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# Climate Driven Urban Distribution Concepts

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- 1 Profile Buck Consultants International**
- 2 Transport and Distribution Trends**
- 3 Last Mile Developments**
- 4 Casus the Netherlands**

# 1 Profile Buck Consultants International



## Corporate clients

- Worldwide footprint strategy
- Supply chain optimization
- Location advice
- Real estate strategy and projects
- Business strategy development
- Strategic outsourcing

## Profile

- Established in Nijmegen, the Netherlands in 1985
- Employs 75 full-time professionals
- Offices in The Netherlands, London, Frankfurt Atlanta, San Mateo, Los Angeles, Shanghai and Singapore
- Strong worldwide partnerships
- Performed studies in more than 50 countries worldwide



## Life Sciences



## High Tech, ICT & Electronics



## Industrial Products



## Logistics



## Food & Beverages



## Fashion & Apparel



## Automotive Industry



## Chemicals & Materials



# What services can BCI offer on both strategic and operational levels

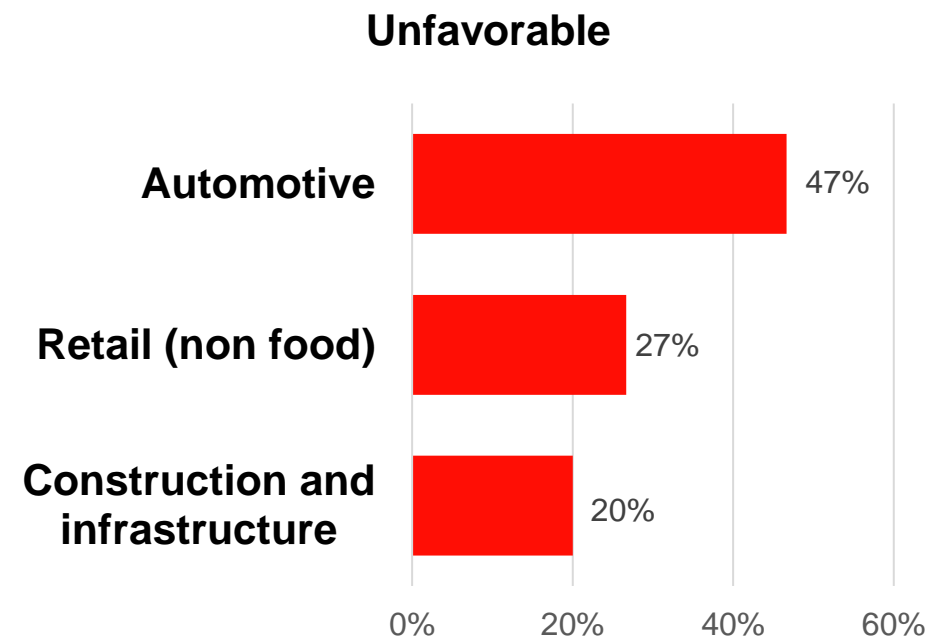
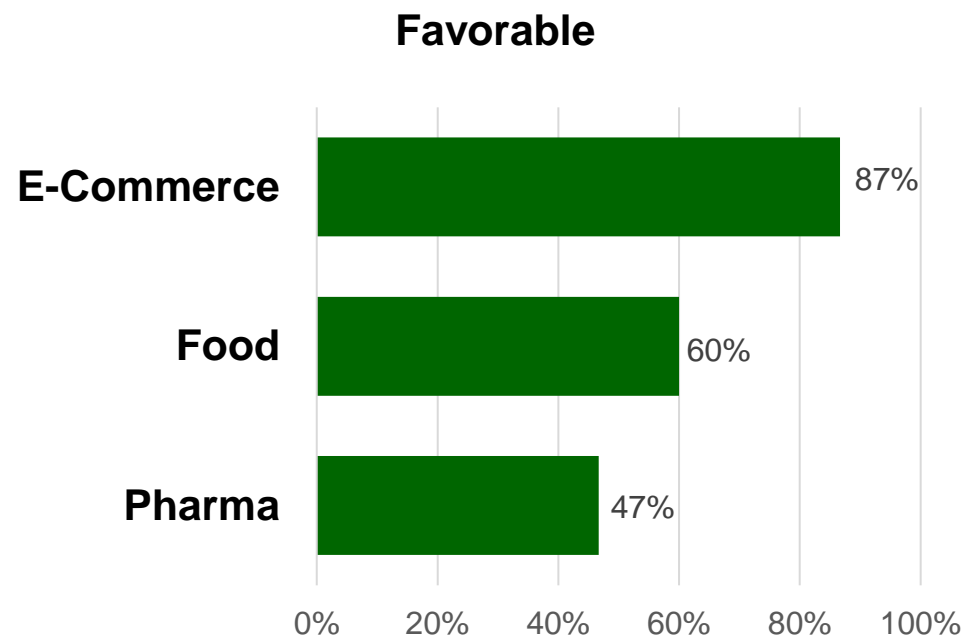
	End user	Developer	Investor	Region/City
<b>Development and Investment Strategy</b>	<ul style="list-style-type: none"> <li>• Corporate real estate and location strategy</li> </ul>	<ul style="list-style-type: none"> <li>• Vision development</li> <li>• Acquisition strategy</li> <li>• Project strategy</li> </ul>	<ul style="list-style-type: none"> <li>• Investment strategy</li> <li>• Vision development</li> <li>• Allocation strategy</li> </ul>	<ul style="list-style-type: none"> <li>• Vision development</li> <li>• Planning of sites &amp; office parks</li> </ul>
<b>Concept Development</b>	<ul style="list-style-type: none"> <li>• Advice on real estate concept</li> </ul>	<ul style="list-style-type: none"> <li>• Innovative property concepts</li> <li>• Development of masterplan</li> </ul>	<ul style="list-style-type: none"> <li>• Innovative property concepts or funds</li> <li>• Assessments of individual developments</li> </ul>	<ul style="list-style-type: none"> <li>• Innovative property concepts</li> </ul>
<b>Market Analysis/ Feasibility Study</b>	<ul style="list-style-type: none"> <li>• Site selection</li> <li>• Plan assessment</li> </ul>	<ul style="list-style-type: none"> <li>• Market study</li> <li>• Target group analysis</li> <li>• City scans</li> </ul>	<ul style="list-style-type: none"> <li>• Market study</li> <li>• Risk-analysis</li> <li>• Investment advice/ second opinion</li> <li>• Fund screening</li> <li>• Building assessments</li> </ul>	<ul style="list-style-type: none"> <li>• Area development</li> <li>• Positioning of sites &amp; parks</li> </ul>
<b>Marketing Support</b>	<ul style="list-style-type: none"> <li>• Disposition</li> <li>• Co-location</li> </ul>	<ul style="list-style-type: none"> <li>• Development of marketing plan</li> </ul>	<ul style="list-style-type: none"> <li>• Development of vision on real estate marketing</li> </ul>	<ul style="list-style-type: none"> <li>• Marketing strategy and marketing plan</li> </ul>

# 2 Transport and Distribution Trends

## Opportunities and threads

### Favorable & Unfavorable Industrial Sectors in 2021 and 2022

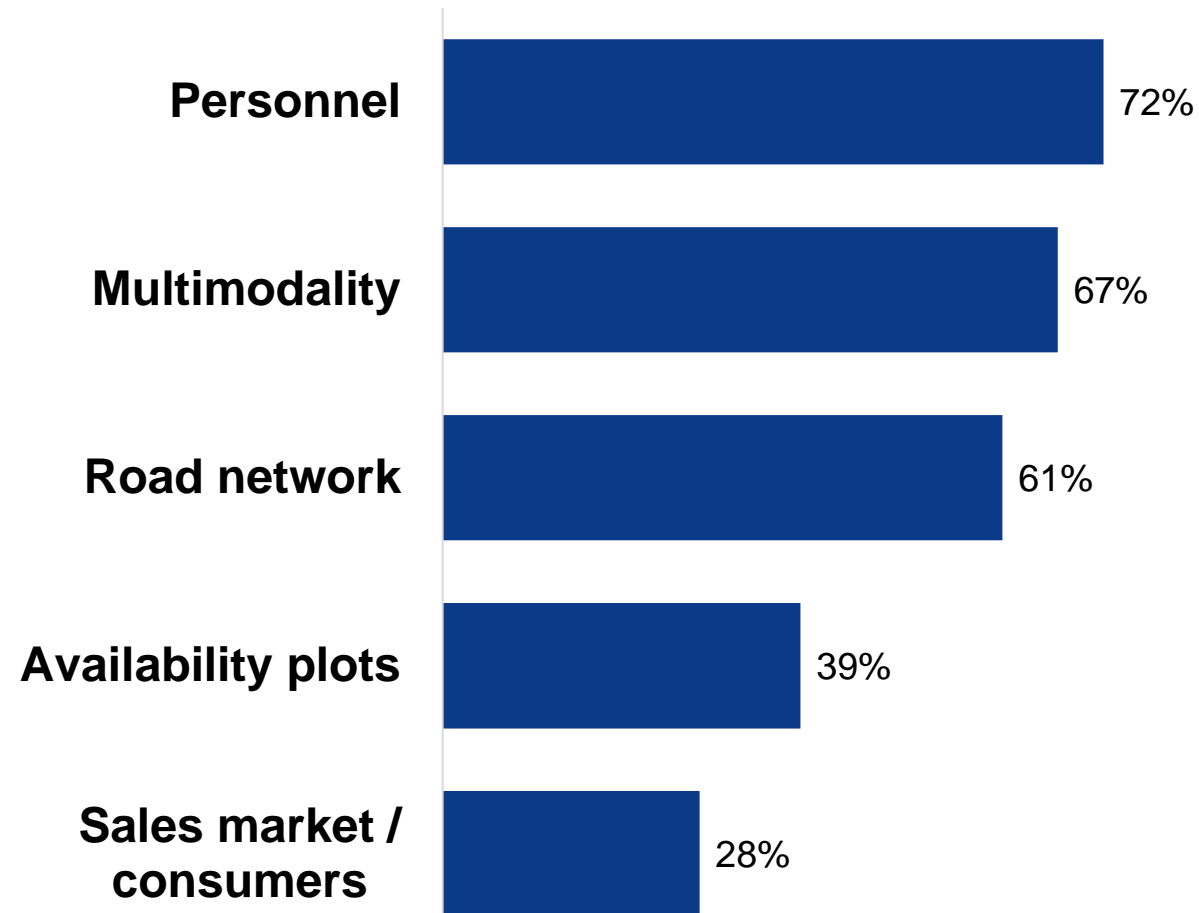
Top 3 industry sectors / types of customers who are expected to have the most favorable / most unfavorable perspective in 2021 and 2022



