

•GROENEWOUT•
CONSULTANTS & ENGINEERS

Why multilayered distribution works best in Europe

Annual Global Conference Sept. 2009
Chicago, Illinois



Council of Supply Chain
Management Professionals

The World's Leading Source for the Supply Chain Profession

Agenda

1. Europe, a complicated concept
2. Changing European distribution models
3. Advises on how to succeed in Europe

1. Europe, a complicated concept

- Facts & figures about Europe
- European logistics
- Transportation modes in Europe

European Union

Comparison USA versus European Union



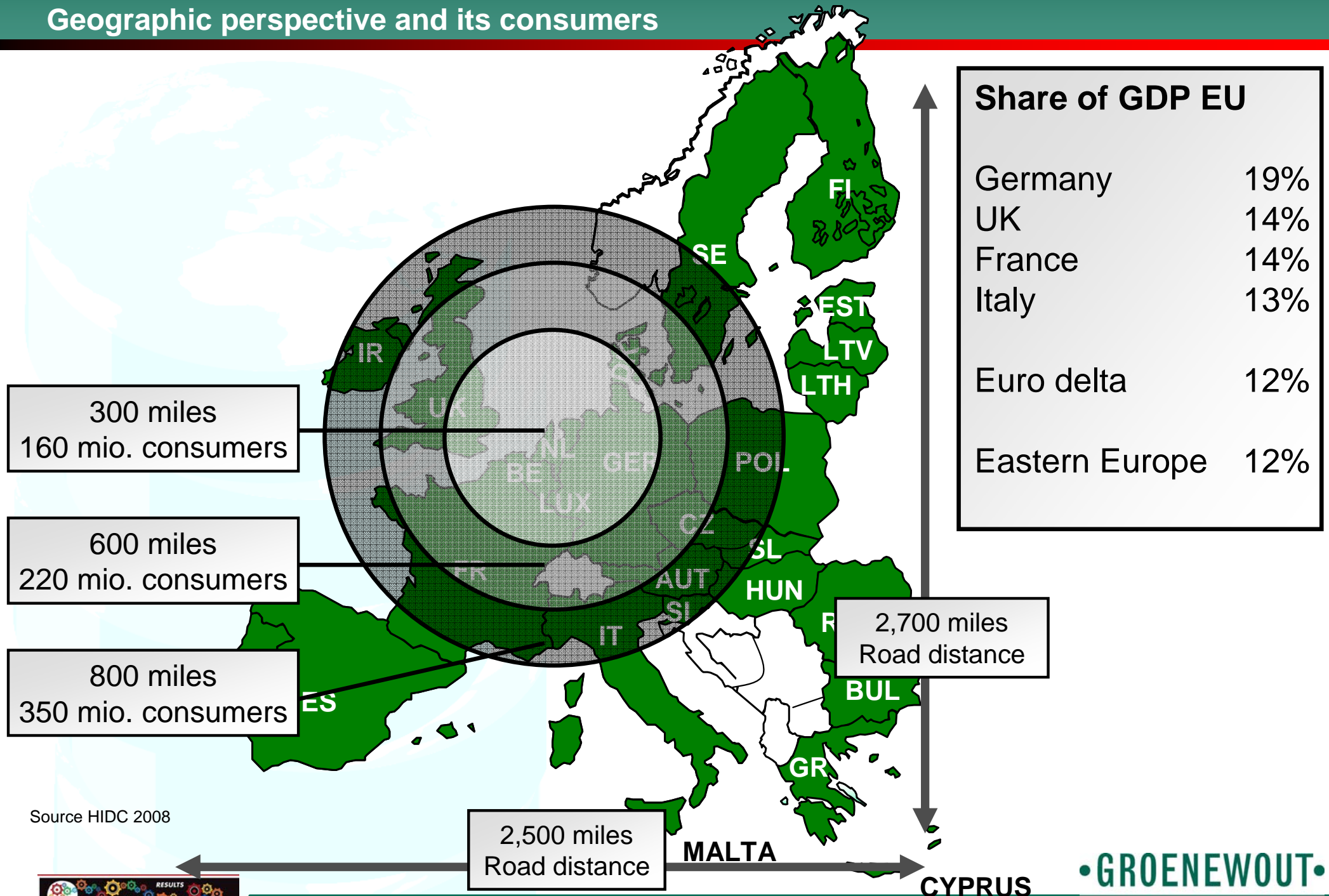
- 1 country
- 3.8 mio. square miles
- population 306 mio.
- population density 80/sq mi.
- GDP per capita \$ 47,025
- currency: \$
- language: 1



- 27 countries
- 1.7 mio. square miles
- population 499 mio.
- population density 289/sq mi.
- GDP per capita \$ 33,482
- currency: 16 countries adopted the €
- languages: 23

European Union

Geographic perspective and its consumers



Source HIDC 2008



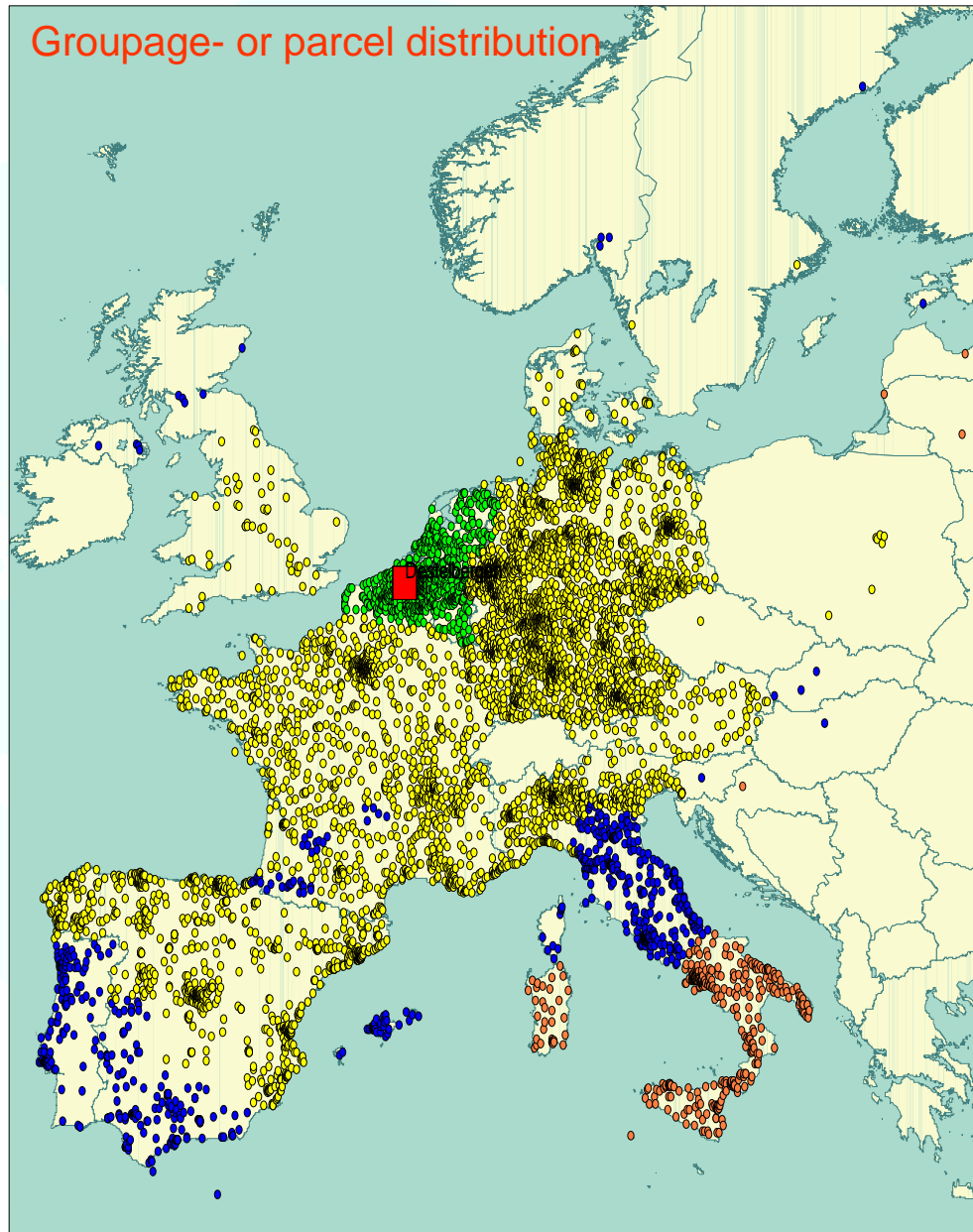
European Union

The logistics playing field (1)

- Legacy country logistics autonomy has created a consumer market with high service demands in lead-time

European Union

High service demands in lead-time



Legend on standard lead-times:

● 1 day ● 2 days ● 3 days ● 4 days ● 5 days

To reduce standard lead-times:

- 24 hours to DE: truck has to leave about 14:30 (should be at transport hub DE at 19:00) Order cut off at 12:30
- 24 hours to NL: truck has to leave about 20:00 (should be at transport hub South NL at 21:30)
- 24 hours to FR: truck has to leave about 14:00 (should be at transport hub Paris at 19:00) Order cut off at 12:00

European Union

The logistics playing field (1)

- Country logistics autonomy has created a consumer market with high service demands in lead-time
- The limited (product) harmonization and the different languages lead to an elevated number of Stock Keeping Units (SKU's)

European Union

An elevated number of SKU's

1 common article, ..

- .. leads to a minimum of 5 varieties,..
- .. not even considering
the 23 different languages



European Union

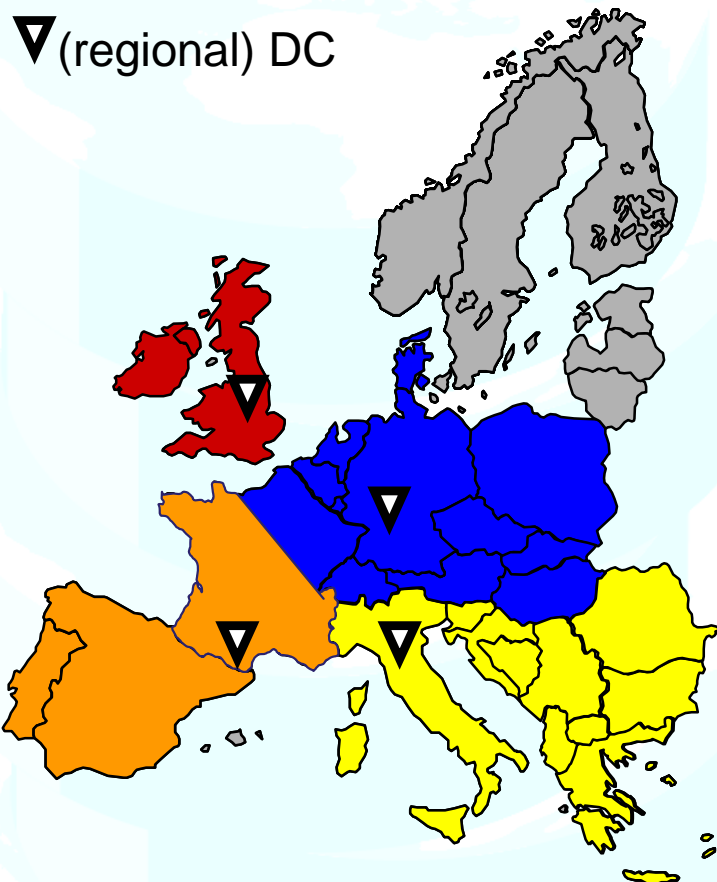
The logistics playing field (1)

- Country logistics autonomy has created a consumer market with high service demands in lead-time
- The limited (product) harmonization and the different languages lead to an elevated number of Stock Keeping Units (SKU's)
- The practice of National Sales Organizations (NSO's) requires distribution structures following country borders rather than transport efficiency (i.e. distances)

European Union

Distribution structures following country borders & logistics sub-optimization

(transport) efficiency



(transport) reality



European Union

The logistics playing field (1)

- Country logistics autonomy has created a consumer market with high service demands in lead-time
- The limited (product) harmonization and the different languages lead to an elevated number of Stock Keeping Units (SKU's)
- The practice of National Sales Organizations (NSO's) requires distribution structures following country borders rather than transport efficiency (i.e. distances)
- Lack of cultural integration/and geographic economic disparity contribute to logistics sub-optimization

Relocating operations to CEE

- Many Manufacturing activities have been relocated
 - All kinds of assembly work
 - Mainly for operations with FCL-FTL in/out
 - Some have moved for a second time already, e.g. Czech to Rumania
- Less shifts in capital intensive industries (chemical, pharmaceuticals)
- Hardly any shifts in warehouses for distribution (yet):
 - GDP of all 10 countries that joined EU in '04 < GDP of the Netherlands
 - Market place is still mainly in WE (biggest spending power)
 - CDC for WE in CEE: huge distribution costs (outbound transport)
 - Lead time and costs of inbound will increase drastically for most products
 - For CEE markets two RDCs: north CEE / south CEE

European Union

The logistics playing field (1)

