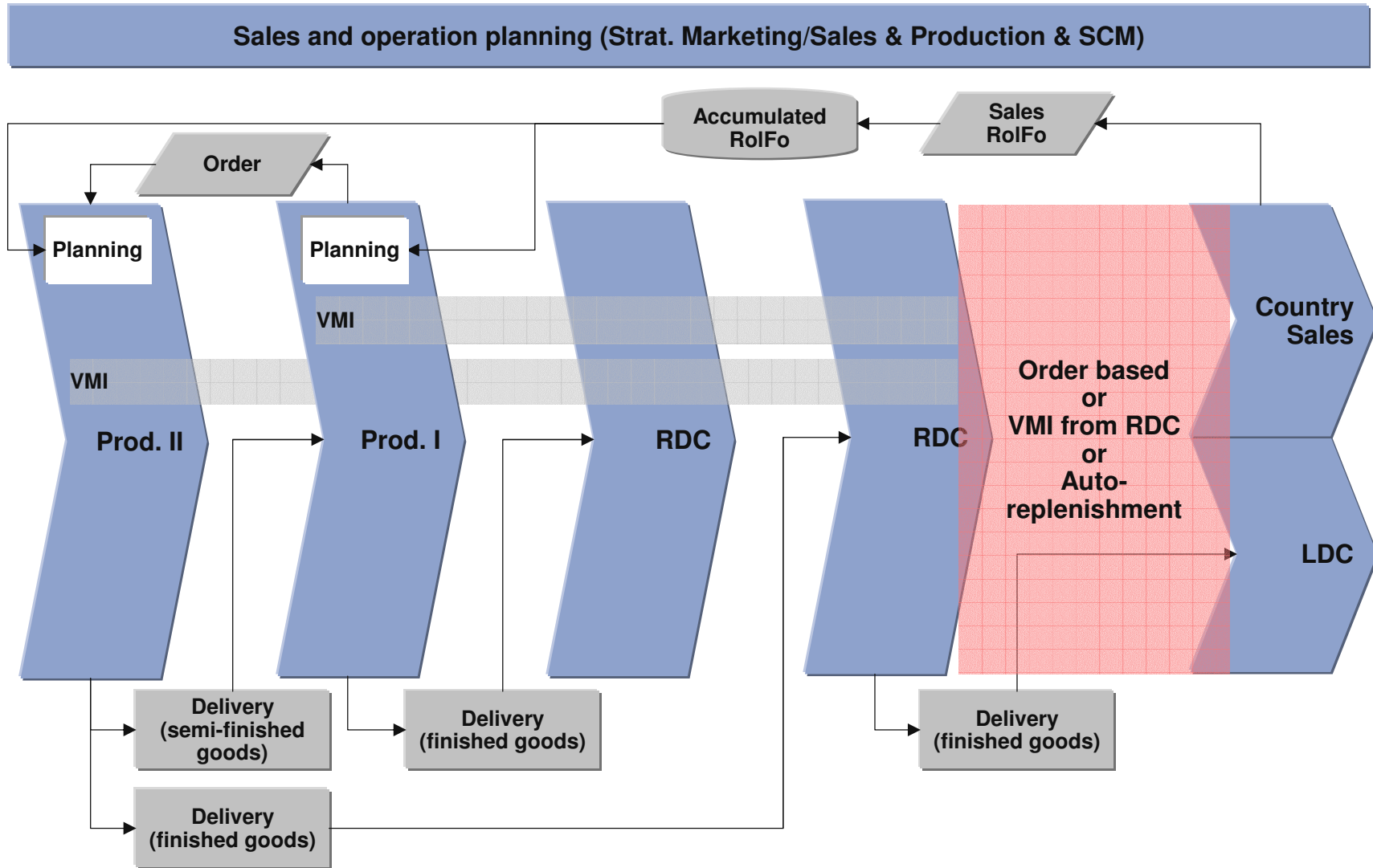
- Market leaders typically have clear-cut models
- Compromise models perform poorly, if not deliberately chosen and pursued

