

Mainport Rotterdam Including 'Rotterdam effect'

Bart Kuipers
Erasmus UPT
SmartPort@Erasmus lunch
seminar
March 12, 2019

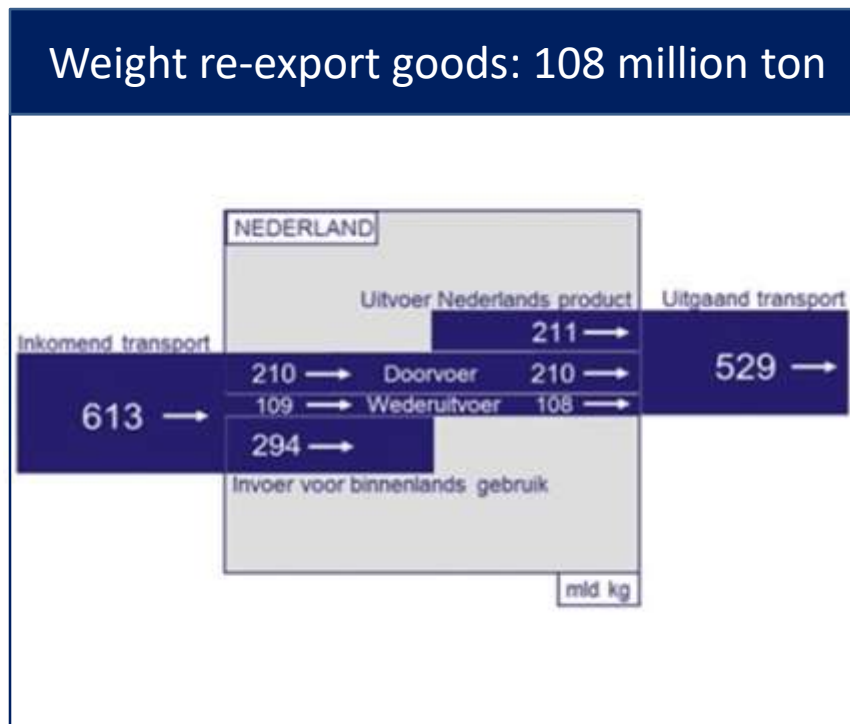


Mainport Rotterdam: including Rotterdam effect

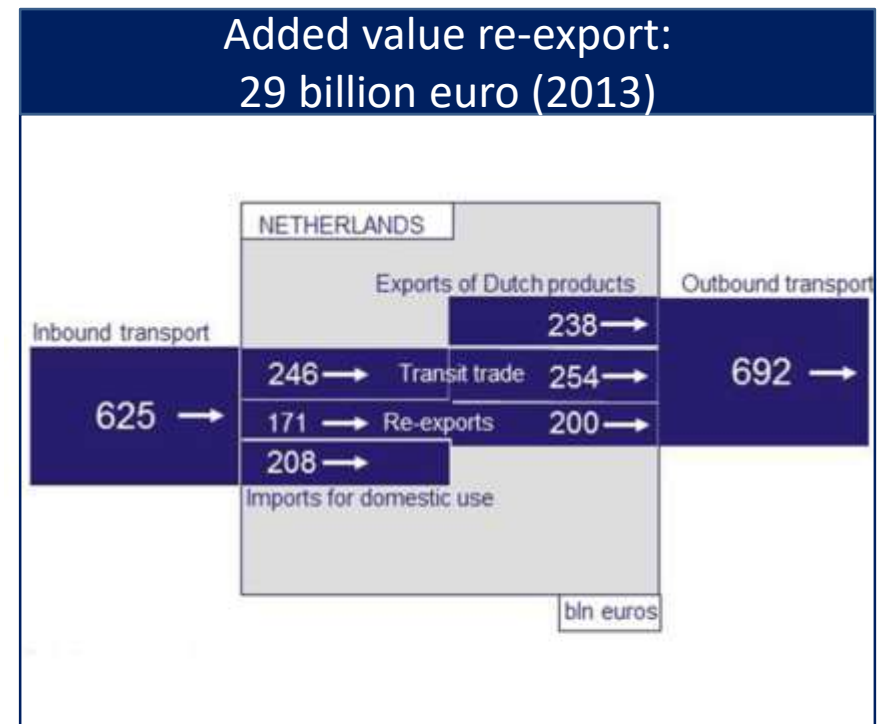
- ▶ 'Due to the favorable geographical location of the Netherlands - in combination with the highly educated workforce, the good infrastructure and the necessary experience with complex logistic processes - the Netherlands has developed into one of the most important gateways in Europe. The import and export of goods via Dutch international seaports and airports is so great that its effect on the trade balances of the Netherlands and other European countries is known as the 'Rotterdam effect'
- Re-export of goods is the most important effect of this.
"If these goods are (temporarily) owned by a Dutch company during their stay in the Netherlands, we speak of "re-export".
- Internationaliseringsmonitor 2018-1: “De positie van Nederland” (p.77)

Mainport Rotterdam: including Rotterdam effect”

- ▶ "Re-export" is referred to by CBS as "Rotterdam effect": also 'transit' included.
- ▶ Added value: difference between re-export and re-import:
in 2017: $206.4 - 176.0 = 30.4$ billion euros (2016: 30.0 billion, excluding indirect effects).



Bron: CBS



Bron: CBS

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The Rotterdam effect



The *Rotterdam effect* (also known as the Rotterdam-Antwerp effect) refers to errors in the way trade is calculated when trade flows through ports on their way to final destinations outside of the country or trading block. In the case of Rotterdam and Antwerp, a large proportion of goods are simply unloaded from one ship and reloaded onto another in a relatively short space of time.

EU vs non-EU trade

While not inflating total trade flows, the *Rotterdam effect* will distort the breakdown between one country's trade with the EU and with non-EU countries. Interest in the *Rotterdam effect* has increased recently as a result of the Brexit debate about the relative importance to the UK of trade with the EU and non-EU countries. As an illustration, if an African country (X) exports corn oil to the UK, it is likely that it will pass through Rotterdam, on its way to the UK. If this is recorded as a flow from country X to the EU, and then from the EU to the UK, it will have the effect of over-valuing EU trade with the UK, and undervaluing non-EU trade with the UK. While this distortionary effect would arise from trade through any EU port, Rotterdam is a particularly significant port, especially in terms of trade in oil and other commodities. The UK (and other oil exporters) ship large quantities of crude oil to the Netherlands to take advantage of its oil refining capacity, but the refined oil ends up in a variety of countries, many of which are not in the EU.