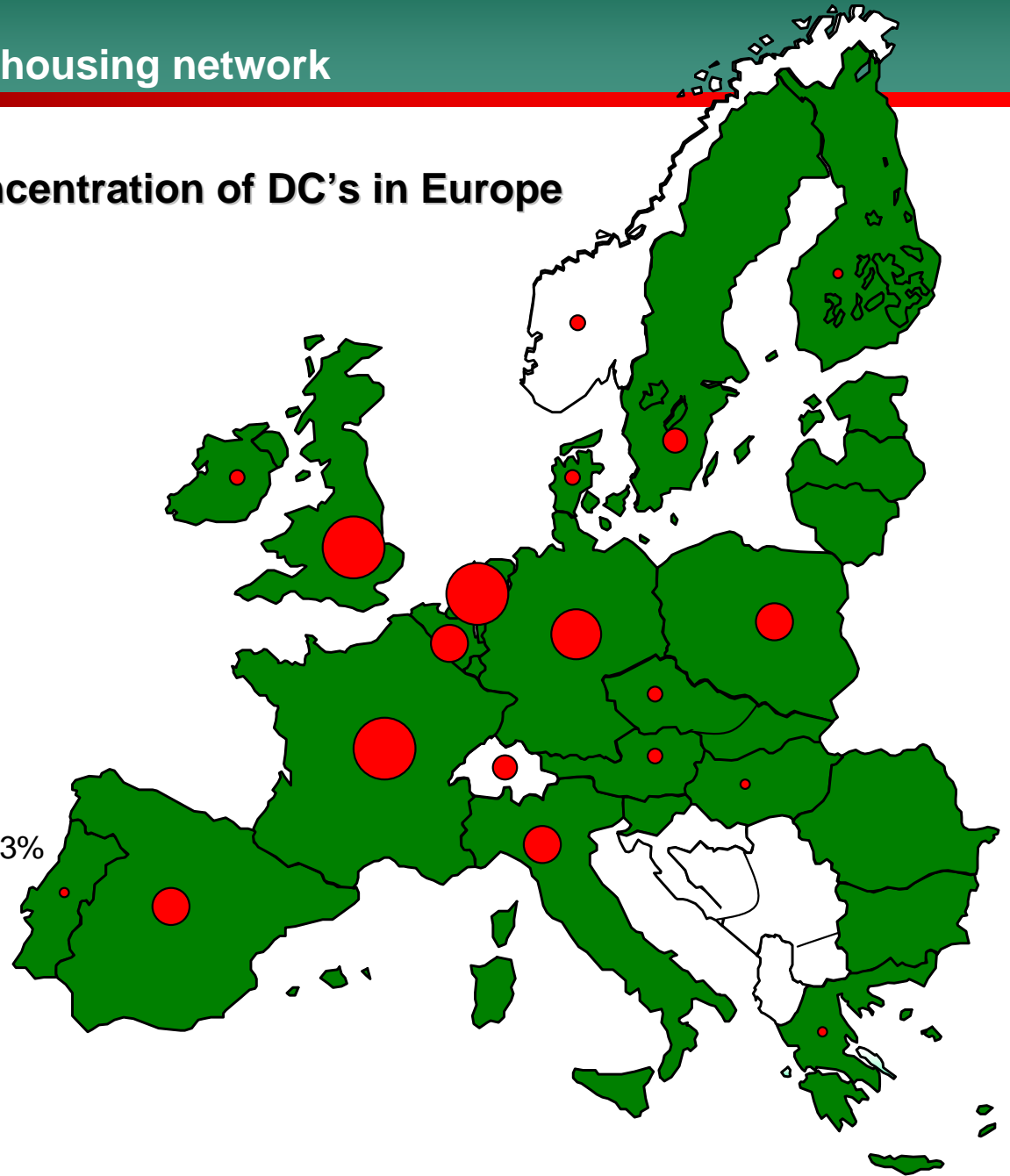
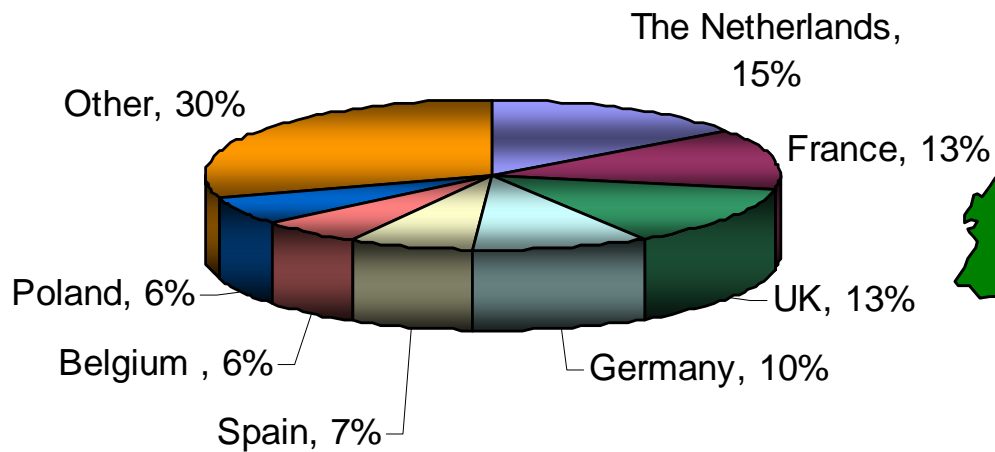
- Country logistics autonomy has created a consumer market with high service demands in lead-time
- The limited (product) harmonization and the different languages lead to an elevated number of Stock Keeping Units (SKU's)
- The practice of National Sales Organizations (NSO's) requires distribution structures following country borders rather than transport efficiency (i.e. distances)
- Lack of cultural integration drives logistics sub-optimization
- There is no true pan-European transport & warehousing network, as nearly every Logistics Service Providers (LSP's) has a geographic focus

European Union

No true pan-European transport & warehousing network

Concentration of DC's in Europe

Share of DC's in Europe



Source: © Europe's Most Wanted Distribution Center Locations – CG/Prologis

Transportation modes in Europe

- Freight volume increased 40% in the past 12 years, which is leading to congestion problems
- Inland transportation mainly road based, some rail & barge. Strong focus by The EU to promote alternative modes (rail and inland waterways)
- 3,500 miles inland waterway system which directly/indirectly connects 13 European countries (e.g Belgium, The Netherlands, Germany, France, etc.)
- Sea: long costal line with large & medium sized harbors (Port of Entry's and short sea)
 - 4 weeks from Asia
 - 2 weeks from N-A
- Multiple airports for international freight handling in WE & CEE



Modal - Road freight transport expressed as a percentage in total inland freight tonne-km *Eurostat 2009

geo\time 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007

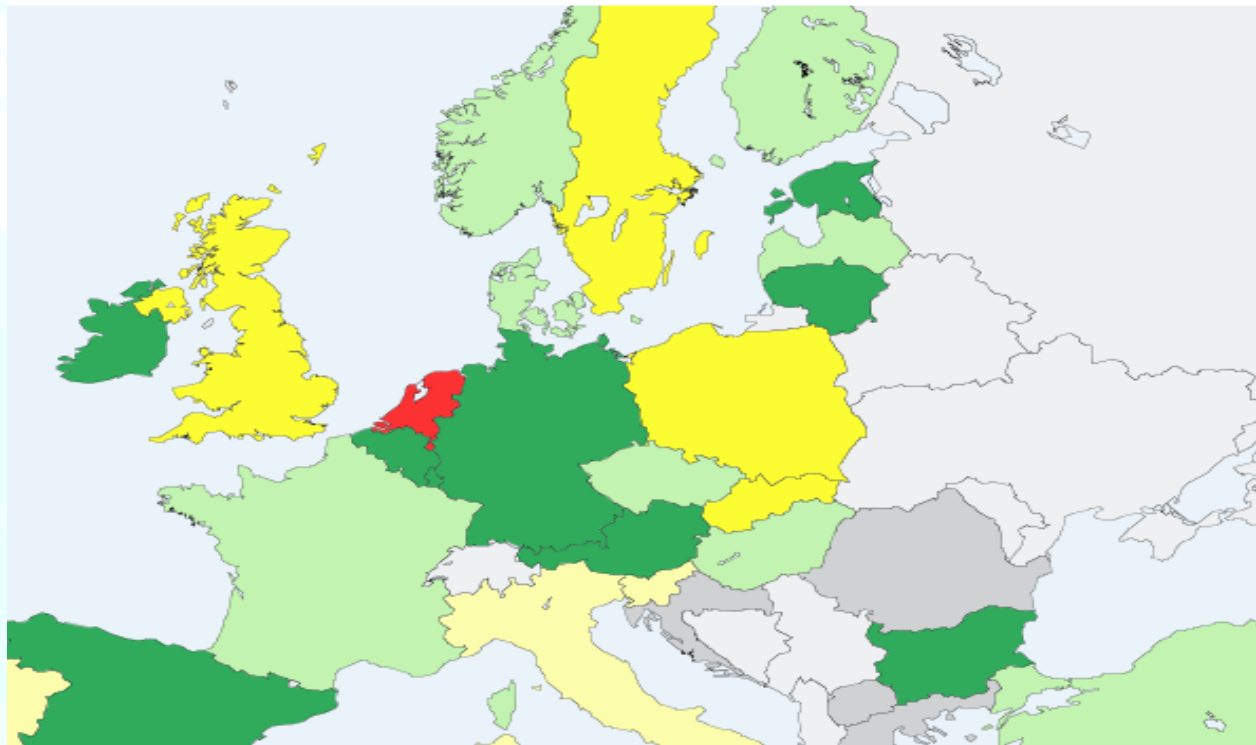
European Union (27 countries)	:	:	:	:	73.7	74.8	75.4	75.7	76.0	76.4	76.3	76.5
European Union (25 countries)	72.6	72.3	73.6	74.6	74.3	75.3	75.9	76.1	76.5	76.8	76.5	76.8
European Union (15 countries)	77.1	76.4	77.1	77.6	77.4	78.1	78.7	78.9	79.1	79.2	78.5	78.4

1996 Comparison to the Netherlands/Index NL = 100

Volume of freight transport relative to GDP

Index of inland freight transport volume relative to GDP (2000=100)

Based on a comparison with: Netherlands



Legend (Data 1996)

0.5925 - 0.9232

0.9232 - 0.9999

1.0000

1.0001 - 1.0522

1.0522 - 1.187

N/A

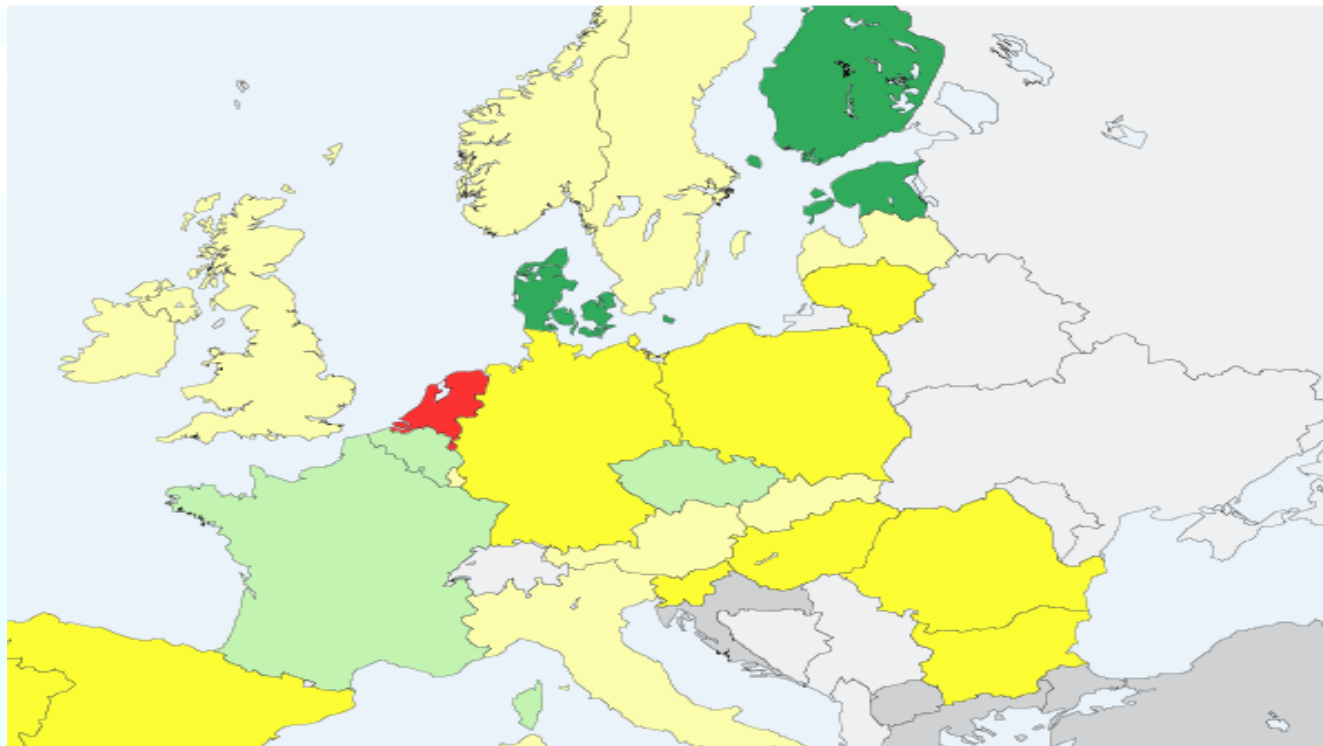
Minimum value: 0.593 Maximum value: 1.187 eu25: 98.8 eu15: 97.7

