



Smart Transportation Alliance

2021 Annual Conference
& Innovation Awards

Roundtable 2 – Decarbonising transportation infrastructures: Smart policies and viable funding & financing mechanisms

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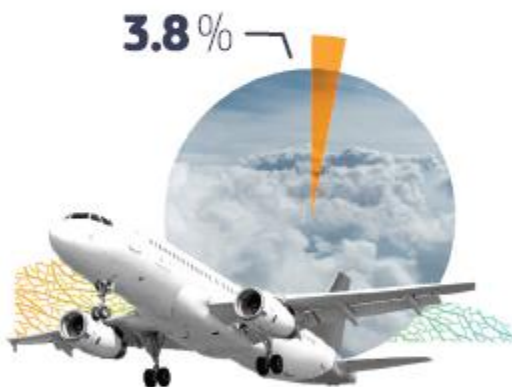
The challenge...

TRANSPORT NEEDS TO CUT EMISSIONS BY 90% BY 2050

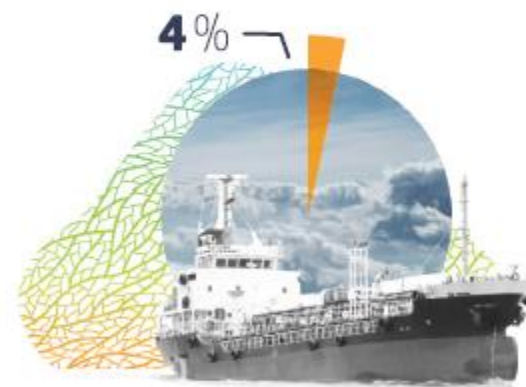
Share of total EU Greenhouse Gas (GHG) emissions, per mode



