


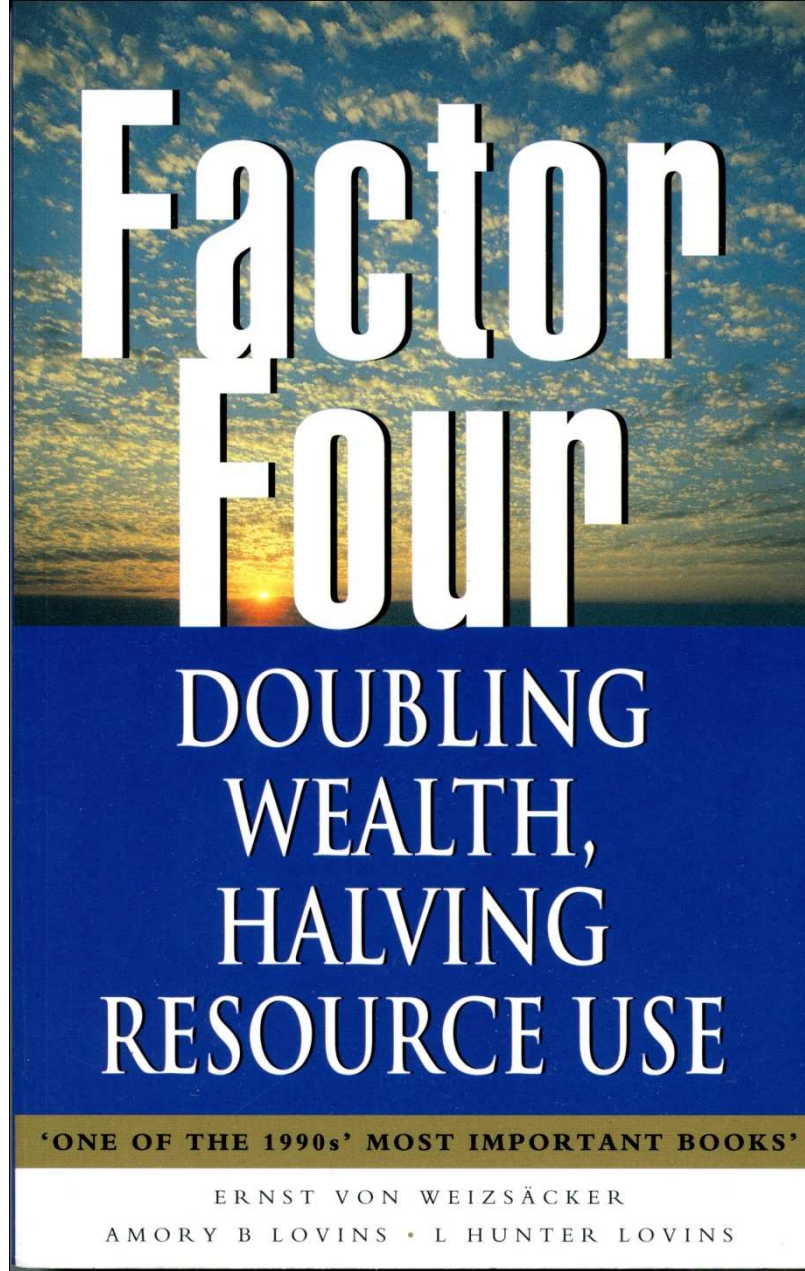
Ton van Asseldonk

# **FACTOR 4 LOGISTICS: DE ECONOMIE VAN HETEROGENITEIT**



# Inhoud

- Heterogeniteit en productiviteit
- Efficiënte inefficiëntie
- Het wenkend  perspectief





# Yoghurt in Duitsland

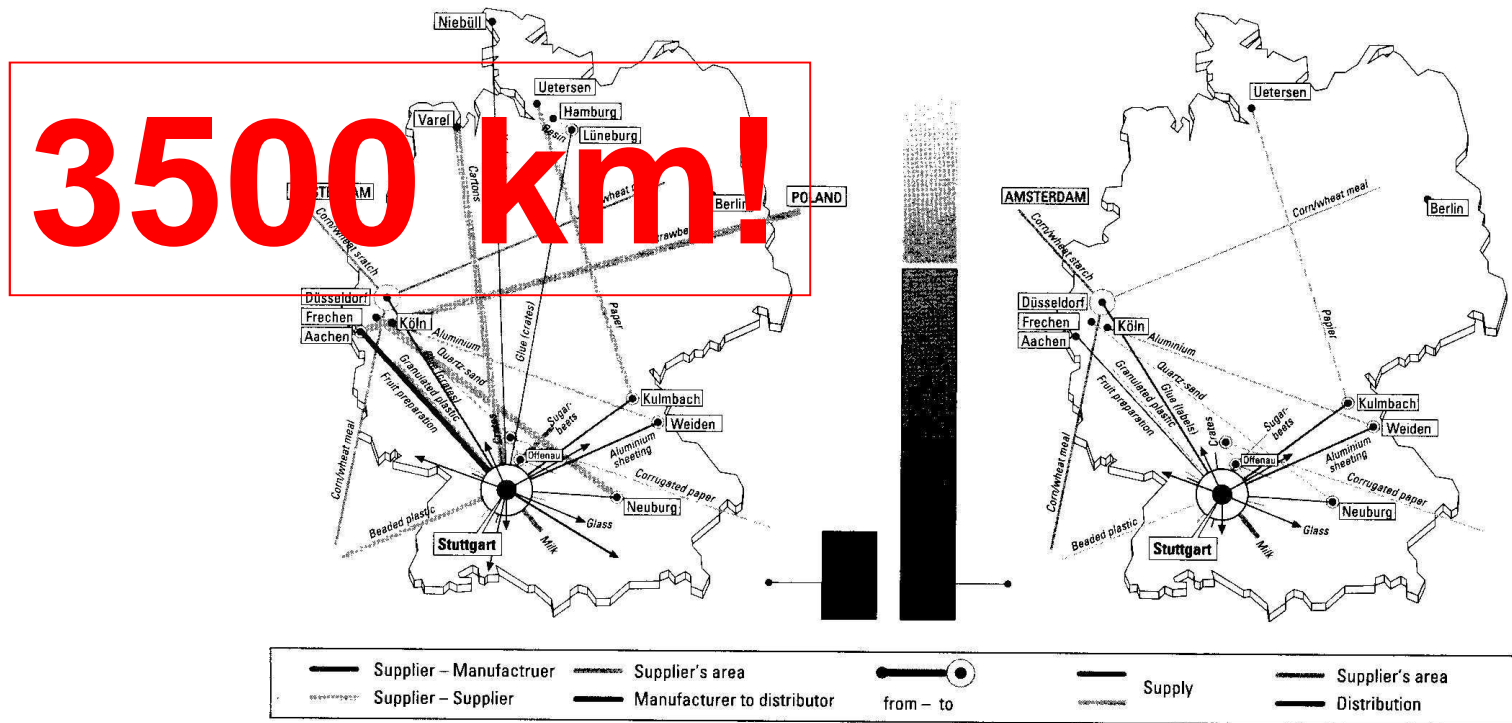


Figure 11 Thirty-five hundred kilometres is the average distance travelled by a strawberry yoghurt made in Stuttgart, Germany. It is not, of course, the finished cup of yoghurt itself that travels this extraordinary distance; rather, most of the distance is accounted for by the materials and ingredients that have to be shipped to the dairy manufacturer in the first place. The journeys of the supplies to the suppliers add another 4,500 kilometres. For comparison, the right-hand side of the illustration shows the geography of a low-transport-intensity yoghurt production. (After Böge, 1993)