2007 Comparison to the Netherlands/Index NL = 100

Volume of freight transport relative to GDP

Index of inland freight transport volume relative to GDP (2000=100)

Based on a comparison with: Netherlands



Legend (Data 2007)

0.7565 - 0.8794

0.8794 - 0.9999

1.0000

1.0001 - 1.2063

1.2063 - 1.8692

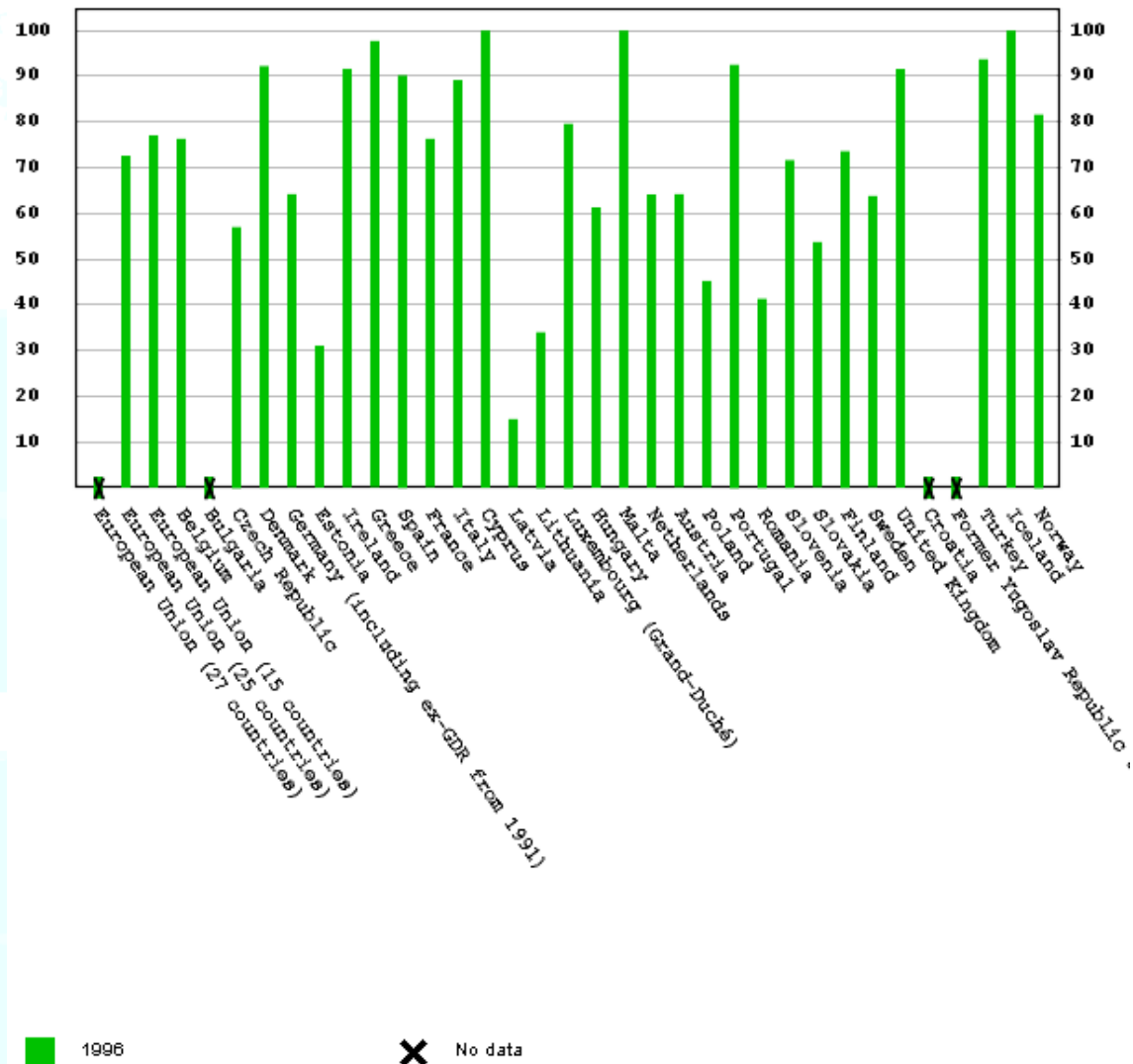
N/A

Minimum value: 0.756 Maximum value: 1.869 eu25: 104.9 eu15: 100.9

Road transport 1996 *Eurostat 2009

Modal split of freight transport

% in total inland freight tonne-km

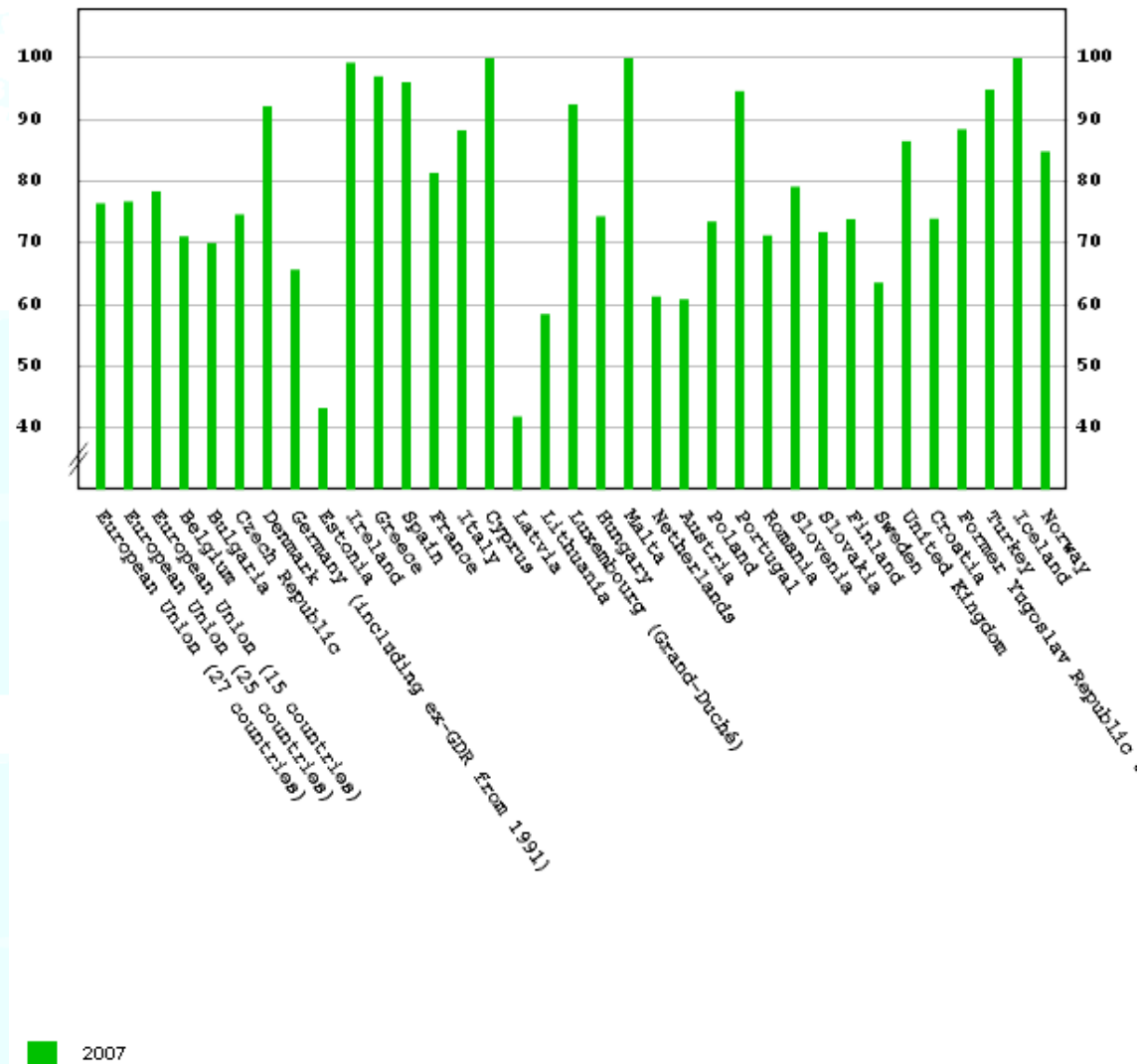


Road transport 2007

*Eurostat 2009

Modal split of freight transport

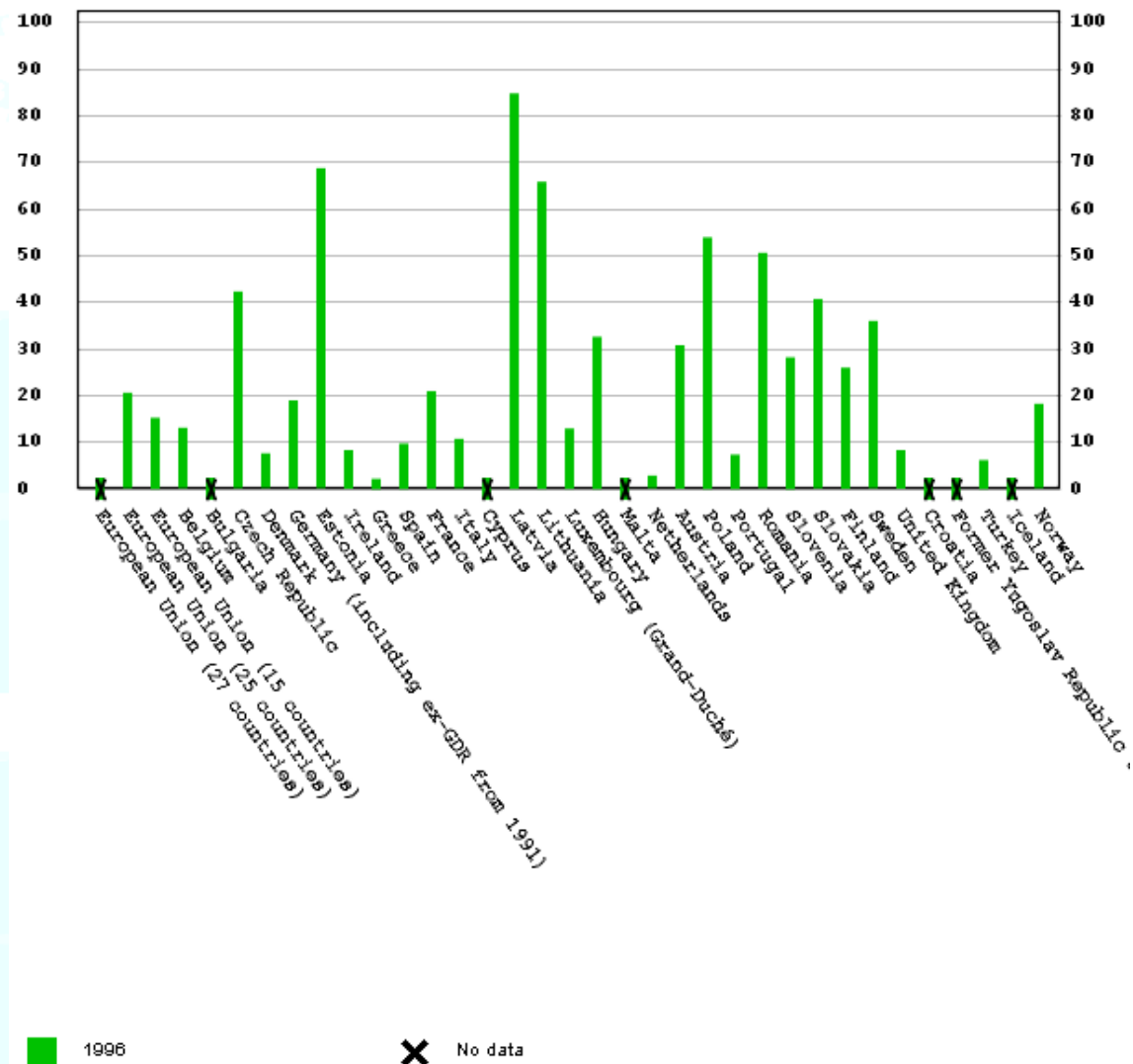
% in total inland freight tonne-km