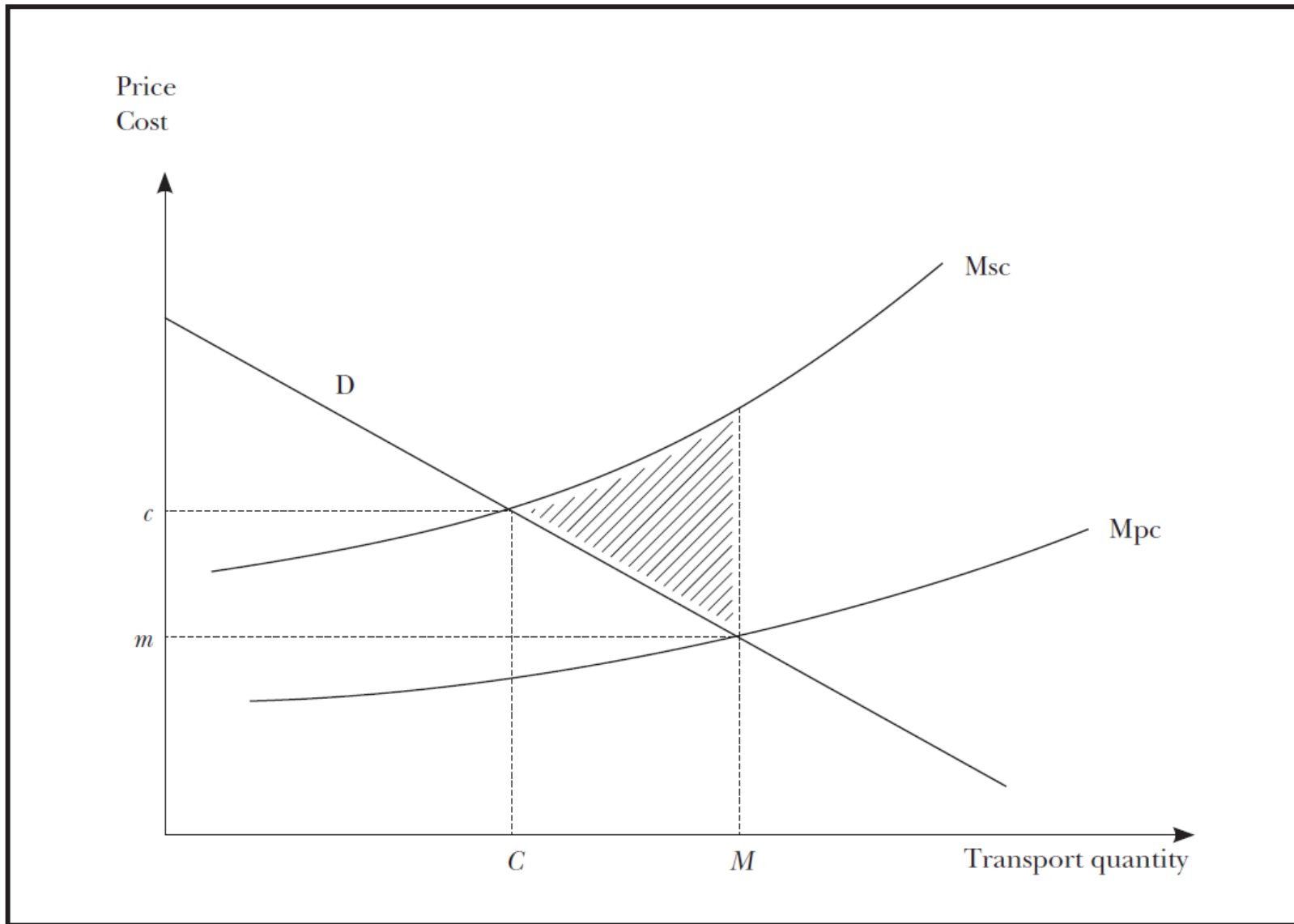
Road



Aviation



Maritime



Pricing application (1)

An application will be made based on an existing container loop from the US to Europe.

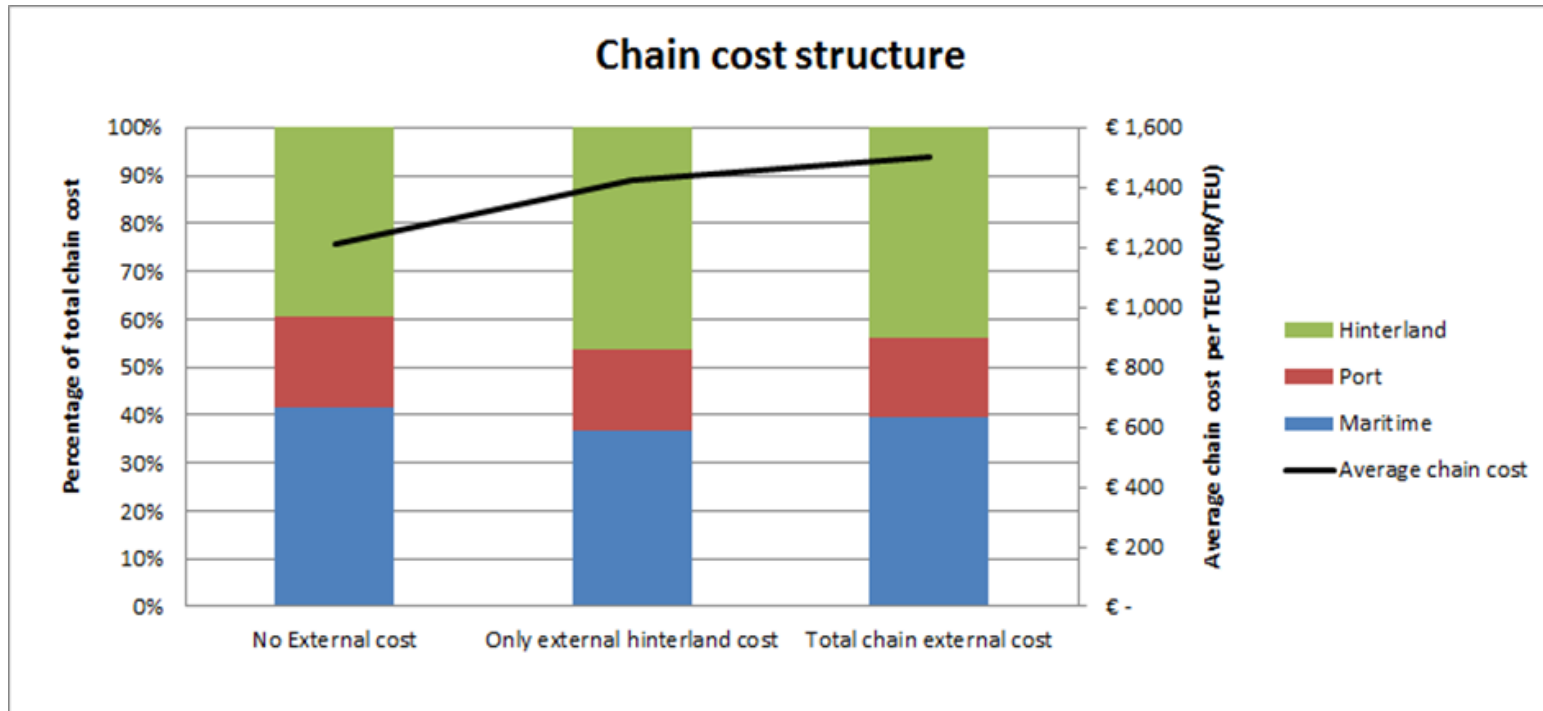


Ship parameters: 4600 TEU, $V = 22$ knots, payload = 80%

Point of origin of the analysis is the port of Miami

Pricing application (2)

