



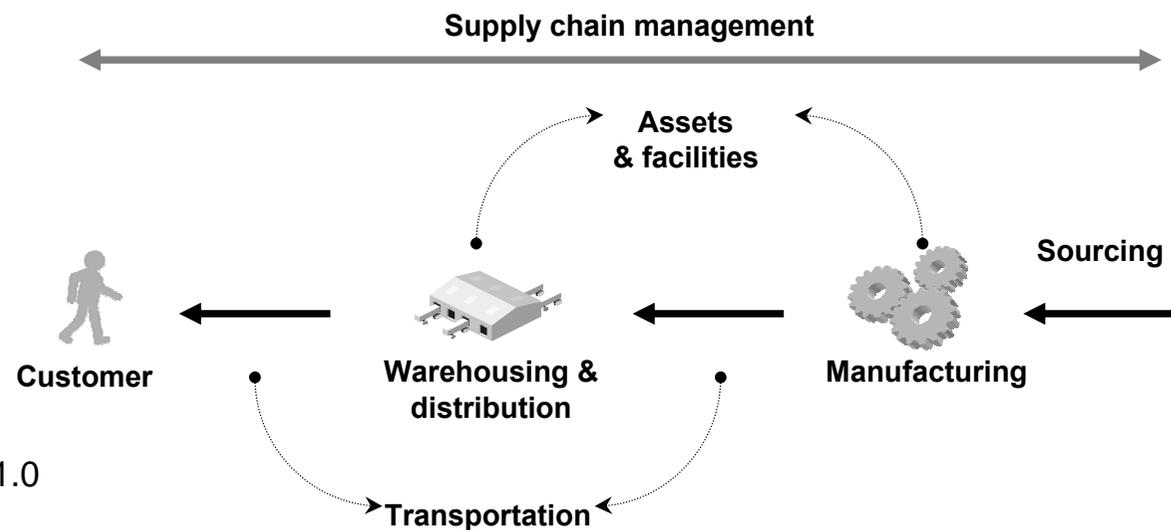
Supply Chains in the healthcare industry

Trends & best practices

November 19, 2009

Brussels

version 1.0



Agenda



- Supply Chains in its perspective
 - Sector differentiation
 - Challenges & Trends
- Supply Chains optimization
 - Network redesign
 - Supply chains differentiation
 - Inventory management
 - Warehousing optimization
 - Outsourcing
- Supply Chains collaboration
 - Operational capabilities
 - Sales & Operations Planning
- Closing statements

Supply Chains perspective

Logistics parameters

	Performance attribute	Performance Attribute Definition
CUSTOMER FACED	Supply Chain Delivery Reliability	The performance of the supply chain in delivering: the correct product, to the correct place, at the correct time, in the correct condition and packaging, in the correct quantity, with the correct documentation, to the correct customer
	Supply Chain Responsiveness	The velocity at which a at which a supply chain provides products to the customer
	Supply Chain Flexibility	The agility of a supply chain in responding to marketplace changes to gain or maintain competitive advantage
INTERNAL FACED	Supply Chain Costs	The costs associated with operating the supply chain
	Supply Chain Asset Management Efficiency	The effectiveness of an organization in managing assets to support demand satisfaction. This includes the management of all assets: fixed and working capital



Supply Chains perspective

Healthcare differentiation

Non-Patented Drugs	
Performance Attribute	SC Performance versus Competition
Reliability	
Responsiveness	
Flexibility	
Operational Costs	
Asset Utilization	

 superior  advantage  parity

Bio-Pharmaceuticals	
Performance Attribute	SC Performance versus Competition
Reliability	
Responsiveness	
Flexibility	
Operational Costs	
Asset Utilization	

 superior  advantage  parity

Patented Drugs	
Performance Attribute	SC Performance versus Competition
Reliability	
Responsiveness	
Flexibility	
Operational Costs	
Asset Utilization	

 superior  advantage  parity

Medical Devices	
Performance Attribute	SC Performance versus Competition
Reliability	
Responsiveness	
Flexibility	
Operational Costs	
Asset Utilization	

 superior  advantage  parity



Supply Chains perspective

General trends

Market challenges

The financial crisis and a more demanding customer have significant implications on the supply chains ...

... increase balancing on costs versus customer service

Cost leadership

vs.

Quality **reliability**

vs.

Agility and speed

Supply Chains response

- Consolidation in regional network structures
- Enhance supply chains flexibility & agility
- Apply stringent risk management
- Control net working capital / inventory value

Healthcare challenges

- Pressure on the sales **margins**, especially in
- **Counterfeit** medicines through the internet
- Numerous **patent endings** for bigger companies
- **Speed to market** has reduced, resulting from stricter legislation
- **Smaller blockbusters** then before

Supply Chains response

- Supply chains simplification
 - Reducing degrees of separation between manufacturer and end-consumer
- Delivery specialization
 - Tailor made supply chain solutions

Supply Chains perspective

Supply chains response

In high cost, high competitive value areas

Focus on economy of scale
buy companies specialized in R&D or
increase market share by takeovers

In high cost, high logistics competitive value

Optimize logistics
Minimize (logistics) costs

In high cost, low logistics competitive value

Why compete?
Why not cooperate?

- Network redesign
- Supply chains differentiation
- Inventory management
- Warehousing optimization
- Outsourcing
- Sales & Operations Planning
- Collaborative Planning
Forecasting & Replenishment