Rail transport 1996 *Eurostat 2009

Modal split of freight transport

% in total inland freight tonne-km

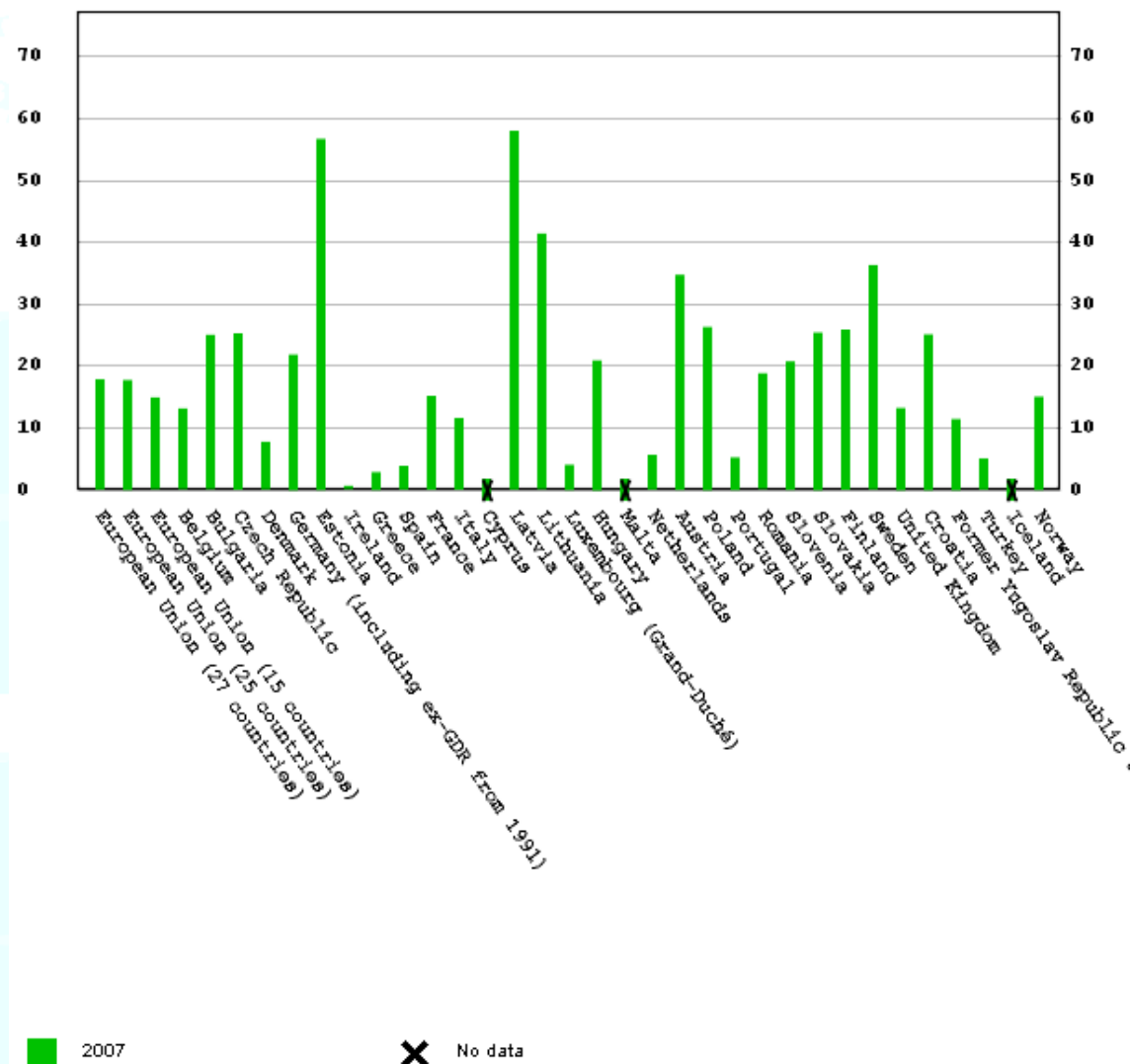


Rail transport 2007

*Eurostat 2009

Modal split of freight transport

% in total inland freight tonne-km

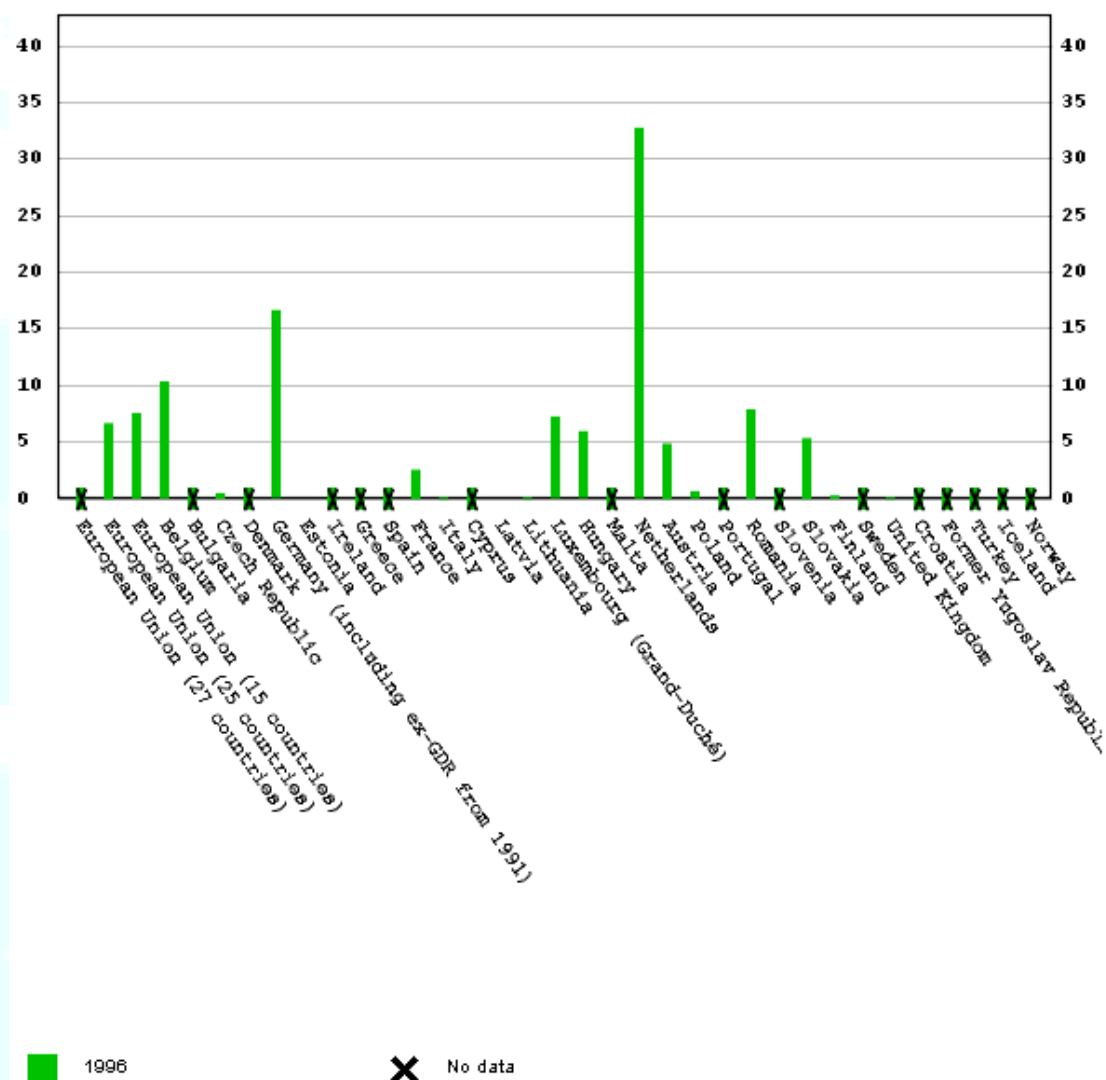


Waterways transport 1996

*Eurostat 2009

Modal split of freight transport

% in total inland freight tonne-km

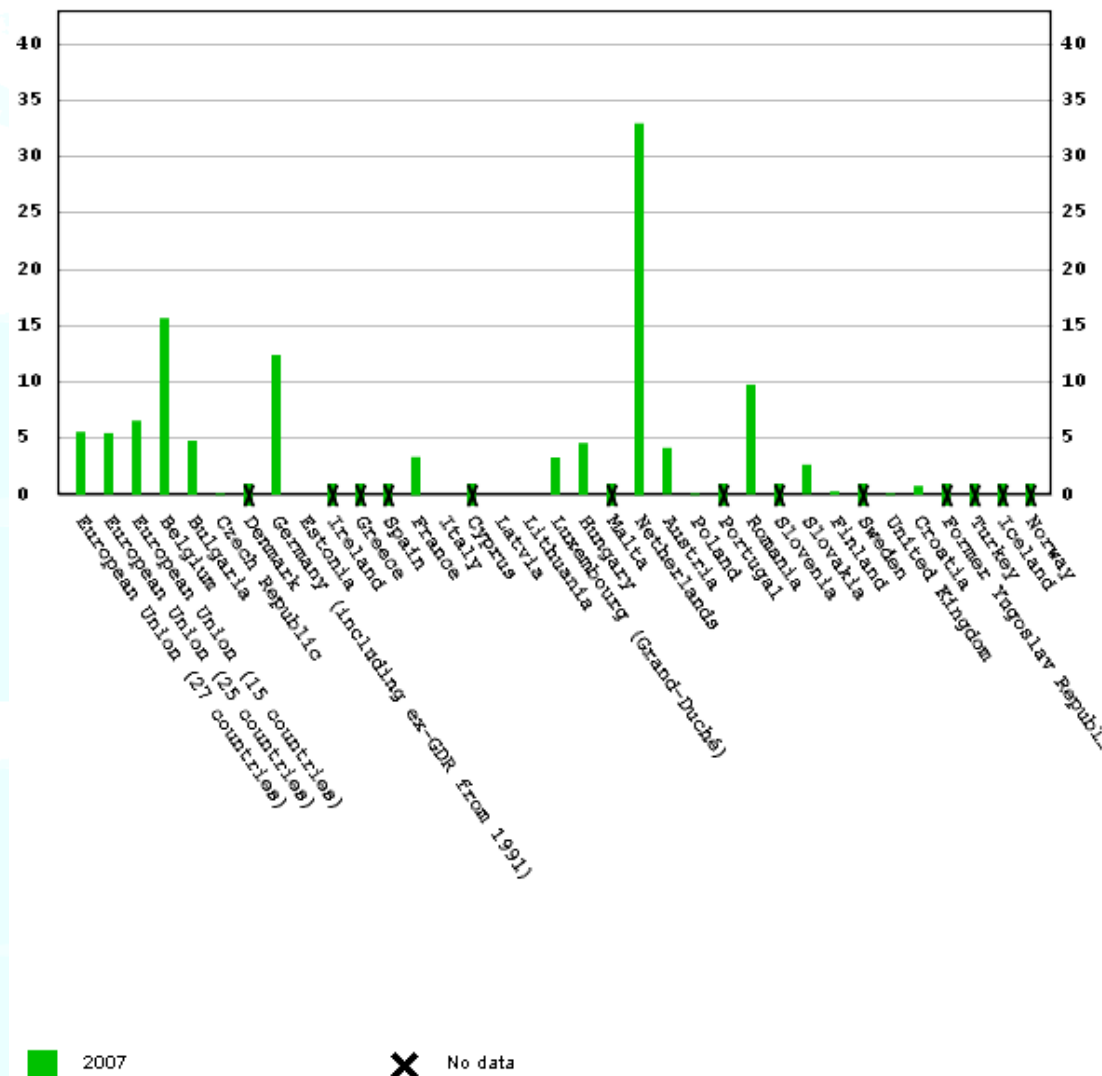


Waterways transport 2007

*Eurostat 2009

Modal split of freight transport

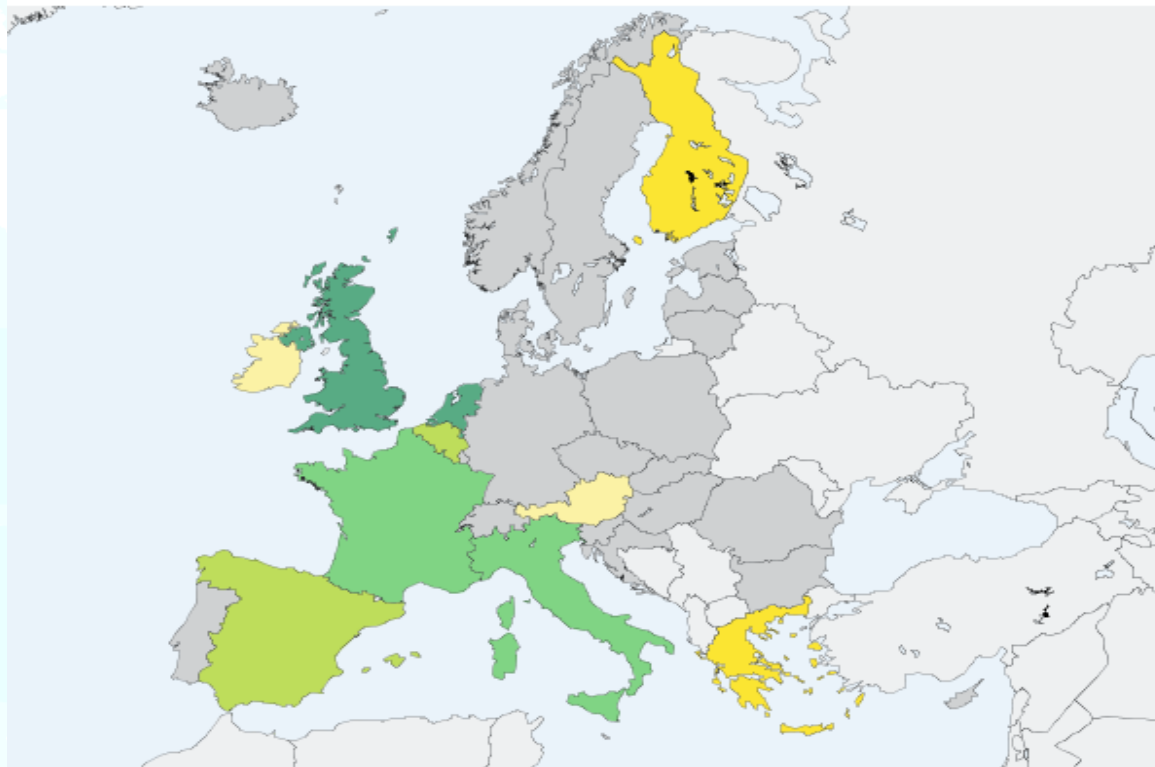
% in total inland freight tonne-km



Air transport of goods 1997

*Eurostat 2009

Air transport of goods
(1 000 t)