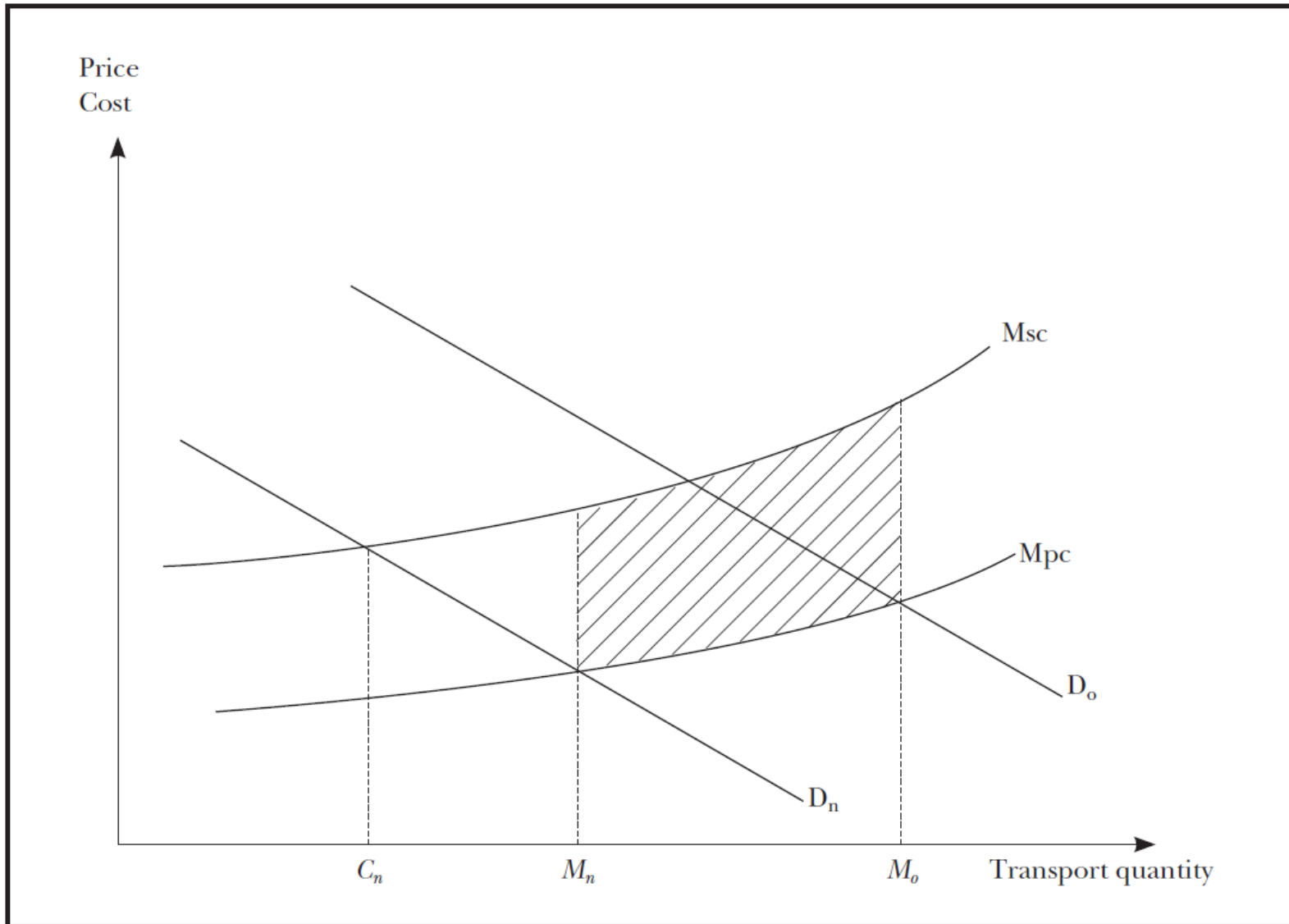
Result of internalizing the external cost on the complete chain