Agenda

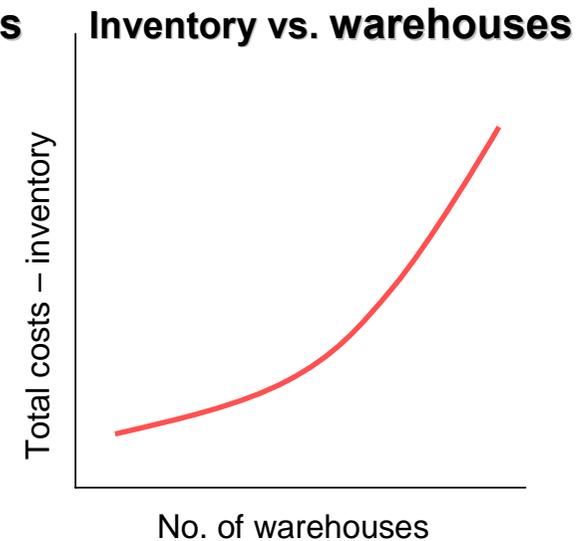
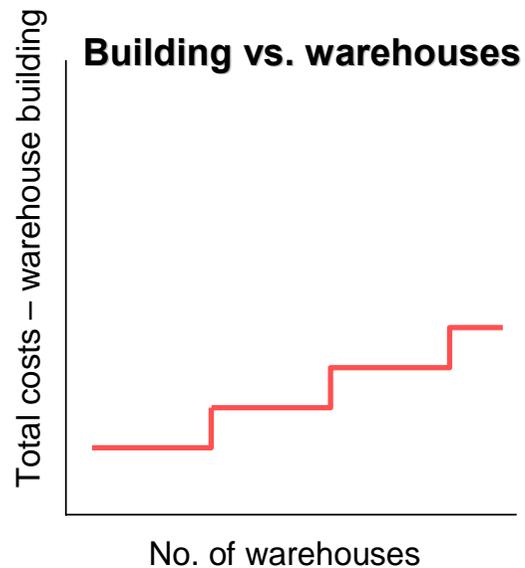
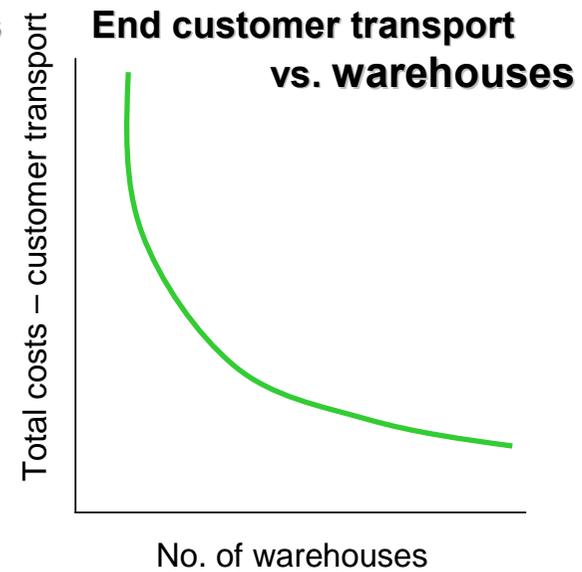
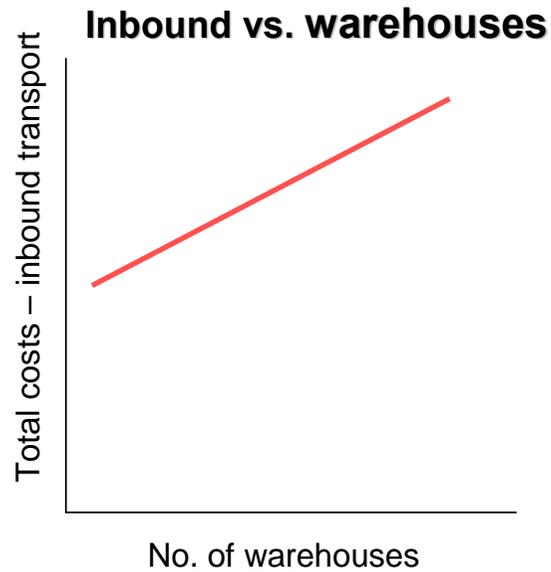
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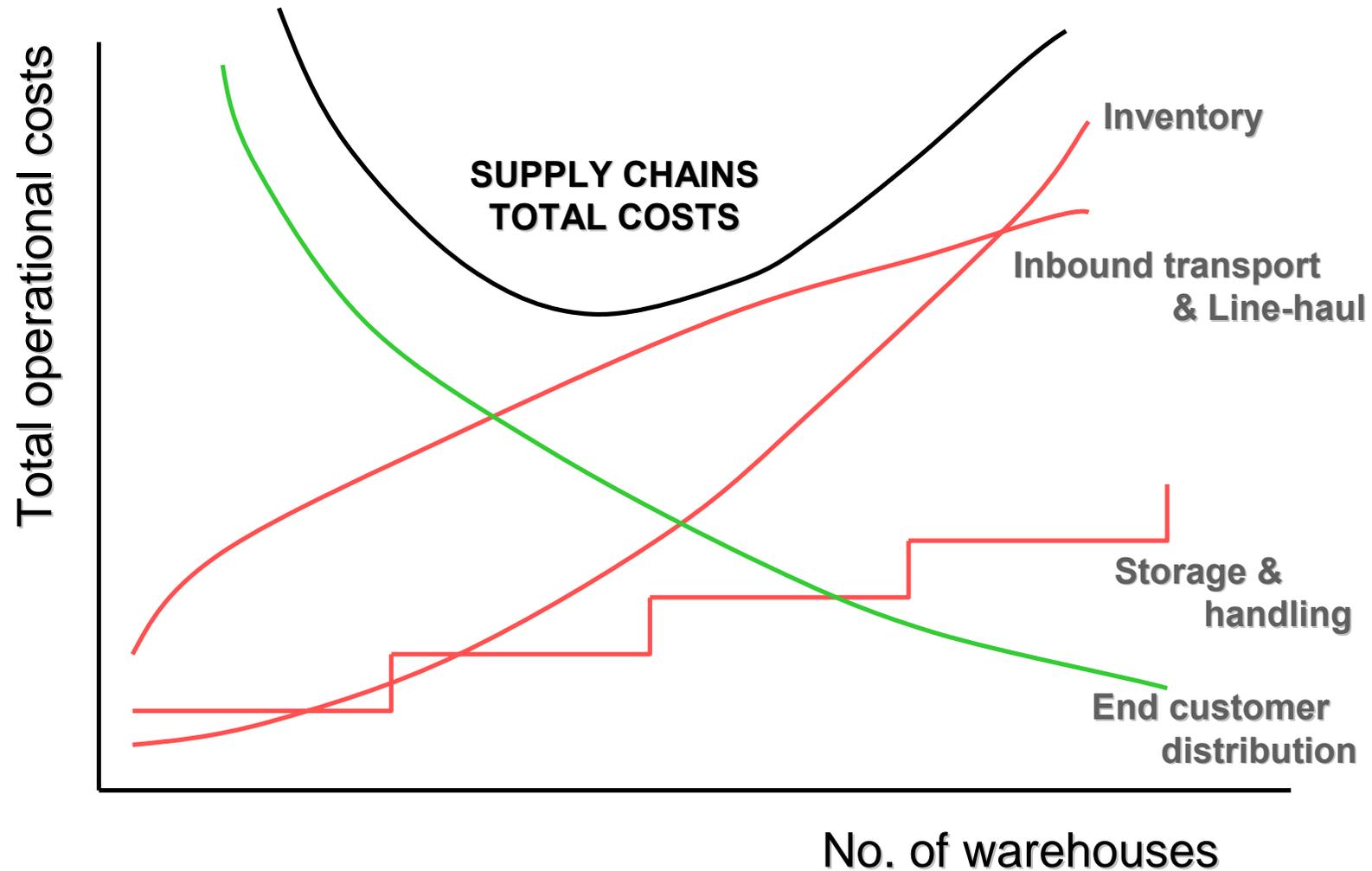
Network redesign

Cost factors



Network redesign

Cost factors - overview



Network redesign

History (1)