Legend (Data 1997)

54855.0 - 76338.0

76338.0 - 106214.0

106214.0 - 1846581.0

1846581.0 - 1025039.0

1025039.0 - 1846581.0

N/A

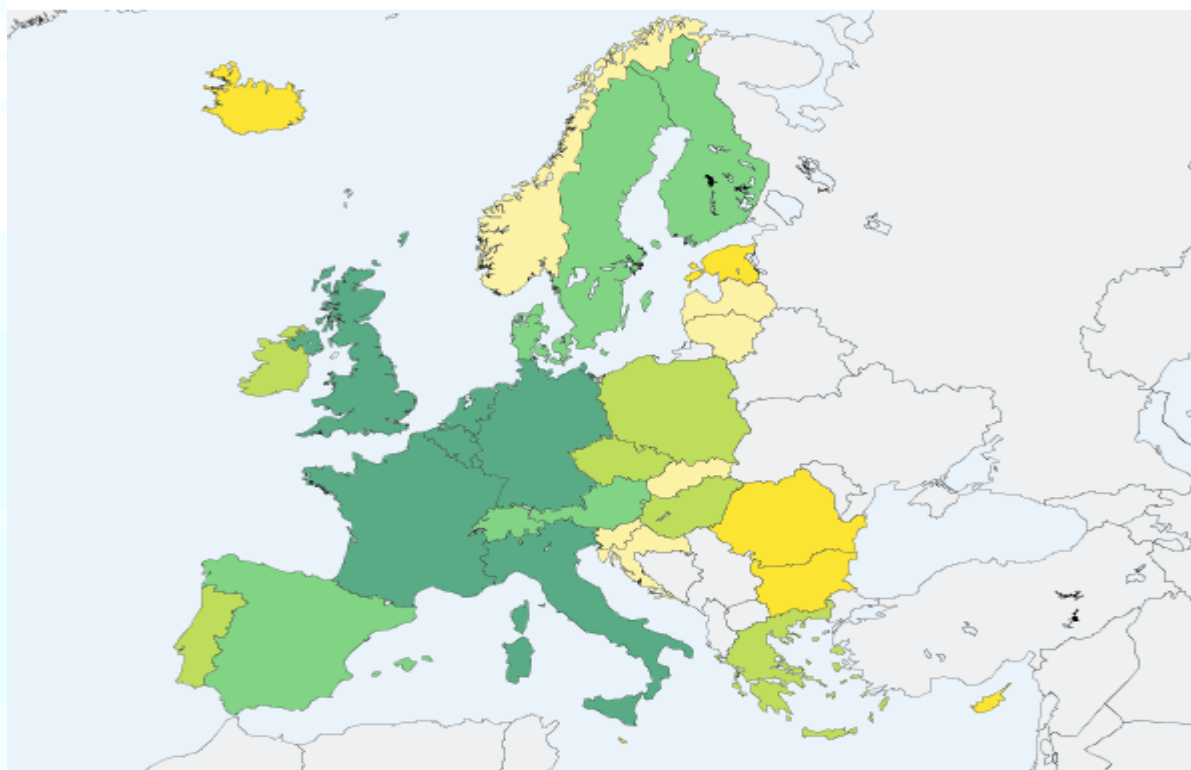
Minimum value:54855.0 Maximum value:1846581.0 eu25:Not available eu15:Not available

Air transport of goods 2008

*Eurostat 2009

Air transport of goods

(1 000 t)



Legend (Data 2008)

3516.0 - 9049.0

9049.0 - 54739.0

54739.0 - 135631.0

135631.0 - 539803.0

539803.0 - 3568563.0

N/A

Minimum value:3516.0 Maximum value:3568563.0 eu25:Not available eu15:Not available

Agenda

1. Europe, a complicated concept
2. Changing European distribution models
3. Advises on how to succeed in Europe

2. Changing European distribution modals

Best-practices of European Supply Chain footprints are always in evolution

- Distribution Network trade-offs - theory
- Supply Chain footprint prior to 1985
- Supply Chain footprint between 1985 and 2000
- Supply Chain footprint of last few years
- Today's trends

Distribution structure optimization

The supply chain trade-off



The diagram illustrates the supply chain trade-off. On the left, a large green arrow points upwards, containing three boxes: 'Flexibility', 'Reliability', and 'Responsiveness'. On the right, a large red arrow points downwards, containing two boxes: 'Operational Costs' and 'Supply Chains Asset efficiency'. In the center, a grayscale image of a man in a suit talking on a mobile phone is overlaid. The background features a faint world map.