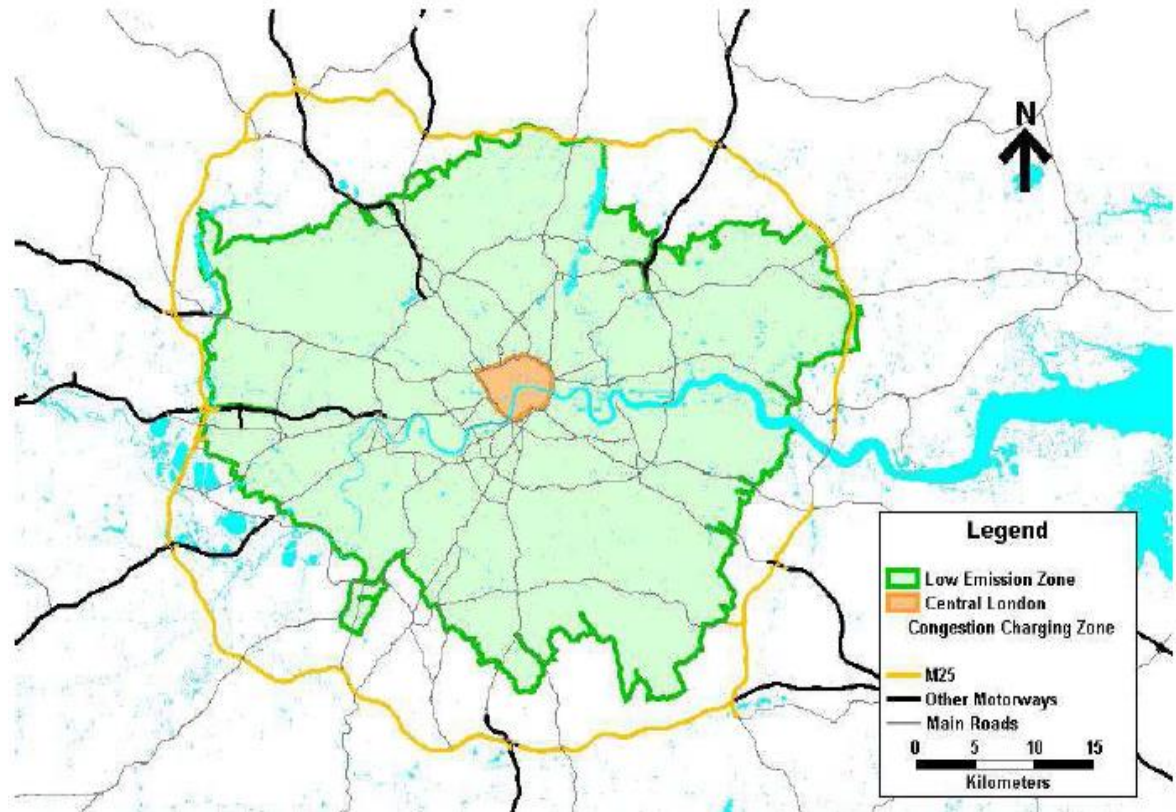
The average chain cost from Miami to Europe will increase by 17% if the external costs on the hinterland are incorporated.

If also the maritime external costs are incorporated, the average chain cost will increase by another 5%