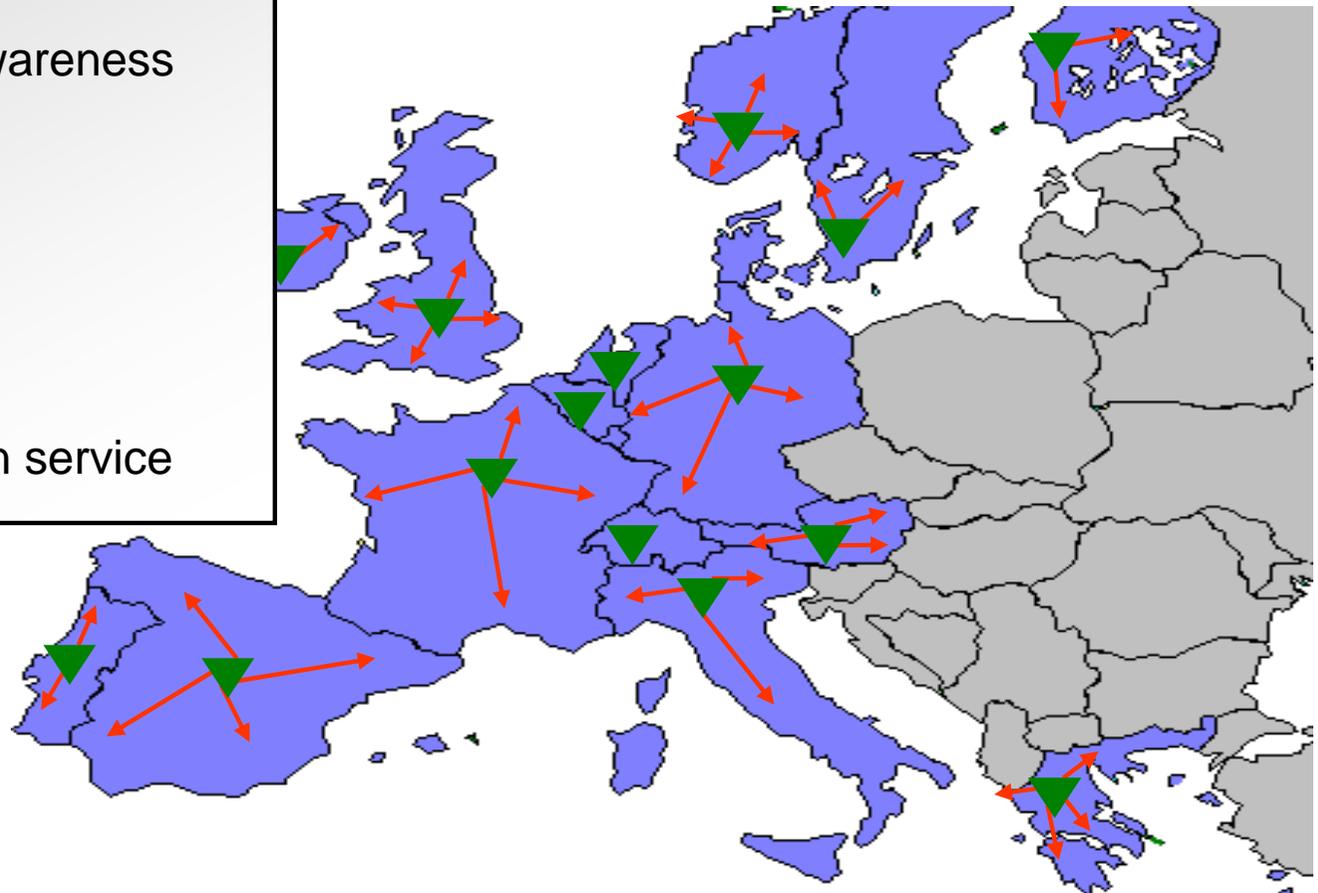
European Economic
Community established

Schengen
agreement effective

1957

1990

- Limited integral Supply Chain awareness
- Decentralized country approach:
 - DC's self-owned
 - Local stock management
 - Local transport
 - No / limited article overlap
 - No / limited diversification in service



Network redesign

History (2)

European Union
established

AUT, FI, SE
joined EU

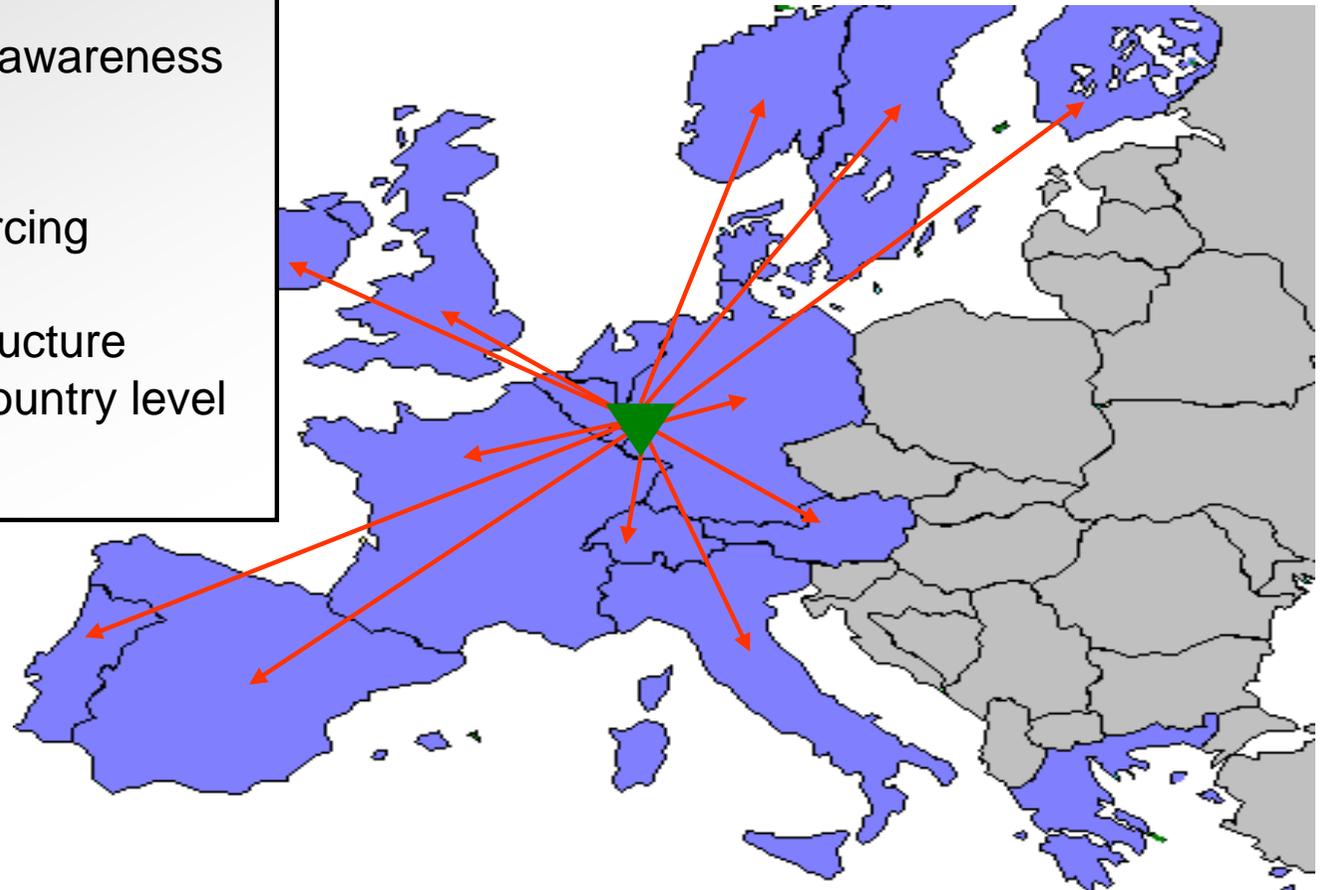
Euro (€)
introduced

1993

1995

2002

- Moderate integral Supply Chain awareness
- Centralized European approach:
 - From self-owned to outsourcing
 - Central stock management
 - Transport based on hub structure
 - Service diversification on country level
 - More VAL activities



Network redesign

History (3)