## Client approach: Different operating models depending on product type

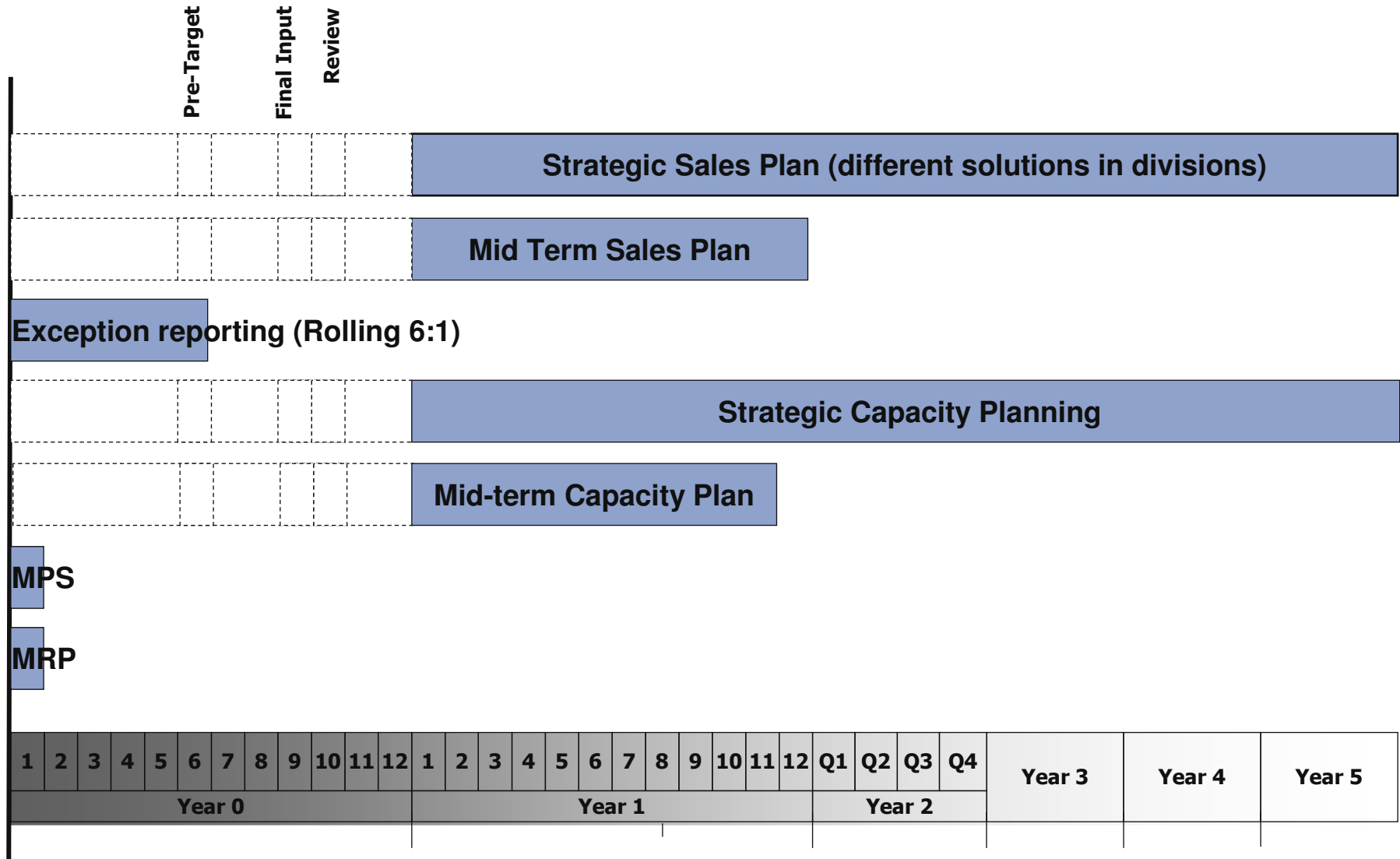
- Operational excellence for medical products and certain pharma products
- Product leadership / Customer intimacy for sutures, instruments, and similar products