# Uitdaging

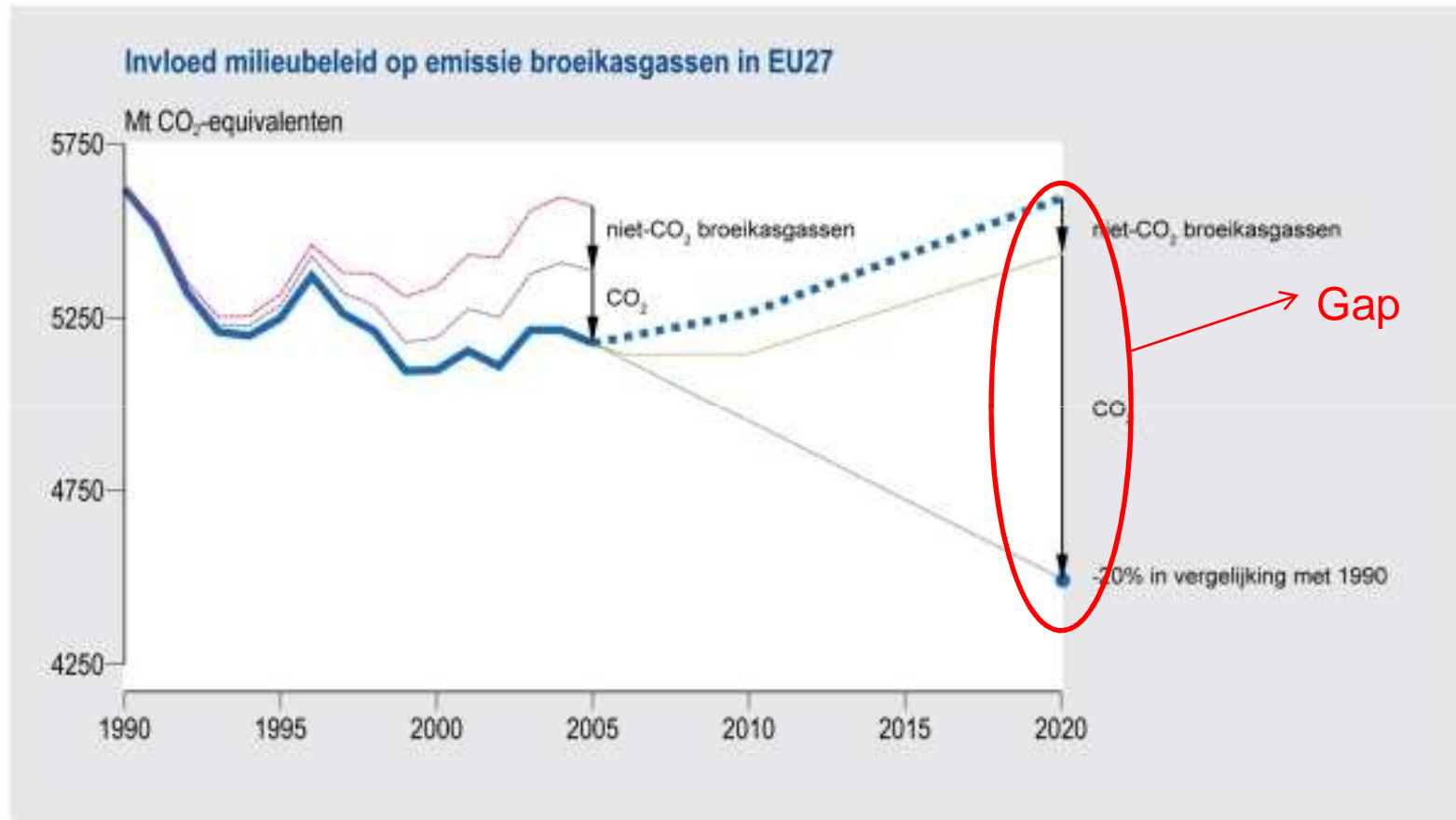
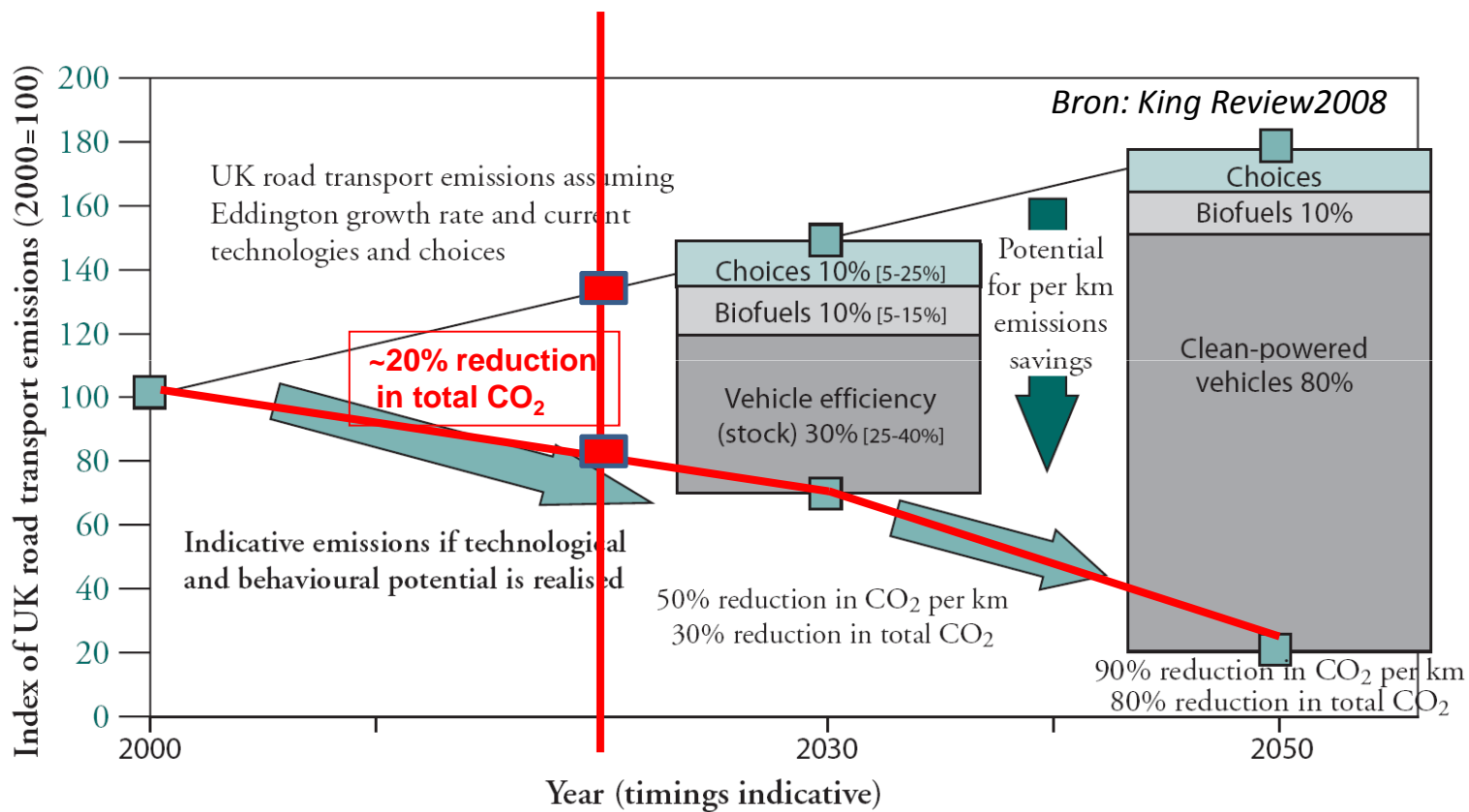