10 nations
joined EU

RO, BUL
joined EU

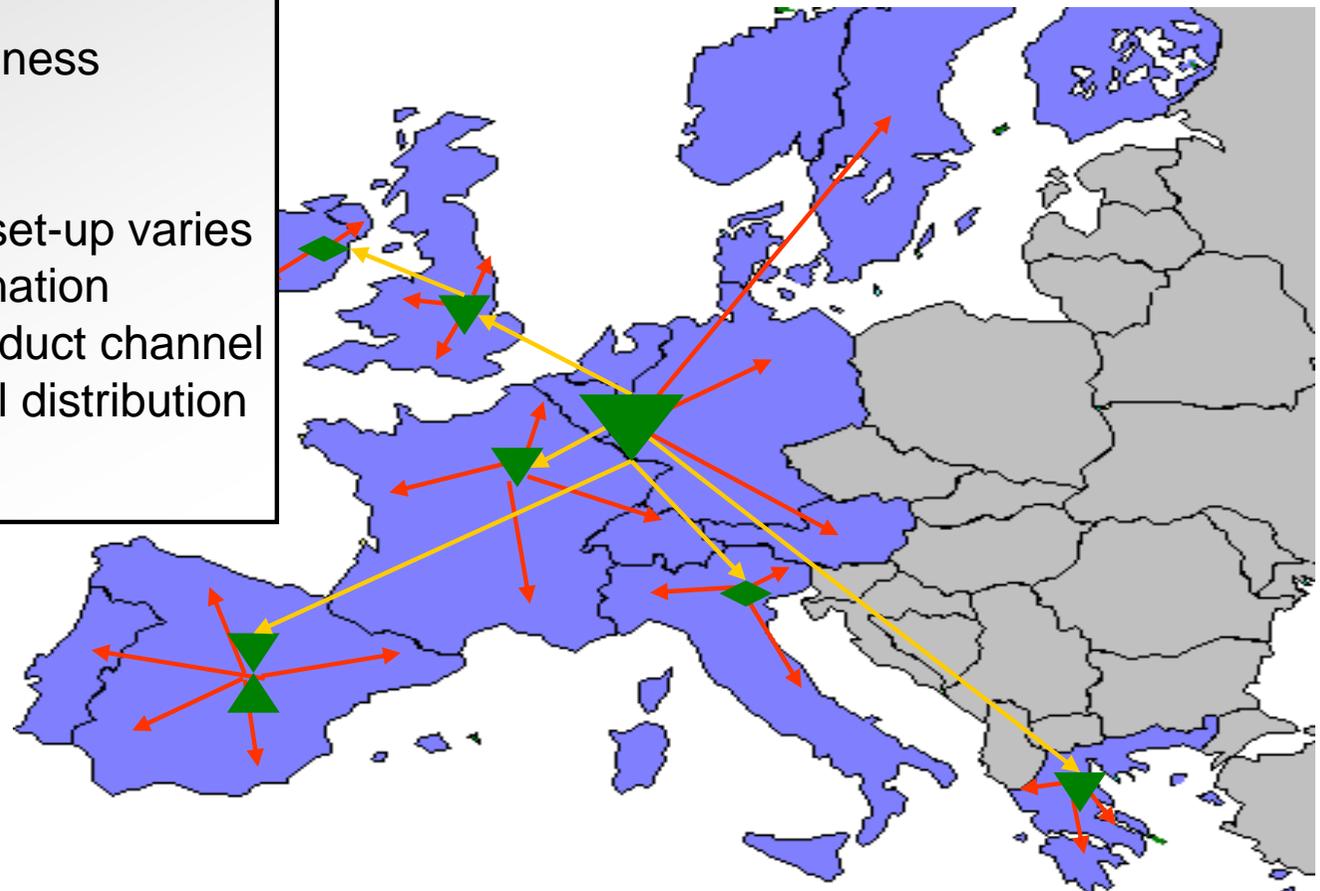
SL adopted
The Euro

2004

2007

2009

- Full integral Supply Chain awareness
- HUB & SPOKE structures:
 - DC's mainly outsourced & set-up varies per product channel combination
 - Stock management per product channel
 - International trunking - local distribution
 - Service is customized



Supply chains differentiation

Reasoning

- “We are serving local market with local warehouses”
- “All products must be physically available at all our warehouses”
- “Medicine deliveries are very specific, because we do not deliver at the door of a warehouse”
- “Medicines have specific storage conditions to guarantee the quality”
- “We need flexibility because medicines have very short customer lead-times (same-day deliveries)”
- “Validating a complete supply chain is impossible”

Is there one best practice supply chain solution for all pharmaceutical manufacturers?



Supply chains differentiation

Logistics models

Volume manufacturer

- Emphasis on service & costs
- Manufacturing using mature technology
- Achieves excellence in Lean & Six Sigma
- Integrates with wholesaler channels

Network integrator

- Expert in supply chains network design
- Specialist in channel innovation
- Coordinates & executes global launch
- Manages network performances

High-tech manufacturer

- Technology lifecycle leader
- Integrates with R&D
- Expert in accelerated launch
- Pursues highest quality and regulatory compliance



Stock level management is extremely important for pharmaceutical product because of the following:

- Limited shelf life of products
- Relatively high value of product
- Product range increased due to country/label specifics
- High cost for space due to conditioning requirements
- Extra space required for separated storage of lots

Stock levels can be reduced by:

- Postponement activities - Delay the moment of switching from generic product to specific product to last (cost efficient) moment, when more is clear about sales profile
- Optimize production batch sizes - When determining production batch sizes take into account not only production costs but entire supply chain costs
- Centralization / virtual warehousing
- Use forecasting and stock control processes & tools

Driving factors in warehouse optimization for pharmaceutical companies are:

- Tracking and tracing requirements on lot level
- Shelf life / FEFO requirements
- High picking accuracy requirements
- High risk products (narcotics)
- Conditioned products (temperature, humidity control)
- Quality status control
- Special packaging requirements
- GDP, GMP requirements

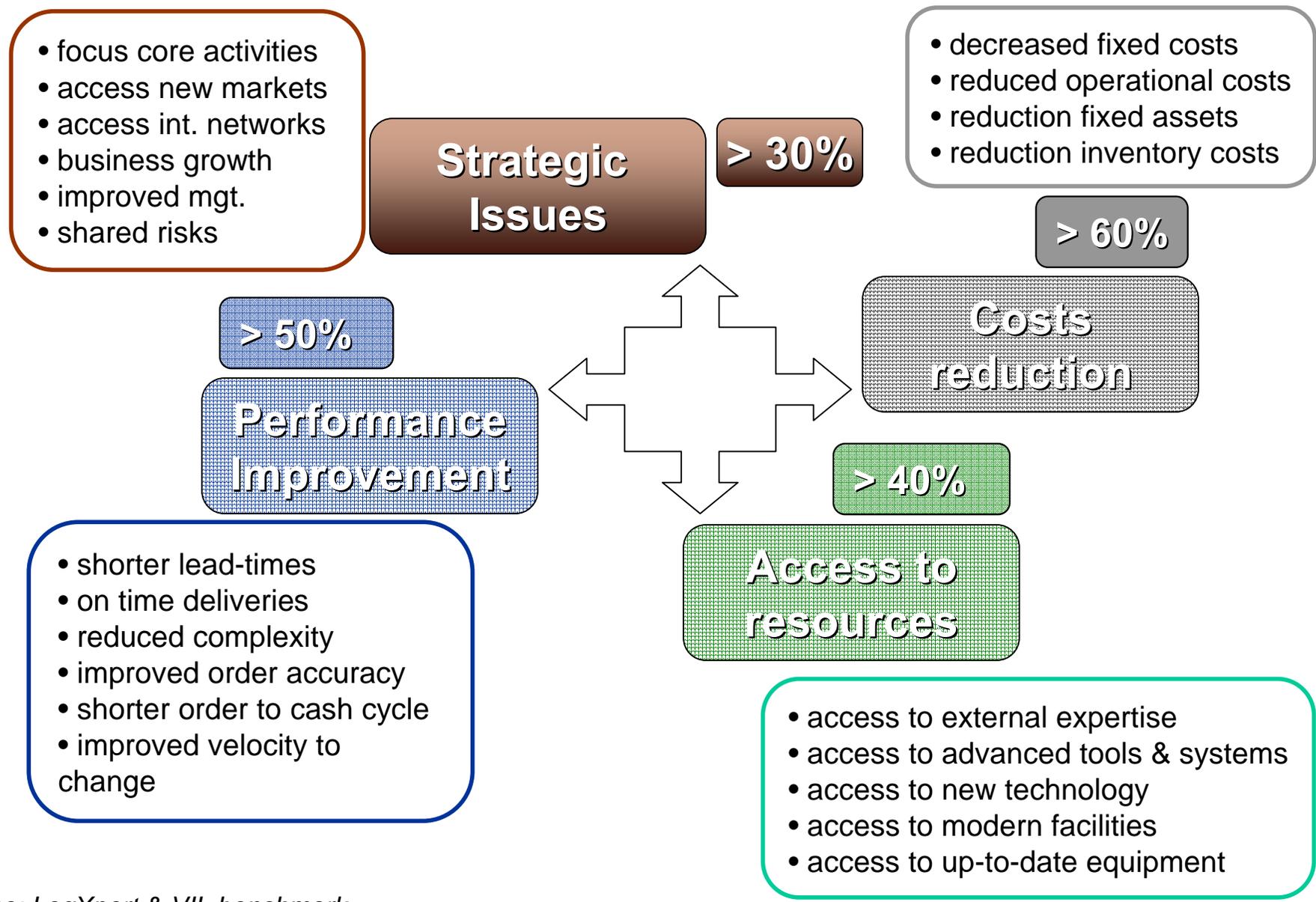
In general, any mistake can influence health....