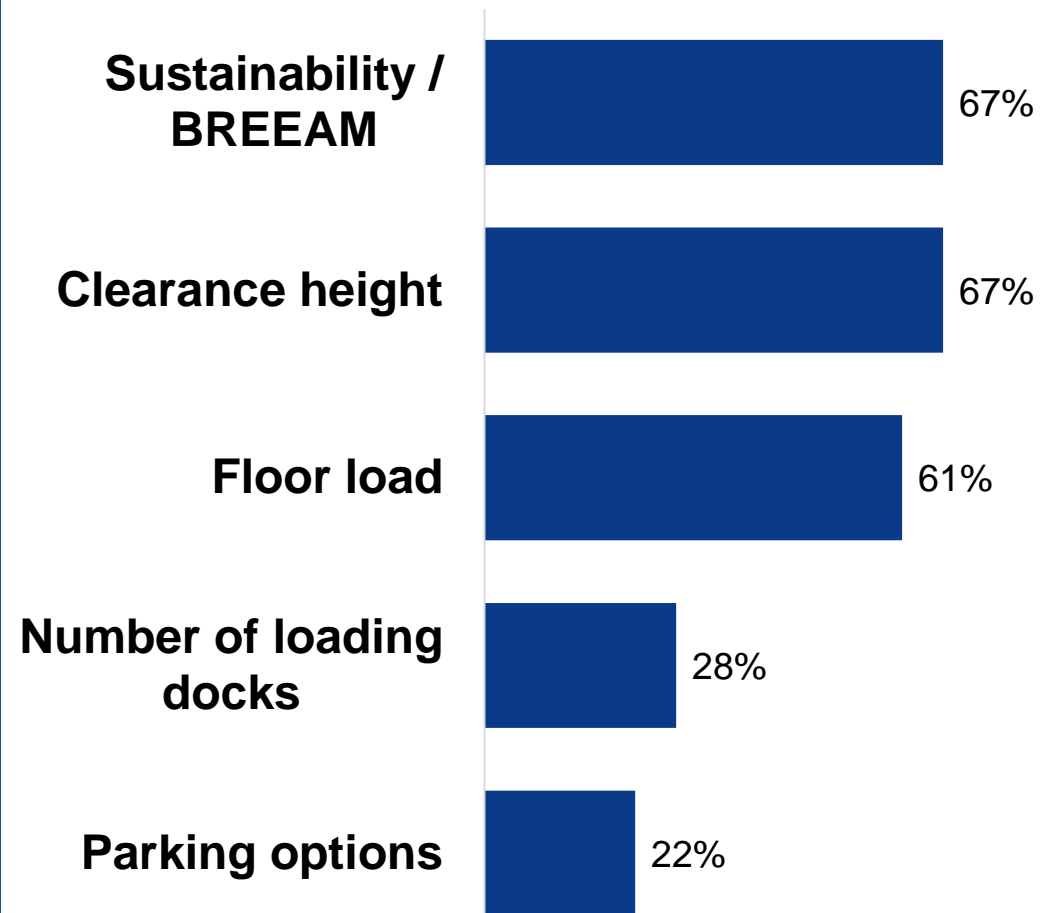


# 5 main location choice criteria and design criteria of distribution centers in the next three years

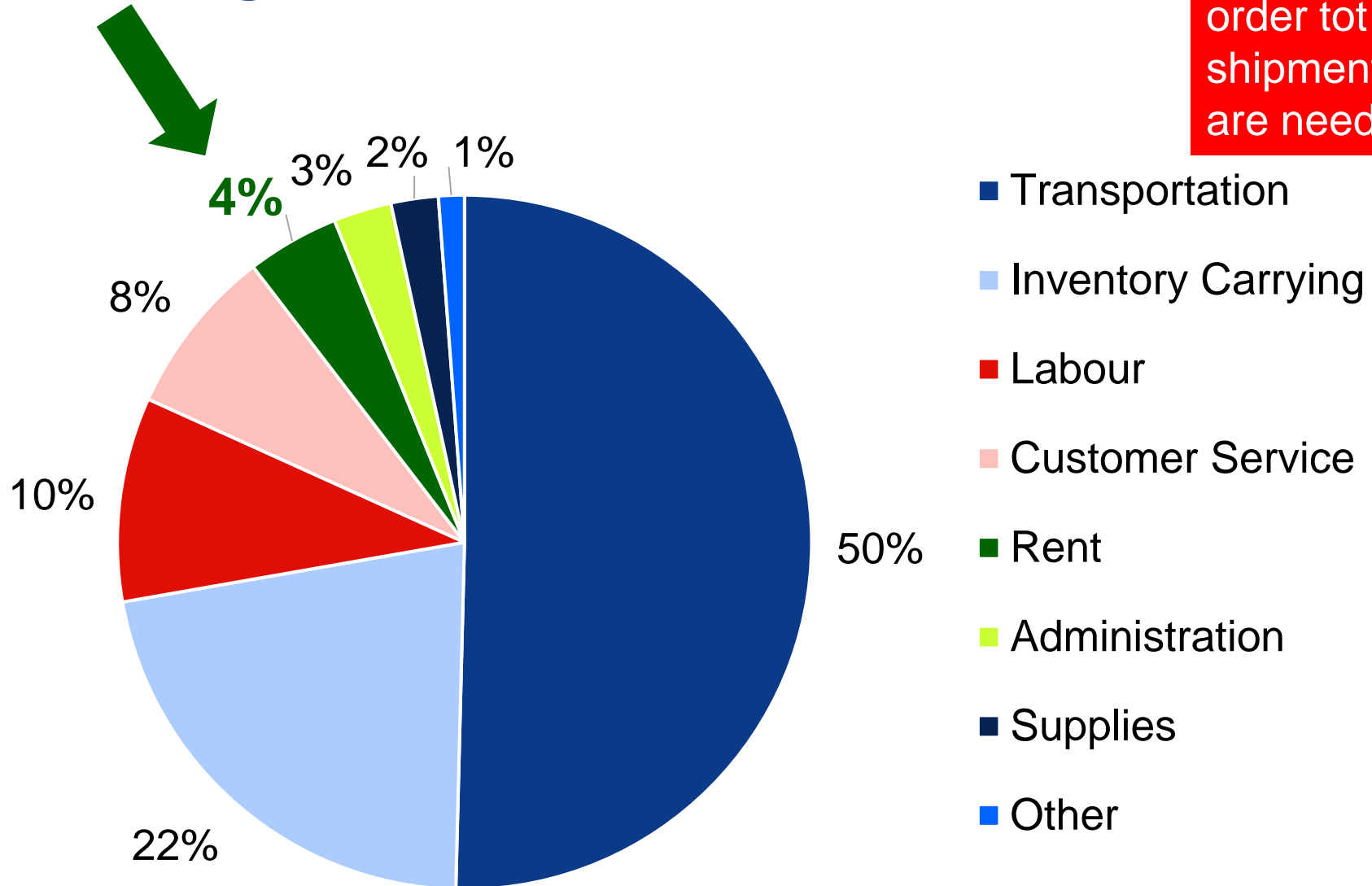
## Location choice criteria



## Design criteria



# Composition of logistics costs



Transportation costs must be lowered. In order to combine shipments City DC's are needed

Source: Establish, Inc./HWD & Grubbs & Ellis Global Logistics

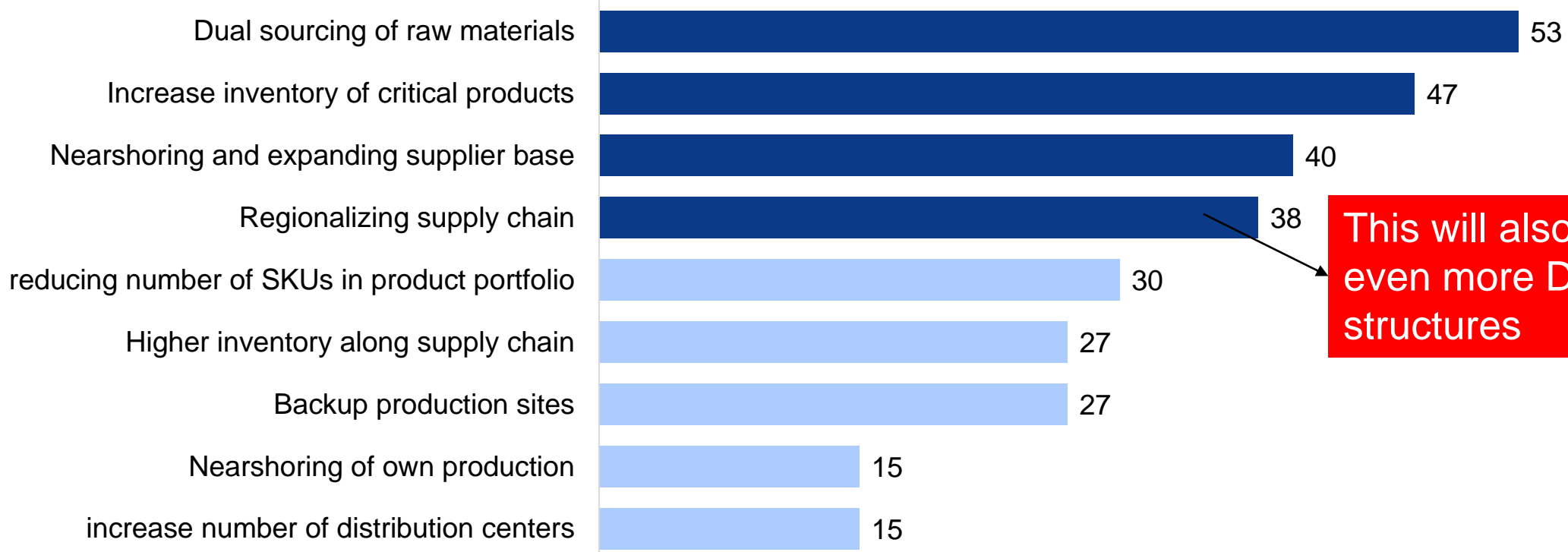
# Sources of Supply Chain Vulnerability and Strategies used to Increase Resilience