Figure 1 On the left, the ex-post estimated effects of environmental policies on greenhouse gas emissions (GHGs) in the EU-27 in the period 1990-2005. On the right, the ex-ante policy impact estimates (see text).

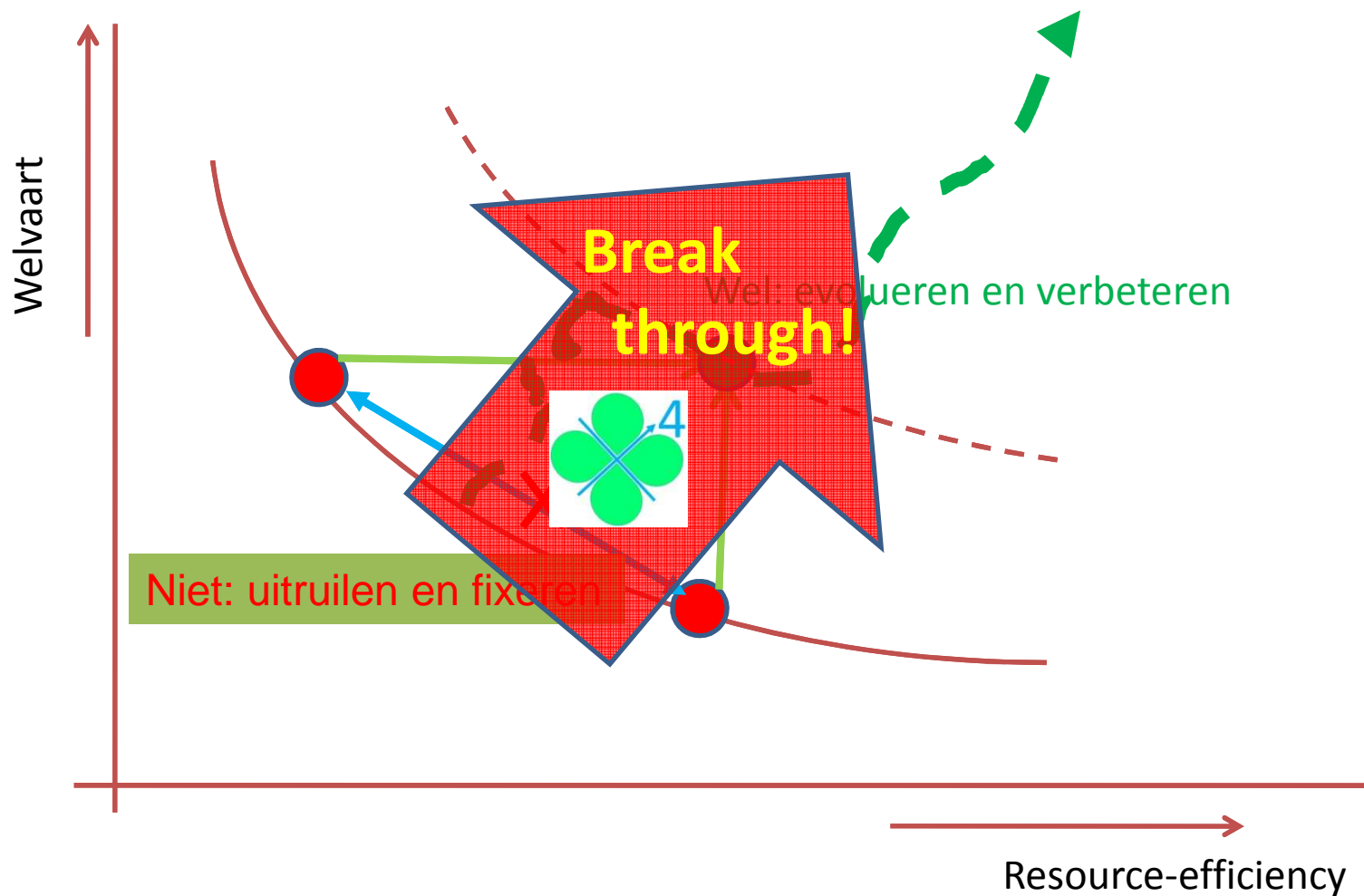


# Technologie





# Uitbraak



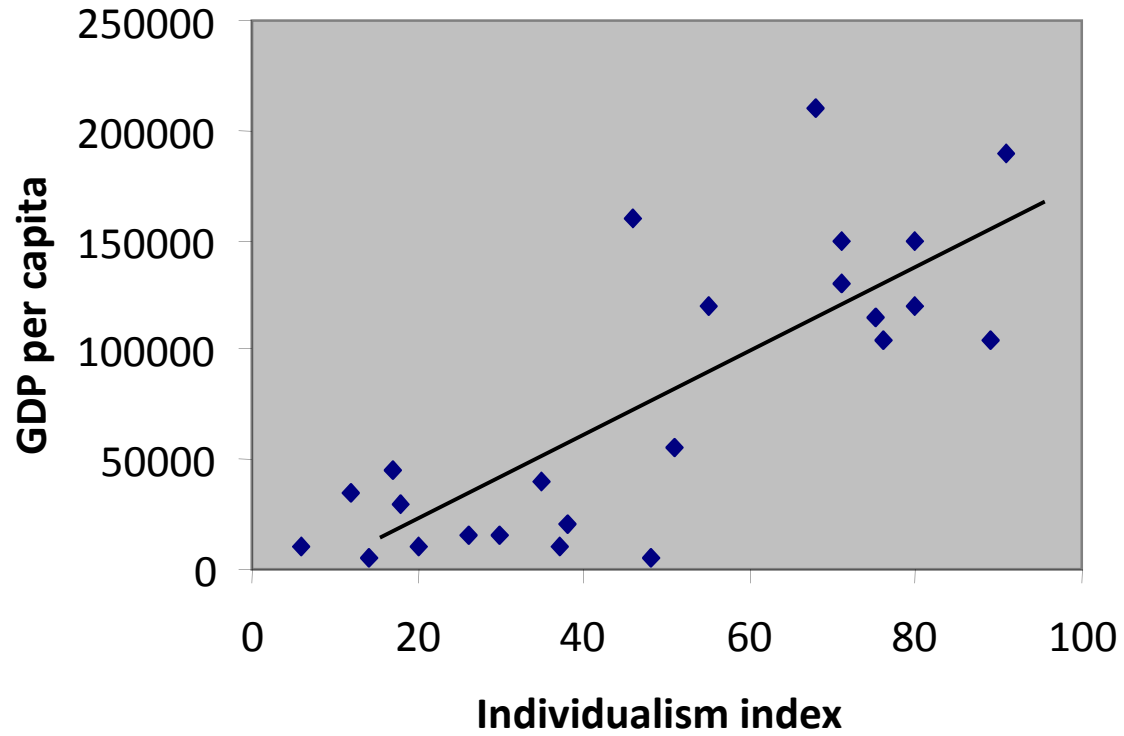


# HETEROGENITEIT EN PRODUCTIVITEIT



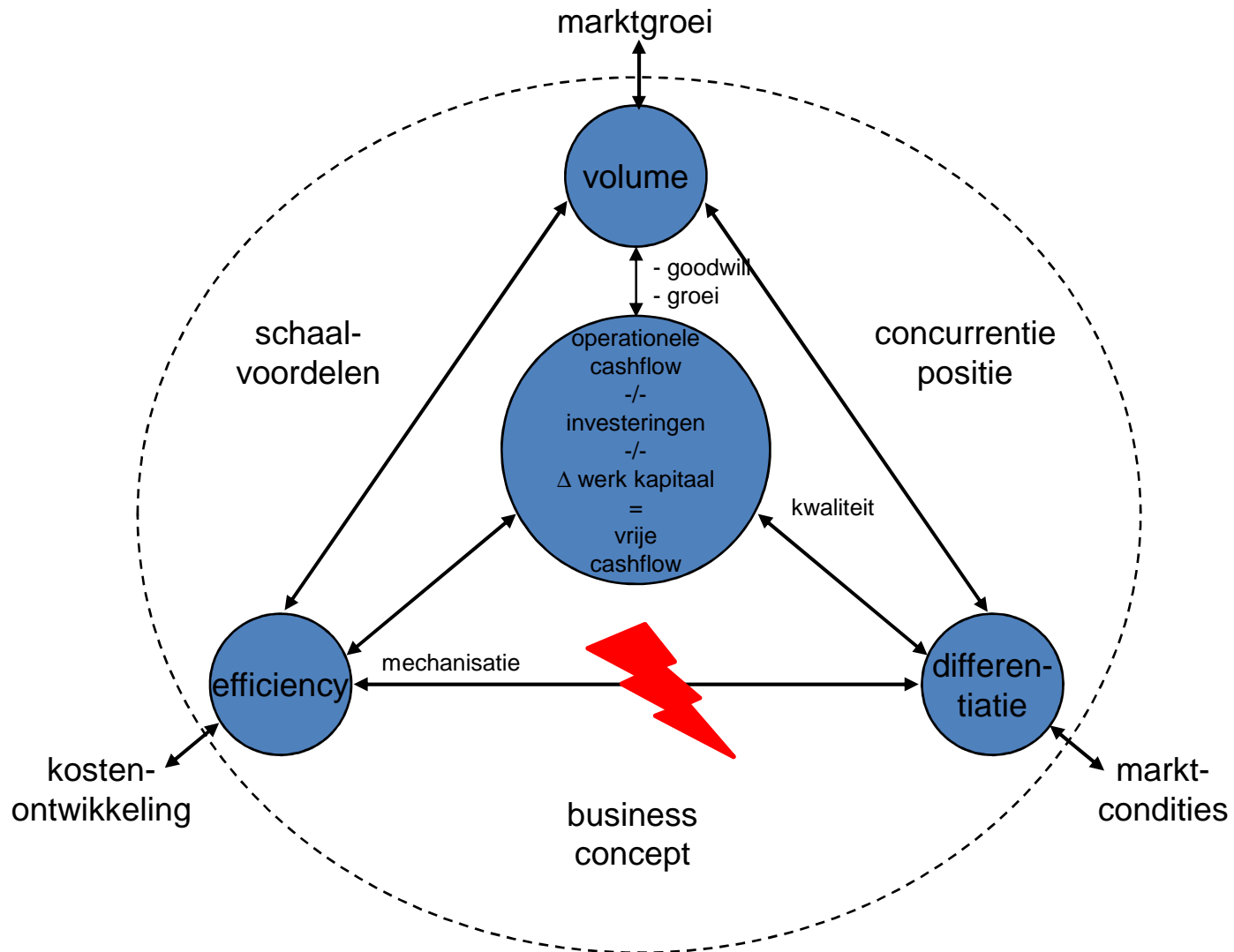


# Individualisering



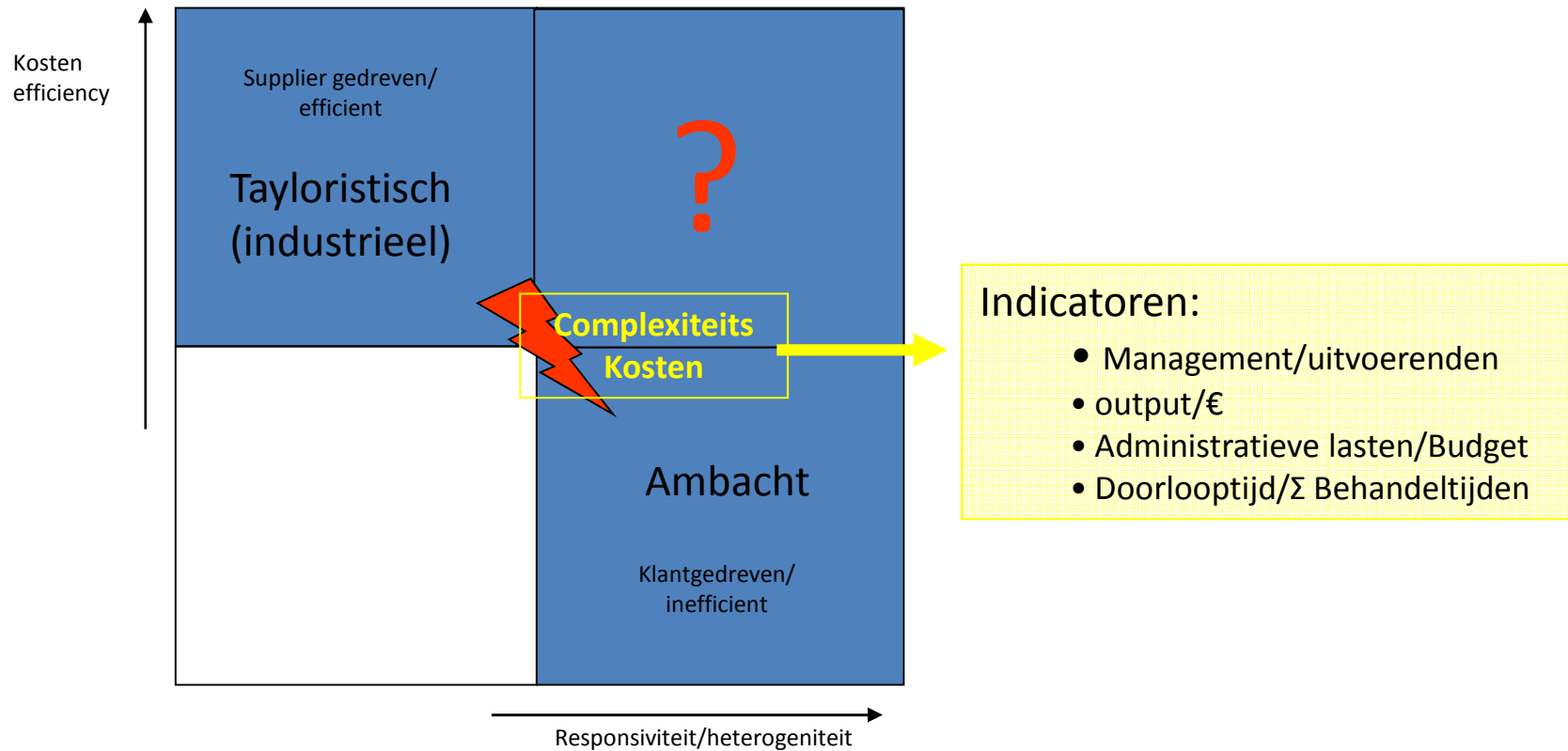


# Geld verdienen





# In een heterogene wereld is het gemiddelde altijd fout





# Ergo....

- Industriële organisatie leidt in een heterogene wereld tot geweldige verspilling
- Groei welvaart -> meer individualiteit -> meer heterogeniteit
- Complexiteitskosten noodzaken ander perspectief op organiseren



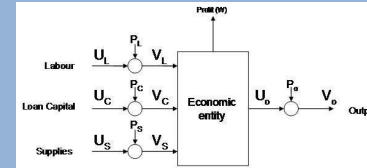
# EFFICIËNTE INEFFICIËNTIE



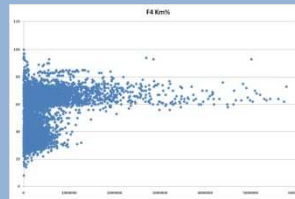
# Projectplan

Productiviteit:

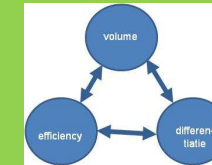
- Van eenheden -> waarde