Mainport Rotterdam: including Rotterdam effect”

- Dutch re-export to UK: 18.8 bln euro (2017)
- Dutch export ‘Made in Holland’ to UK: 20.0 bln euro (2017)

Dominant Dutch re-export destinations		
2017*		
	Bln euro	%
1 Germany	56,9	28
2 Belgium	19,8	10
3 UK	18,8	9
4 France	18,7	9
5 Italy	9,3	5
6 Spain	7,3	4
7 Poland	6,1	3
8 US	6,0	3
9 Sweden	4,5	2
10 Czech Rep.	4,4	2
Top 10 total	151,9	73

Bron: CBS: Internationaliseringsmonitor 2018

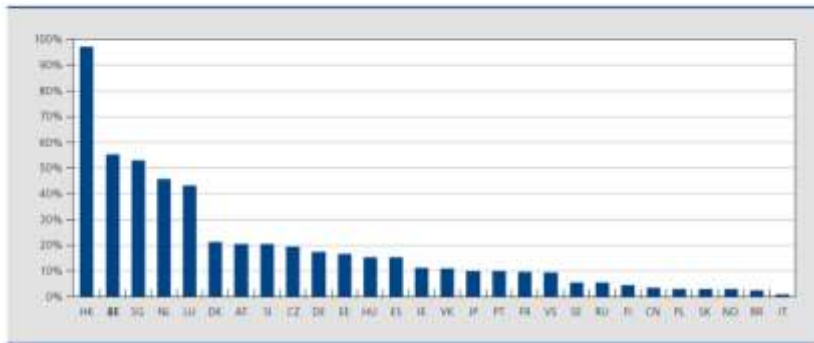
Dominant Made in Holland destinations		
2017*		
	Bln euro	%
1 Germany	50,2	19
2 Belgium	27,4	10
3 UK	20,0	8
4 France	18,7	7
5 US	14,5	6
6 Italy	9,5	4
7 China	9,2	4
8 Spain	6,6	3
9 Poland	5,7	2
10 Sweden	5,1	2
Top 10 total	167,1	64

Bron: CBS

Mainport Rotterdam: including “Rotterdam-effect”

- ▶ "Re-exports" feature countries with major container ports, including Belgium, Singapore & Hong Kong
- ▶ Re-exports mainly take place outside Rotterdam: Noord-Brabant, Limburg: hotspots
- ▶ Internet-related re-export partly caused by the boom in XXL warehouses in our country

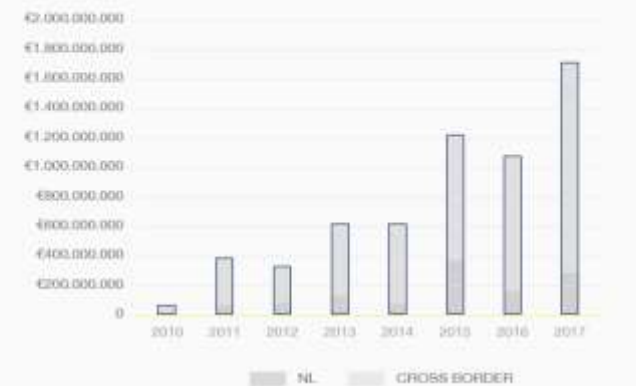
“Rotterdam-effect” also in Antwerp, Singapore, Hong Kong & Luxemburg



Bron: Duprez & Dresse (2013)