Quantity limitations

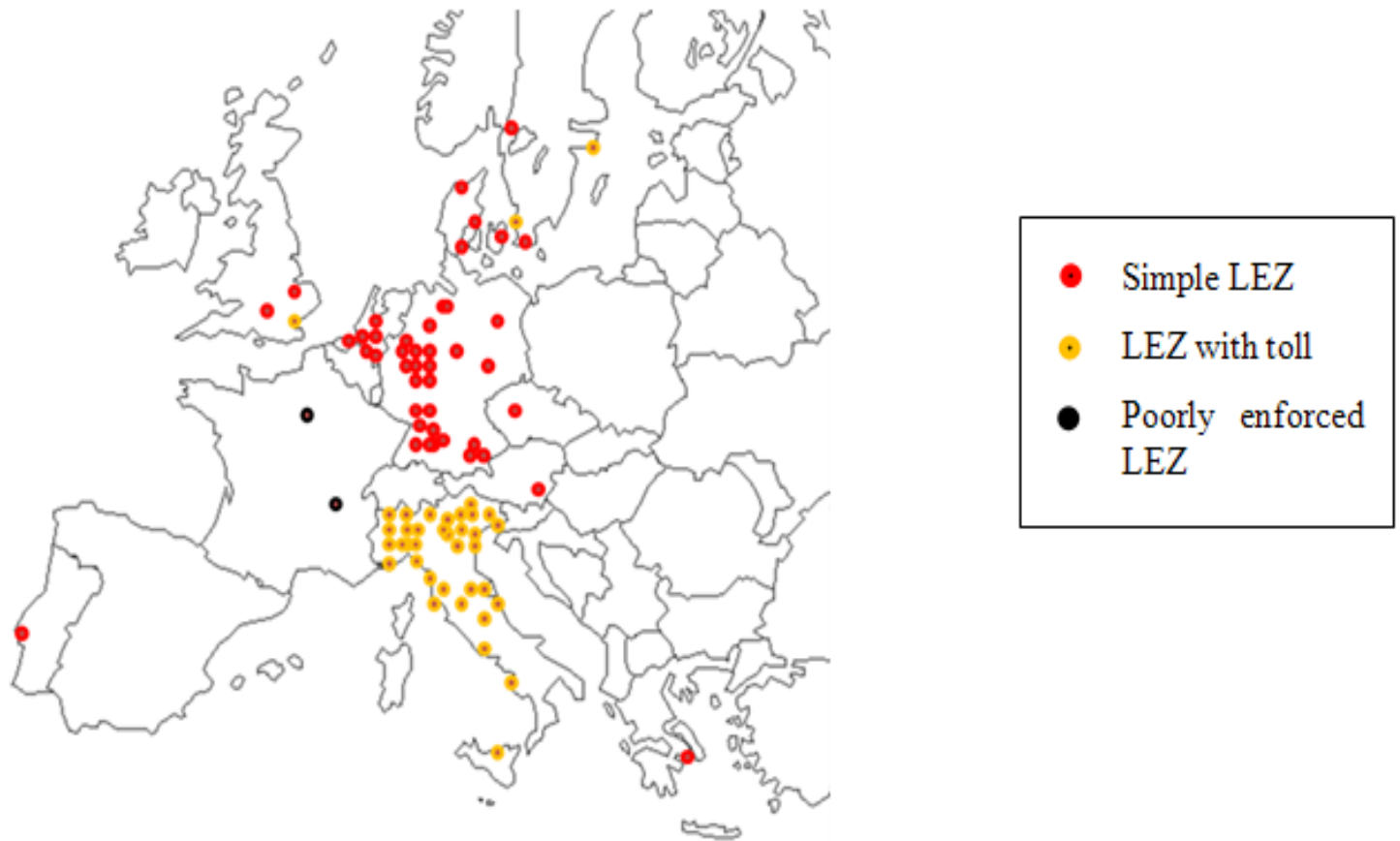


Low emission zone

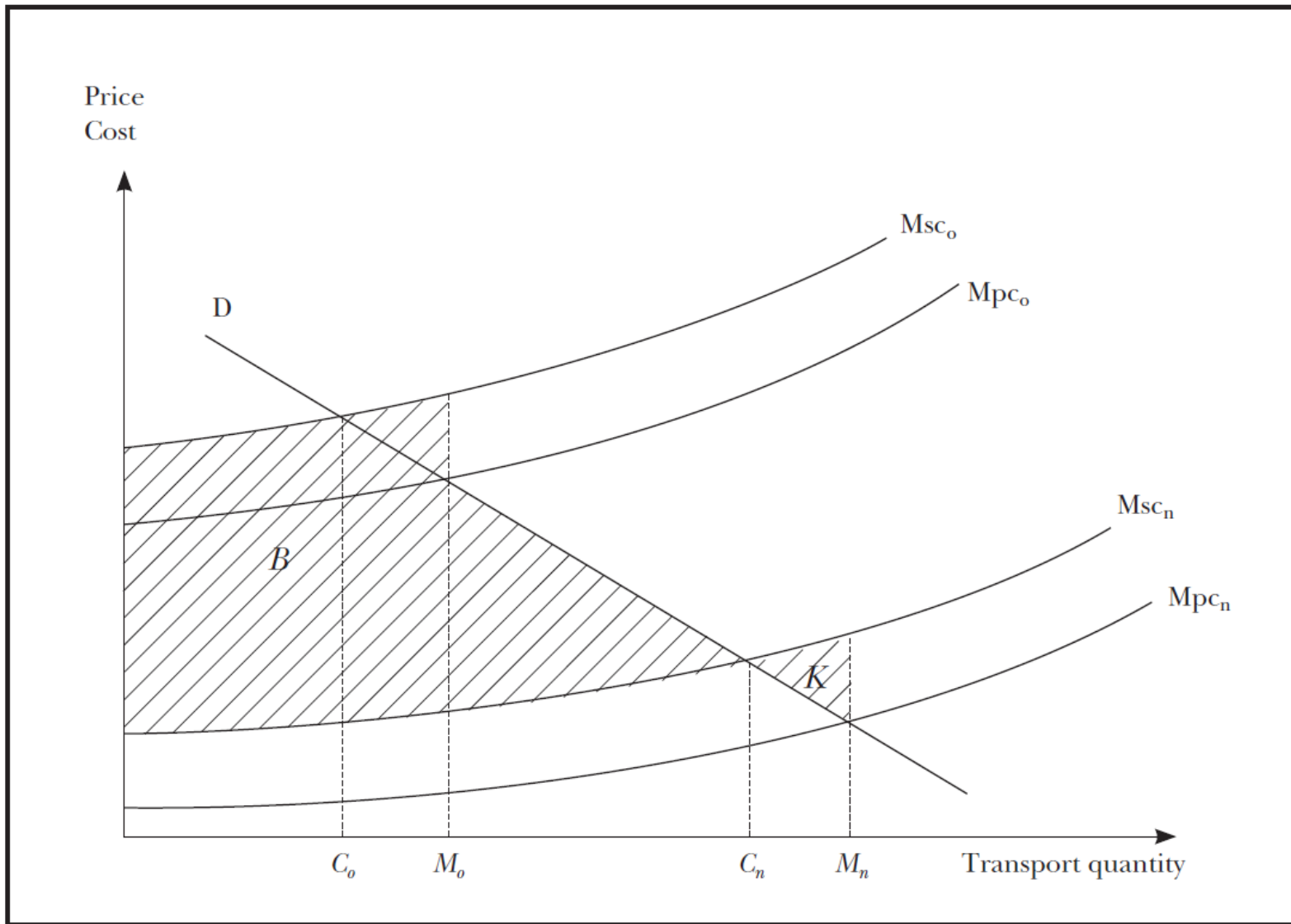