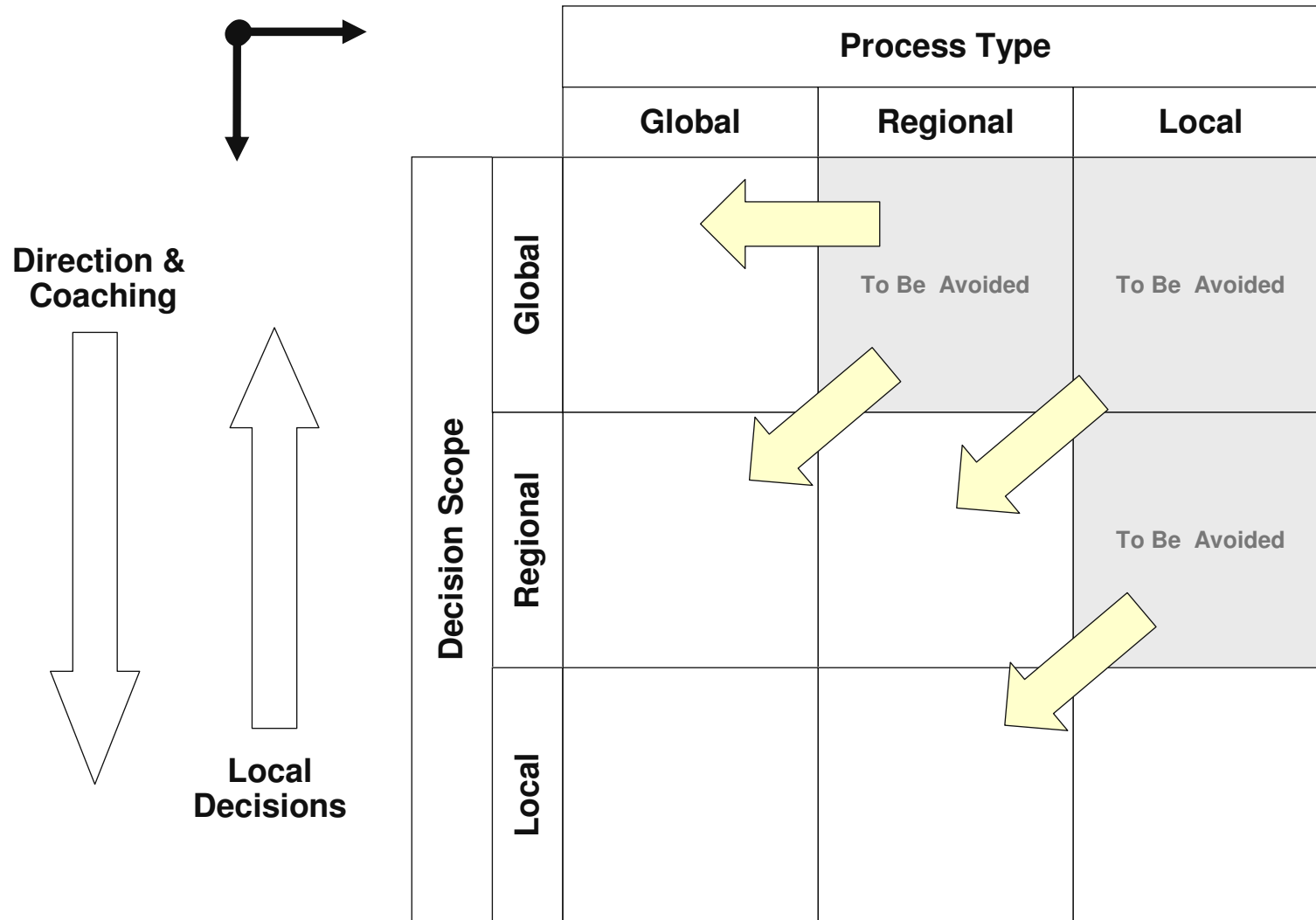
# The new overall supply chain set-up



# Planning horizons for sales and production planning – Long-term, mid-term and exception reporting (deviations from plan)



