



# Road and inland navigation solutions in green corridors

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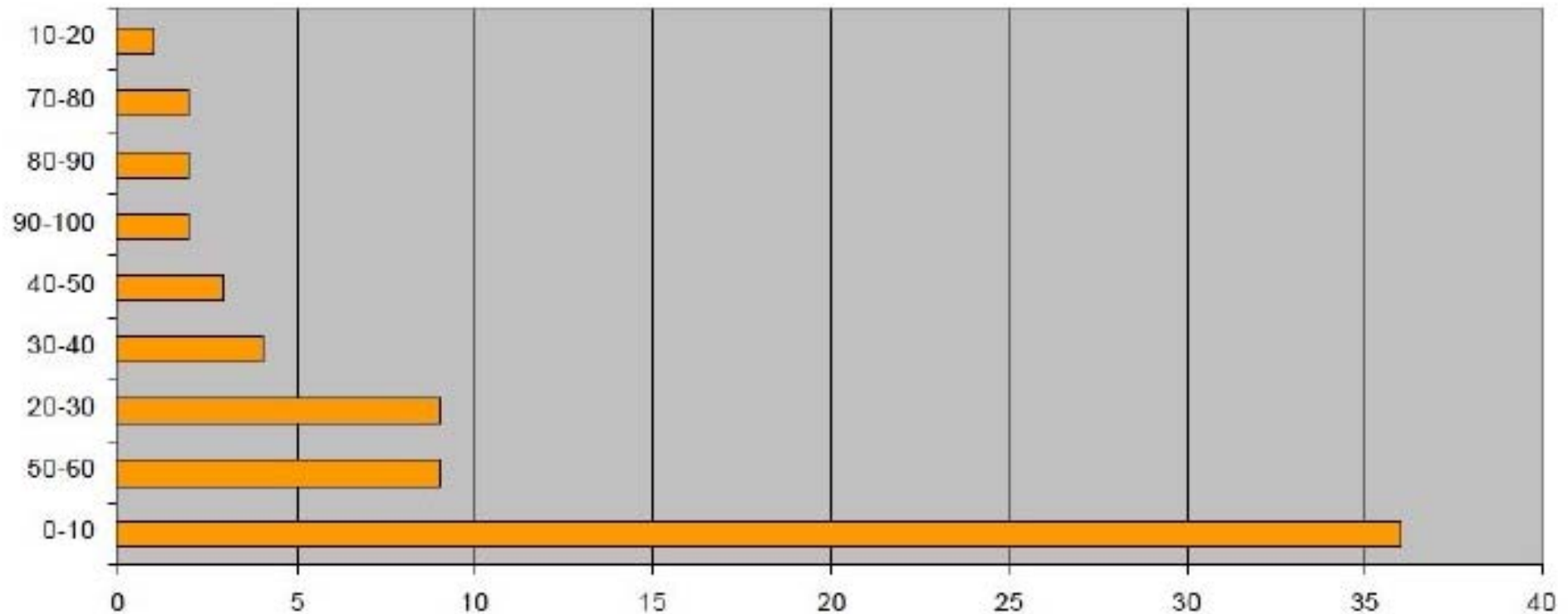
University of Antwerp



# Road solutions in long-distance transport

- 8 o'clock syndrome:

**Figure 2 : % of the clients where the delivery time can be changed**



Source : Online survey, 2008



# Road solutions in long-distance transport (ctd.)



- Make better use of existing network
  - Peak-hour phenomenon
  - Shifting operations in time
    - Extending opening hours in seaports and/or hinterland
    - Shifting traffic to less congested moments within the existing opening hours
      - Government, terminal operators, market-based