The London Low Emission Zone (from Ellison et al, 2003)

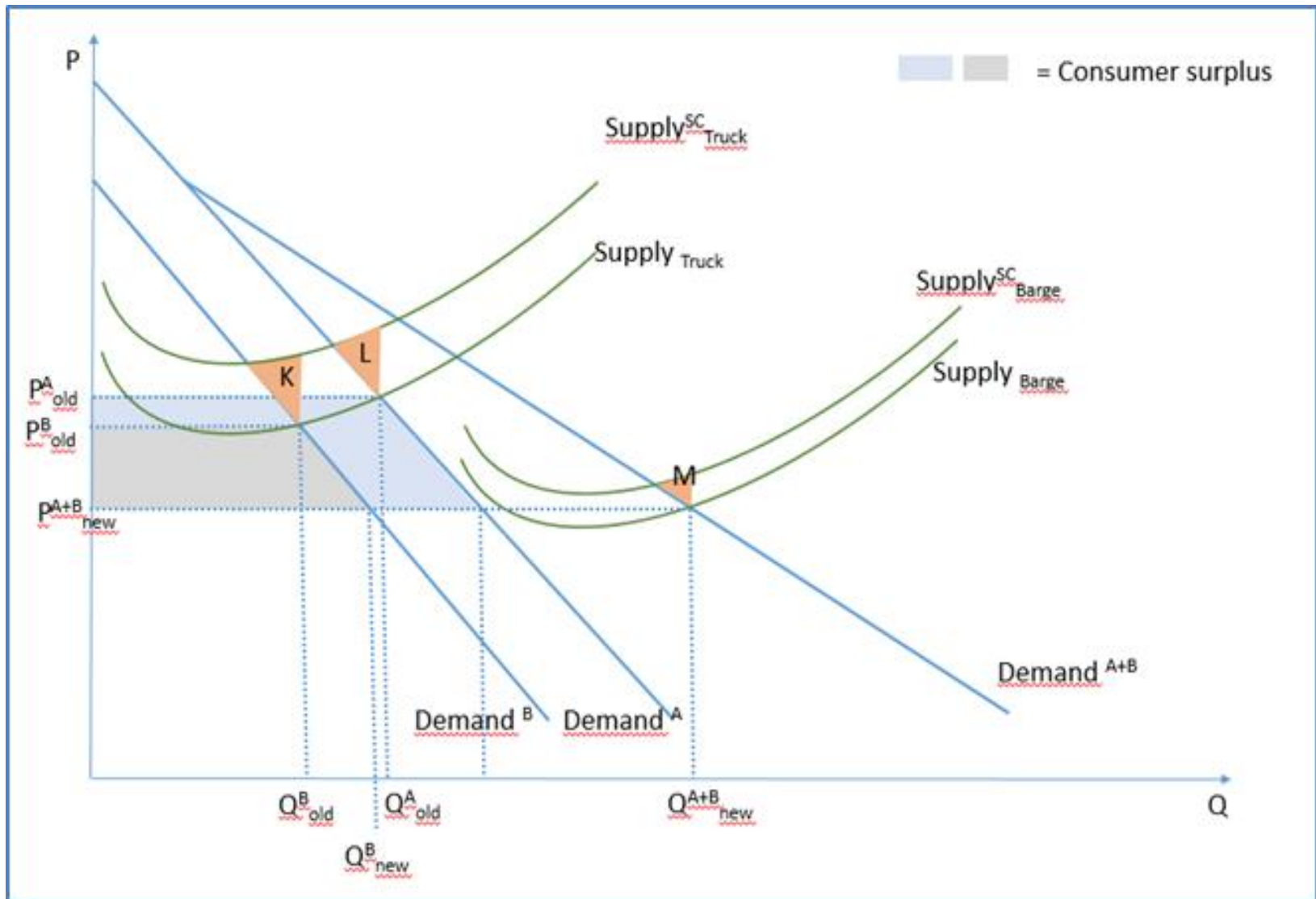
Low emission zone (2)