# Process types and decision scopes were identified and defined



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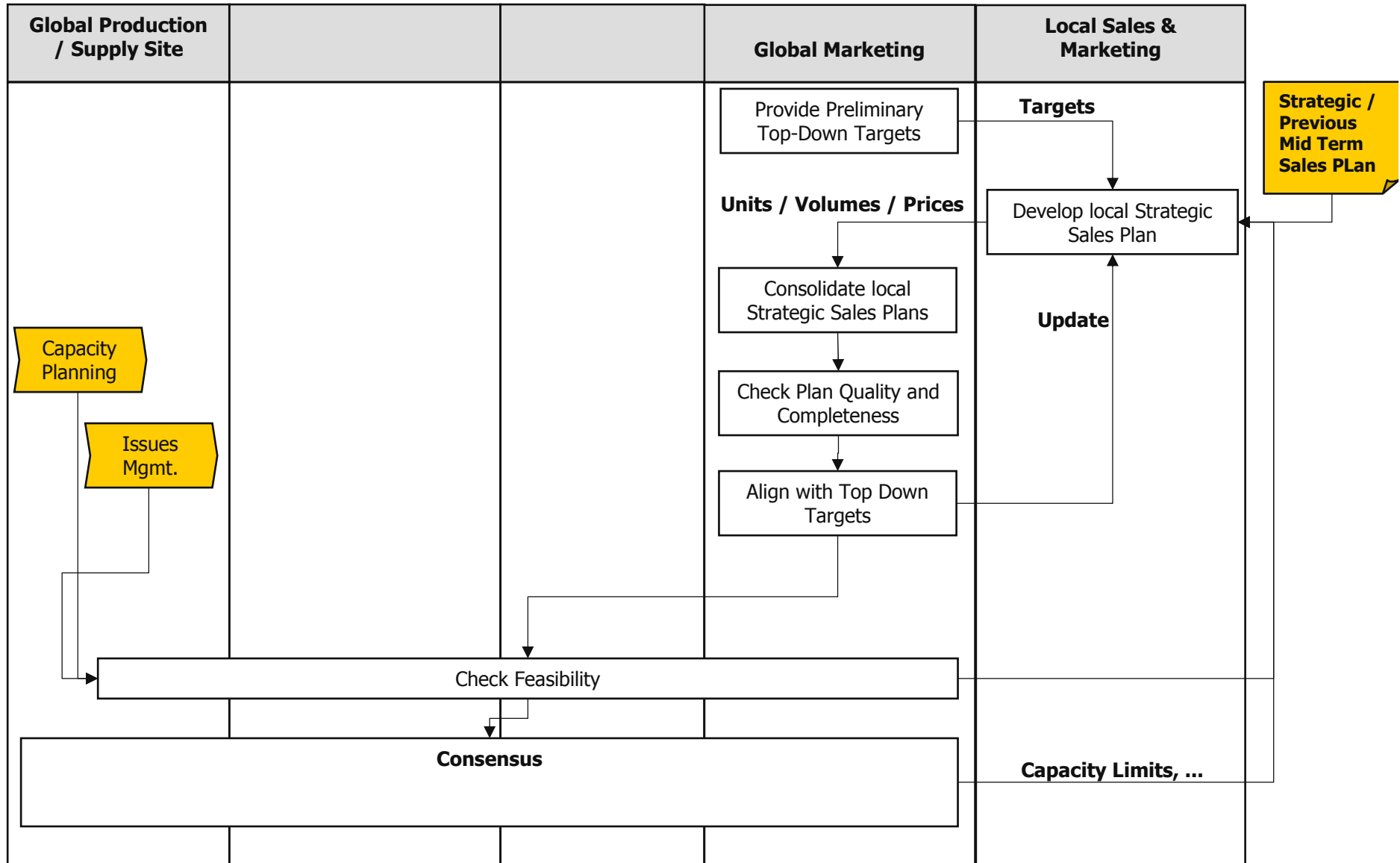
## General Direction Of Change: Move To Global/Regional Processes; Push Decisions Down