**93%** of global supply chain leaders are planning to increase resilience

**44%** would increase resilience even at expense of short-term savings

## Planned actions to build resilience

% of respondents

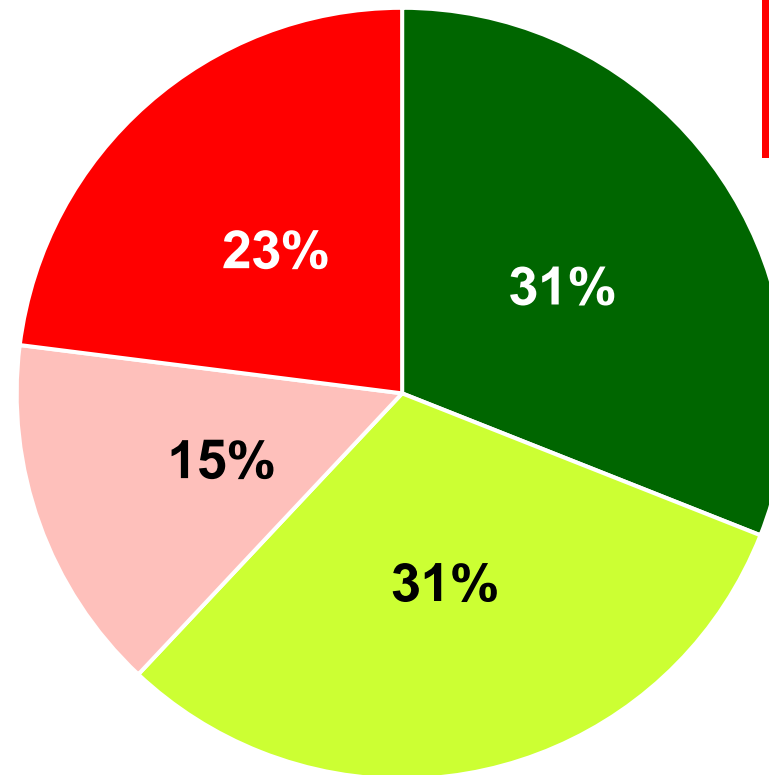


This will also lead to even more DC structures

# Reviewing footprint in the next 18 months?

**77%** indicates the need to review the network in the next 18 months

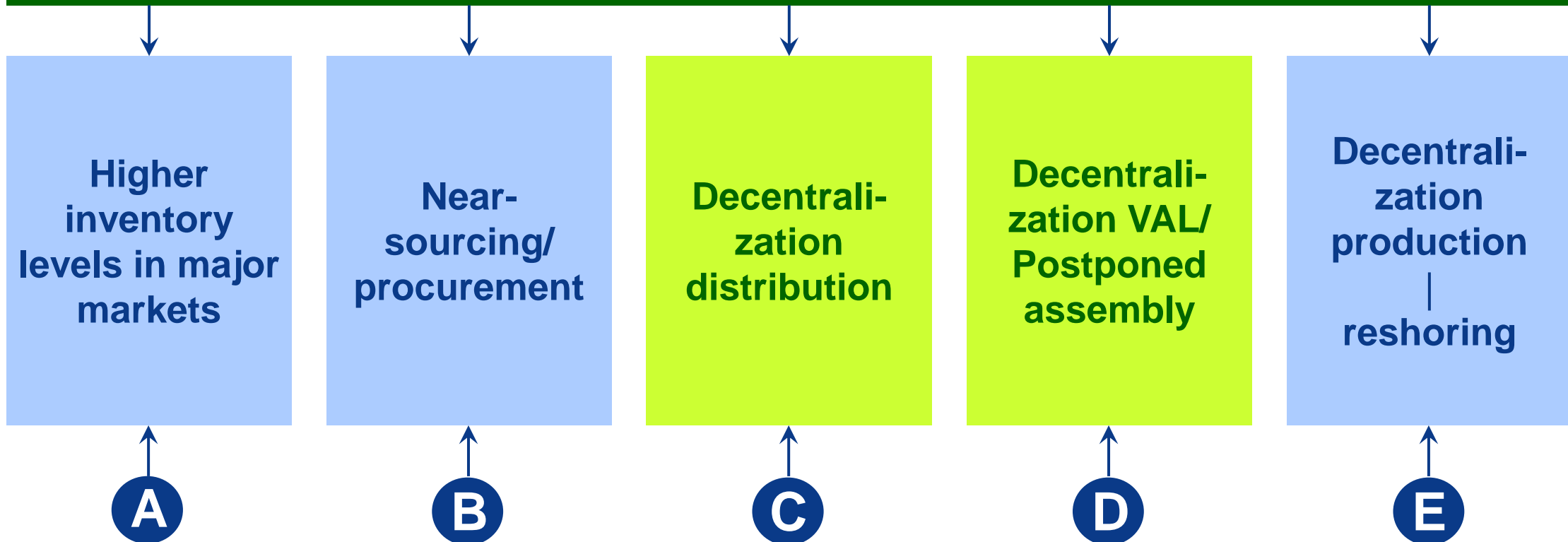
- Yes - both the manufacturing as the distribution network
- Yes - manufacturing network
- Yes - distribution network
- No - already reviewed