Due to high quality requirements warehouse optimization in pharmaceutical business tend toward reduction of human error possibilities by:

- high level WMS support of processes - online info through RF / pick to light
- Automation and mechanization efficiency possibilities could be limited depending on warehouse sizing
- RF control quality could increase dramatically by introducing standardized bar-coding

Outsourcing

Business drivers



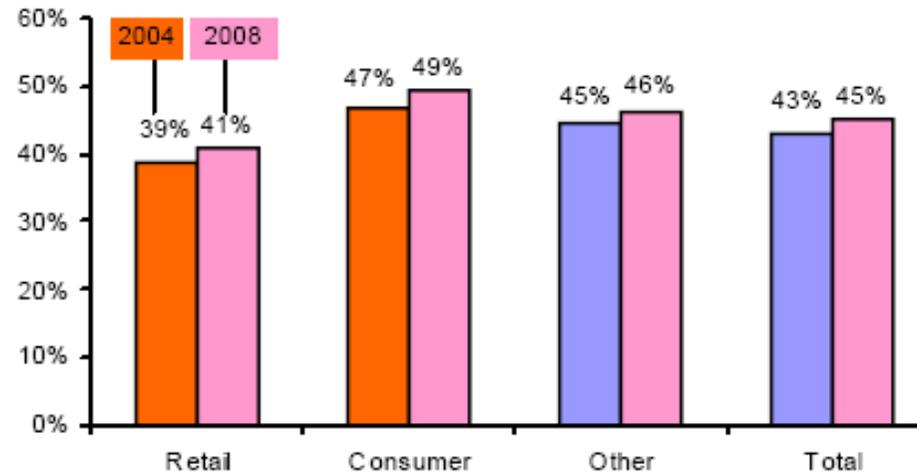
Source: LogXpert & VIL benchmark



Outsourcing

Market study (1)

Penetration of outsourcing in total logistics spend - distribution, warehousing & associated services



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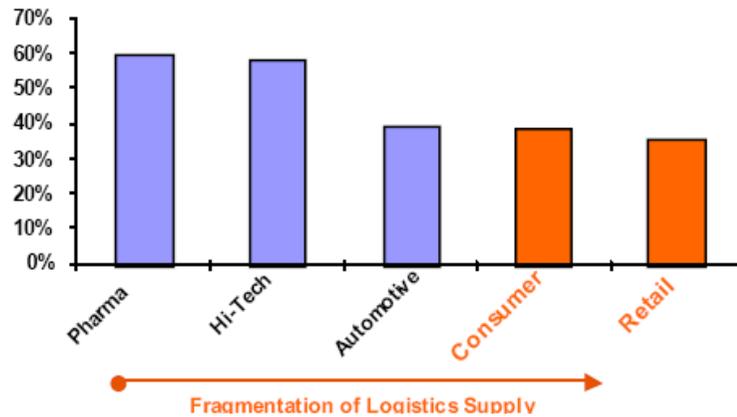
Based on customer perception studies:

“ It has been estimated that about 40% of the global logistics is outsourced, for Europe just over 50% ”

Outsourcing

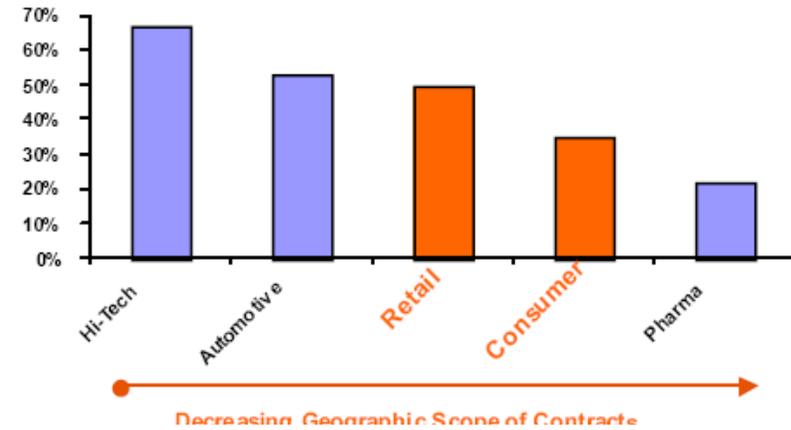
Market study (2)

Sector comparison showing percentage of companies where top 3 suppliers account for more than three-quarters of logistics spend



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Proportion of respondents with European or global logistics contracts