- Ketensnelheid en waarde



Retail  
Goederstroom  
Analyse



Waardescheppingsmodel

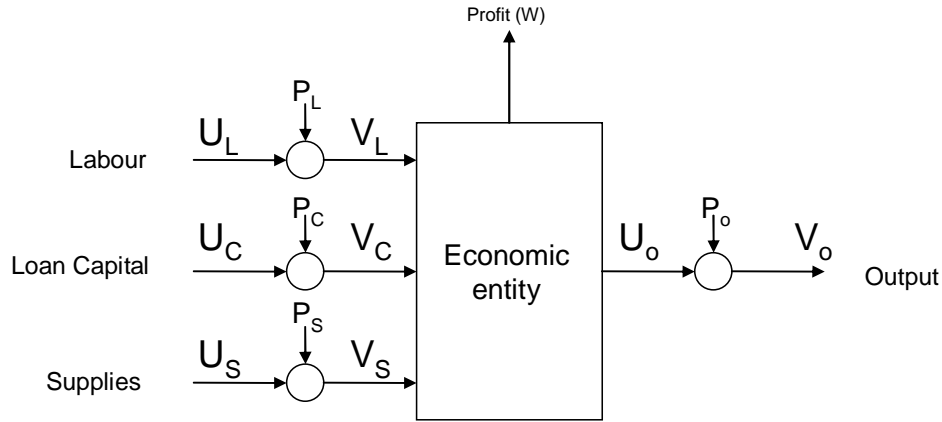


Simulatiemodel



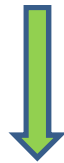


# Rekenmodel



**Ketensnelheid**

Homogeen -----> Heterogeen



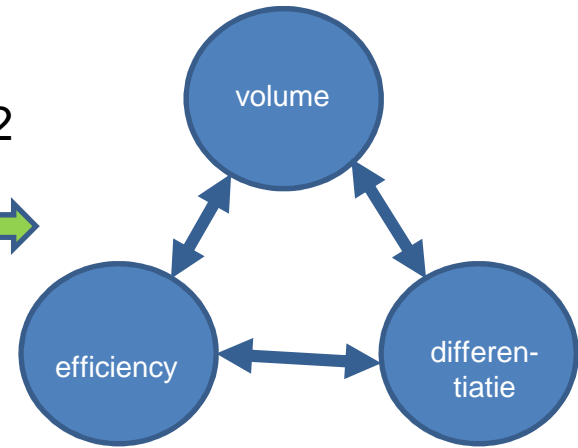
Stap 1

$$E(T) = LP(T) / (P_L(0) * P_{Li}(T)) / (P_o(0) * P_{oi}(T))$$

$$D(T) = 1 - (U_S(T) / U_o(T)) * (P_S(0) * P_{Si}(T)) / (P_o(0) * P_{oi}(T))$$

$$V(T) = U_o(T) * (P_o(0) * P_{oi}(T))$$

Stap 2



Stap 3



# Omvang Analyse

Periode	April – september 2009	
Artikelen	7822	DKW
Leveranciers	354	Vanaf NL lokatie
Winkels	268	
DC's	4	
Tracks	1770	Alleen in NL
Orders (inbound)	305.000	
Orders (outbound)(Drops)	23.000.0000	
Colli	32.410.405	
TTL Colli Km	5.900.000.000	= 6 miljard in 7 maanden!





# Overall Conclusies

Km “Efficiency”	55,2%	(nb1 Vanaf NL beleveringspunt) (nb 2 Veel Import Vol van één locatie)
F 4	<b>3,6</b>	(= $1/55,2\%/2$ )
Jaarlijkse “OverKm” (trucks)	2.300.000	
Ketendagen	23	50/50 inbound/outbound
Stroomsnelheid	4,4 km/dag	

Er lijkt dus “ruimte” in het systeem te zitten



# Landelijke extrapolatie: Kosten & CO<sub>2</sub>

"Onnodige":	
Truck Km	180 mio km
CO <sub>2</sub> Emissie	180.000 ton
Transport kosten €	320 mio €



# Efficiency én reductie van CO2-emissie

	potentieel
1. Een schoner vrachtwagenpark	nvt
2. Verschuiving van wegtransport naar water of spoor (modaliteitverschuiving)	<b>snelheid is heel laag dus tijd genoeg</b>
3. Optimalisatie van uw logistieke netwerk	<b>eliminatie tussenoverslag en handling</b>
4. Een verbeterde Sales & Operations Planning (S&OP)	<b>reactieve keten ipv voorspelling</b>
5. Samenwerking in de logistieke keten	nvt
6. Het creëren van retourvrachten	<b>event based forward = retour</b>
7. Een ruimere interpretatie van customer service	<b>dynamischer assortiment/dagdeel assortiment</b>
8. Nationale- en lokale wet- en regelgeving	nvt

Naar: Alain Beerens; Achtmaal  
logistieke efficiency én  
reductie van CO2-emissie