Companies on the move in order to take measures in sustainability and innovation

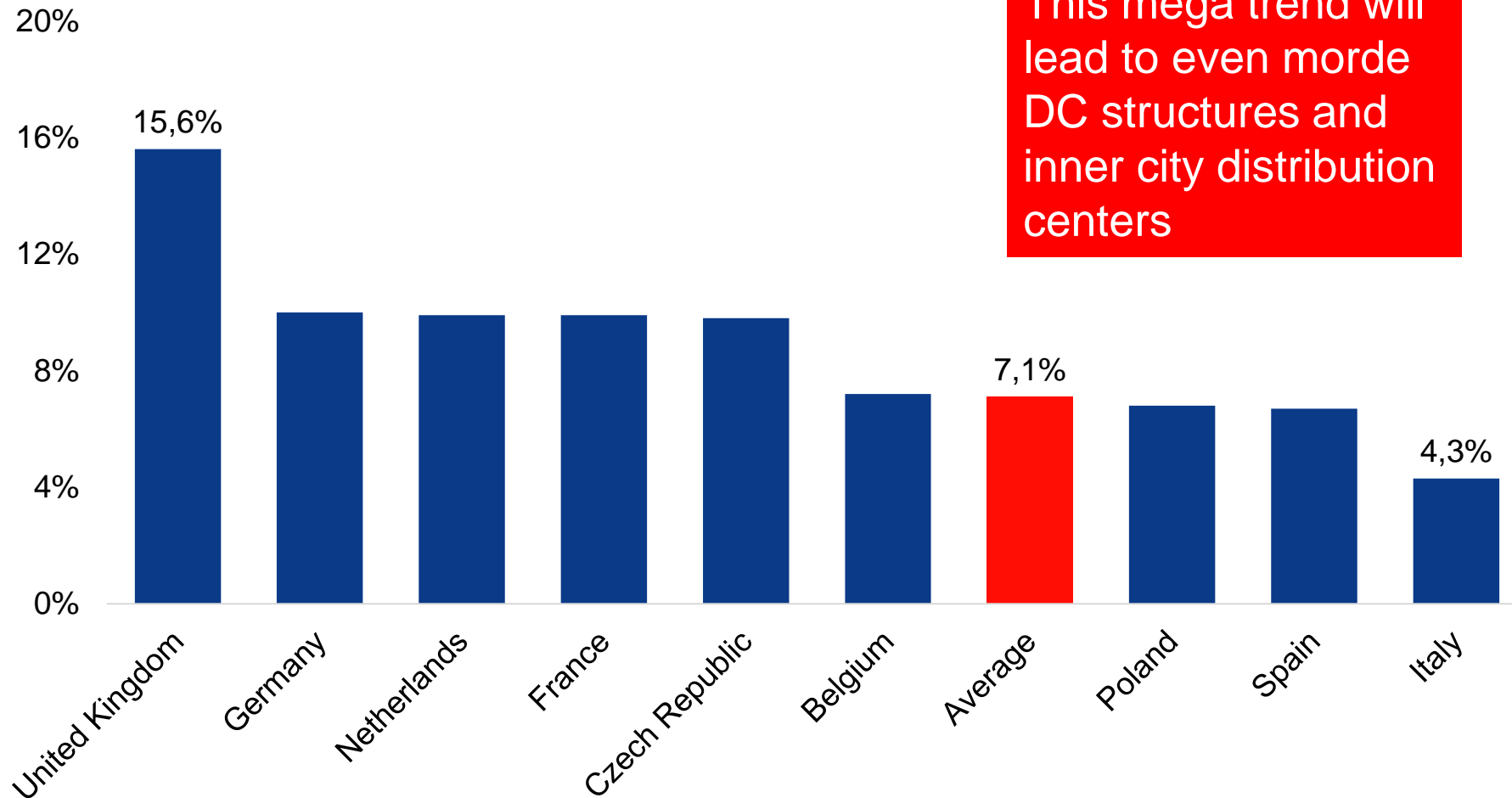
# Five Footprint Strategies

## Footprint Strategies



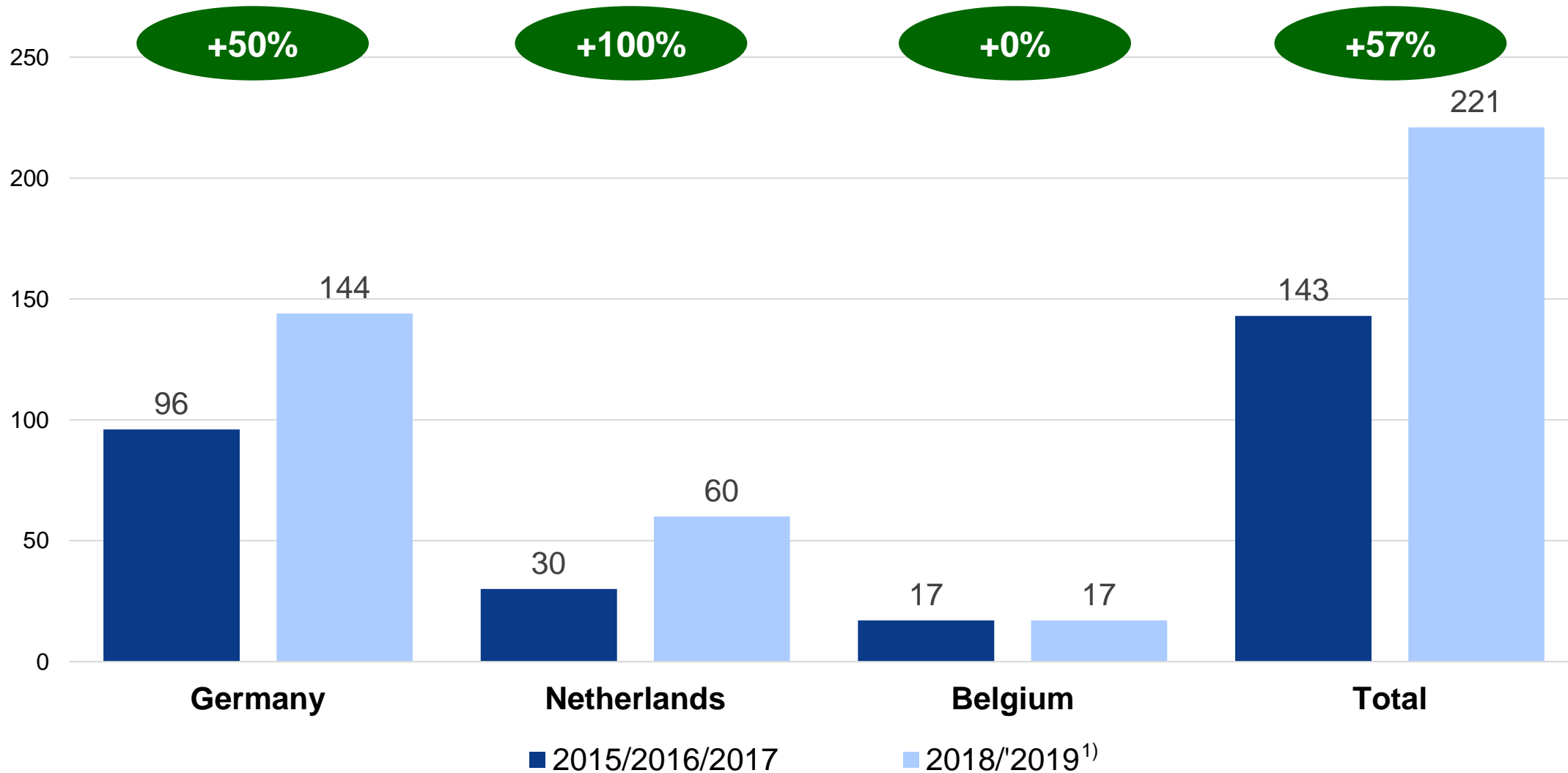
# Surfing the Online Wave

## Penetration rate of e-commerce in Europe (%)



Source: AEW, 2019

# Tremendous growth of new Mega DCs

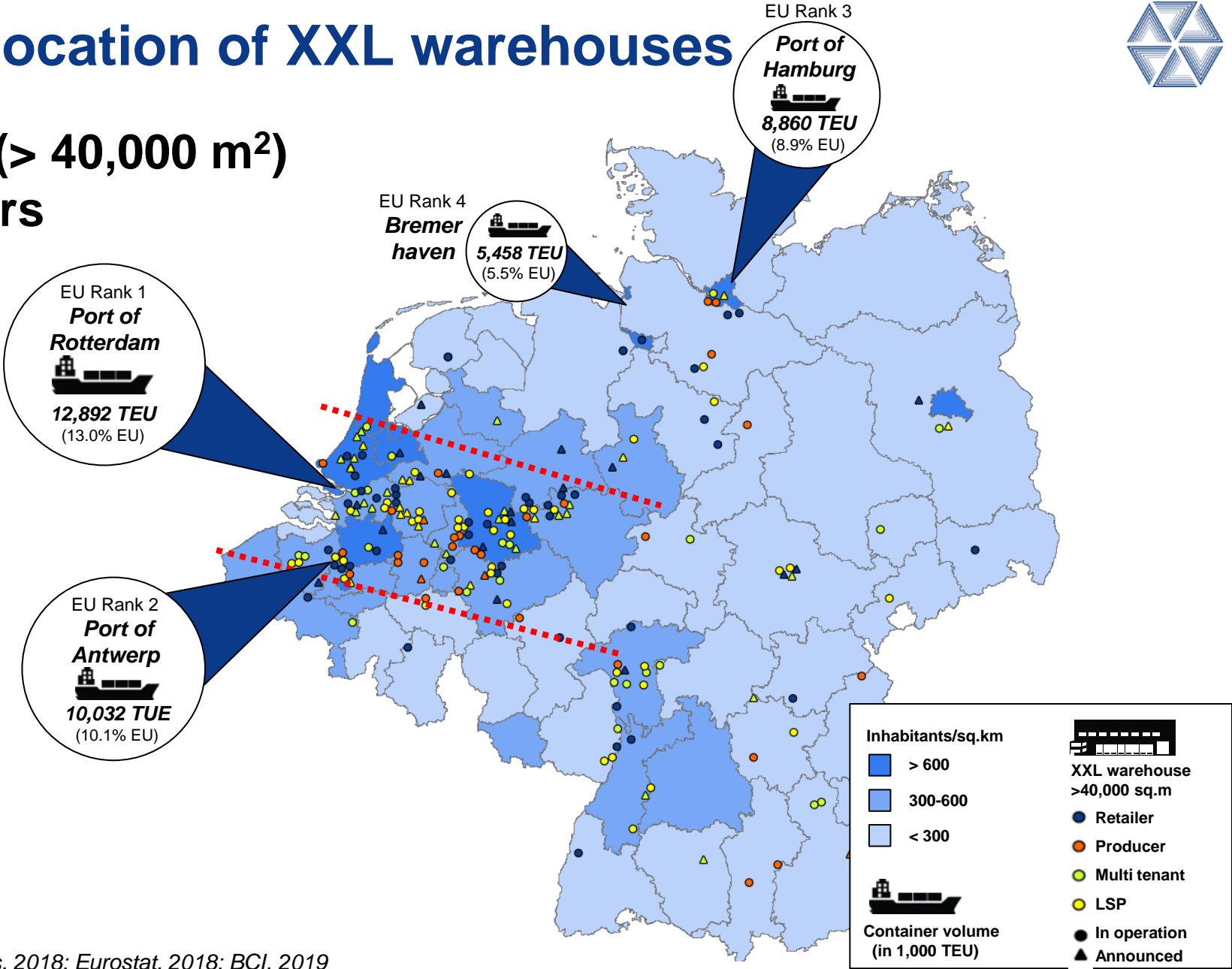


1) These are DC's announced/started construction in 2018/2019 which will be opened in 2020/2021

# Corridor driven location of XXL warehouses

**XXL warehouses (> 40,000 m<sup>2</sup>)  
mainly on corridors**

There appears to be a strong relationship between XXL warehousing and city distribution



Sources: Eurostat Maritime Port Statistics, 2018; Eurostat, 2018; BCI, 2019

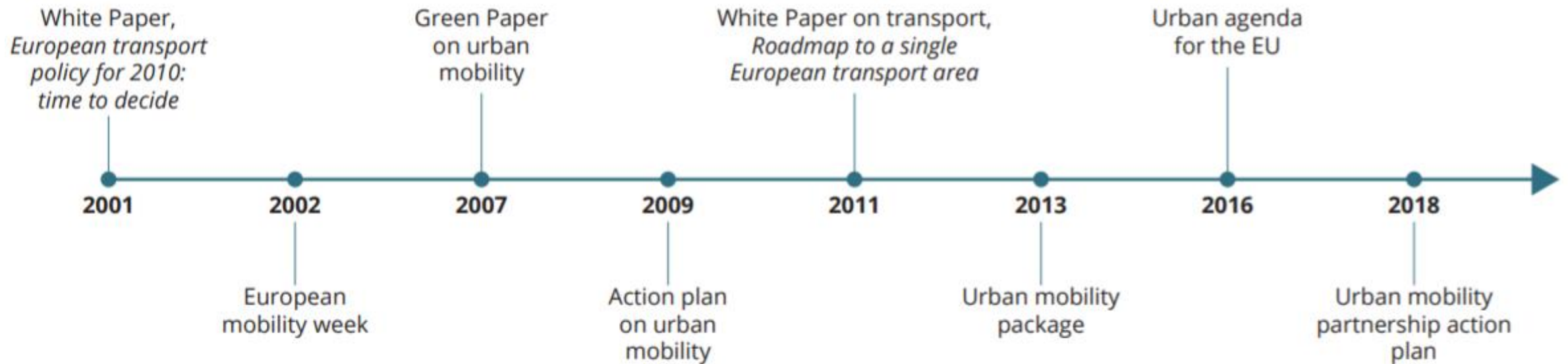


# 4 Last Mile Developments

## < Urban distribution >



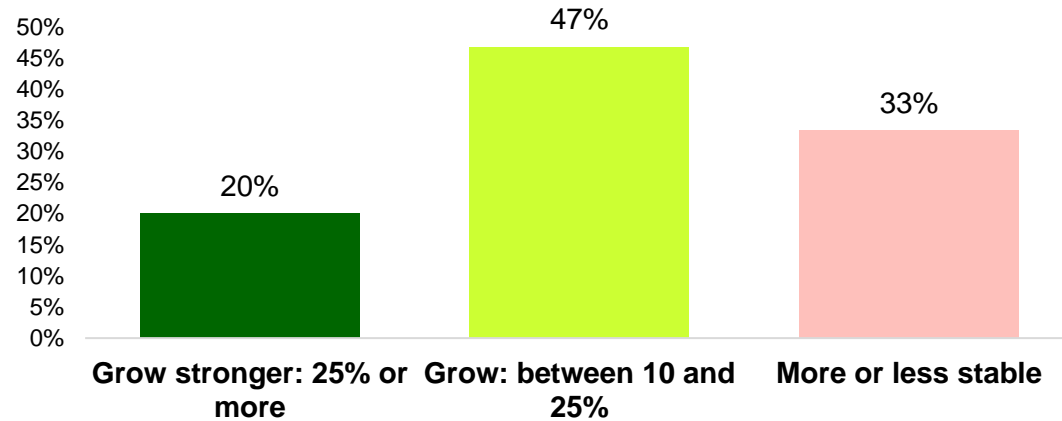
# Overview of EU Policy Developments in Urban Mobility



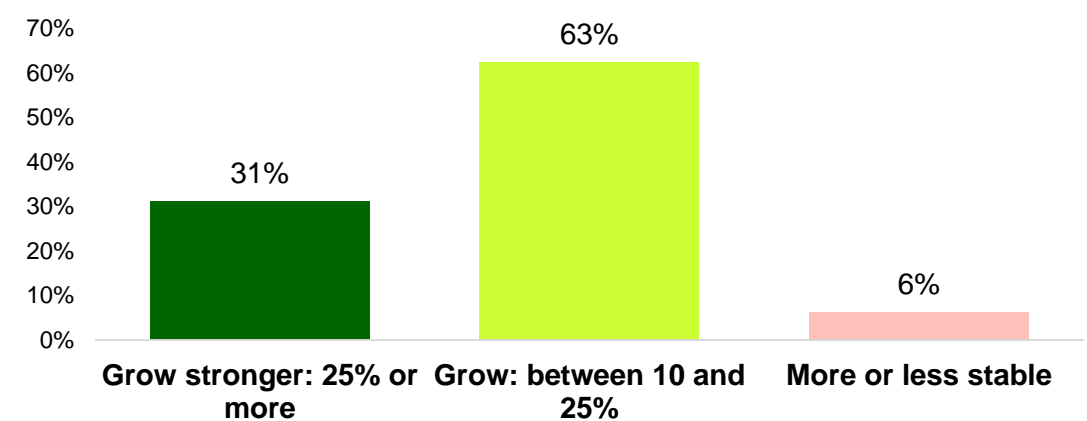
Finally the transition is taking place

# Growth of city logistics hubs will continue in the next two years (2021 and 2022) compared to 2019 and 2020

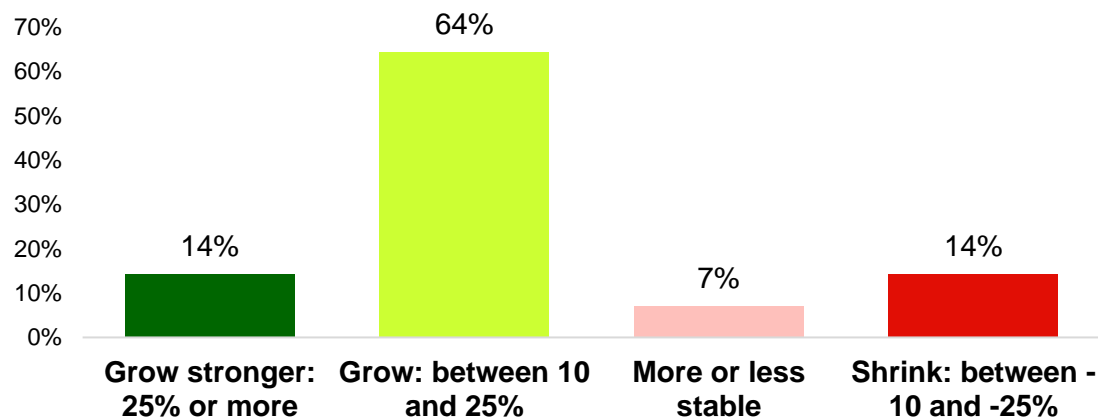
**Urban Regional DC (>20.000 m<sup>2</sup>)**