Flexibility

Reliability

Responsiveness

Operational Costs

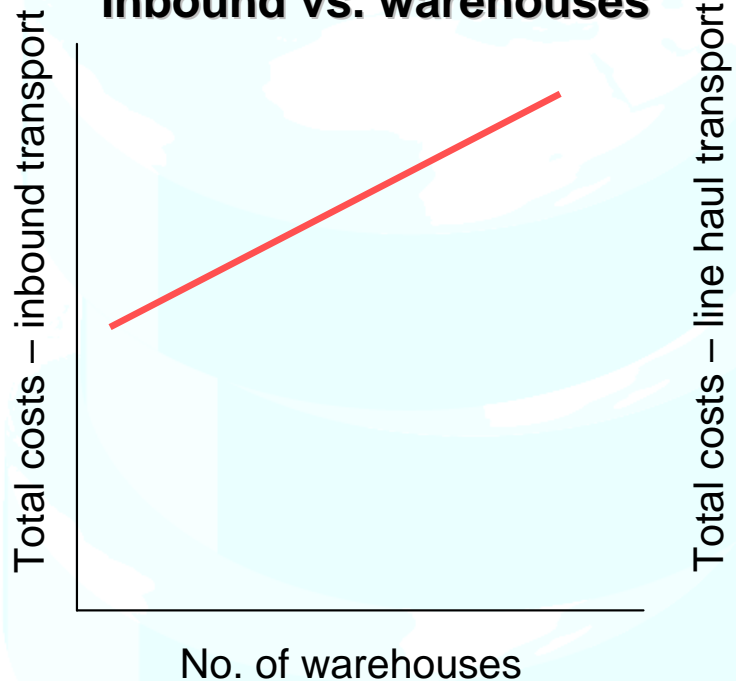
- transport
- warehousing
- handling

**Supply Chains
Asset efficiency**

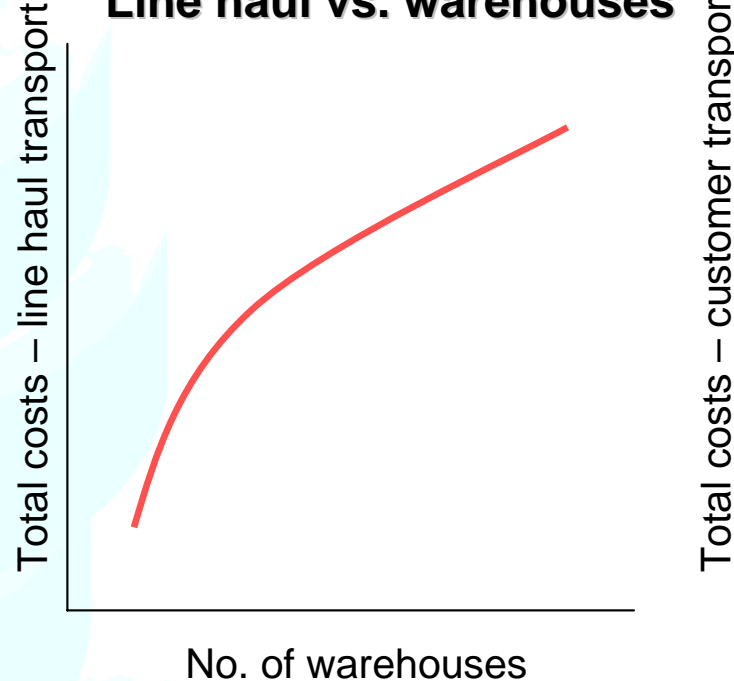
Distribution structure optimization

The supply chain trade-off – transport costs

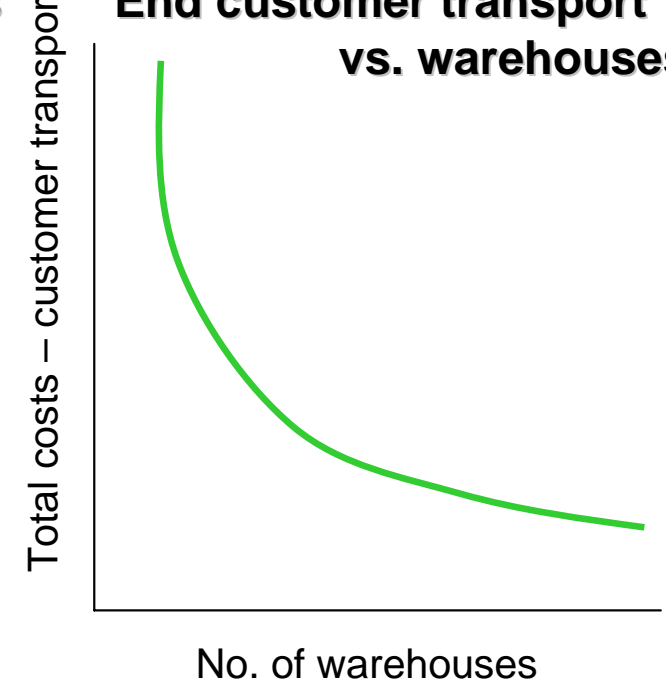
Inbound vs. warehouses



Line haul vs. warehouses

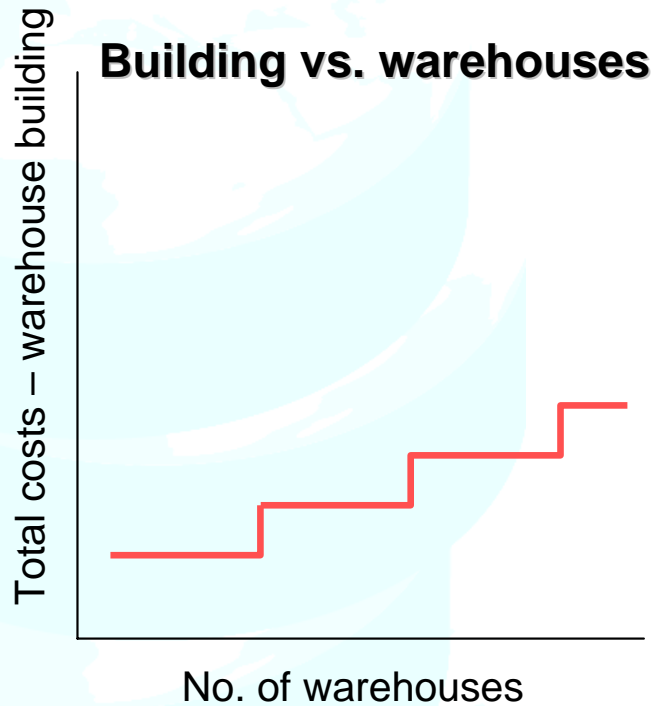


End customer transport vs. warehouses



Distribution structure optimization

The supply chain trade-off – warehousing & handling costs



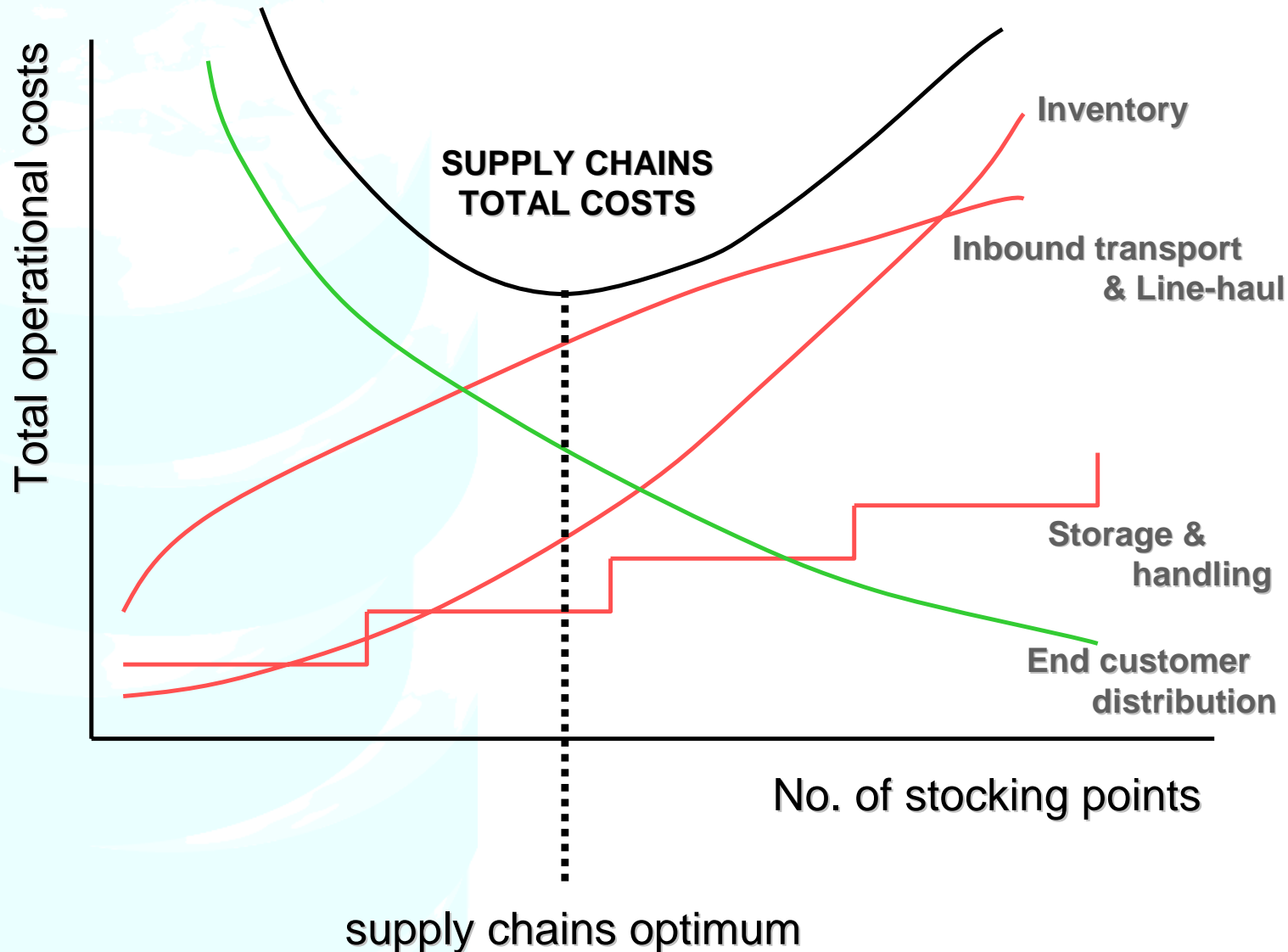
Distribution structure optimization

The supply chain trade-off – supply chains assets (inventory)

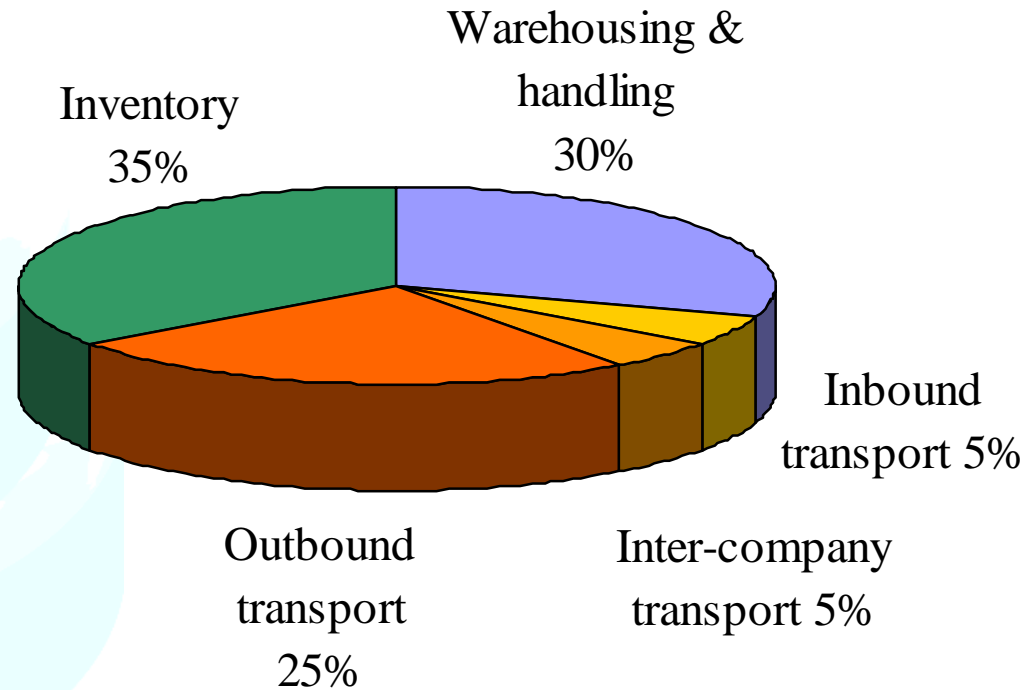


Distribution structure optimization

The supply chain trade-off – all operational costs



Centralized footprint – Cost drivers



COST DRIVERS		EFFECT of CENTRALIZATION	IMPACT	NET EFFECT
Warehousing & handling	30%	economies-of-scale	-/- 10%	-/- 3%
Transportation	35%	linehaul decrease / fine distribution increase	+/- 0%	+/- 0%
Inventory	35%	reduction - consolidation of inventory	-/- 60%	-/- 21%

Theoretical DC reduction effect on inventory level

Impacting variables



Integral inventory management & transparency
Replenishment lead-times
Overlap of SKU per individual warehouse
Customer lead-times
Regional throughput per warehouse