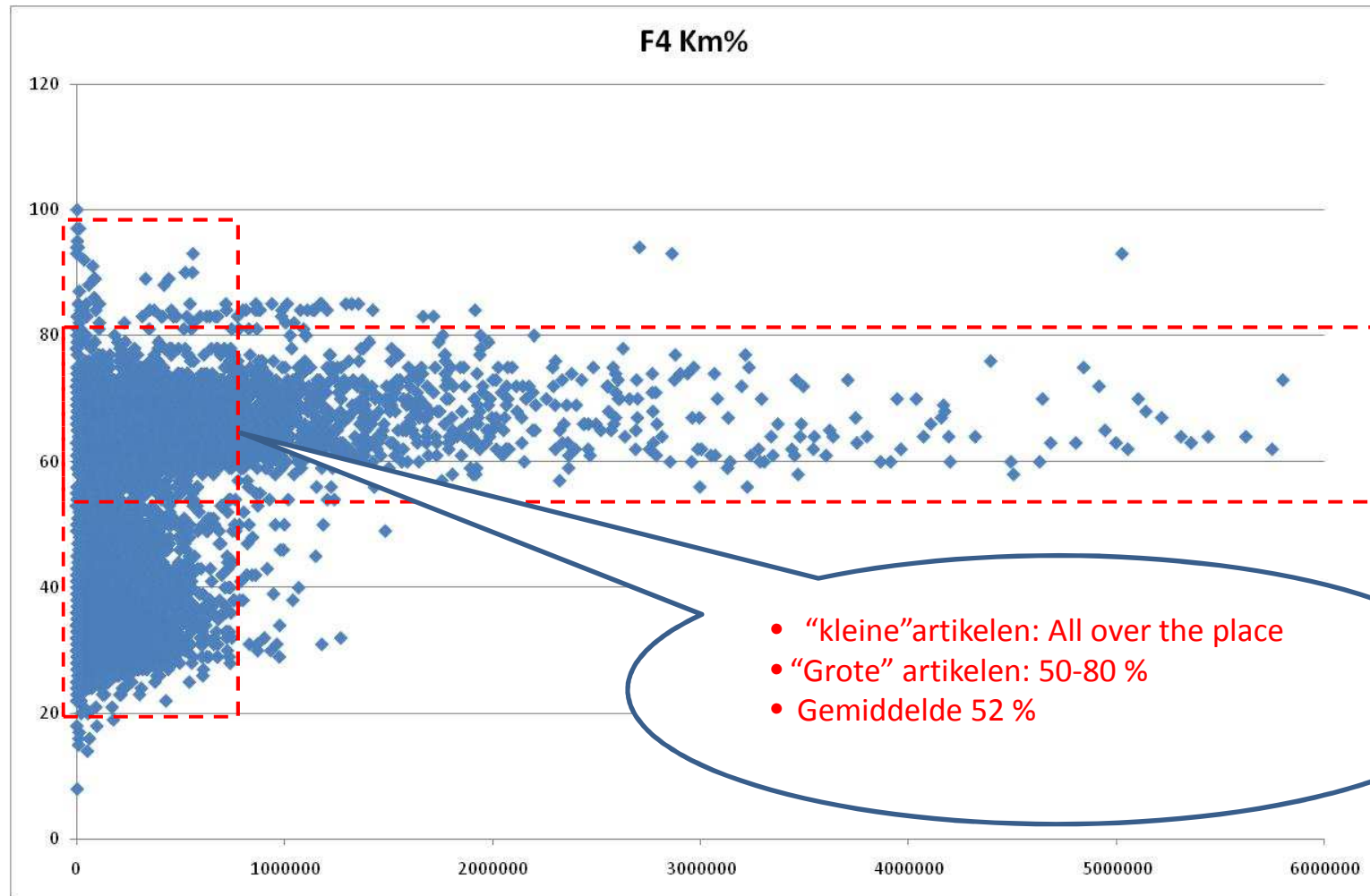




# WHERE'S THE LOGIC

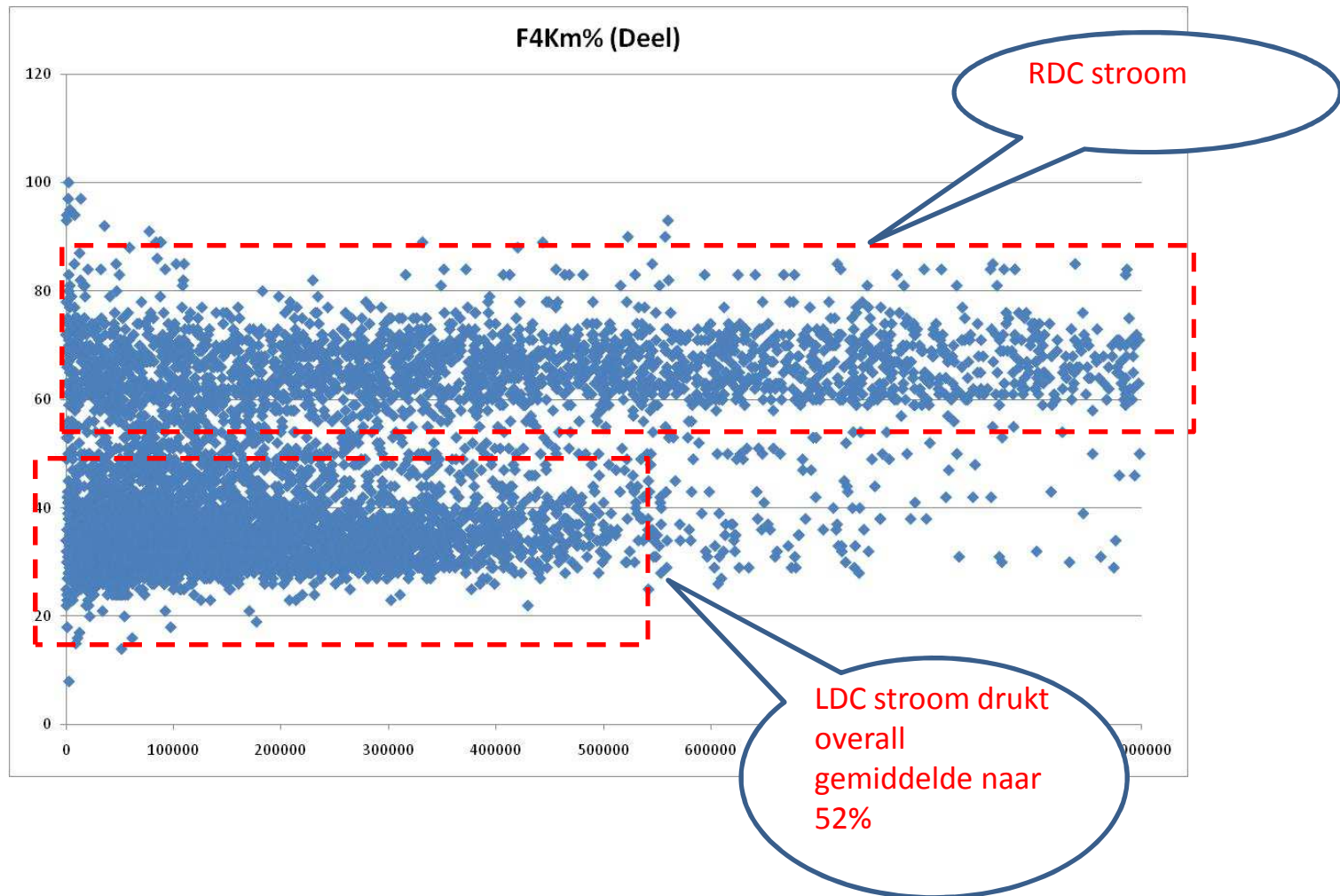


# F4 Kilometers



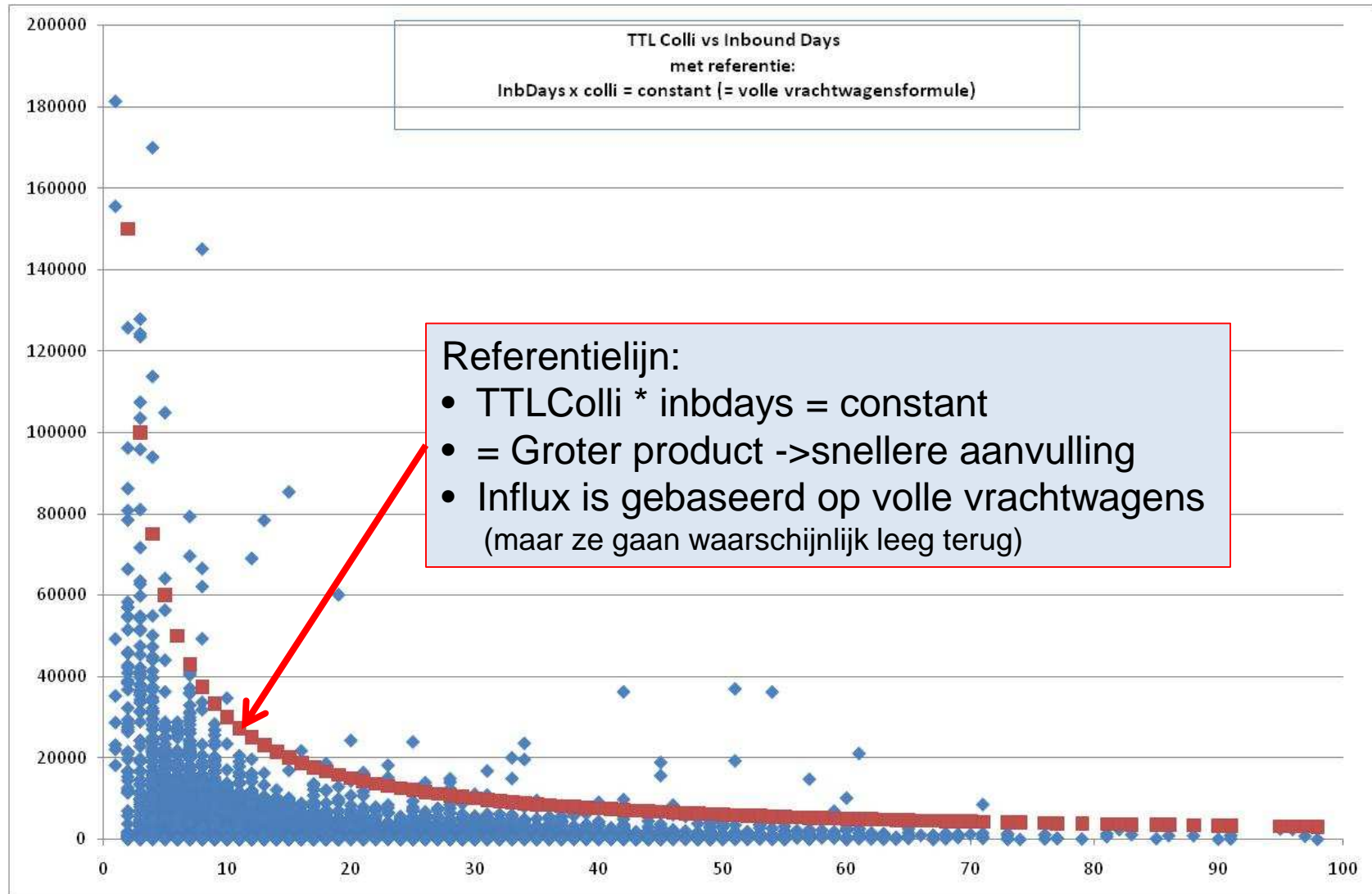


# 2 stromenland





# Inbound = volle vrachtwagens





**HET WENKEND**



**PERSPECTIEF**



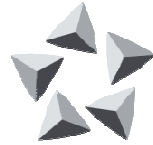


# Escape From Alcatraz....

Intelligent system (central)



Intelligent Actors (Local)