Growth XXL-warehouses cause ‘boom’ in investment in logistics real estate

GRAPH: LOGISTICS INVESTMENT VOLUME
2017 investment volumes
will be hard to beat

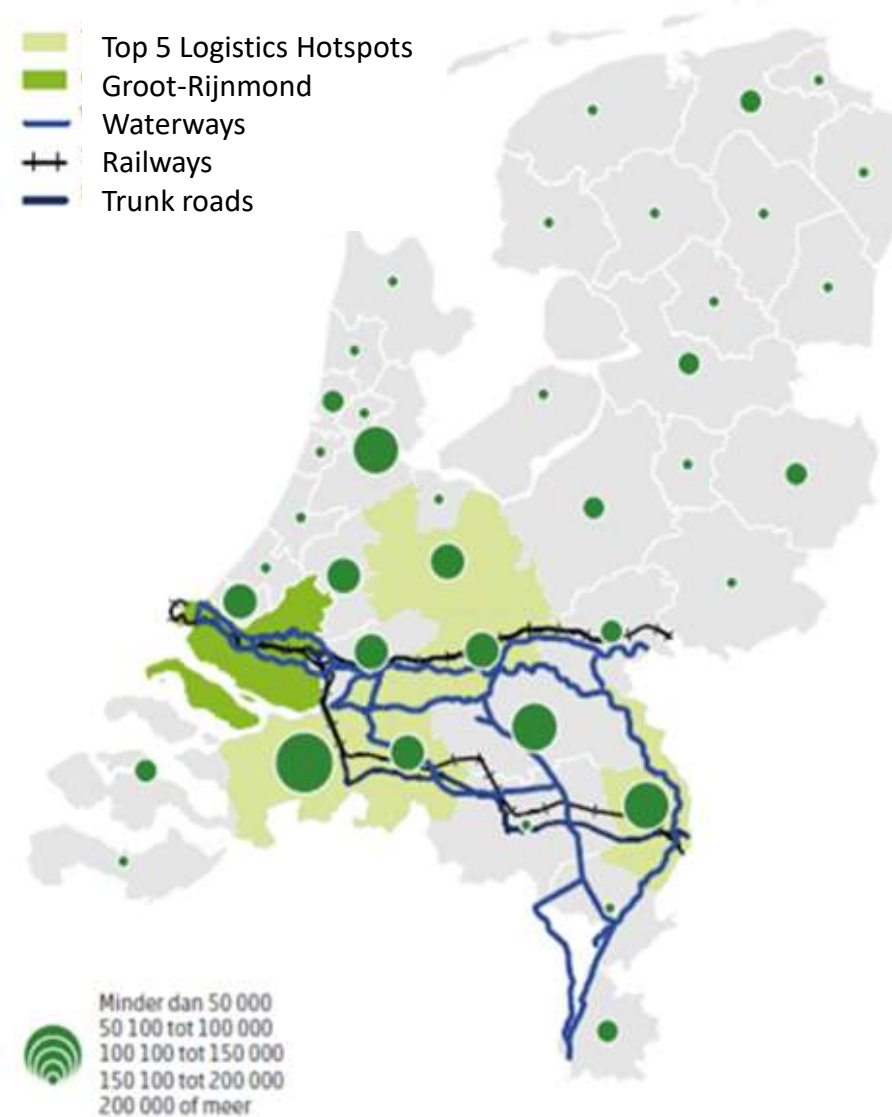


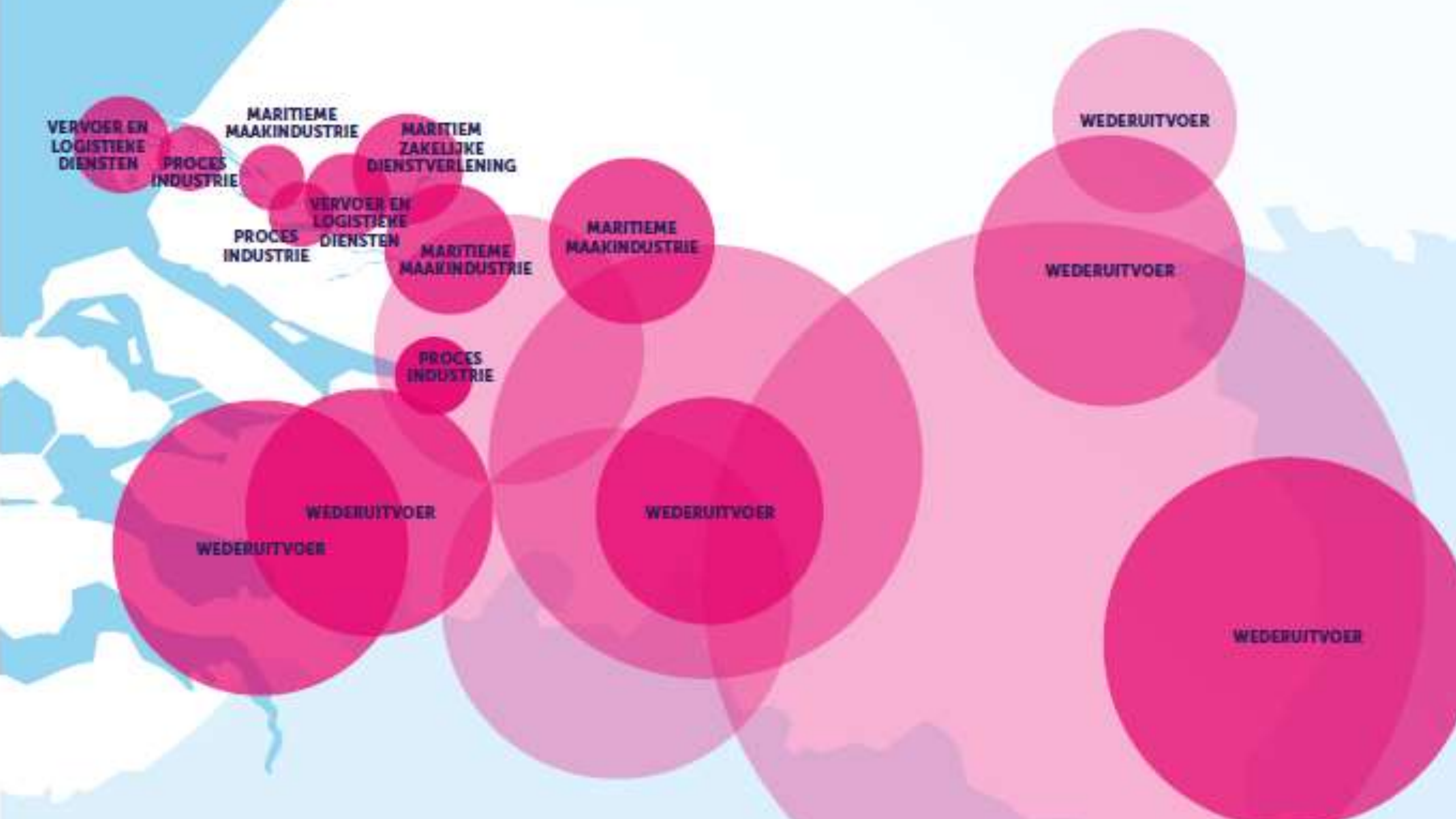
Bron: Savills (2018)





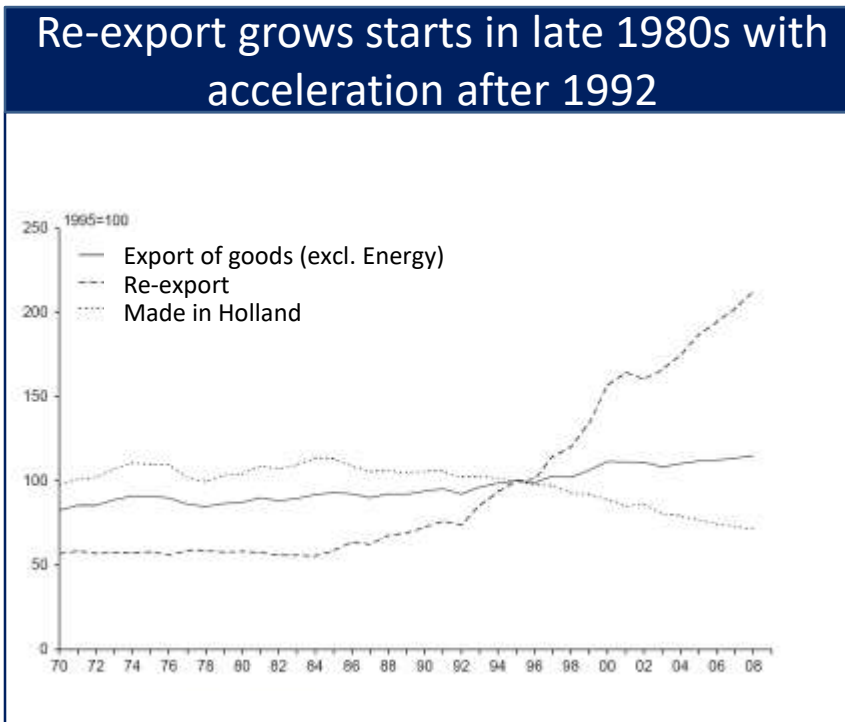
Mainport Rotterdam: containers unloaded in the Netherlands, 2017