DC Reduction

From 2 => 1

From 3 => 1

From 5 => 1

From 7 => 1

From 9 => 1

Effect on inventory level

-/- 30%

-/- 43%

-/- 56%

-/- 62%

-/- 67%

European Union

Decentralized distribution structure

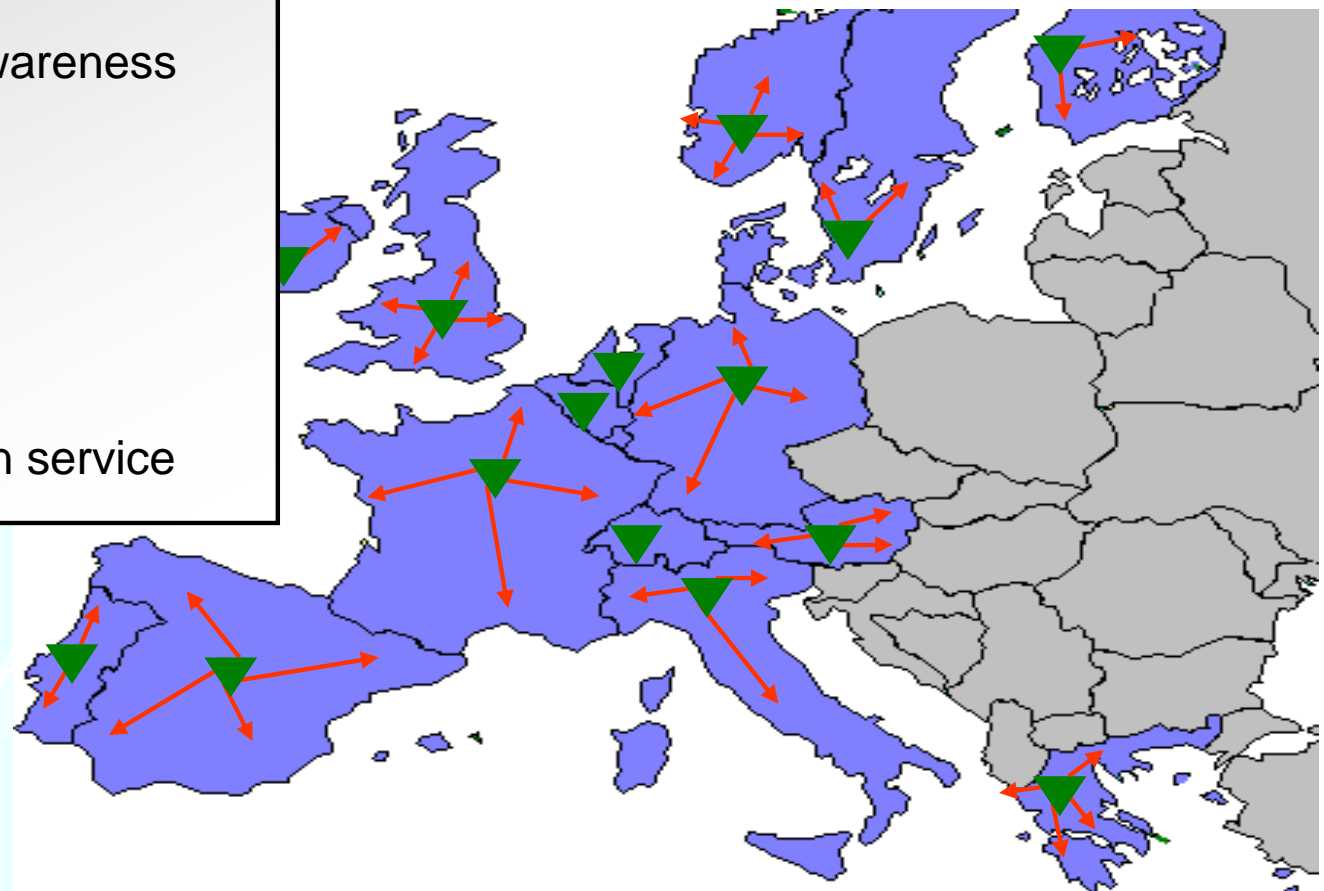
European Economic
Community established

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



European Union

Central distribution structure

European Union
established

AUT, FI, SE
joined EU

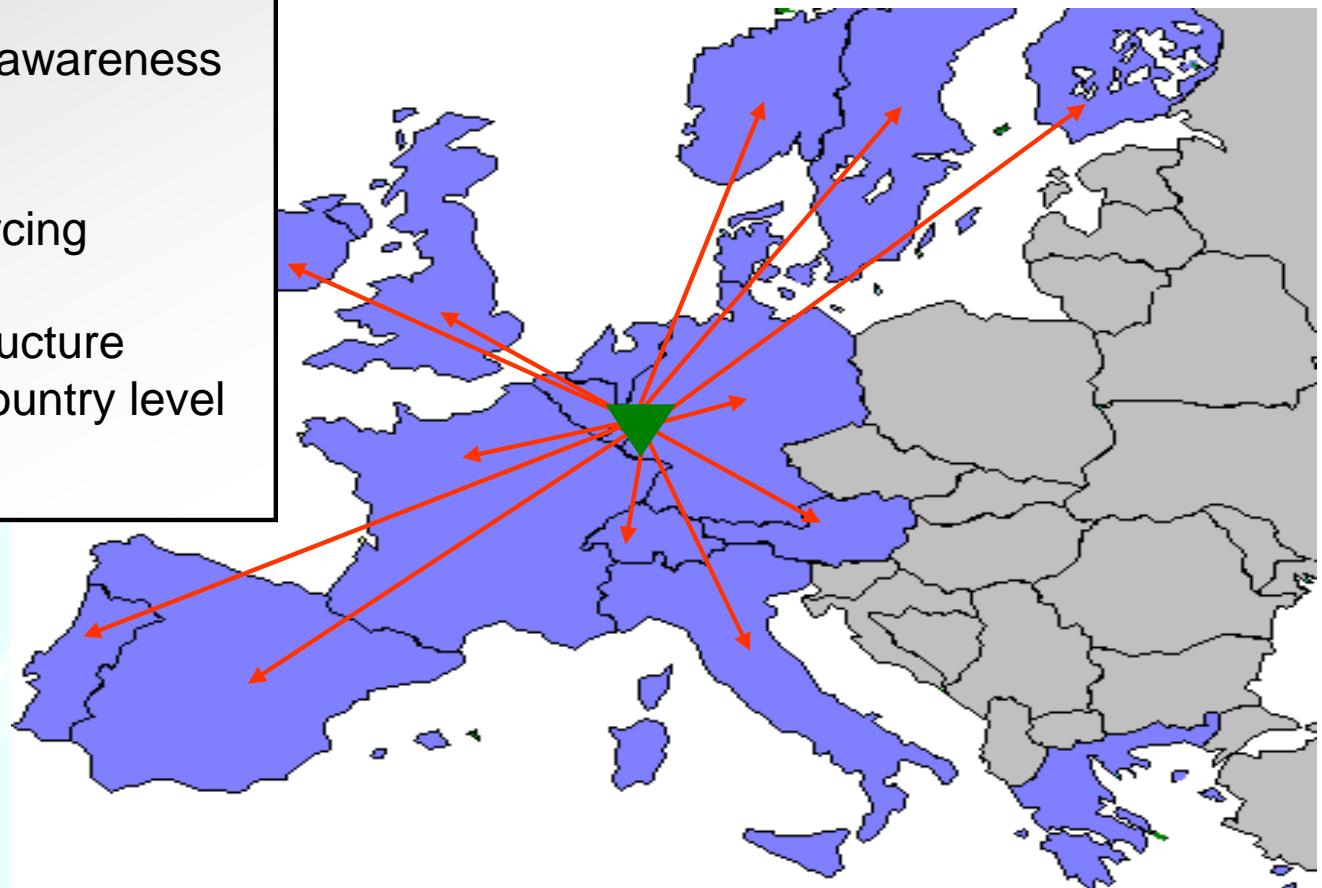
Euro (€)
introduced

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



European Union

Hub & Spoke distribution structure

10 nations
joined EU

RO, BUL
joined EU

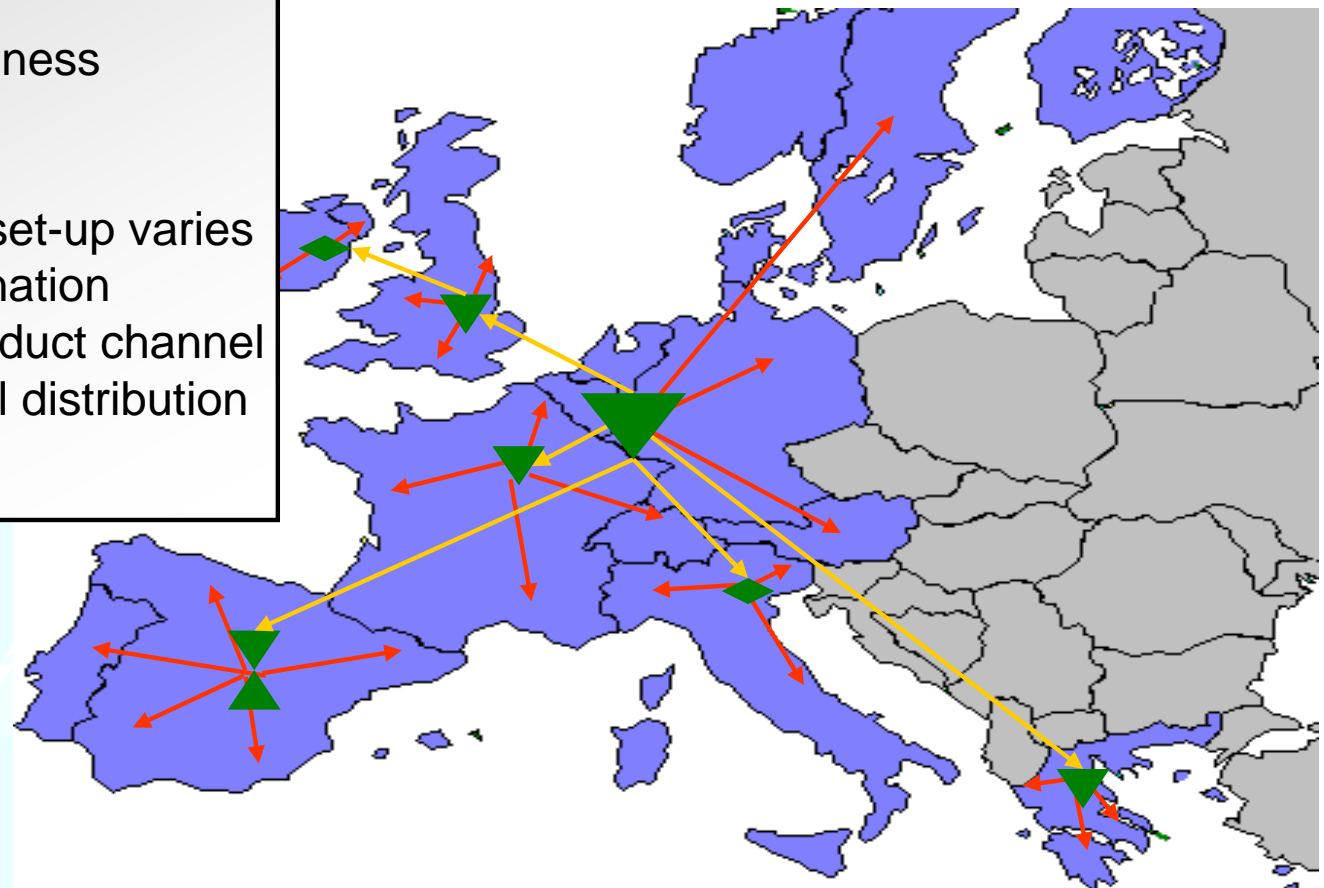
SL adopted
The Euro

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



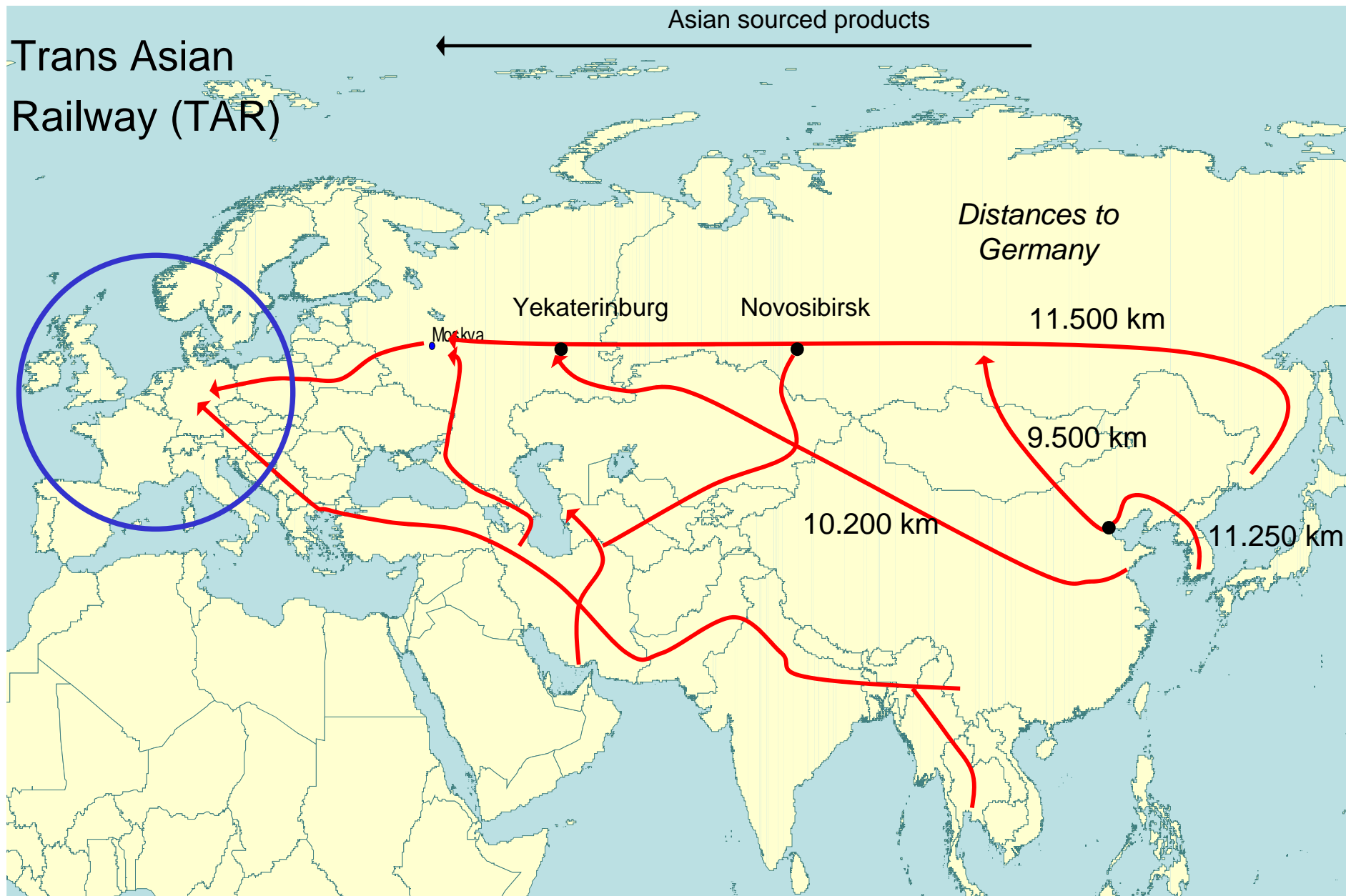
Today's trends

- Focus on management of the network model
 - Central Control Towers
 - Outsourcing of non-core business/non-strategic operations
 - Integrating postponement in Supply Chains
 - Sales & Operations Planning, CPFR, etc.
 - Direct shipping (FCL/FTL) from source
- (Parcel) carrier hubs move eastwards (DHL from Brussels to Leipzig)
- Development of harbors as PoE for CEE, e.g. Trieste/Rijeka, Constanza, St. Petersburg
- Reverse direction: serve WE from east side (e.g. DC in Czech Republic)
- Manufacturing moving more to the East: Czech => Romania => Ukraine
- TAR: inbound from Middle/Far East by rail. It is still a long term plan



Today's trends

Trans Asian Railway (TAR)



Today's trends

Future Supply Chain
footprints

Central

Regional

Russia: retail and automotive have strategically entered (local for local), self-import (high value) goods not easy.

Platform for growth: Central DCs will be less efficient due to congestion, costs of road based transport etc.

Next step: bigger sized RDCs with (short)sea access to serve on local requirements that are not feasible or efficient from a central location, 'back-up' by CDC, CDC is also RDC. Mirroring to Russia / CIS.

Agenda

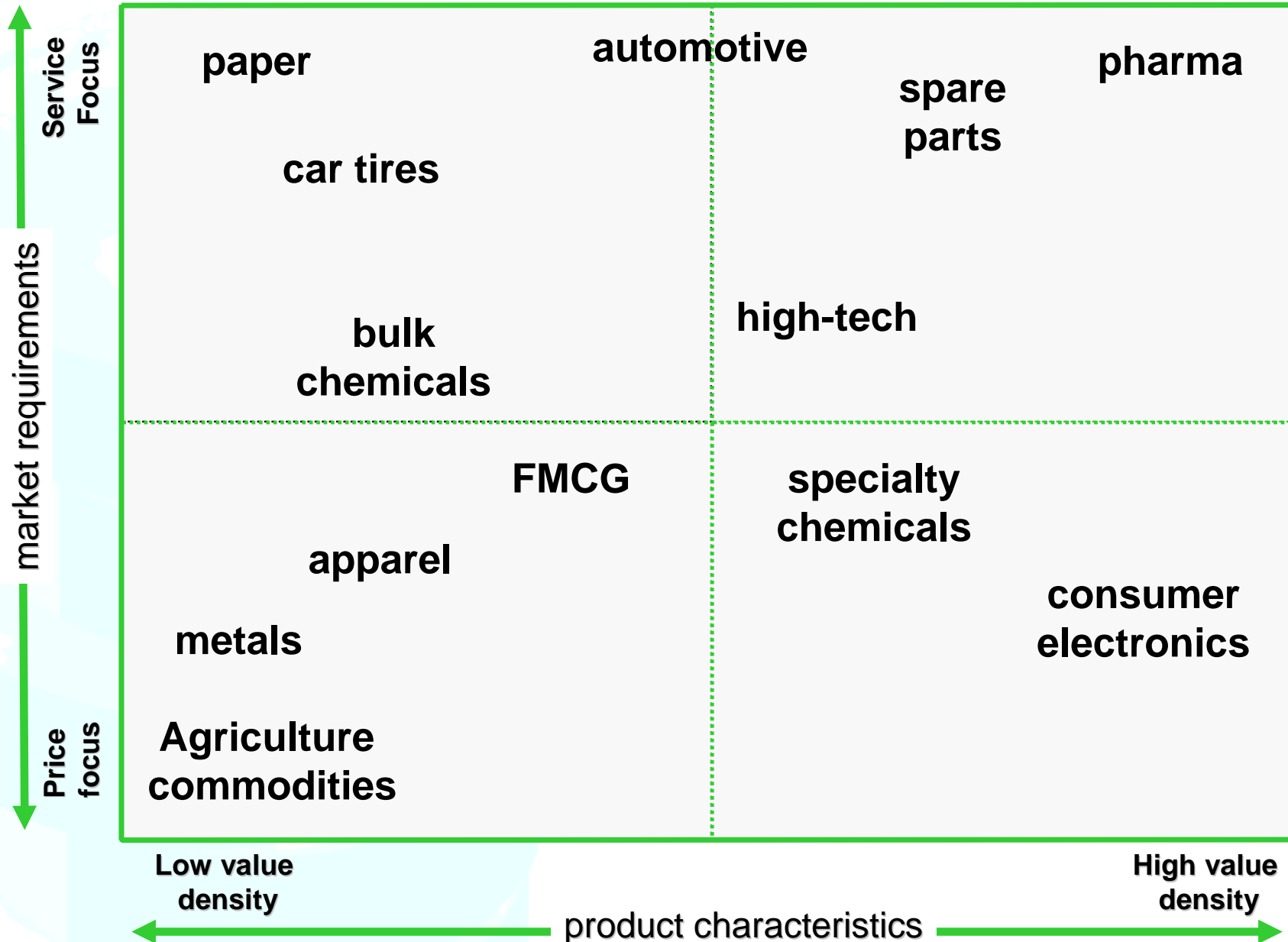
1. Europe, a complicated concept
2. Changing European distribution models
3. Advises on how to succeed in Europe