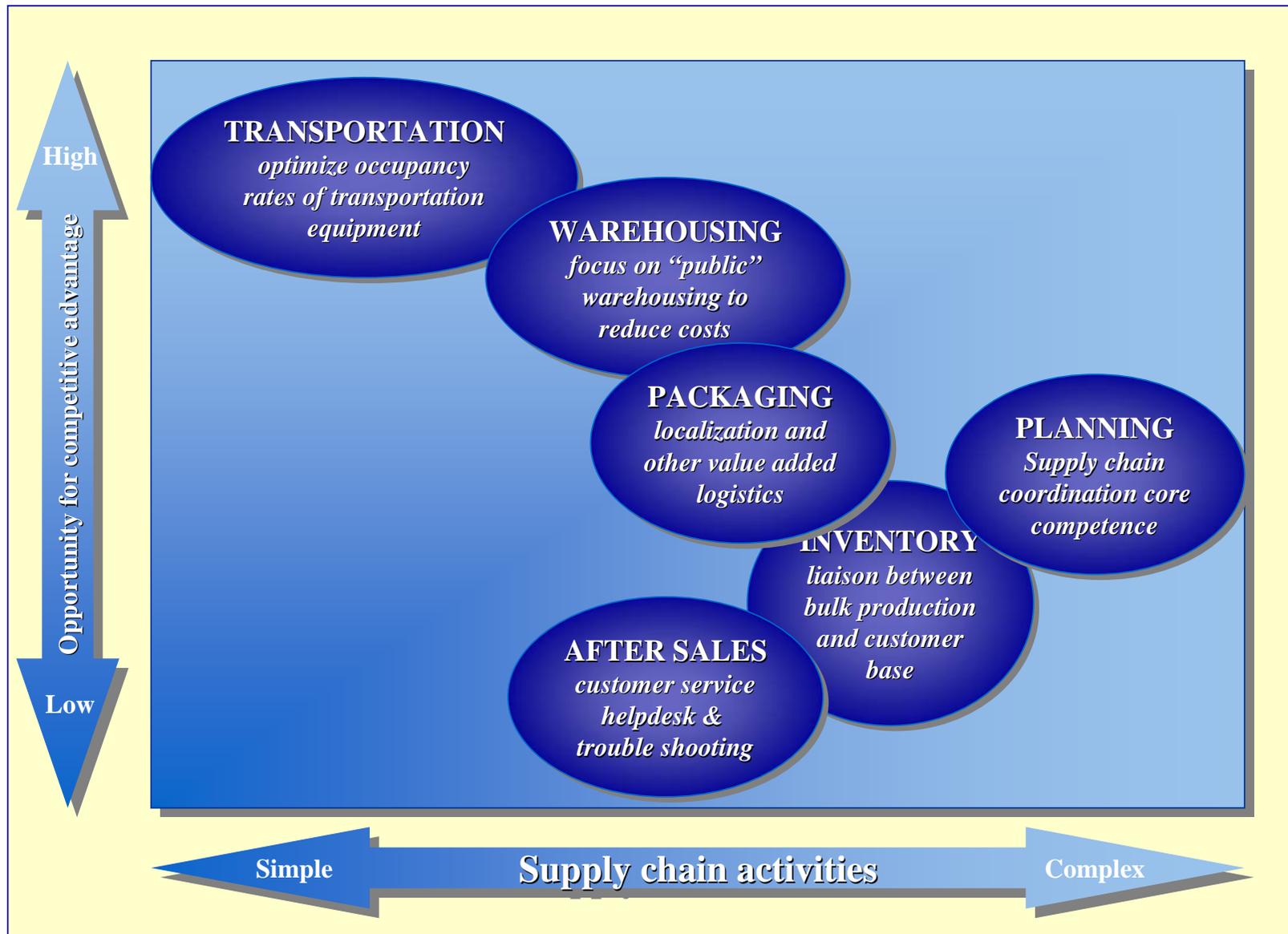


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- *The outsourced spends are more regional and more concentrated compared to other industries*
- *The outsourcing of logistics activities is relatively limited within Pharma industry;*

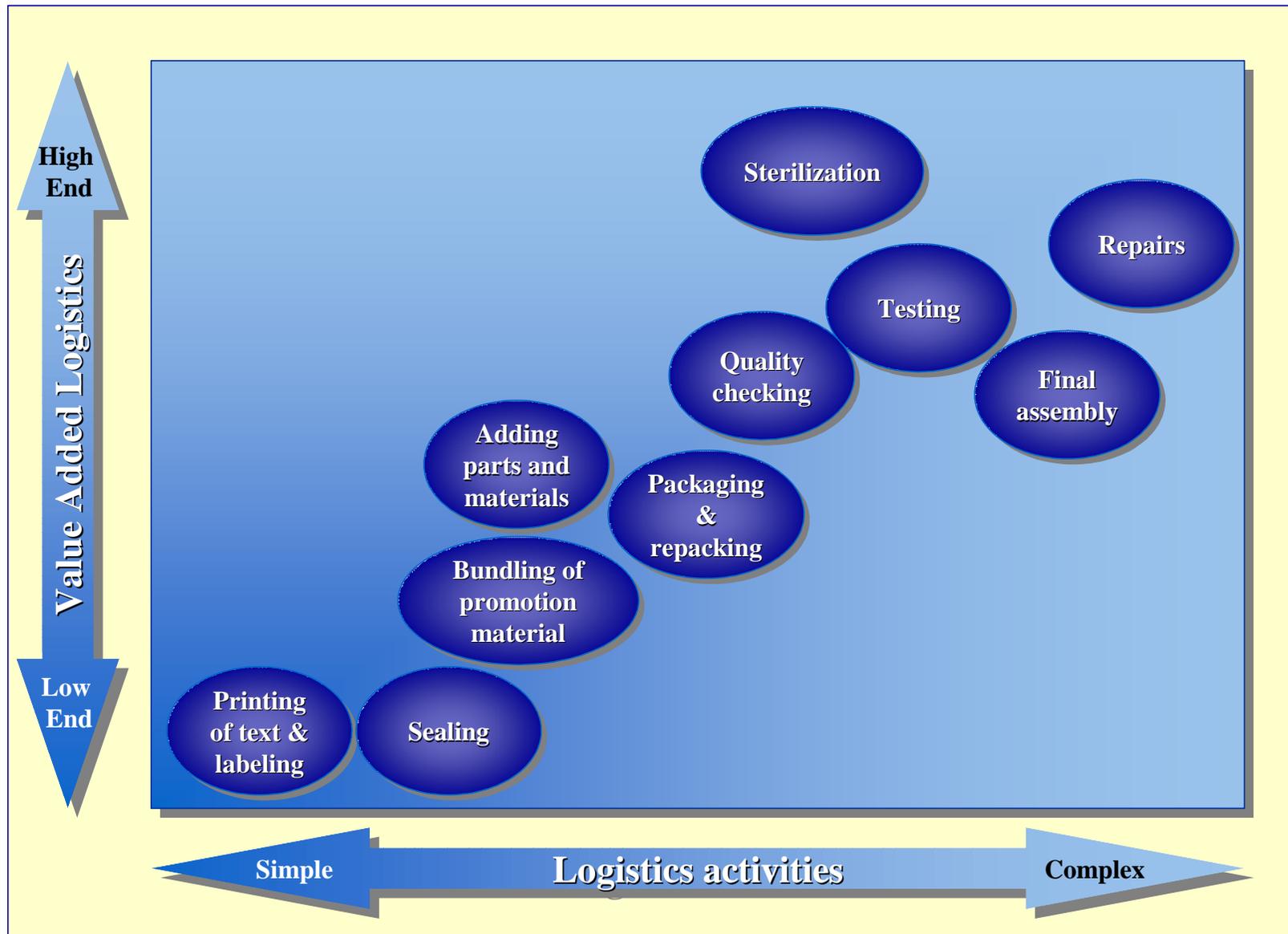
Outsourcing

Outsourcing priority



Outsourcing

Level of outsourcing VAL



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Outsourcing

Healthcare current levels of collaboration

Knowledge sharing

- Create platforms on validation approach
- Share information on regulatory issues per country

Experience sharing

- Select vendors based on experience in pharma / with validation
- If possible, purchase equipment / systems based on validated status

Facility sharing

- Share temperature controlled storage areas
- Share GDP storage facilities
- Share GMP facilities (*for postponement, Value added etc.*)
- Use LSP's specialized in pharma

Transport sharing

- Share temperature controlled transportation
- Combine direct distribution transport
- Share hazardous goods transportation