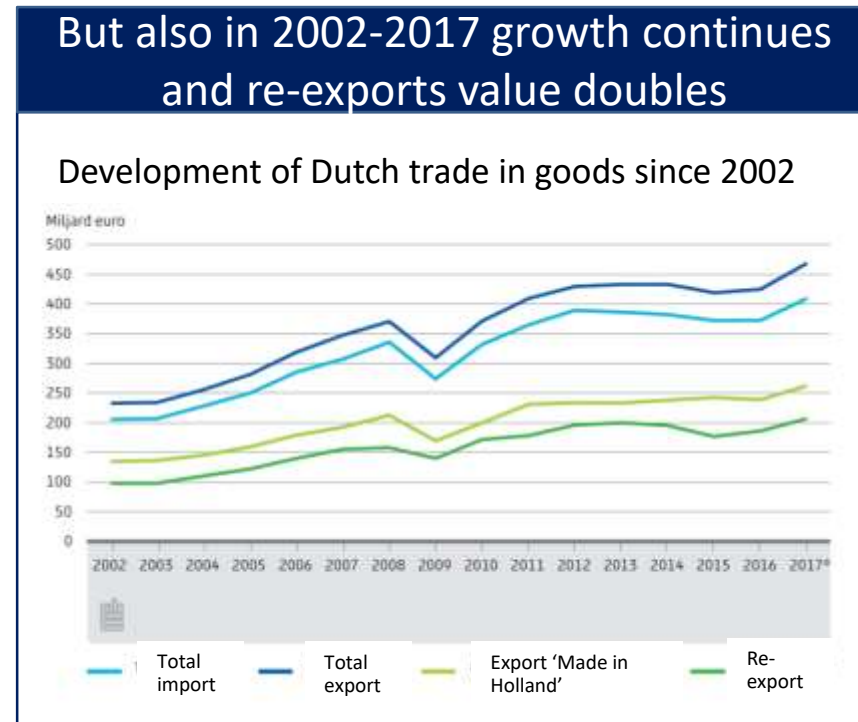


Mainport Rotterdam: including “Rotterdam-effect”

- ▶ "Re-exports": strong relation with "Europa 1992"
- ▶ From 2012 onwards, the re-export value has been flattened in the Netherlands
- ▶ Growth reasonably in line with Dutch exports in 2002-2017



Bron: CPB (2007)



Bron: CBS (2018)

Mainport Rotterdam: including “Rotterdam-effect”

- ▶ Growth re-export flattens, but share in Dutch economy still growing
- ▶ Growth also after the crisis .

Share re-exports grows from 2.0 to 3.8% of GNP

Bijdrage wederuitvoer aan bbp in 20 jaar verdubbeld

13-10-2016 02:00

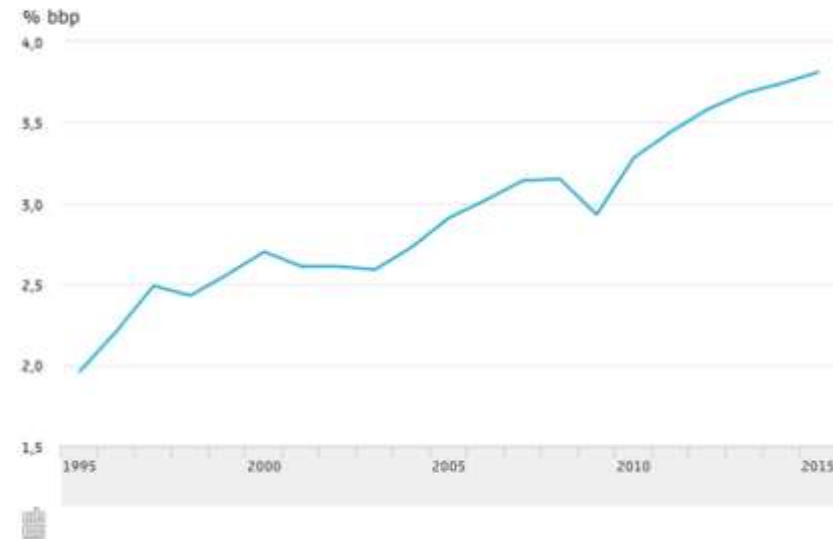


Het belang van de wederuitvoer van goederen voor de Nederlandse economie is in de afgelopen decennia toegenomen. De bijdrage van de wederuitvoer aan het bruto binnenlands product (bbp) is in twintig jaar bijna verdubbeld en ging van 2,0 naar 3,8 procent. De wederuitvoer is de afgelopen twintig jaar sterker gegroeid dan de export van Nederlands product. Dit meldt CBS.

Bron: CBS (2016)

Economic impact re-export shows structural growth

Contribution re-export of goods to GNP



Bron: CBS (2016)

Why is re-export growing?

- ▶ Research: “Characteristics of re-export companies”: CBS / CPB (2012)
- ▶ Greater importance of Dutch re-exports than other countries (p.8):
 - ▶ Geography: "Re-exports are typically something for small seaside countries with large neighboring countries"
 - ▶ Infrastructure: “Rotterdam has excellent coastal shipping connections and offers unrestricted access to the largest ships in the world.
 - ▶ The quality of infrastructure that connects Rotterdam with the hinterland is high. "Schiphol also plays a role."
 - ▶ Skills and interest: "The Netherlands has gained a lot of experience in the past centuries with complex international trade flows and logistics processes"
 - ▶ Preconditions: Varied range of high-quality technologies to ensure optimum logistics.

Why is re-export growing?