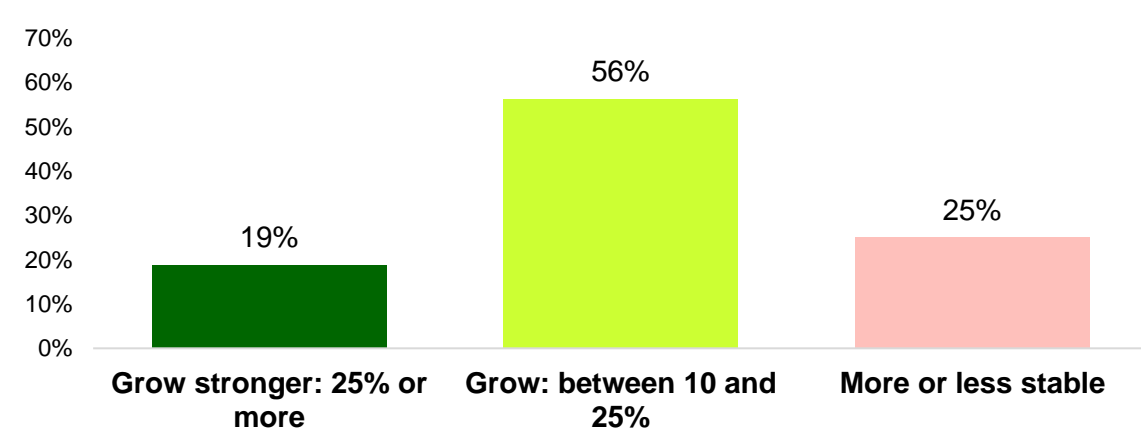
**City DC (>5.000 – 10.000 m<sup>2</sup>)**



**Goods exchange point (1.000 m<sup>2</sup>)**

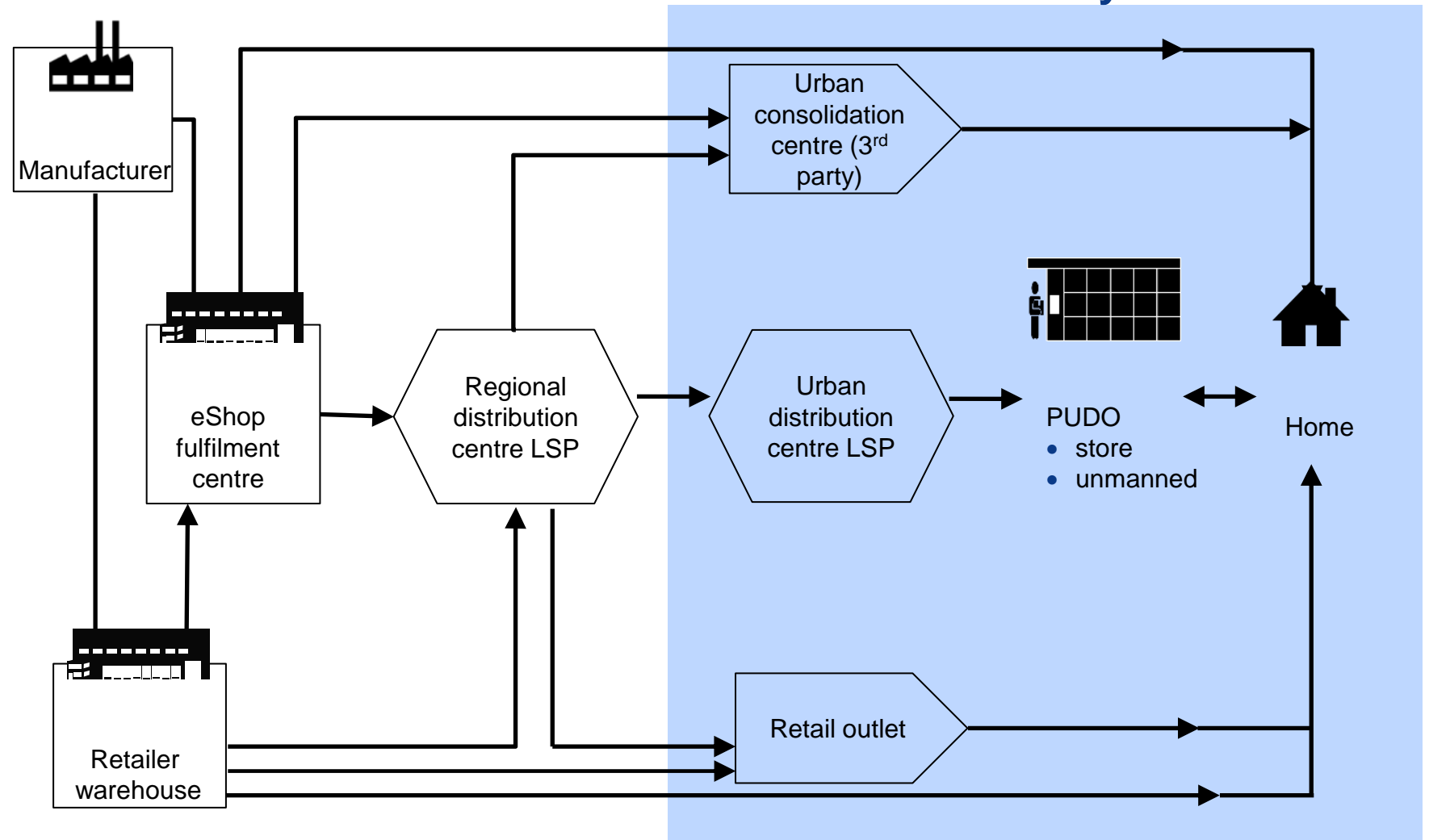


**Pudo (Pick up drop off points) (100 m<sup>2</sup>)**



# Last Mile concept

## Urban Distribution Centers



## BCI Urban Distribution Network

Source: BCI, inspired by Bestuffs

# Drivers for urban distribution hubs

## E-Commerce

High growth rate in e-commerce  
Increase in number of B2C deliveries, but smaller order sizes

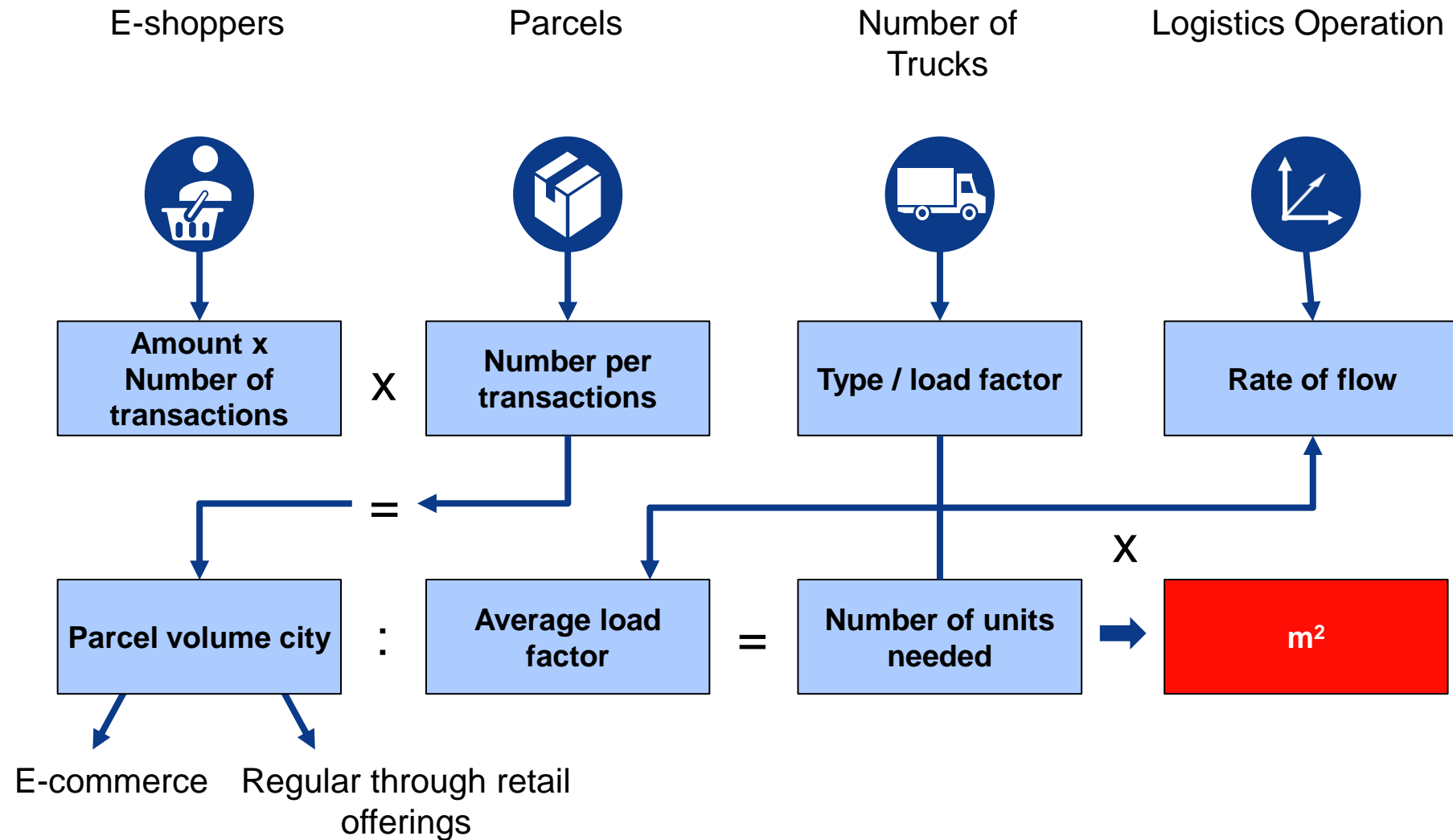
## ZE Zones

Ban on diesel trucks  
30 – 40 Dutch cities will implement a Zero Emission Zone by 2025

## Future Proof Logistics

Current chains not ready for the future (inefficient, negative external effects).  
E.g. in construction logistics

# Urban real estate modeling: need for square meters can be calculated

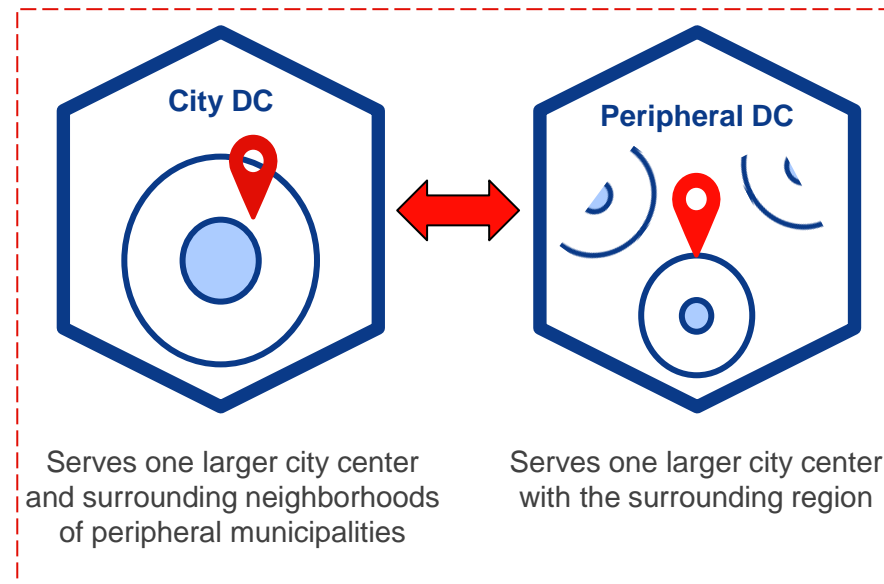


# Different Urban Hub Typologies

- Broadly speaking, there are four types of urban distribution hubs by location and function:
  - **Goods Exchange Point (or PUDO Point):** small-scale hub near the center or certain shopping street suitable for temporary storage of goods intended for center entrepreneurs
  - **City DC:** urban distribution aimed at one city (already visible in 4 biggest Dutch cities (G4) but also possible in a smaller-scale variant in other cities)
  - **Peripheral DC:** strategically located on the outskirts of a larger city, but also within easy reach of the surrounding region
  - **Regional DC:** centrally located between some major cities