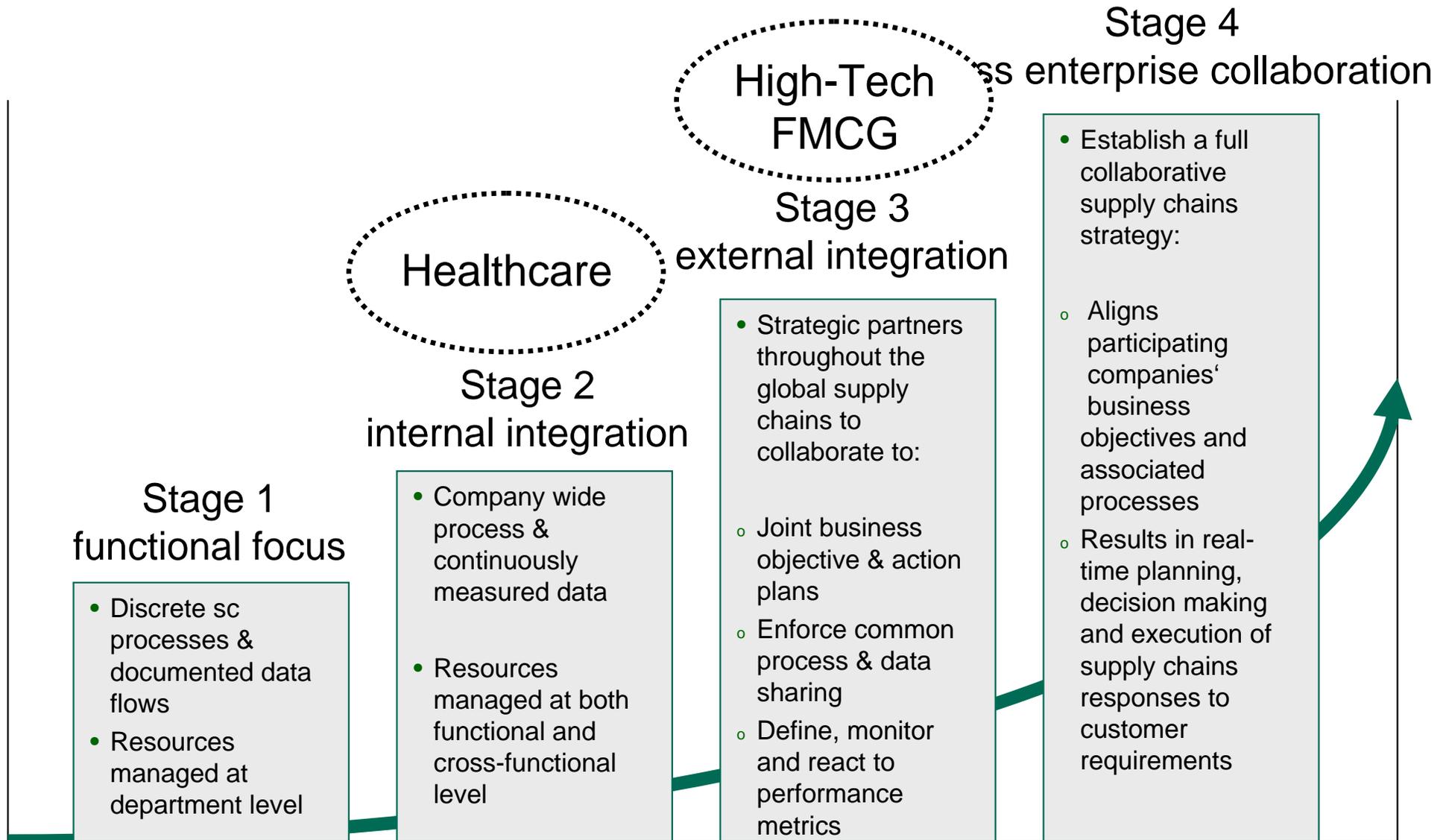


Outsourcing

Healthcare vs. other industries

Automotive

supply chains performance



stages of operational capability

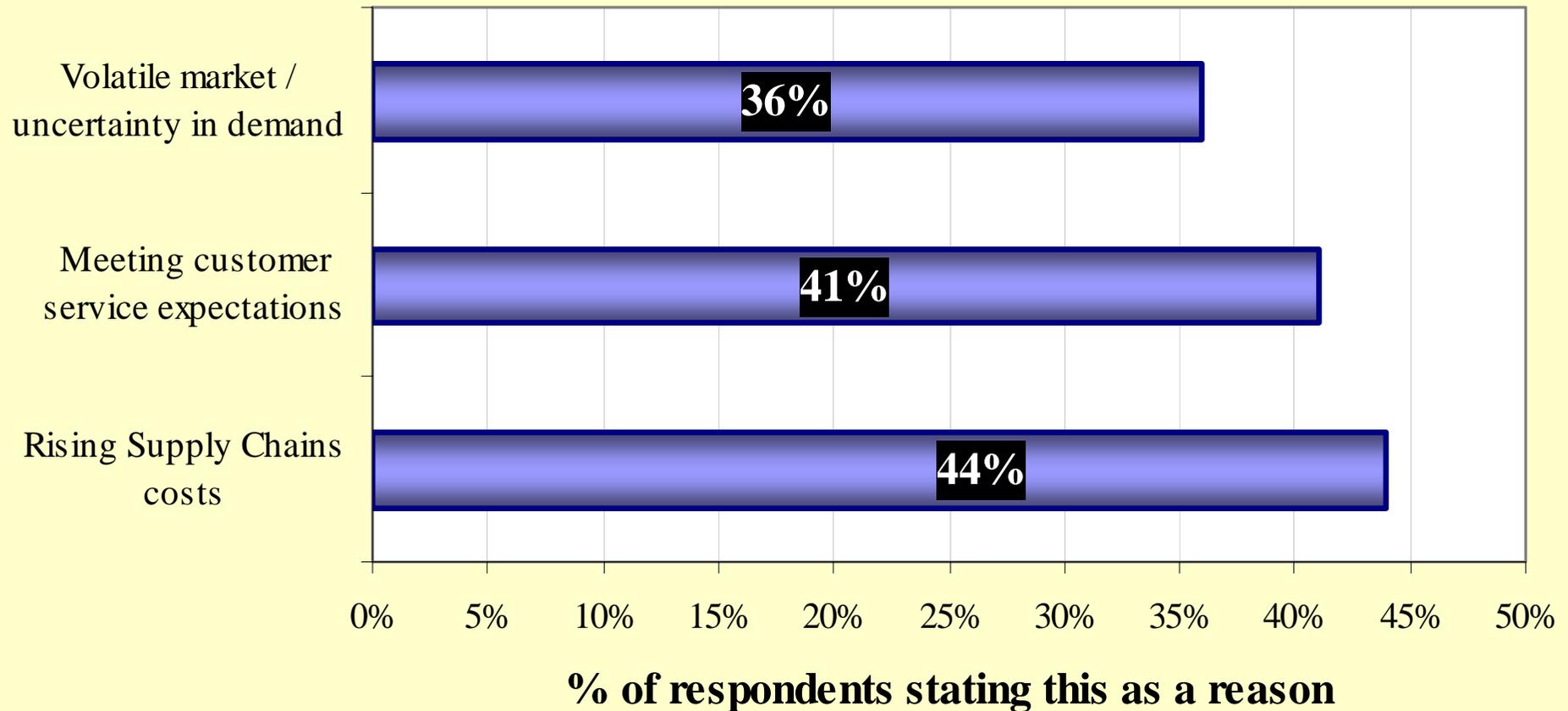


- **Purpose of S&OP:**
 - On a monthly basis align relevant Sales & Marketing and SC developments (forecast, assortment, market actions) with key decision moments (cost, pricing, introductions, capacity..), to respond to demand and supply variations and risks.
 - The level of subject review is covering relevant deviations and developments in the business, short term as well as long term, resulting in financial or operational adaptations to the plan.
 - The work is prepared and/or executed outside the S&OP platform to provide the right information for appropriate decision making.