- Process types
  - **Global** – The same process supports all units worldwide. A global process can be run from anywhere
  - **Regional** – The same process design supports different organizational entities within a region
  - **Division**
  - **Local** – The process is locally decided and is expected to be different in each local entity
  
- Decision scope
  - **Global** - Decisions are centrally made and valid for the entire organization
  - **Regional** - Decisions are regionally made and valid for a specific region, e.g. Europe, North America, Latin America, Far East, Africa
  - **Local** - Decisions are locally made and valid for a specific country, e. g. Bulgaria, United States, Austria

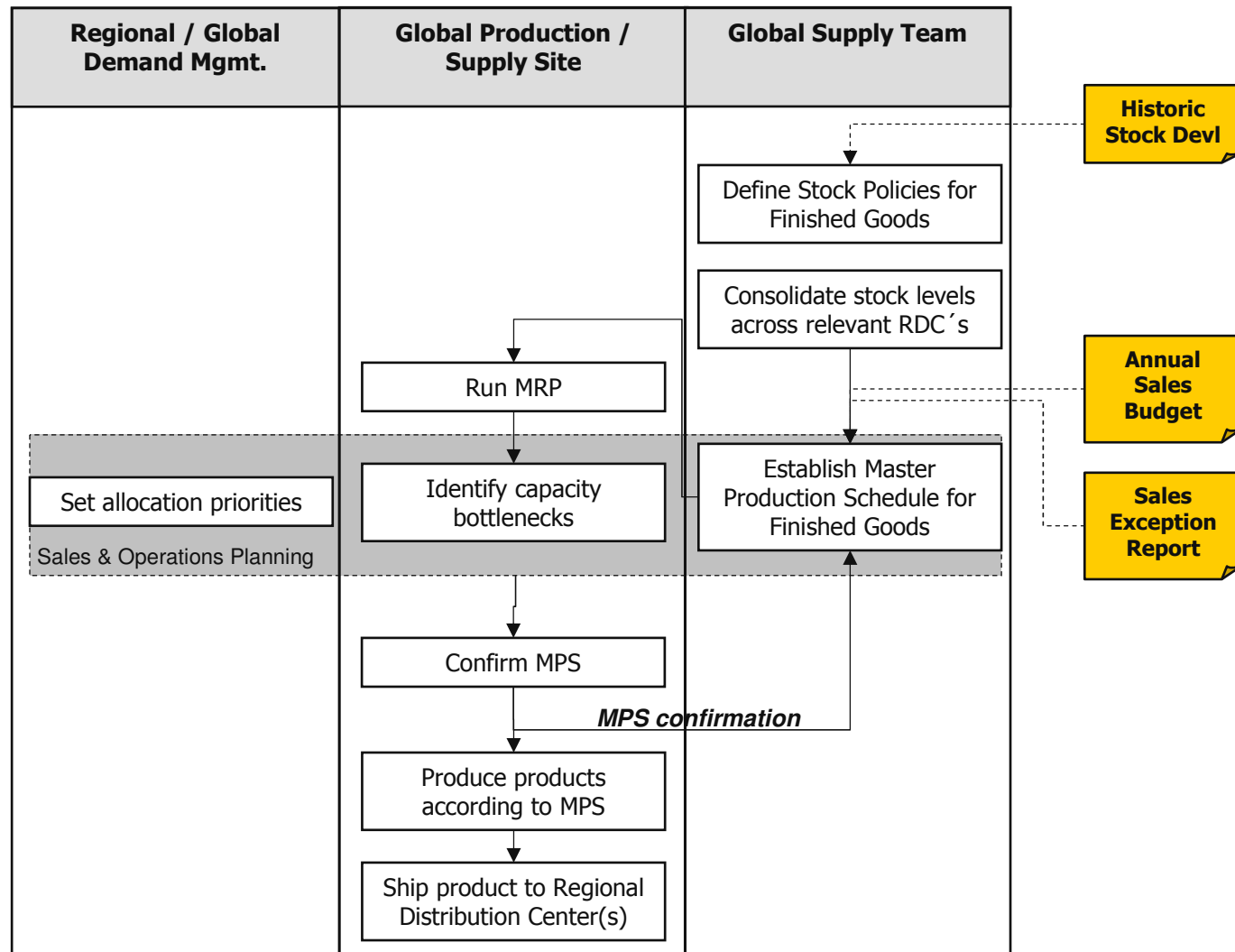
## Project results - Process types and decision scopes