Goods exchange point aimed at bundling deliveries for center entrepreneurs or large companies and institutions



Serves one larger city center and surrounding neighborhoods of peripheral municipalities

Serves one larger city center with the surrounding region



Consolidates volumes for smaller cities in a region, and therefore a larger area

# Urban distribution real estate concepts

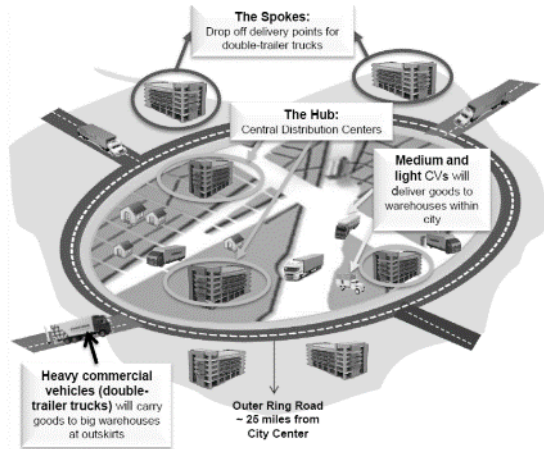
Type / scale level	Location	Size	Characteristics
1 E-fulfilment center	Corridor	> 40.000 m <sup>2</sup>	Decoupling point towards urban centers
2 Urban Regional DC	Large city or location in between cities	> 20.000 m <sup>2</sup>	Combined store delivery and home deliveries Combined with intermodal
3 City DC	City border, middle-large cities	> 5.000 m <sup>2</sup> – 10.000 m <sup>2</sup>	Multi-level, combined with other functions
4 Goods exchange point	In the city; e.g. in a parking garage	1.000 m <sup>2</sup>	Flexible, sometimes mobile, multiple per city is a possibility
5 PUDO point (Pick up drop off point)	Shops / Apartment complexes	100 m <sup>2</sup>	"Unmanned" working with codes via mobile communication (Amazon)

Source: Buck Consultants International, 2020



# Level 2 Urban Regional

Source: Kar, S.



Paris Chapelle (2018)



ALC (2020)



Next Level (2020)



# Level 3 City DC



**SOGARIS Urban Logistic Zone, Marseille**

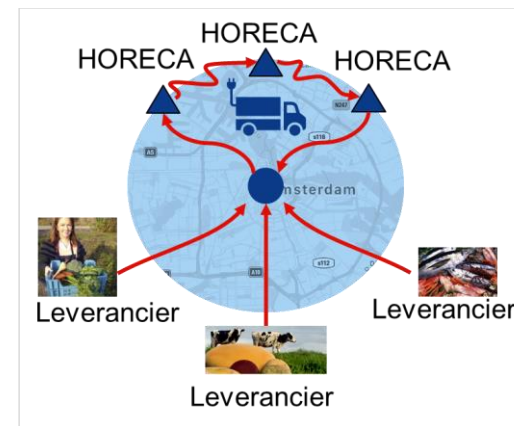
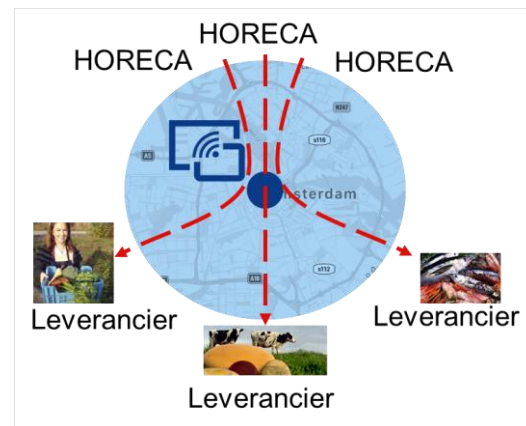


**Cityporto, Padua**

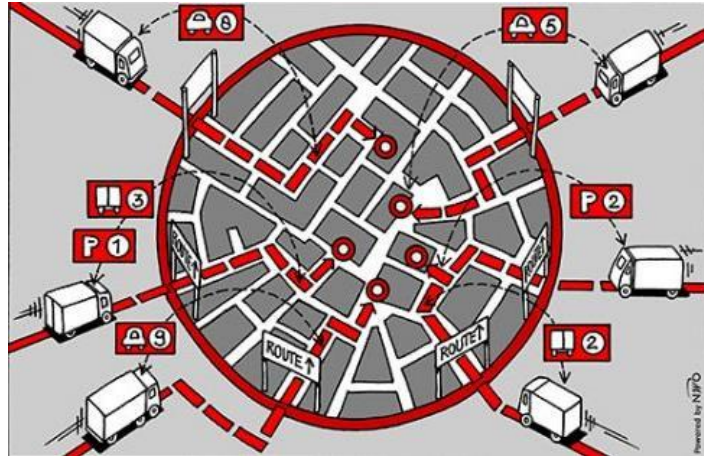


**Lage Weide, Utrecht**

## Last Mile Fresh, Amsterdam



## Level 4 Goods Exchange Point



Bue Hub



## Level 5 PUDO Point

DHL Parcel Locker

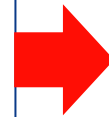


LMF Cargolev



# CityLink Concept

Sample of first concepts



Current, adapted, CityLink Concept



# Criteria for Successful Implementation

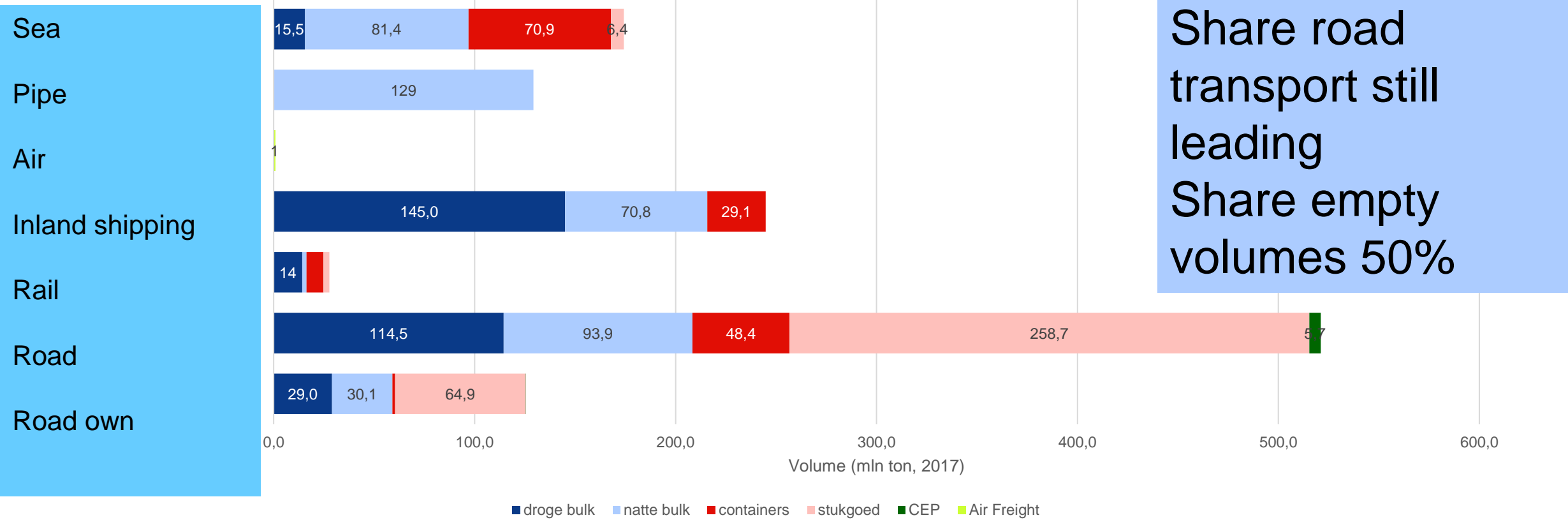


- Important observation: in order to fulfil these requirements investments in new real estate is required, either greenfield or brownfield business sites.

# 5 Casus the Netherlands

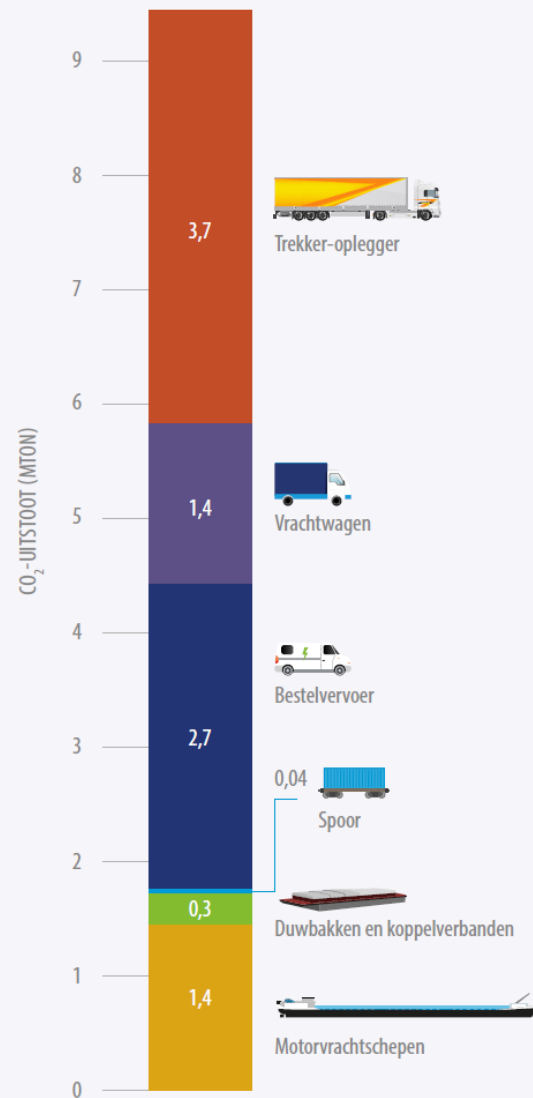
## Transport volume per type of transport

Transportvolume binnenlands en export, per modaliteit en verschijningsvorm (2017)