Advises on how to succeed in Europe

- Do not copy-paste USA solutions in Europe
Europe may seem to be one big country, it isn't!
- Design multilayered Supply Chains that encompasses local, regional and pan-European structures to serve all national markets effectively.
- Challenge local requirements thoroughly
 - Meet the customer, preferably their supply chain professional
 - Try to understand your competitor's market propositions
- Use suppliers/providers with a 'local' presence
 - Local operational IT-solutions (e.g. WMS) and support
 - One local/regional independent Consultant to help you setting up your businesses
- Do consider the difference between countries before choosing the location for a logistics operation

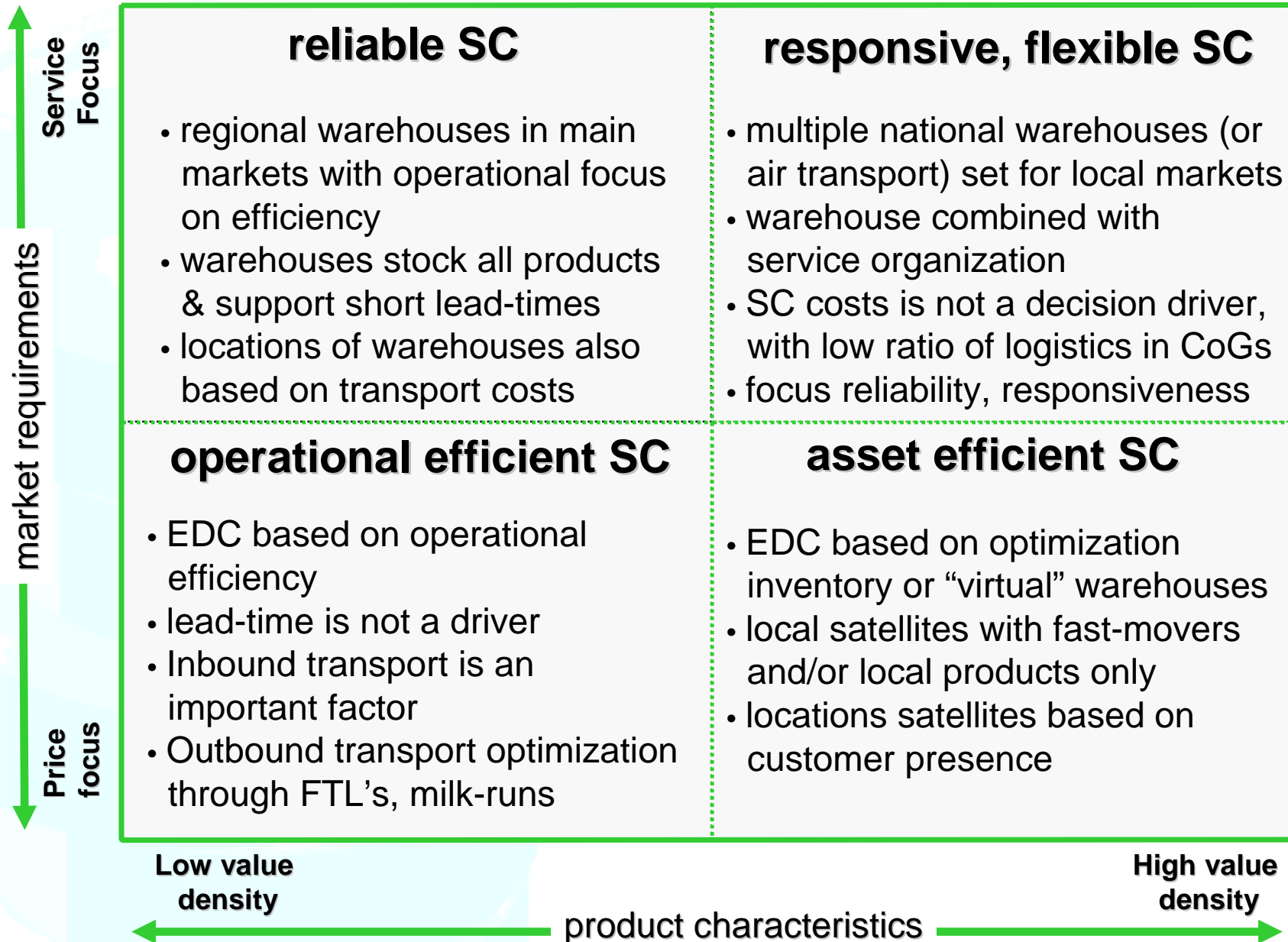
European distribution network paradigm

Distribution strategy – determining factors



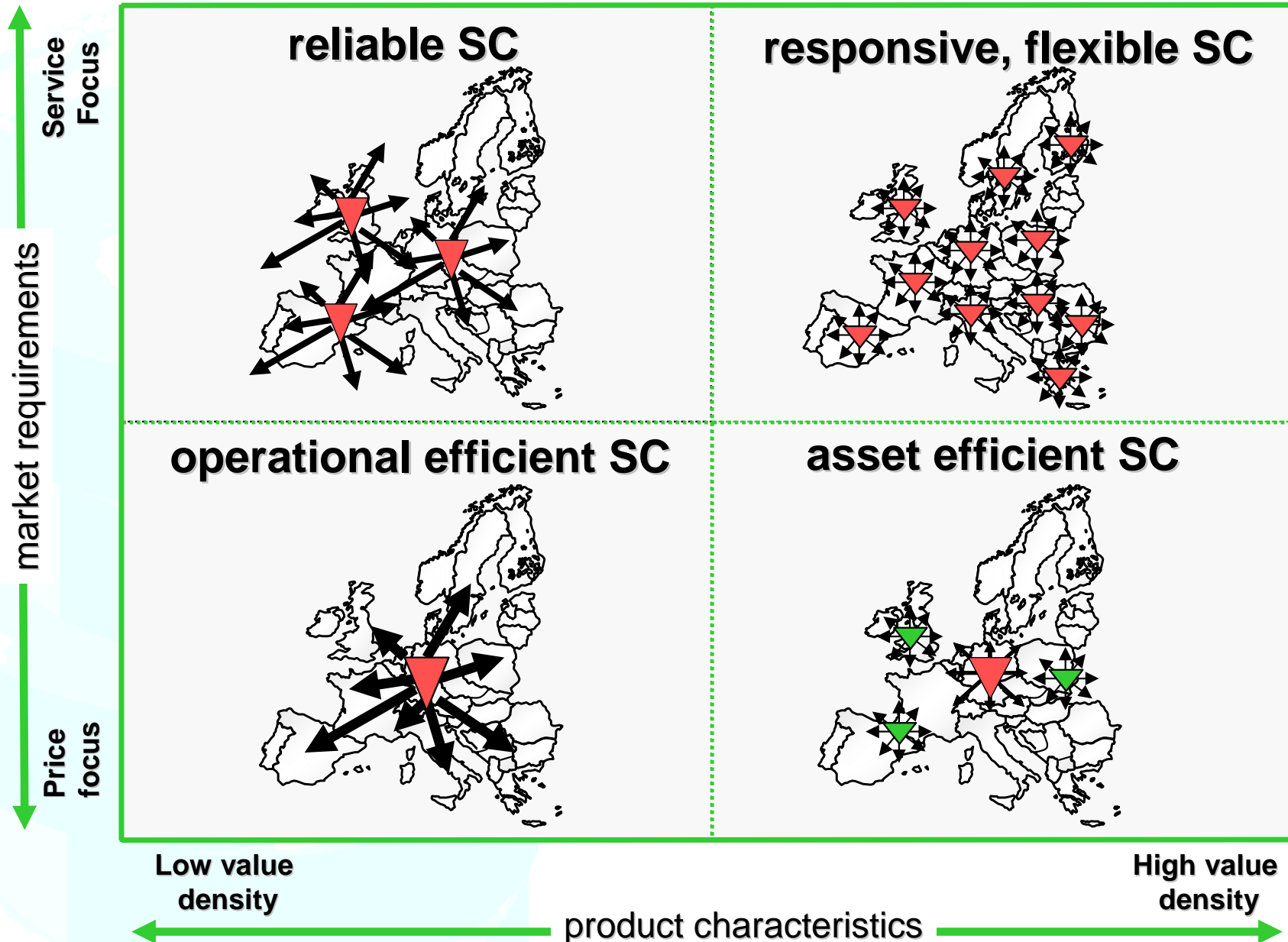
European distribution network paradigm

Distribution strategy – market requirements & product characteristics



European distribution network paradigm

Distribution strategy – viable solutions



Summary & conclusions

- There are best practices for European distribution structures, based on market requirements & product characteristics
- However best practices (can) shift in the next 5 years
 - In-house changes as mergers, global sourcing, outsourcing
 - Customer market changes as growing sales volumes, smaller shipment sizes, shorter lead-times
 - 80% of carbon footprint targets are determined by distribution structure footprint
 - Increase of transportation costs on, fuel costs, road-toll, environmental regulations



• GROENEWOUT •

CONSULTANTS & ENGINEERS

Nijverheidssingel 313, P.O.Box 3290

4800 DG Breda

The Netherlands

Tel: +31 (0)76 5330440

Fax: +31 (0)76 5310191

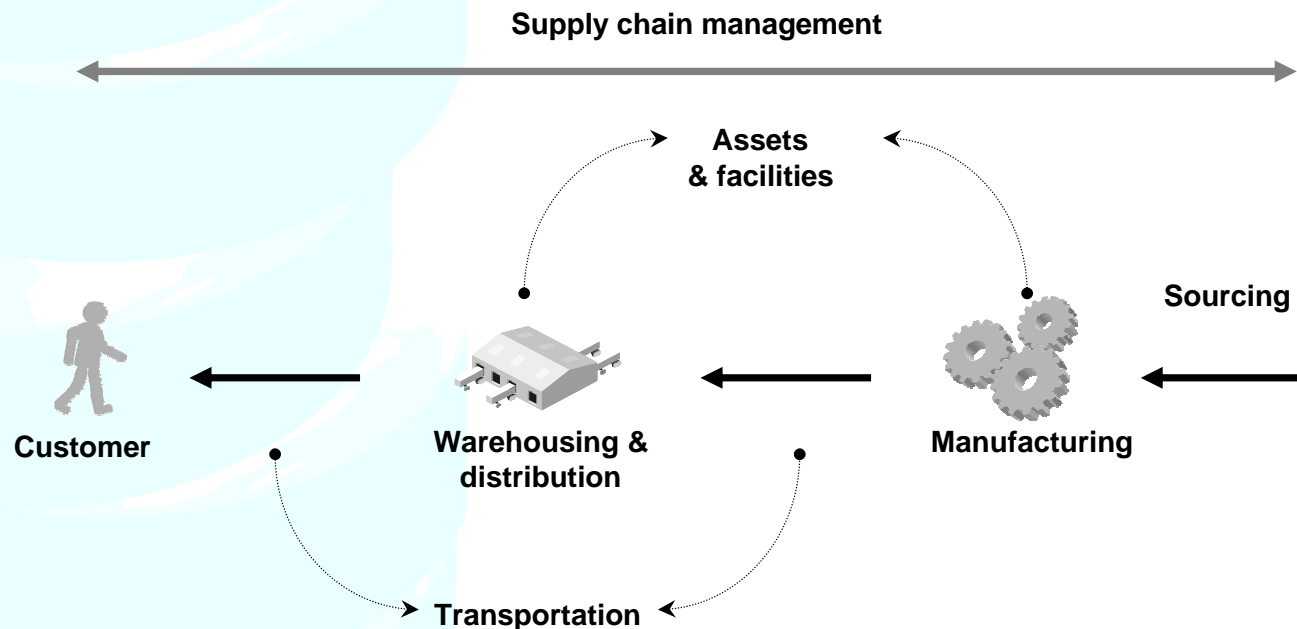
Visit us at www.groenewout.com

MAKING SUPPLY CHAINS YOUR

COMPETITIVE ADVANTAGE!

Profile

Groenewout is an international, independent consulting company providing integrated value-added advisory and support services across all industry sectors to support our clients in achieving business process and operational improvements within supply chains and logistics.



Groenewout

Our consulting portfolio in logistics - & supply chains management

Supply Chains & Logistics Consulting	Stratgical	<ul style="list-style-type: none"> • Feasibility studies • Warehouse tendering for building, logistics equipment & IT 	<ul style="list-style-type: none"> • Distribution Network Studies • Global sourcing • Non Product Related Purchasing (NPR) 	<ul style="list-style-type: none"> • Organizational - & functional design • Business process (re-)design • Key Performance Indicators (KPI's)
	Tactical	<ul style="list-style-type: none"> • Warehouse (lay-out) design • Plant (lay-out) design • Lean warehousing • Insourcing / out-sourcing warehousing 	<ul style="list-style-type: none"> • Transport tendering • Service Level Agreements (SLA) • Insourcing / out-sourcing transport • Benchmarks 	<ul style="list-style-type: none"> • Sales & Operations Planning (S&OP) • Production planning • Collaborative Planning, Forecasting & Replenishment
	Operational	<ul style="list-style-type: none"> • Loss Prevention & Security (LP&S) • Facilities electrical, HVAC & temperature engineering 	<ul style="list-style-type: none"> • Location studies & site selections 	<ul style="list-style-type: none"> • IS selection & implementation (WMS/TMS/APS) • Inventory Mgt.
		<i>Materials Mgt.</i>	<i>Physical Distribution</i>	<i>Supply Chain Mgt.</i>



Groenewout

Our methodology in logistics - & supply chains management