# Road solutions in long-distance transport (ctd.)



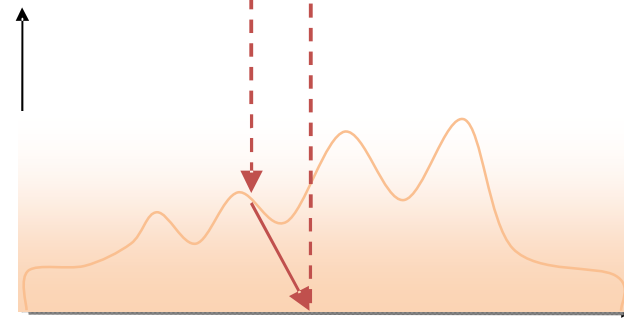
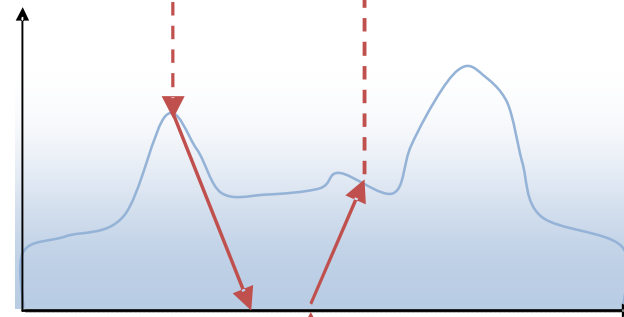
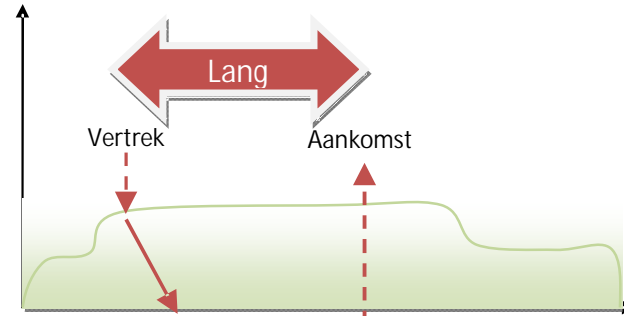
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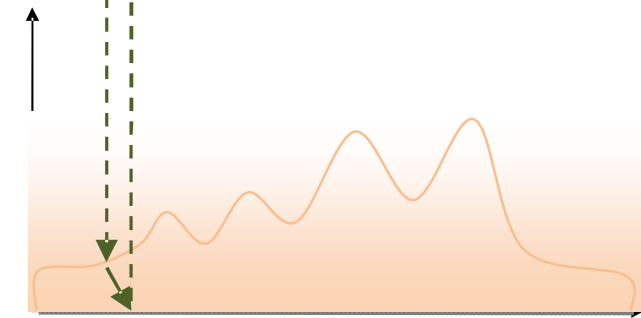
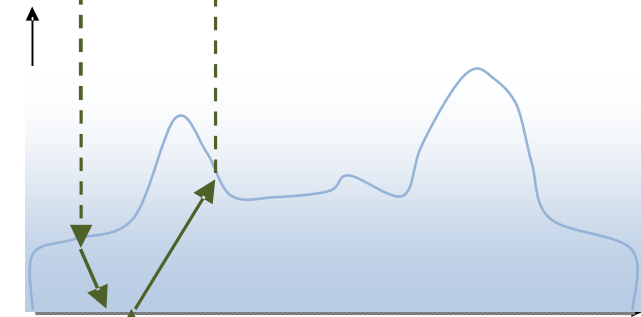
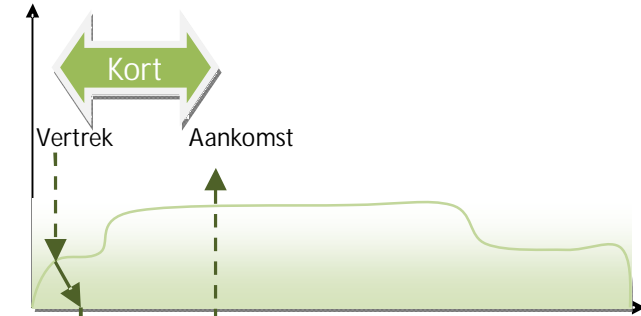


Terminal & depot



's morgens

's avonds



's morgens

's avonds





# Road solutions in long-distance transport (ctd.)

- Low load factors onboard trucks:

## a) 2008 survey

Load factor	0-20%	20-40%	40-60%	60-80%	80-100%
<b>Belgian transport (total 100%)</b>	6.45	6.81	36.38	27.57	21.98
<b>European transport going through Flanders (total 100%)</b>	7.68	5.35	23.27	26.65	23.05
<b>Import (total 100%)</b>	8.58	26.06	32.56	12.98	19.83
<b>Export (total 100%)</b>	7.31	11.52	37.48	12.05	31.65

- Co-loading à less trucks à less emissions



# Road solutions in city logistics



- Initiative taken by SenterNovem.
- Started 1998 as an initiative to support silent delivery in shops
- Limit fixed at 60 to 65 d(B)A
- Project consists of two elements:
  - ü Development of silent technologies
  - ü Certification of companies using silent technologies.



# Road solutions in city logistics (ctd.)



Advantages:

Social:

- Meer silent nights (World Health Organisation)
- Strong noise reduction
- Reduction of 'dead corner' accidents
- Reduction of nuisance in general
- ...

Ecology:

- Reduction of emissions
- Less congestion during peak hours
- ...

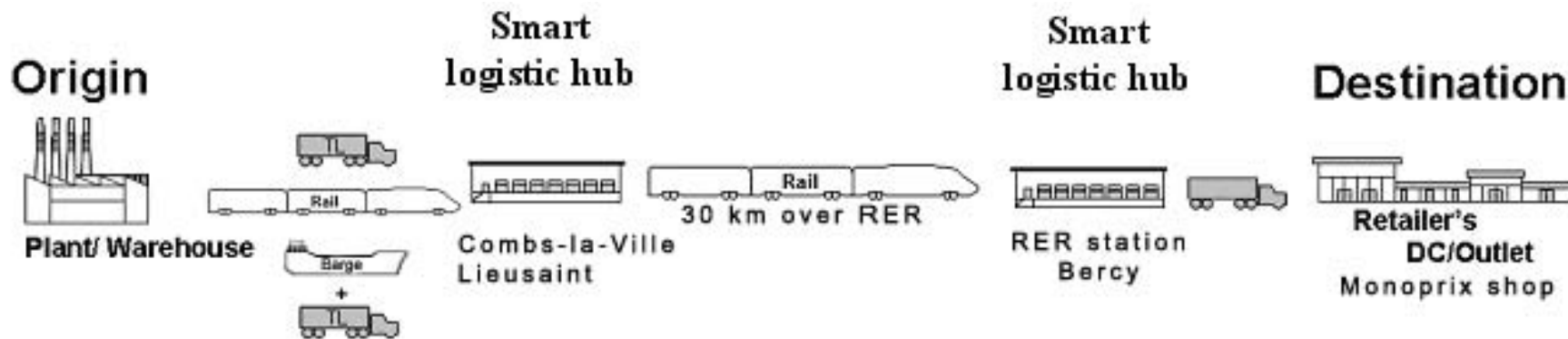


# Road solutions in city logistics (ctd.)



## The Monoprix supply chain involving rail

Connecting road connected warehouses by the Paris RER



Source : Based on : Deketele, L., Coelho, P., Grosso, M., Lynce, A-R., (2008), Moving From 80% Road To 80% Non Road - Implementing Modal Shift In A Fast Moving Consumer Goods Supply Chain, TransportNET project