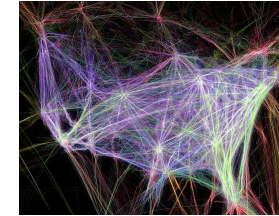


STAR ALLIANCE

Point - point



Free Flight

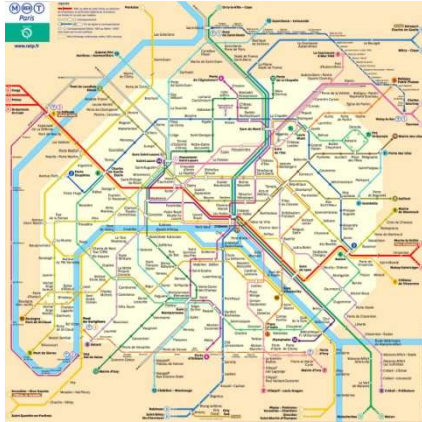


Rotonde



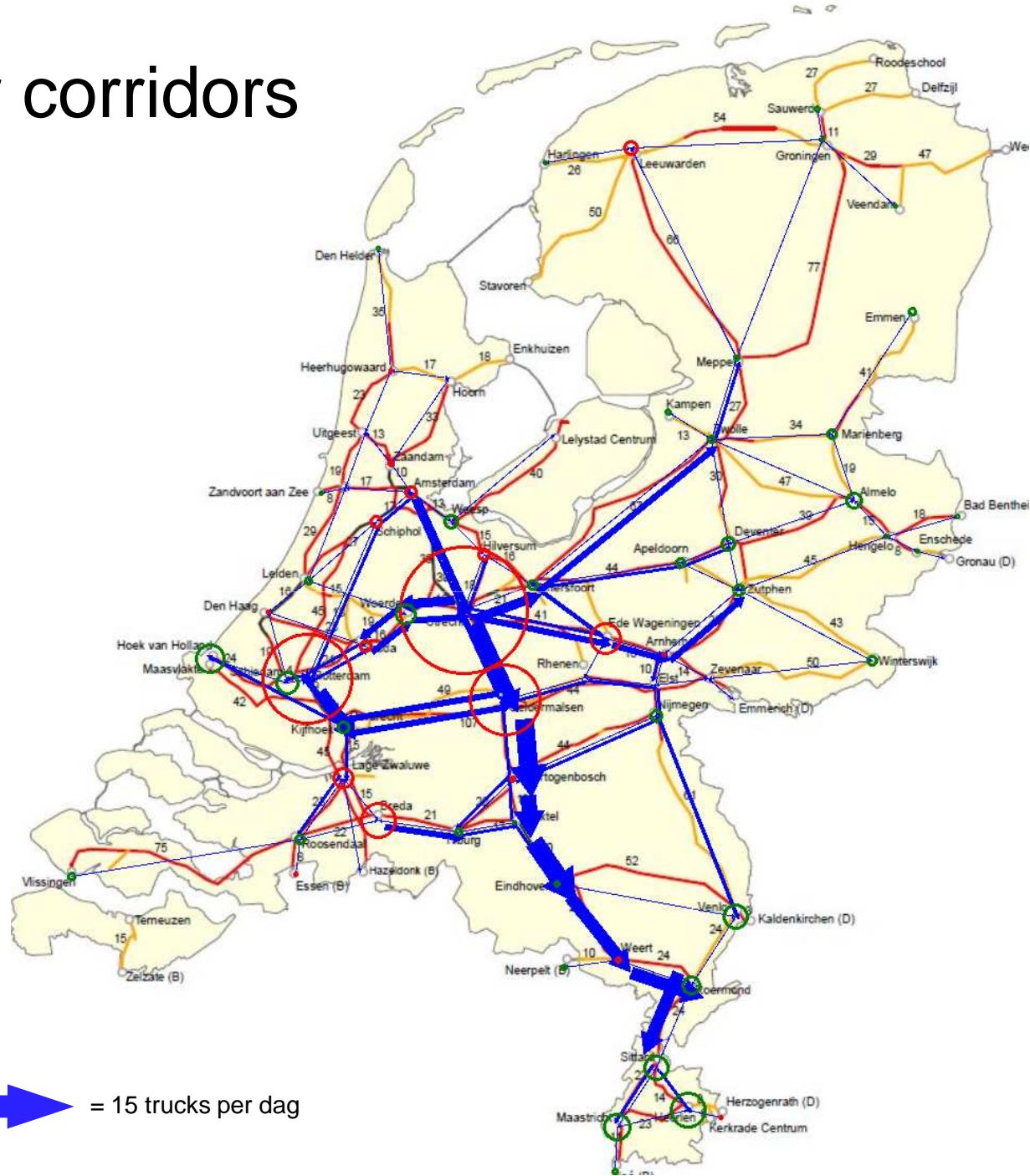



# Pak de trein!





# Flow corridors



 = 15 trucks per dag



# Netting = 0,9 mio truckkm





# Weg (Nu) v.s. Treinmodel

	Weg	Trein	
Real Truck Km	2,9 mio	1,8 mio	-/- 1,1 mio
Nom Truck Km	1,6 mio	1,6 mio	
F4 Km%	55,2%	88,8%	
RetourCollikm	2,9 mio	0,9 mio	-/- 2 mio
F4 Factor	<b>3,62</b>	<b>1,73</b>	

2000/colli per truck



# Realistisch: DabbaWalla ?

- Here's how the system works:
  - The first dabbawalla picks up the dabba from a home and takes it to the nearest railway station.
  - The second dabbawalla sorts out the dabbas at the railway station according to destination and puts them in the luggage carriage.
  - The third one travels with the dabbas to the railway stations nearest to the destinations.
  - The fourth one picks up dabbas from the railway station and drops them to each individual's office.
  - The process is reversed in the evenings with each dabba completing a distance of 60 - 70 kms and changing hands 8 times!
  - Customers pay about \$5/mth for this service.

A few years ago, US business magazine Forbes gave Mumbai's dabbawallas a Six Sigma performance rating, or a 99.999999 percentage of correctness -- which means one error in six million transactions. Six Sigma is a process that helps organizations focus on delivering near-perfect products and services. If you use Six Sigma you can measure how many defects there are in a process and can systematically figure out how to eliminate them and try and achieve zero-defect status.

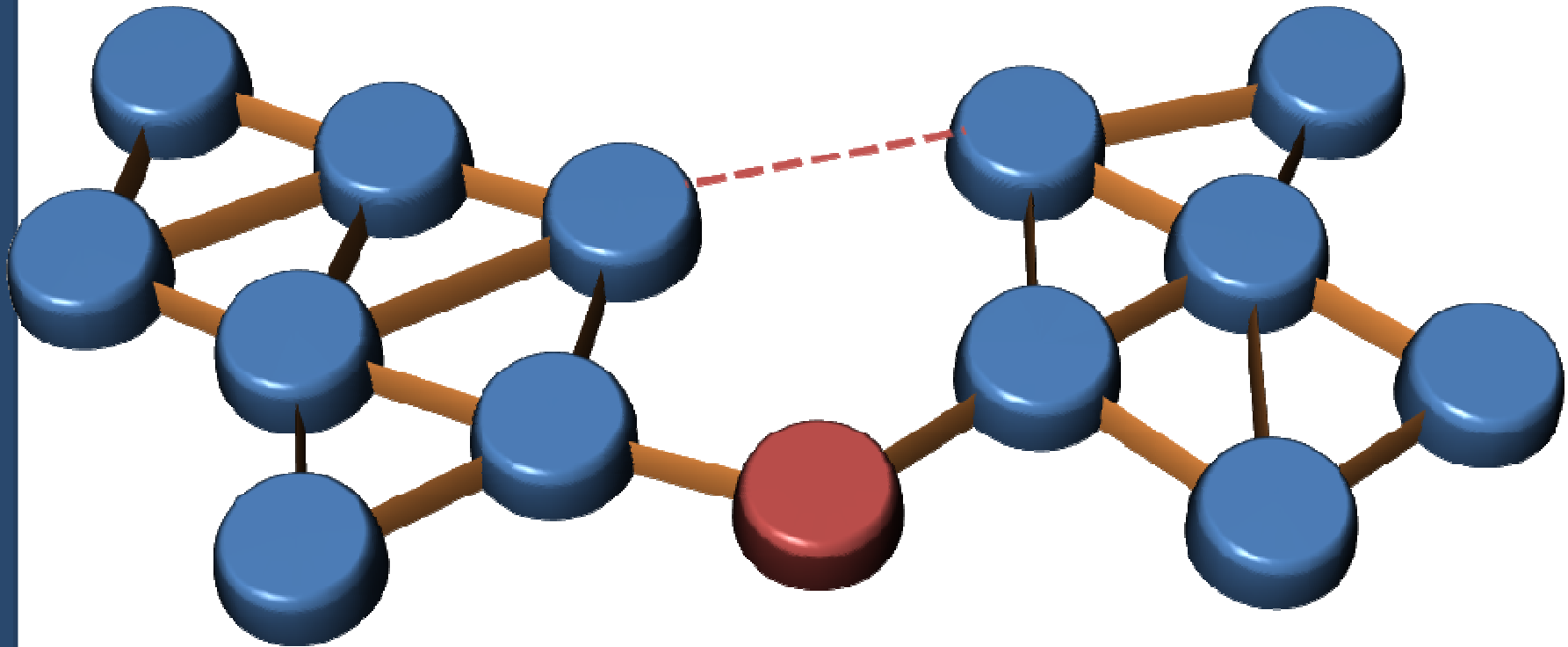
<http://www.eset.com>



# Internet

de zelfregelende logistiek van “packets”

TCP/IP → TCP/PP





# Wat nu?