		Process Type		
		Global	Regional	Local
Decision Scope	Global	<ul style="list-style-type: none"> <li>▶ Capacity Planning (Strategic -&gt; 3-5 y)</li> <li>▶ Strategic Sales Planning</li> <li>▶ Mid Term Sales Planning (Reporting)</li> <li>▶ Master Production Scheduling</li> <li>▶ Warehouse replenishment (RDC)</li> </ul>	To Be Avoided	To Be Avoided
	Regional	<ul style="list-style-type: none"> <li>▶ Order taking (interco) (to be replaced by auto-replenishment mid-term, if country warehouses exist)</li> </ul>	▶ Regional distribution	To Be Avoided
	Local	<ul style="list-style-type: none"> <li>▶ Capacity Panning (Reporting)</li> <li>▶ Strategic Sales Planning (Reporting)</li> <li>▶ Mid Term Sales Planning (Reporting)</li> <li>▶ Short Term Sales Planning</li> <li>▶ Warehouse replenishment (local), if existent</li> <li>▶ Ordering materials (interco)</li> </ul>	▶ MRP	<ul style="list-style-type: none"> <li>▶ Ordering materials (external)</li> <li>▶ Order taking (3<sup>rd</sup> party)</li> <li>▶ Local distribution, if existent</li> </ul>

# Process definitions – Example mid-term sales planning



# Process definitions – Example Master Production Scheduling (for RDC replenishments) / Capacity Planning



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## New roles and responsibilities were defined

- New roles were created for the SC organization, some existing roles were modified
  
- Affected management roles
  - Global Supply Management
  - Global Sales Management
  - Global Production Management
  - Global Product Manager
  - Regional Warehouse Management
  - Local Production Management
  - Local Sales and Marketing
  - Local Warehouse Management

## Example of a role description – Local Sales and Marketing

### ■ Role Description

- Generate demand
  - Existing Products: Define product range sold in local market
  - New Products: Assess market potential, and pricing
- Work with local/global supply mgmt. to ensure product is available when needed
- In case of shortages, adjust market activities

### ■ Responsibilities

- Provide Strategic and Mid Term Sales Plan, as well as exception reports to local/global supply mgmt.