# Road solutions in city logistics (ctd.)



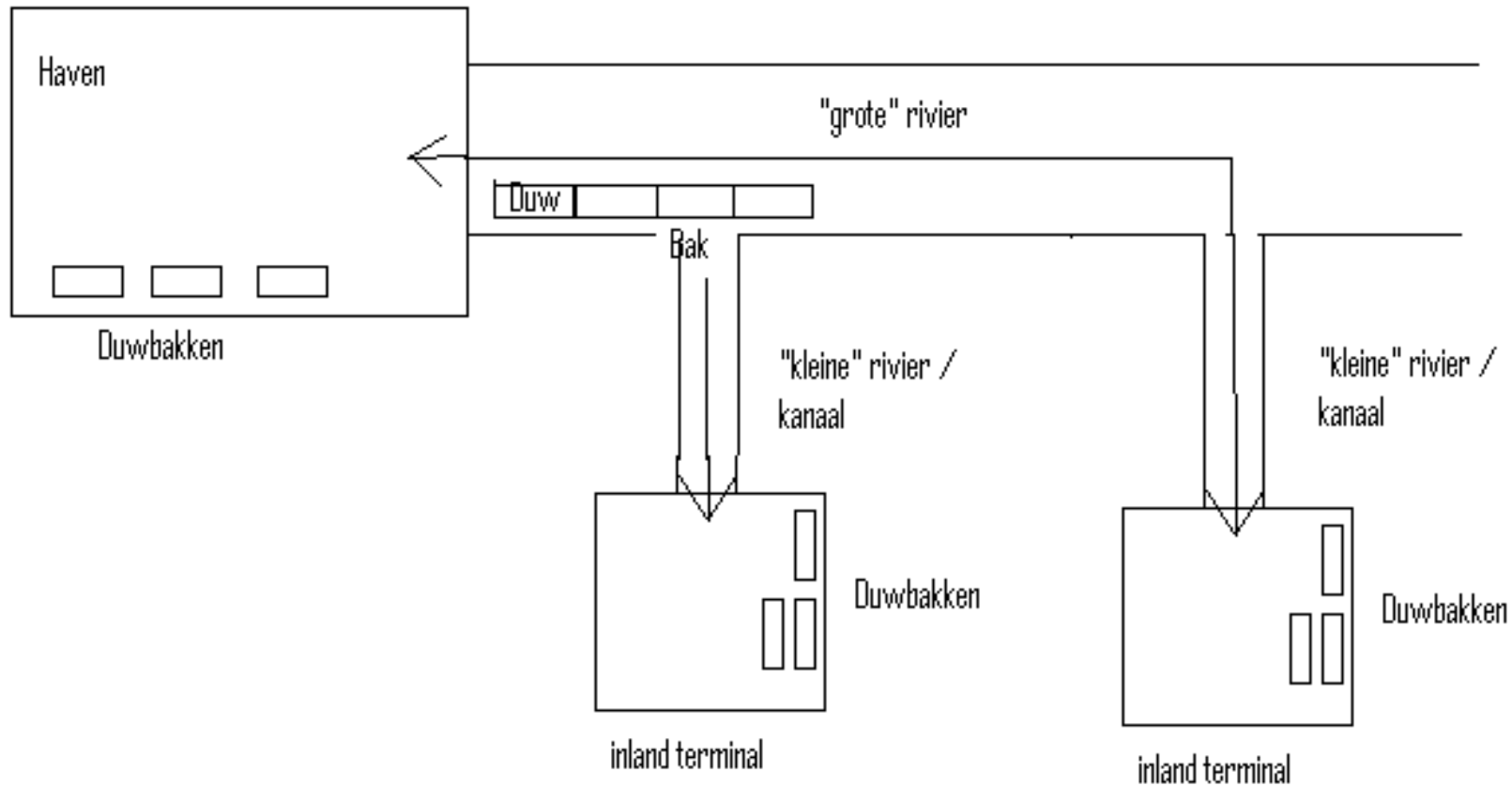
The supply chain of Monoprix : In 1 year time

- 70,000 liters of fuel have been saved
- A reduction in vehicle-kilometers is obtained  
(12,000 trucks do not enter the Paris city centre)
- Lowers traffic congestion problems
- Concept lowers greenhouse gas emissions significantly  
(decline of 340,000 tonnes of CO<sub>2</sub> and 25 tonnes of NO<sub>x</sub>)
- The last mile issue is dealt with
- Trucks : According to Paris limitations : <29 m<sup>2</sup> on ground  
- smaller vehicles create a need for more roundtrips !