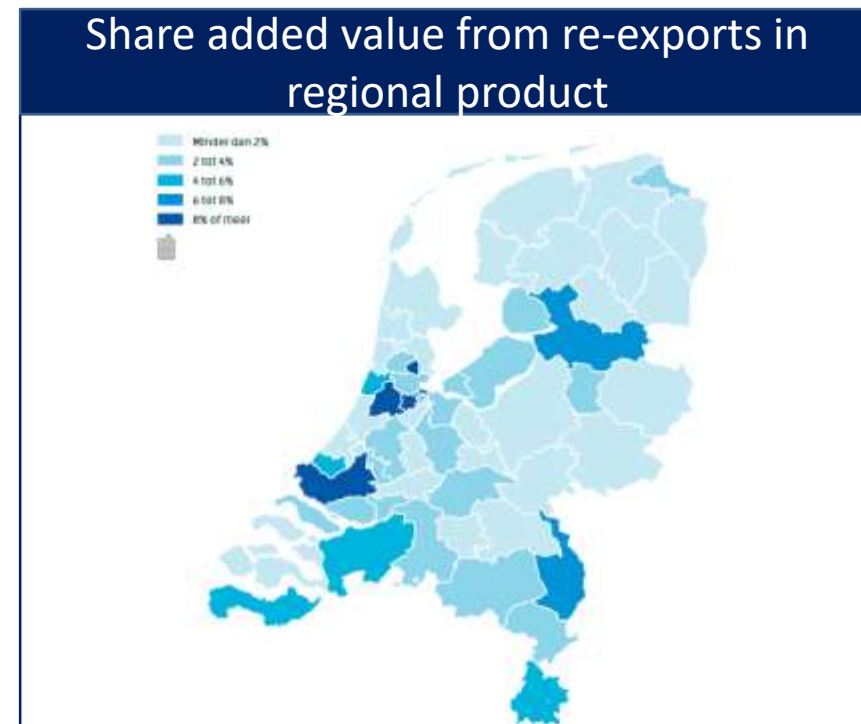
- ▶ Research: “Characteristics of re-export companies”: CBS / CPB (2012)
- ▶ Total Dutch exports have been growing rapidly since 1993:
 - ▶ Strong growth in sales markets (BRICs)
 - ▶ European economic integration, enlargement of the EU and EMU
 - ▶ Declining transaction costs
 - ▶ Increasing fragmentation of global production processes
- ▶ Why is re-export growing faster than total exports since 1993? (p.9-10)
 - ▶ Legislation in favor of re-export: eg transfer of VAT
 - ▶ Containerization: Rotterdam has benefited greatly from the worldwide growing use of freight containers for overseas transport and transfer of goods to be traded.
 - ▶ Shifts in world trade: outsourcing to Asia
 - ▶ Further improvement of the infrastructure: Betuwe line, Portbase, robotisation ECT, ECT offers services aimed at re-export (extended gates).

Mainport Rotterdam: including “Rotterdam-effect”

- ▶ Wholesale is by far the sector with the highest earnings related to re-exports; logistics is lagging behind
- ▶ Rijnmond and the Haarlemmermeer are the most important regions



Bron: CBS (2016)



Bron: CBS (2013)

Mainport Rotterdam: including “Rotterdam-effect”

- ▶ Dutch re-exports strongly focused on a limited number of countries.
- ▶ Poland and the Czech Republic are strong growth countries
- ▶ Also concentrated composition of goods: high-tech and mineral fuels
- ▶ Fruit (avocados and grapes) growing strongly.

Main destinations for Dutch re-exports

2017*			
		Bln euro	%
1	Germany	56,9	28
2	Belgium	19,8	10
3	UK	18,8	9
4	France	18,7	9
5	Italy	9,3	5
6	Spain	7,3	4
7	Poland	6,1	3
8	US	6,0	3
9	Sweden	4,5	2
10	Czech Rep.	4,4	2
Top 10 total		151,9	73

Bron: CBS (2018)

Main goods categories Dutch re-exports

2017*			
		Bln euro	%
1	Apparatus, telephones	35,1	17
2	Machinery, computers	33,5	16
3	Mineral feedstocks	22,6	11
4	Scientific instruments	16,3	8
5	Farmaceuticals	14,7	7
6	Plastics	4,8	2
7	Chemicals	4,5	2
8	Fruit	4,2	2
9	Iron and steel	4,2	2
10	Clothing	3,9	2
Top 10 total		143,7	70

Bron: CBS (2018)

How to link re-exports to Mainport Rotterdam?

- ▶ Total value added re-export starting point: 27.4 billion euros = Rotterdam effect. Why don't we attribute that entire effect to Mainport Rotterdam?
- ▶ According to CBS, a quarter of this (6.9 billion euros) is being realized in Rijnmond and is for a large part in the Port Monitor.
- ▶ Port monitor states that the Wholesale Trade is good for a direct port-related added value of 1.3 billion euros in 'Rijn- and Maasmond' (incl. Indirectly 2.0): a very large part is therefore not included, but could be part of manufacturing.
- ▶ Manufacturing has a total direct added value of 6.9 billion euros in total, including indirectly 10.7 billion. Would re-exports represent 40% of this?
- ▶ Schiphol is also good for an added value of around 6 billion: but many warehouses in the vicinity of Schiphol are seaport-related instead of airport-related (for example Inditex).
- ▶ Attributing half of the total added value to Mainport Rotterdam therefore seems a safe approach, taking into account double counting and Schiphol

Dutch re-export in total trade and for goods category NSTR9 in 1987 and 2015, 1987 in million tons, 2015 in million tons and billion euro.

	1987		2015		2015	
	Million ton		Million ton		Billion euro	
	Total	NSTR 9	Total	NSTR9	Total	NSTR 9
Import	185,2	9,4	294,0	18,6	221,4	100,0
Re-import	56,5	0,4	109,2	8,4	158,1	88,9
Export	127,8	7,1	211,1	12,0	247,6	89,5
Re-export	41,6	0,3	108,0	11,9	185,1	104,7
Transit	140,2	6,0	210,0	18,9	289,8	187,8

Source: Louw (1990) en CBS Statline.

BEYOND MAINPORTS

JULY 2016



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ERRATUM advies 'Mainports voorbij'*8 september 2016*

The Council has decided to remove a few sentences from the publication "Mainports beyond" (1 July 2016). These changes have been made in the digital version and in the English translation of part 1. This concerns the sentences in section 2.1 at the bottom of page 11 of the printed version and at the top right of page 10 in the digital version of the advice:

"The relative added value of the port of Rotterdam has fallen since 2000. With its direct and indirect activities in 2015, the port of Rotterdam has a 3.1% share in the GDP of the Netherlands (Van der Lugt et al., 2015) where the same port contributed 6% in 1992 (Koppenol, 2015). The direct and indirect added value of Schiphol was 9 billion euros in 2015, a share of 1.4% of GDP (Decisio, 2015). "

and the last sentence of paragraph 1.4 in part 2:

"Moreover, the relative contribution of the port of Rotterdam has declined over time, as paragraph 2.1 in Part 1 makes clear."

In the percentage of 6% for 1992 mentioned by the Rli, the forward effects appear to have been included, while this is not the case for the aforementioned percentage of 3.1% of 2015. The relative added value of the port of Rotterdam has not decreased but remained about the same.