Share road transport still leading  
Share empty volumes 50%

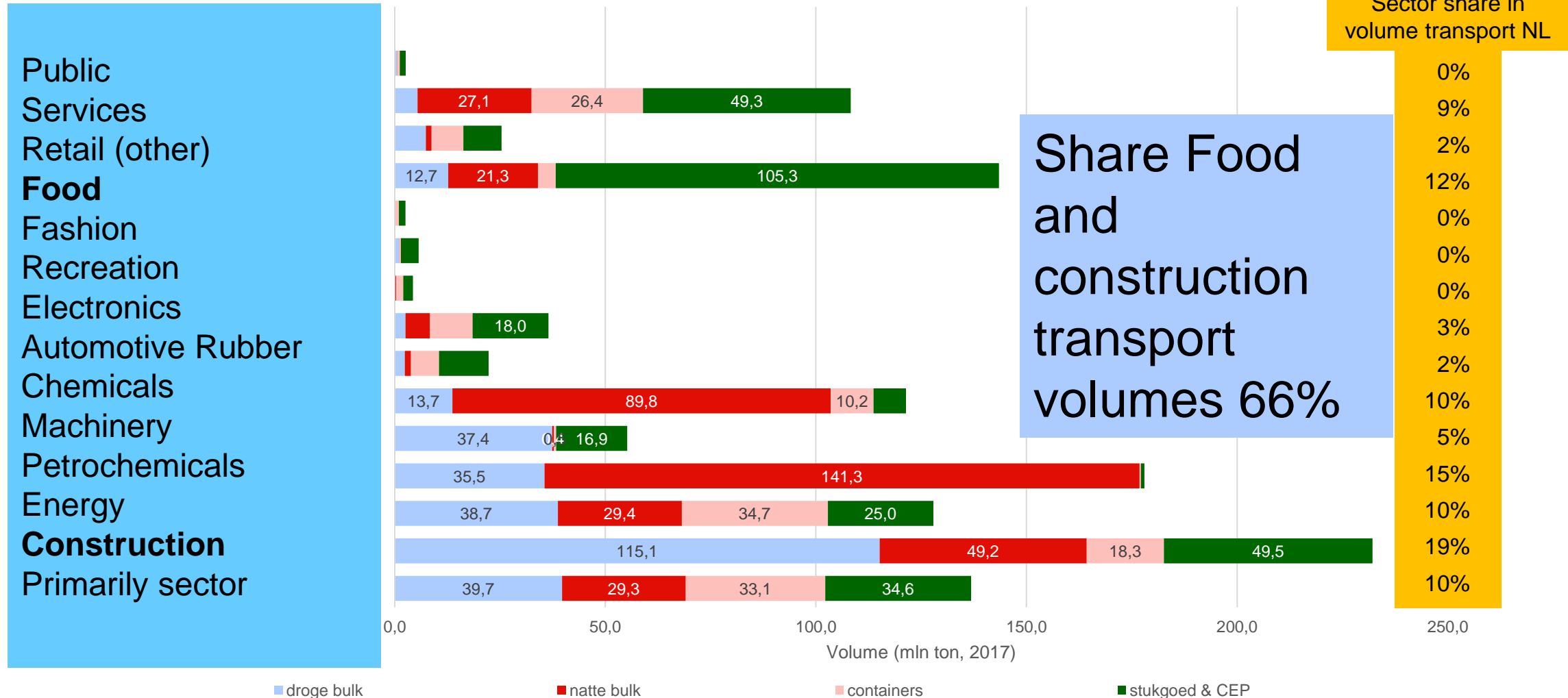
# Carbon footprint figures



Source: TNO 2020

# Transport volume per market segment and appearance

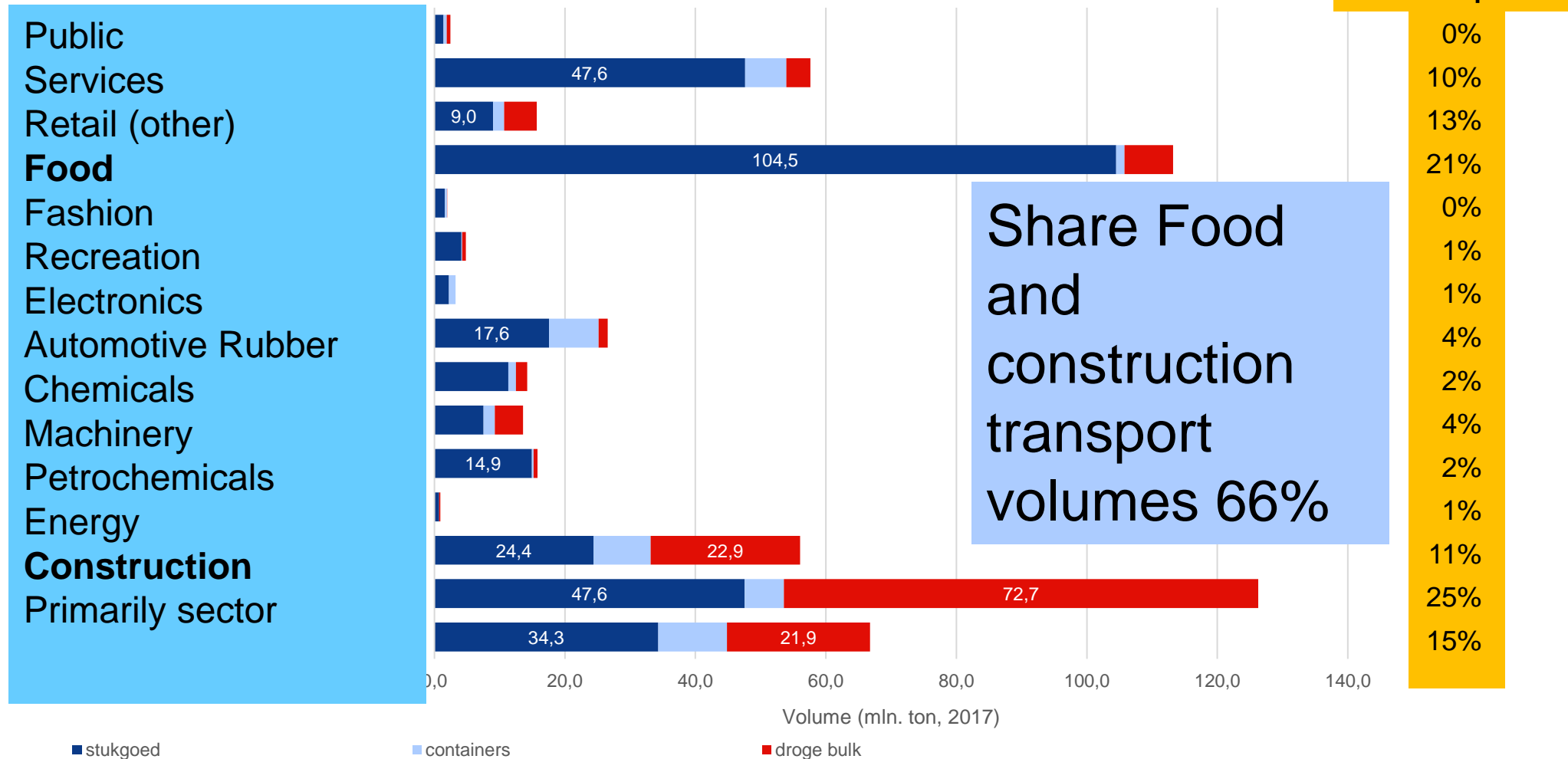
Inland and export transport volume per market segment and appearance