# Inland navigation solutions: small units

- Small inland barge units





# Inland navigation solutions: small units (ctd.)

		Leuven Dijle	Dender	Kempense kanalen
<u>Inland navigation</u>	<u>EUR/TEU</u>	<u>€29.77</u>	<u>€36.03</u>	<u>€39.27</u>
	<u>EUR/t</u>	<u>€2.13</u>	<u>€2.57</u>	<u>€2.81</u>
<u>Road transport</u>	<u>EUR/TEU</u>	<u>€56.90</u>	<u>€56.90</u>	<u>€53.09</u>
	<u>EUR/t</u>	<u>€4.06</u>	<u>€4.06</u>	<u>€3.79</u>
<u>Savings</u>	<u>%</u>	47.68%	36.66%	26.02%



# Inland navigation solutions: large volumes

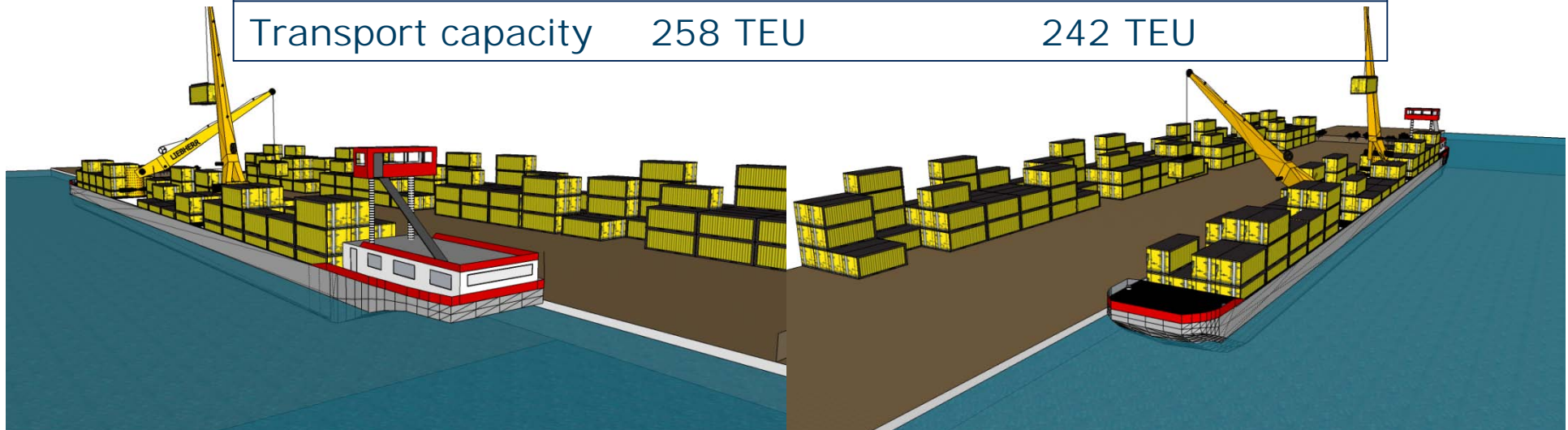


- Stand-alone container pontoon & crane
- Design an inland barge, capable of transporting containers and capable of loading & unloading these containers without necessary investments in quays and equipment



# Inland navigation solutions: large volumes (ctd.)

	Albert canal barge	Hybrid Barge
Propulsion type	Diesel Electric	Diesel Direct
Installed Power	2*300 kW	2*900 kW
Estimated Price	€ 5.700.000	€ 6.900.000
Transport capacity	258 TEU	242 TEU





# Inland navigation solutions: large volumes (ctd.)



Route	From	To	Via	Distance Barge/Truck	Distance Truck
R1	Antwerp	Turnhout	Grobbendonk	50/30 km	70 km
R2	Antwerp	Beringen	Meerhout	70/30 km	85 km
R3	Antwerp	Dusseldorf	Lanaken	125/110 km	215 km

Less distance to travel → less emissions



# Inland navigation solutions: large volumes (ctd.)





# Thank you for your attention

Feel free to contact us :

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