Sales & Operations Planning

Benchmark – reasons to apply S&OP processes

Why companies look into S&OP

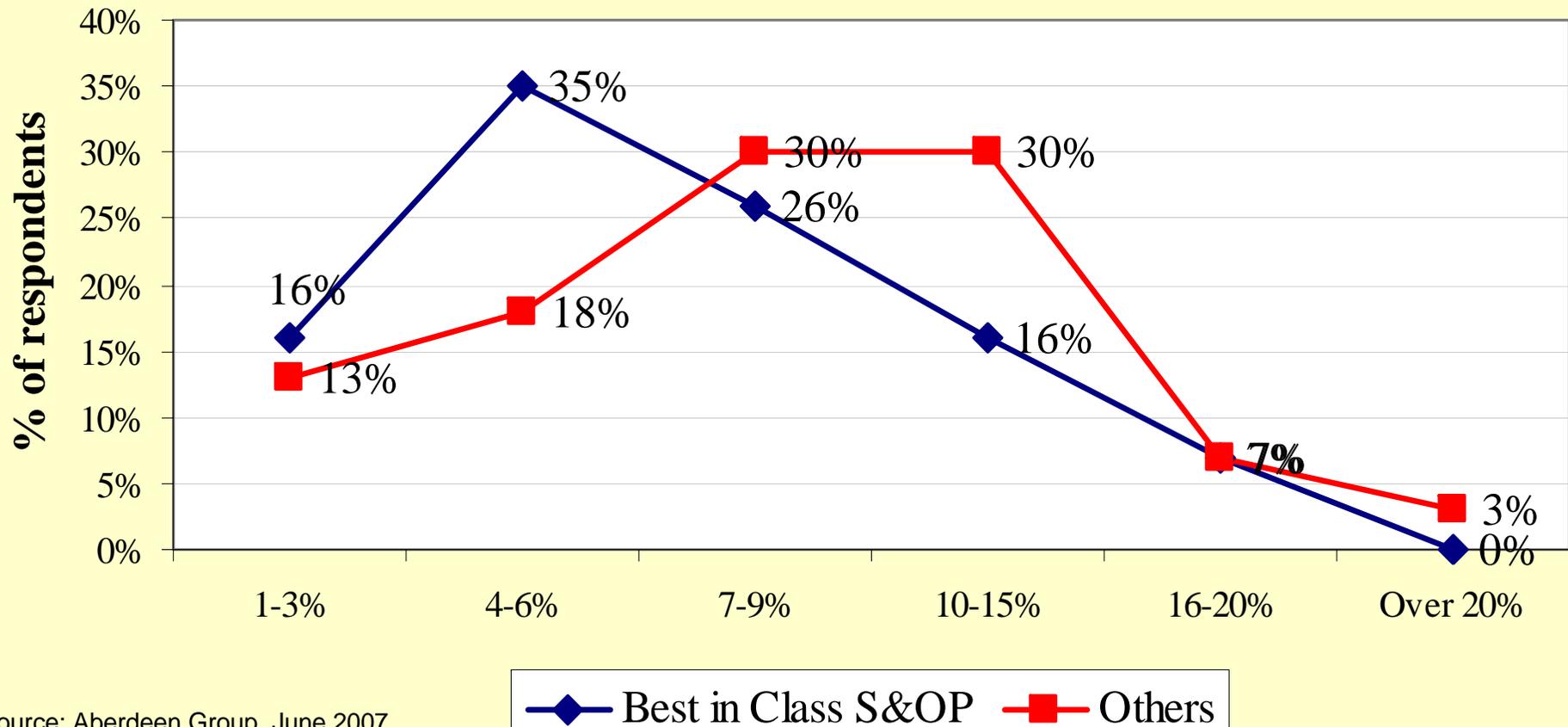


Source: Aberdeen Group, August 2008

Sales & Operations Planning

Benchmark – logistics costs as part of sales

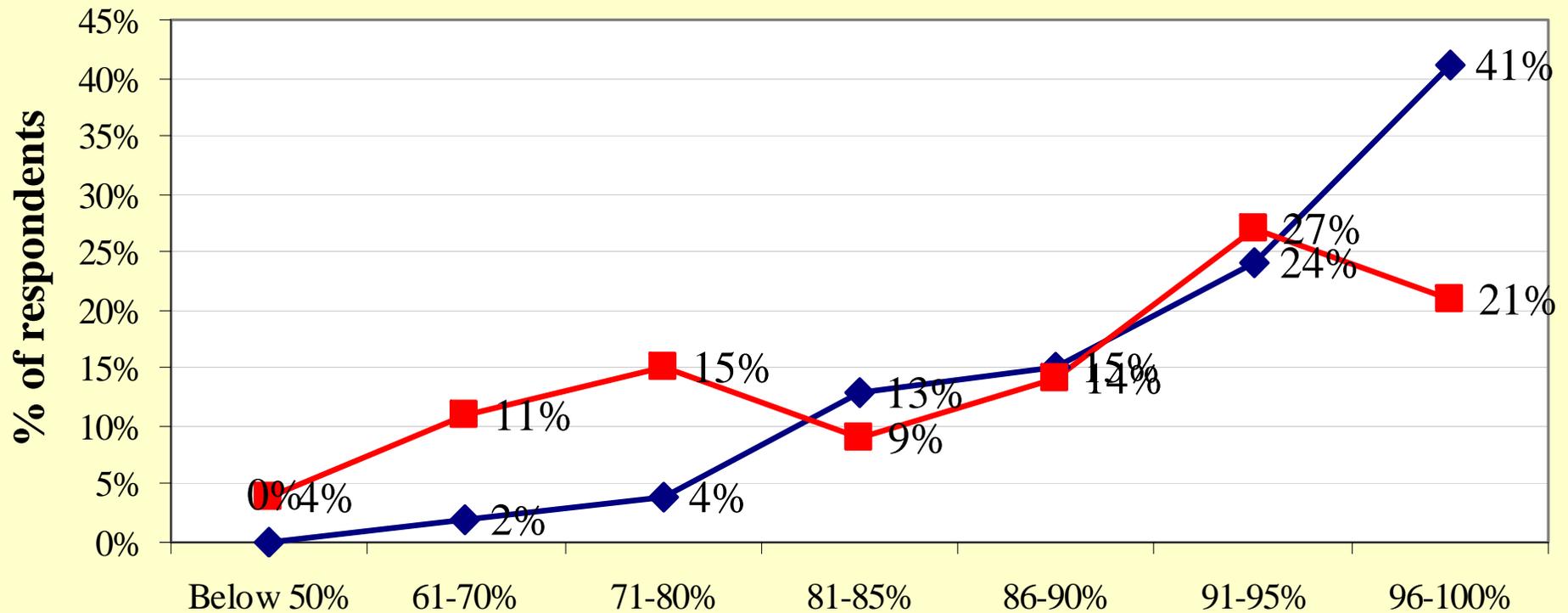
Logistics costs as % of sales



Sales & Operations Planning

Benchmark – customer order fill rate

Customer order fill rate



Source: Aberdeen Group, June 2007

—◆— Best in Class S&OP —■— Others



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Closing statements (1)

1. Cost savings become more and more necessary in the pharmaceutical world, and in the mean time quality requirements are increasing
2. Three ways to battle this strategic dilemma:
 - Focus on economy of scale
 - Supply chains / logistics optimization
 - Cooperation

The type of cost savings to use depends on the competitive value of that activity

3. If rules and regulations are driving up costs, why compete why not cooperate?



Closing statements (2)

4. The savings potential on annual supply chain costs in the pharmaceutical world are 10 - 30%
5. Whilst quality demands are high, supply accuracy typically is no higher than 95%. With the right approach this could be increased to 99.5 % and higher, maintaining the cost savings mentioned above





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