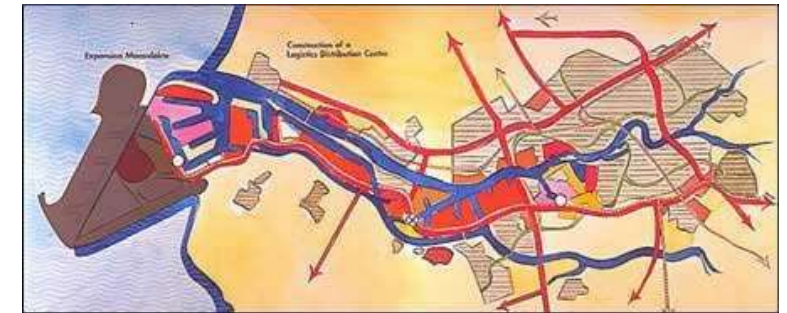
The change has no influence on the conclusions and recommendations of this Rli recommendation.

Mainport Rotterdam: within borders mulicipality

- ▶ “Container mainport ”(1980s): market share in container trades & connectivity
- ▶ "Mainport Rotterdam" (early 90s): node and location function
- ▶ Earning power of Rotterdam port in billions of euros

Rotterdam municipality	2002	2017
Directe added value	8,0	13,4
Indirect added value (backwards)	4,1	6,8
Added value multiplier	1,48	1,50
Total added value	13,0	20,1
Share the Netherlands	2,6%	2,7%

Bron: Havenmonitor



Mainport Rotterdam: port-cluster

- ▶ “Container mainport” (1980s): market share in container trades & connectivity
- ▶ “Mainport Rotterdam” (early 90s): port node and location function port
- ▶ “Mainport Rotterdam” (mid-90s): port as a cluster (Peter de Langen)
- ▶ Earning power Rotterdam port cluster in billions of euros

Rotterdam port cluster	2002	2017
Direct added value	10,9	18,0
Indirect added value (backwards)	5,7	9,2
Added value multiplier	1,52	1,51
Total added value	16,6	27,2
Share the Netherlands	3,4%	3,7%

Bron: Havenmonitor



Mainport Rotterdam: inclusief “Rotterdam-effect”

- ▶ “Container mainport” (1980s): market share in container trades & connectivity
- ▶ “Mainport Rotterdam” (early 90s): port node and location function port
- ▶ “Mainport Rotterdam” (mid 90s): port as a cluster
- ▶ “Mainport Rotterdam” including “Rotterdam effect”: forward economic effect
- ▶ Earning power Rotterdam port cluster in billions of euros

Rotterdam cluster including ‘Rotterdam-effect’	2002	2017
Direct added value	11,7	18,0
Indirect added value (backwards)	5,8	9,2
“Rotterdam-effect”: total added value	6,0	14,8
Total added value	23,5	42,0
Share the Netherlands	4,7%	5,7%



Bron: Notteboom 2013

ROTTERDAM. MARITIME CAPITAL OF EUROPE.





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EN DIE ZOEKEN WE OOK NIET BIJ ONZE PARTNERS**

Wij zijn gegroeid tot één van de grootste en meest productieve containerterminals in Europa. Dat lukt als je altijd levert, 24/7. Net als Ploum. Met behulp van hun strategische, no-nonsense aanpak en scherpe oog voor ons belang, bouwen we aan onze internationale positie en blijven we grenzen verleggen. En dat allemaal vanuit thuishaven Rotterdam. *Pieter Hartog - APM Terminals Rotterdam*

Ploum 
Rotterdam Law Firm



Mainport Rotterdam: Rotterdam. Maritime Capital of Europe

- ▶ High-quality port-related maritime employment is only for certain activities included in the Port Monitor.
- ▶ Urban employment consists of four main segments:
- ▶ Maritime business services: 19,941 employees (Source: municipality of Rotterdam)
- ▶ Commodity traders: 1,601 employees (Source: municipality of Rotterdam)
- ▶ Shared service centers: 3,000 employees (own estimate based on inventory)
- ▶ High-quality knowledge workers (engineering firms, software developers, scale-ups): 4,500 employees (own estimate based on inventory)
- ▶ A large share: indirect employment: backwards services for direct activities
- ▶ Estimation: 18,400 employees, average added value per employee: 115 thousand euros
- ▶ Total earning capacity: 2.3 billion euros (+ indirectly: 1.3 billion euros) = 3.6 billion

Mainport: including “Rotterdam. Maritime Capital of Europe”

- ▶ “Mainport Mainport” (early 90s): port node and location function port
- ▶ “Mainport Rotterdam” (mid 90s): port as a cluster
- ▶ “Mainport Rotterdam” including “Rotterdam effect”: forward effects
- ▶ “Mainport Rotterdam” including port-related urban services

Earning power Rotterdam port cluster in billions of euros

Rotterdam cluster inclusief stad	2002	2017
Direct added value	11,7	18,0
Indirect added value (backwards)	5,8	9,2
“Rotterdam-effect”: total added value	6,0	14,8
Rotterdam. Maritime Capital of Europe	1,1	2,3
Rotterdam. Maritime Capital of Europe: indirect	0,6	1,3
Total added value	25,2	45,6
Share in the Netherlands	5,0%	6,2%



Earning capacity Mainport Rotterdam as a share of the Dutch economy increased in the period 2002-2017

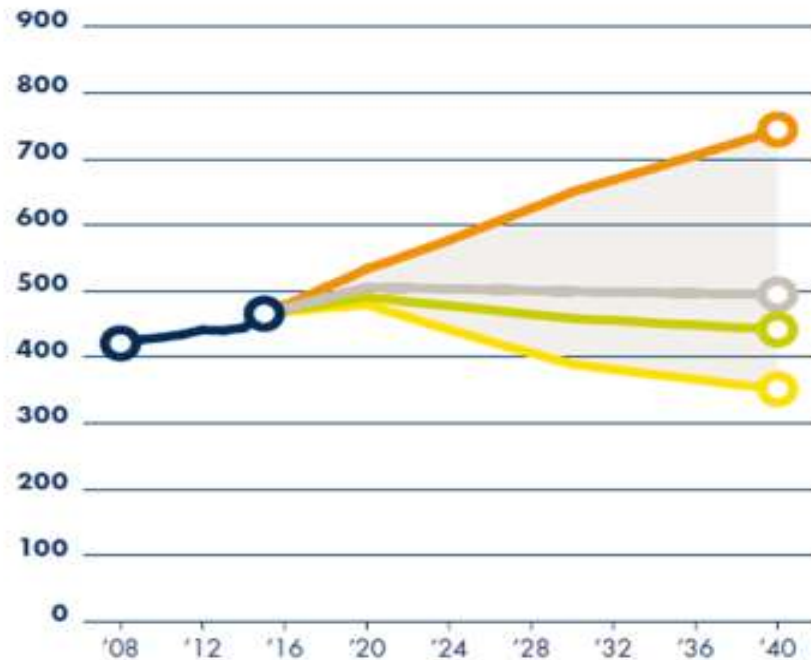
Rotterdam cluster inclusief stad	2002	2017
Mainport Rotterdam: municipality	2,6%	2,7%
Mainport Rotterdam: cluster Havenmonitor)	3,4%	3,7%
Mainport Rotterdam including “Rotterdam-effect”	4,7%	5,7%
Mainport Rotterdam including city	5,0%	6,2%