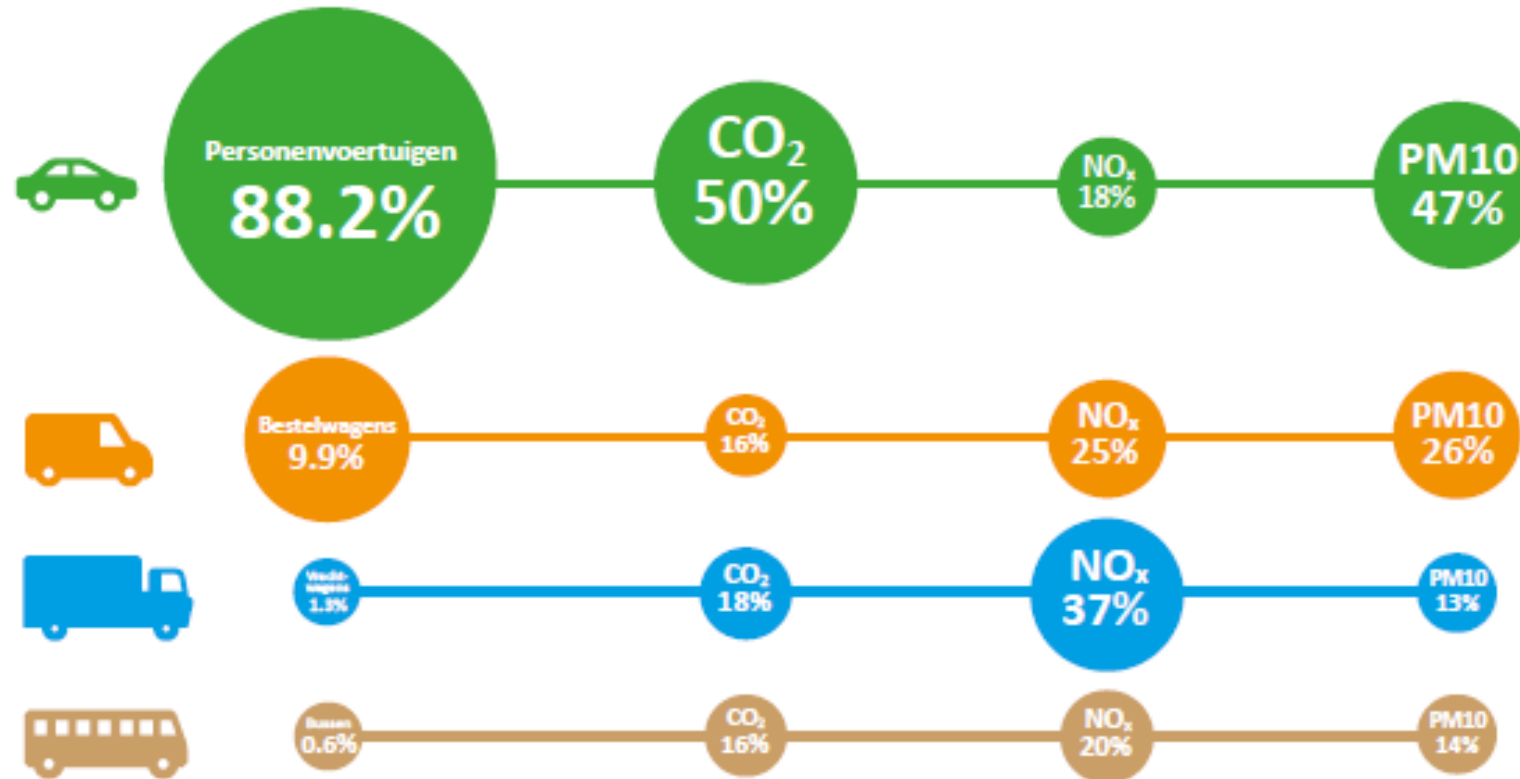


# Road transport volume per market segment

Distribution of road transport volumes across market segments and appearance



# Modal split in City mobility



Source: Buck Consultants International, 2020

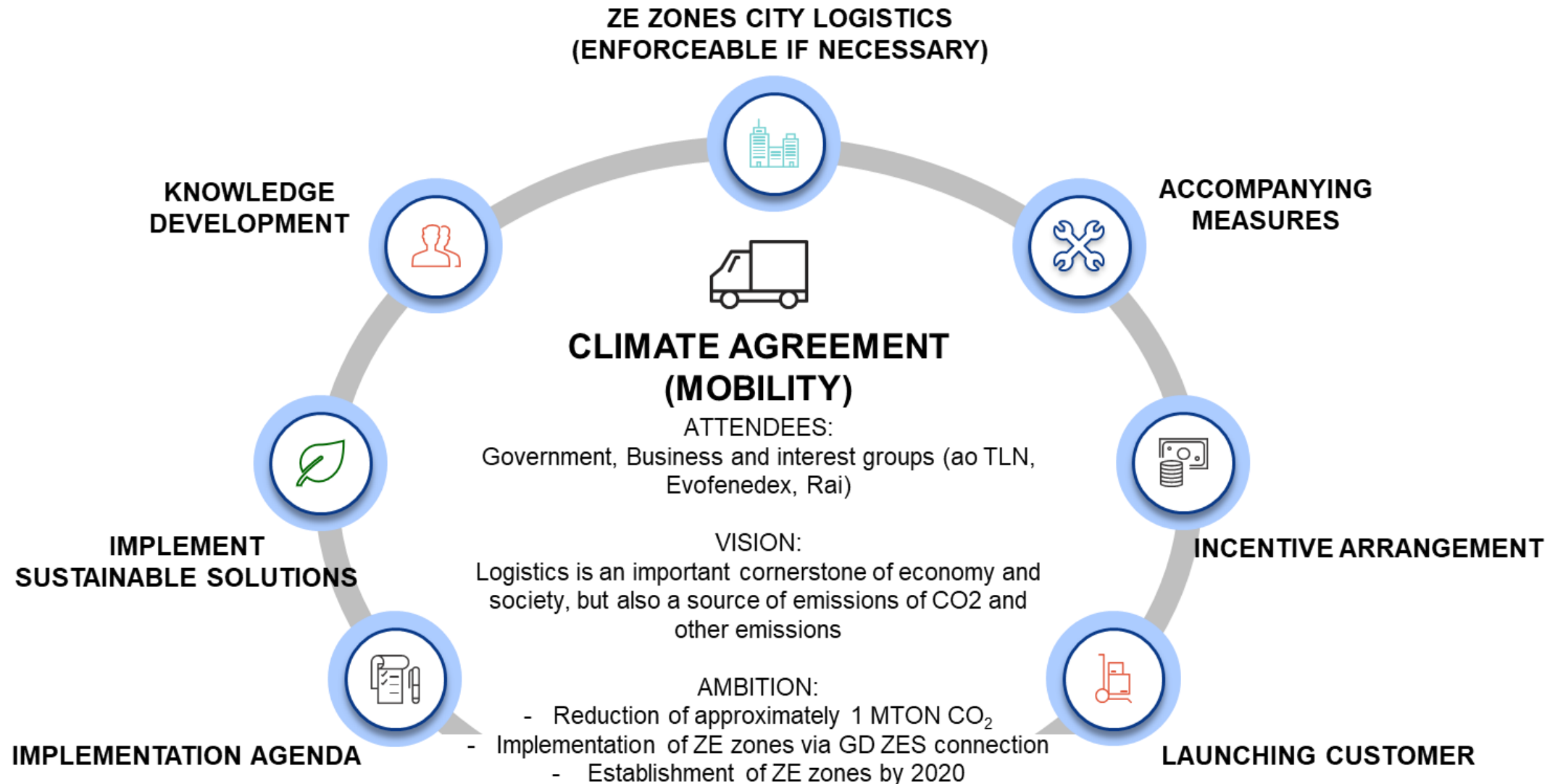
# Roadmap Zero Emission Zone



## Several routes, but steps are:

1. Formulate ambition
2. Follow (national) guidelines
3. Involve and activate stakeholders
4. Conduct impact assessment (CBA)
5. Draft an Implementation plan
6. Decision making by 2020
7. Implementation 1/1/2025

# The Dutch “Poldermodel” approach: Dutch Climate Agreement sustainable transport



# Example The Hague: size

Area	Number of trips per day		per week	
	Vracht	Bestel	Vracht	Bestel
City center (milieuzone)	420	3.700	2.520	22.200
The Hague	3.670	26.590	22.040	159.550
Region	860	6.330	5.140	38.000
<b>Total</b>	<b>4.950</b>	<b>36.620</b>	<b>29.700</b>	<b>219.750</b>

Segment	Trips per day		Per week	
	Vracht	Bestel	Vracht	Bestel
Waste	250	600	1.500	3.600
Construction	1.080	8.610	6.500	51.700
Postal	100	1.850	600	11.100
Facilitair	590	17.850	3.500	107.100
Retail non-food	1.350	3.790	8.100	22.800
Retail food	700	2.090	4.200	12.500
Horeca	880	1.830	5.300	11.000
<b>Total</b>	<b>4.950</b>	<b>36.620</b>	<b>29.700</b>	<b>219.700</b>

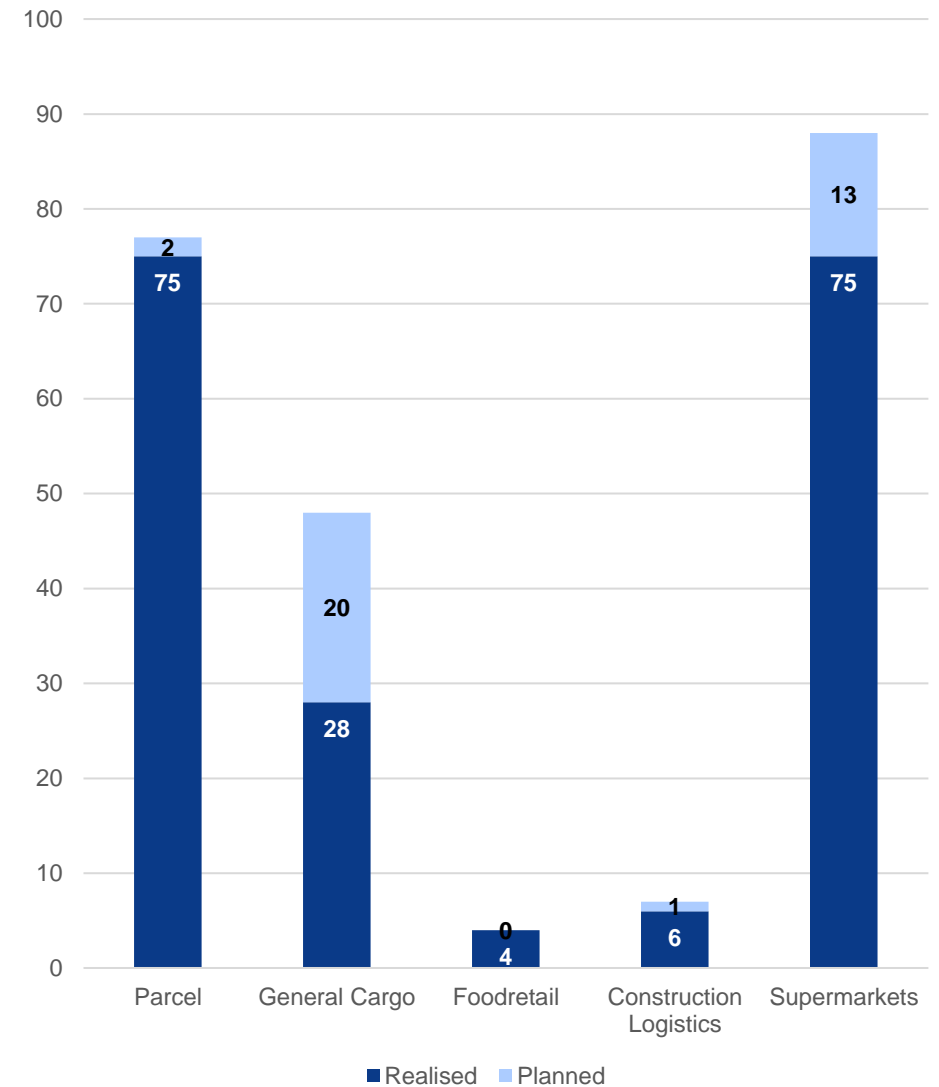
# Example The Hague: potential savings in trips

Segment	Market-Analyses	Bestel (reduction trips)		Vracht (reduction trips)	
		Last-mile	First-mile	Last-mile	First-mile
Waste		(...)	(...)	20-30%	20-30%
Waste companies		(...)	(...)	50-70%	50-70%
Construction		20-30%	(...)	50-70%	10-20%
Postal		10-20%	(...)	(...)	(...)
Facilitair		10-20%	(...)	30-40%	10-20%
Retail non-food		(...)	(...)	20-30%	10-20%
Retail food		5-10%	(...)	5-10%	(...)
Horeca		10-20%	(...)	10-20%	(...)
<b>Totaal</b>					

Vision  
Market parties  low High

Leading to hub  
concepts

# Urban distribution hubs in the Netherlands



Hub development initiatives in the Netherlands, BCI 2020

# Criteria for Successful Implementation



- Important observation: in order to fulfil these requirements investments in new real estate is required, either greenfield or brownfield business sites.



# ZE Zones / Calculate effects



Several type of effects when implementing ZE zones

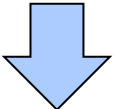
■ : direct costs and investments    ■ : main social benefits    ■ : (possible) derivative effects

# CBA study shows ‘social’ return on investment

## Example of CBA result for implementation of ZE zone in a Dutch medium sized city

Overview Costs and Benefits	Net Present Value 2019	Effect (reference year 2025)
<b>Public sector investment</b>	<b>-5,4</b>	
● Investment costs	-0,7	€ 742K investment in implementing Zero Emission zone
● Operational costs	-4,7	€ 306K per annum for communication, enforcement, maintenance
<b>Business sector investment</b>	<b>-1,0</b>	
● Fleet investment	-1,0	Extra cost per kilometer, TCO-disadvantage E-trucks 2025
<b>Collective benefits</b>	<b>13,8</b>	
● Climate	7,6	Extra emission reduction: 7,0 Kton CO <sub>2</sub> per annum in 2025
● Air quality improvement	6,2	Extra emission reduction: 16.000 kg NO <sub>x</sub> & 750 kg PM p/a in 2025
<b>CBA ‘monetary’ result</b>	<b>7,4</b>	
<b>Impact Zero Emission zone on:</b>		
● Accessibility/Connectivity	Very limited	No significant impact on journey time thoroughfare traffic
● Living environment in the city	+	Clean and silent city logistics results in enhanced city experience
● Business Climate	+/-	Positive impact on business climate: more visitors, longer stay Risk of extra charge for city logistics in ZE zones to shop owners
● Innovation	++	Increased sense of urgency for smart logistics solutions

# Conclusions

- Large share of total transport within the field of city logistics
  - Huge amount of trips on a day to day basis
  - In most cases improvement can be reached
  - Numbers can be calculated / advantages also
  - Leading to hubs and combinations of type of transport and chances for several segments
  - It is also possible to calculate the size of a needed hub structure as well as the economic and social benefits
  - Examples within the Netherlands and other countries show significant successes
- 
- Let's work on a better and more sustainable Urban Distribution System