### ■ Performance Measure

- Forecast Accuracy

### ■ Authority

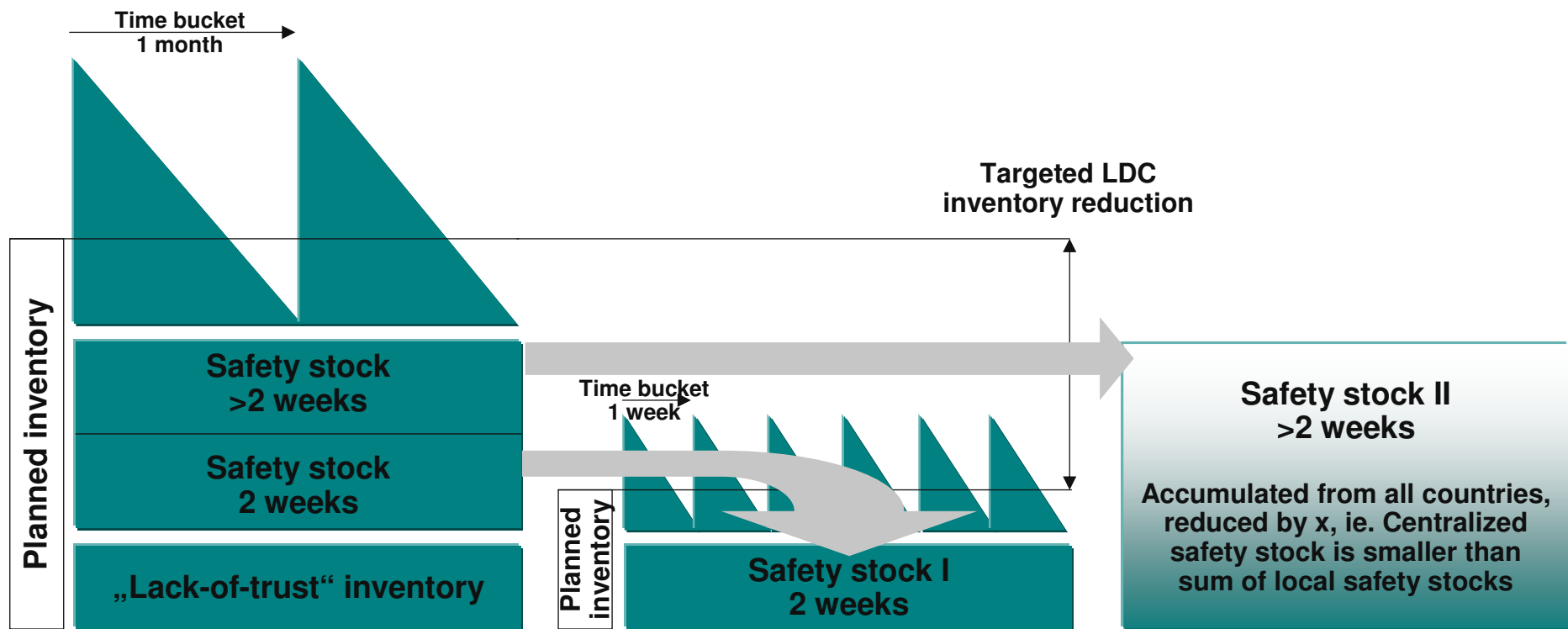
- Allocate product in local market in case of local shortage
- Decide on promotional activities in local market

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## For the different parts of the SC organization, KPIs were defined in working groups

- Customer facing KPIs, e.g.
  - Forecast accuracy
  - Delivery performance
  - Availability indicator
  
- Purchasing, e.g.
  - Supplier reliability
  - Supplier price index
  
- Production
  
- Quality Management
  
- Warehouse

# Example Forecast accuracy - Inventory reductions require highly accurate forecasts



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## KPI characteristics

- The KPI is applicable to the unit which was in charge of the forecast
  - Sales units for sales forecasts
  - Supply teams for production forecasts
  - Note: Due to the planning procedure at Aesculap the KPIs for the sales organizations and the supply team are identical
  
- Application level: Every material number which was forecasted in a specific time period
  - Attribute set for the FA includes material number (allows to select MPS person in charge of product) and company code (allows to select reporting country)

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## KPI calculation

**FA = [order sum] / [forecast sum] if [order sum] < [forecast sum]**  
**FA = [forecast sum] / [order sum] if [order sum] > [forecast sum]**  
**FA = 100 % if [order sum] = [forecast sum]**

***where***

**forecast sum = the sum of the units to be shipped in a specific time period according to the forecast for this time period**  
**order sum = the sum of the units which were actually ordered with a CRD in the same specific time period (CRD -> Customer request date)**

- **FA is measured in the same units as forecast (€, Packaging unit, ...)**
- **Time bucket for KPI calculation is normally one month, but at least equivalent to the forecasting time bucket**

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## Questions

- What does it cost?
- How long does it take?
- Critical Success Factors
- What's next: We will have to deal with the constraints of physics, unless
  - „we will meet in transporter room 6“