- ▶ Conservative: can be significantly "stretched" towards 10% (Maritime Cluster total)
- ▶ To what extent does this growth continue towards the future?
- ▶ Five segments:
 - ▶ Rotterdam container complex and other transshipment
 - ▶ Chemistry, petroleum and energy: the focus of industry
 - ▶ Maritime manufacturing industry
 - ▶ Urban employment
 - ▶ Development “Rotterdam effect”

Rotterdam container complex: stable development expected

Nieuwe prognoses bestaande goederenstromen

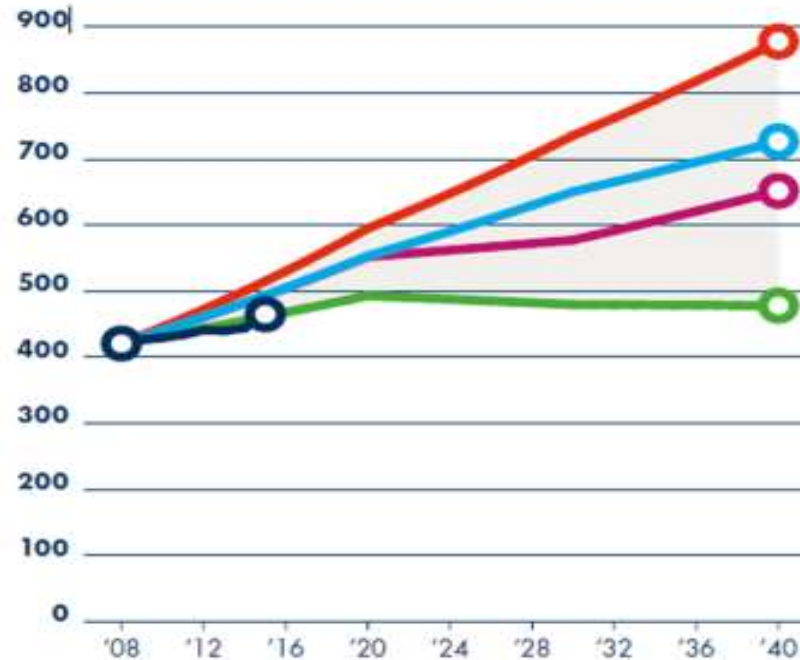
in mln ton



Bron: Havenbedrijf Rotterdam

Prognoses bestaande goederenstromen
Havenvisie 2030

in mln ton



**The
Economist**

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How to defend Taiwan

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Slowbalisation

The future of global commerce



Chain reaction

2

Share of cross-border supply-chain foreign inputs* that are from the same region, %



Source: OECD

*Measured by value added

Rising no more

Share of exports that participate in cross-border supply chains, %



Sources: IMF; UNCTAD

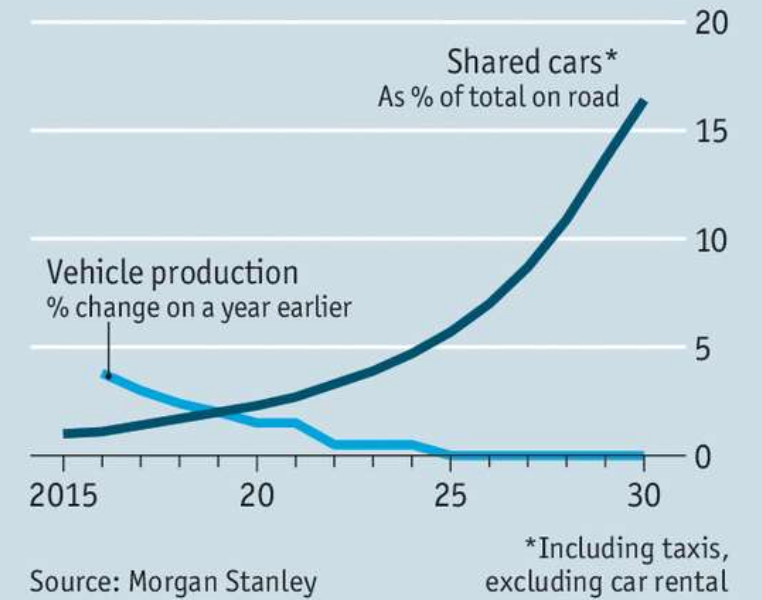
Total flows of foreign direct investment
As % of global GDP



2

Sharing, not growing

Worldwide forecast



Source: Morgan Stanley

Growth Dutch imports from Eastern Europe are growing faster than imports from China. Watch East Asia!
Trade growth 2010-2017, selected regions, in billion euros

Region	IMPORT			EXPORT		
	2010	2017	growth	2010	2017	growth
Global	331.9	408.9	23.2%	371.5	467.4	25.8%
Top 3 Western-Europe^a	95.4	113.5	19.0%	152.4	183.8	20.6%
Top 3 Eastern-Europe^b	11.3	15.7	38.9%	15.0	22.3	48.7%
China	31.0	36.1	16.3%	5.4	11.3	209.3%
Other Asia^c	2.6	9.0	343.6%	1.4	3.2	228.6%

a.: germany, France, UK

b.: Poland, Czech Republic, Hungary

c.: o.a. Vietnam, Filippines, Indonesia, etc.