Cost reduction

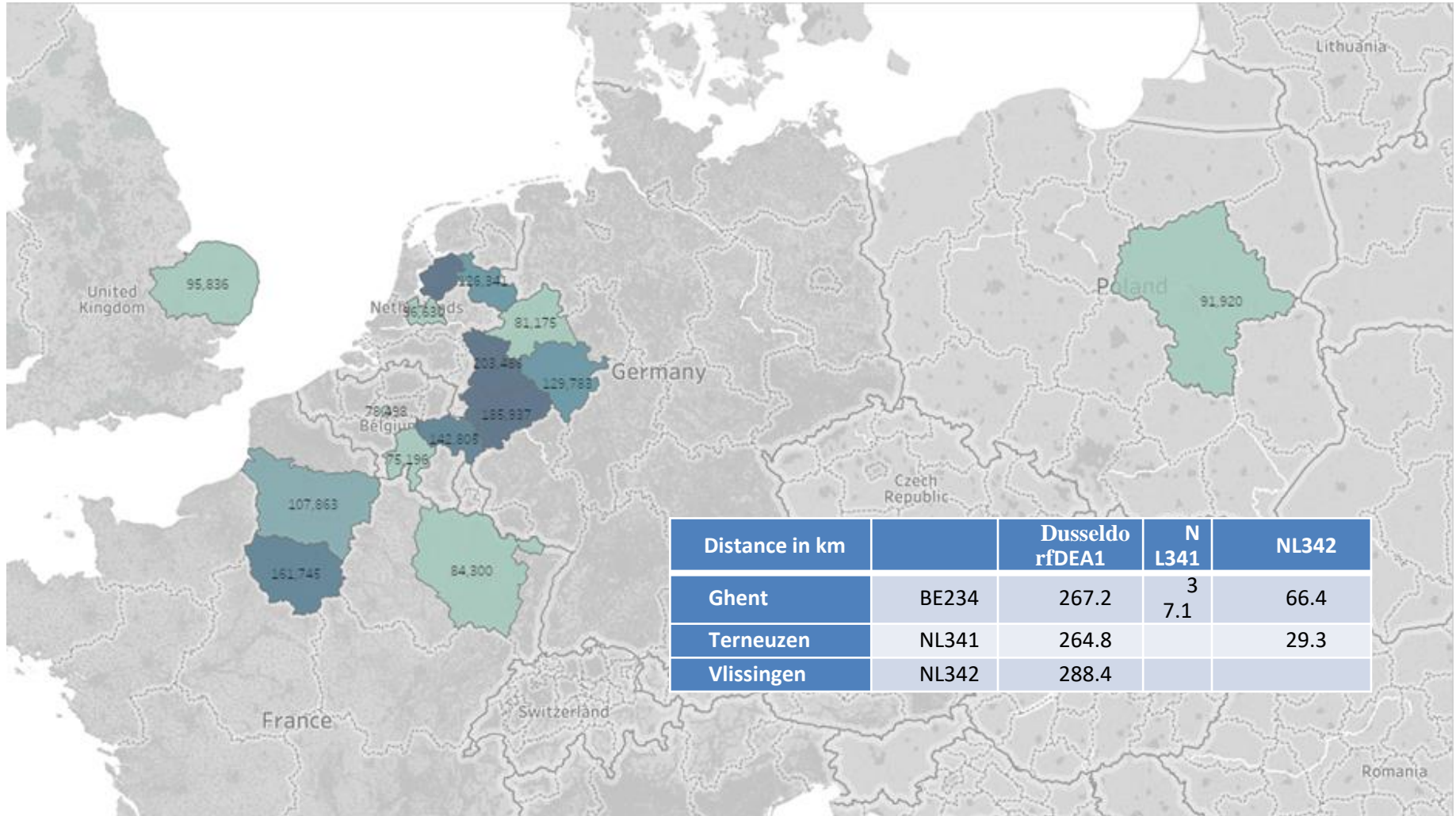


Co-operation



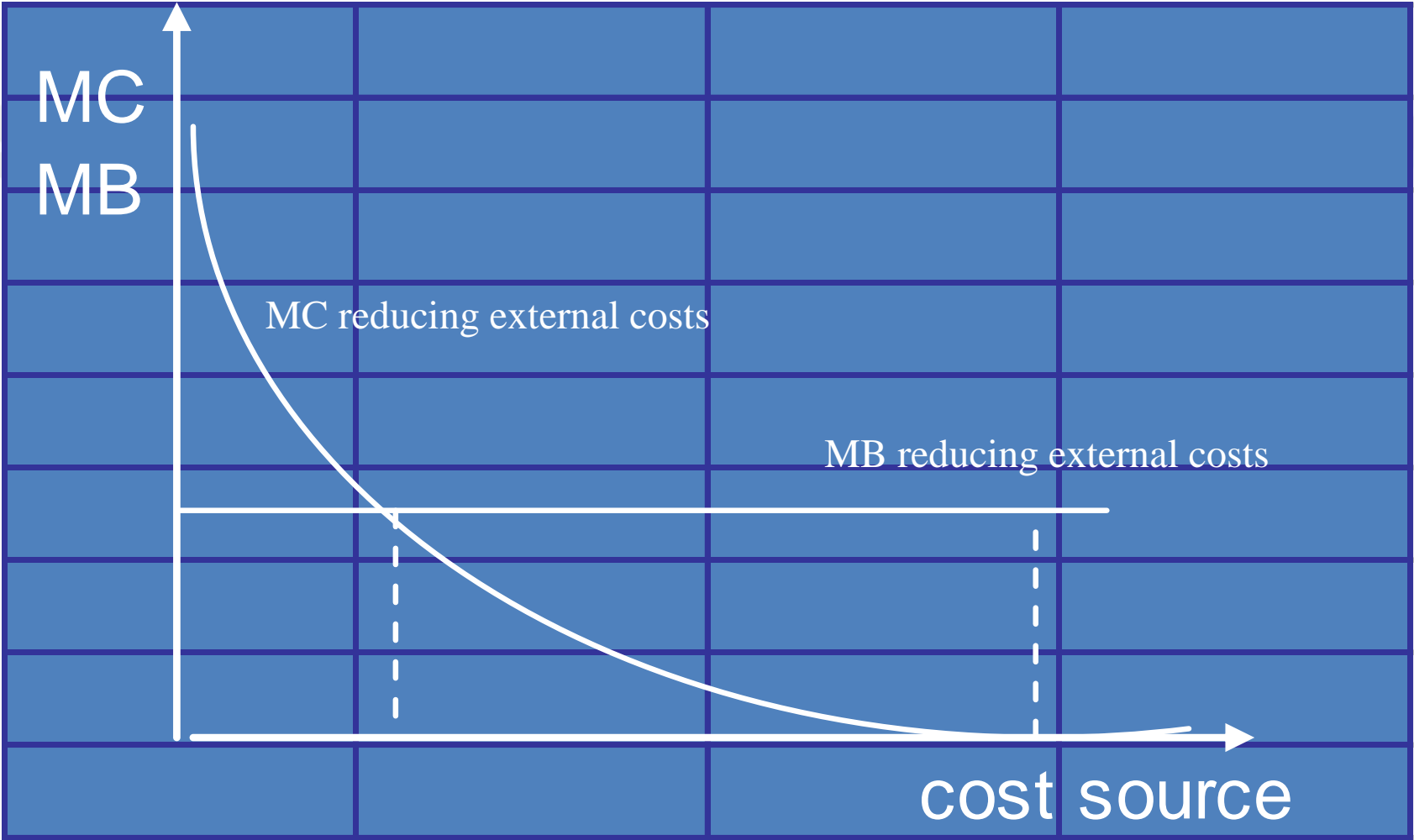
Source: own composition


North Sea Port, grouped > 75,000 tonnes annually



Analysis and conclusion, savings (EIP /TEU)

€/TEU	Direct cost (a)	VOT (b)	Generalised cost (a)+(b)	External cost (c)	Total cost (a)+(b)+(c)
Road only	204.79	6.41	211.20	84.40	295.60
Multimodal rail	188.56	29.55	218.12	21.54	239.65
Effect of rail bundling	16.23	-23.14	-6.91	62.86	55.95
Effect of bundling on a train with load factor of 90%	29.18	-20.03	9.15	64.13	73.27
Effect of bundling on a class V barge	49.29	-39.24	10.05	55.91	65.97





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Smart Transportation Alliance

**THANK YOU
FOR YOUR
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