Source: CBS (Statline)

Future oil/energy/chemicals: negative growth expected

Global GHG mitigation efforts		EU emission reduction strategy		Development of the port area's industrial cluster					Strategies and emissions		Scenario name
Global GHG emission reduction efforts until 2050	Relative change in global GHG emissions by 2050 (vs. 2010)	European GHG emission reduction efforts until 2050	Change in Europe's domestic GHG emissions by 2050 (vs. 2010)	Key changes in the market environment by 2050 as relevant to the port area's current industrial cluster	Strategy of the port area's industrial cluster	Economic activity in 2050 (vs. today)			Key mitigation strategies	Change in the port area's CO ₂ emissions by 2050 (vs. 2015)	
						Refineries	Chemical production	Power generation			
Weak (Countries do not implement Paris Agreement)	+20 to +50%	Minimal (GHG emission reductions mostly the result of technological developments and policies focusing on other goals, e.g. reducing import dependency)	-30 to -40%	<ul style="list-style-type: none">Decrease in demand for oil refining products	<ul style="list-style-type: none">Efforts focus on keeping the cluster in its current form	↘	→	↘	<ul style="list-style-type: none">(slow) adoption of BaT	-30%	BAU
Strong (Countries make great efforts in order to implement Paris Agreement)	-40 to -70%	Strong (Europe contributes to global efforts at the lower range of its "fair share" contribution)	-80%	<ul style="list-style-type: none">Strong decrease in demand for fossil transport fuelsPhase-out of unabated coal power generation	<ul style="list-style-type: none">Efforts focus on keeping the cluster in its current form	↘	→	↘	<ul style="list-style-type: none">rapid adoption of BaTsome power-to-heat (P2H)coal CCS	-75%	TP
		Very strong – Significant use of biomass (Europe contributes to global efforts at higher range of its "fair share")	-90 to -95%	<ul style="list-style-type: none">Demand for fossil fuels virtually zeroPhase-out of coal power generationBIO: Large amounts of sustainable biomass available on the world market	<ul style="list-style-type: none">Oil is used as feedstock for chemicalsToday's new large power plants continue to operate using biomass & CCS	↓	→	↘	<ul style="list-style-type: none">rapid adoption of BaTP2Hbiomass CCS	-98%	BIO
		Very strong – Efforts to achieve closed carbon cycle (Europe contributes to global efforts at higher range of its "fair share")		<ul style="list-style-type: none">CYC: No biomass, but large amounts of carbon-free power and/or H₂ available	<ul style="list-style-type: none">Recycled plastics are used as feedstock for chemicals	↓	→	↓	<ul style="list-style-type: none">rapid adoption of BaTP2Hrecycled plastics for chemicals	-98%	CYC

Bron: Wuppertal Institut, 2016

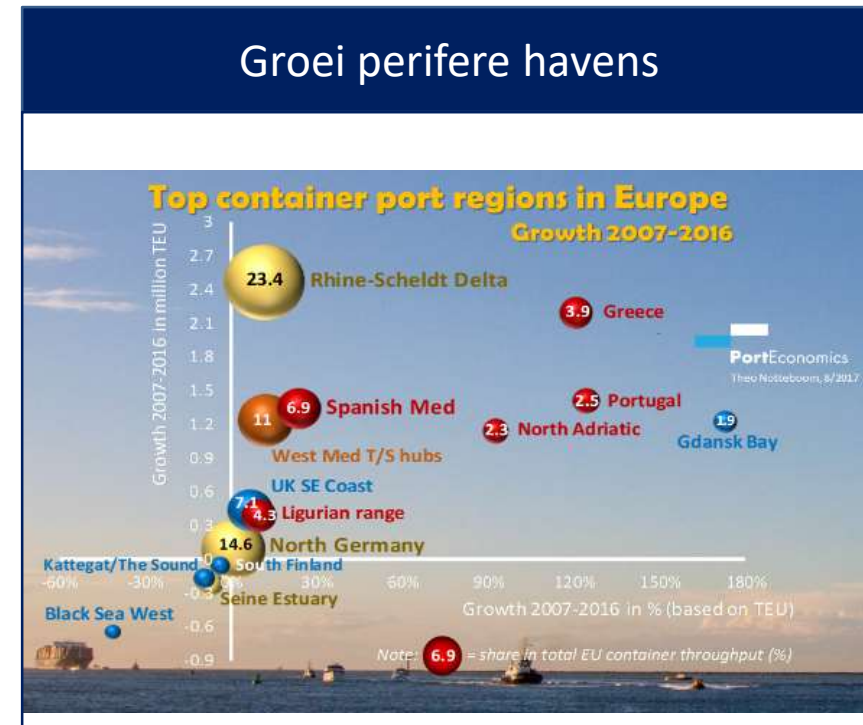
Changing Climate, Changing Cities

The Dutch Have Solutions to Rising Seas. The World Is Watching.



“Rotterdam-effect”: no growth

- ▶ China is developing the West, in Europe Eastern Europe is growing relatively fast
- ▶ Belt & Road reinforces geographical shifts: Eastern Europe, near-sourcing
- ▶ Investments in port projects by China in Europe are remarkable





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Rotterdam's Bilbao moment

Architecture | A spectacular market hall – with a gigantic ceiling mural – is helping to transform the Dutch city's image, writes *Paul Miles*

Stalks of barley, six-storeys tall, sprout towards the sun while an enormous strawberry tumbles from the sky. A giant butterfly flits through the scene, its turquoise wing contains a window from which someone waves.

A visit to Rotterdam's new market hall will make you feel like you've drunk a potion in Wonderland.

The power of new architecture to regenerate a city is well documented. Notably, Bilbao's transformation from a declining industrial port to a booming cultural destination is often attributed to the opening of the Guggenheim Museum Bilbao, designed by Frank Gehry.

immensely to the image and attractiveness of Rotterdam as a city... where national and international businesses want to invest," he says.

Rotterdam has a reputation for bold architecture. While Amsterdam is all quaint old canal houses, the port city of Rotterdam, heavily bombed during the second world war, is best known for thrusting skyscrapers. In November 2013, De Rotterdam by Rem Koolhaas, opened. It is a stacked and cantilevered 44-storey glass and steel interconnected tower block containing a hotel, apartments and offices.

It is the fairly low-rise market hall that everyone wants to see. A photo-



The mural on the Markthal's 11,000 sq metre ceiling by Dutch artists Arno Coenen and Iris Roskam — Getty Images



dreamlike scene. "We wanted work that is populist not elitist. Winy Maas, principal architect, from the very beginning we wanted to create the interior of the hall, and as colourful as possible," he says. "We wanted an interior that would be a food and be an 'X-ray' of the city."



Commodity trade



Port & Logistics



Maritime Business Services



Offshore & Shipbuilding



Energy & Industry



Innovation Ecosystem



ROTTERDAM. MARITIME CAPITAL OF EUROPE

MISSION:

A regional network spanning the total maritime cluster for the development, strengthening and profiling of Rotterdam as the maritime capital of Europe.





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Economic Impact:

- added value: 20 billion euro
- employment: 185,000
- 4,375 maritime businesses

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