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# Rail Connected Distribution Parks: a win-win opportunity

by

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# 1. Policy objectives

- Broad EU and Government policy to divert freight onto sustainable modes
  - rail
  - short sea shipping
  - inland waterways
- Current EU policy based on ‘co-modality’ and environmental sustainability:  
“co-modality, as we see it, means optimising the efficiency of each mode according to its specific characteristics and advantages”

“in 2005, transport was responsible for 26.5% of greenhouse gas emissions in the EU....the transport sector will.....have to contribute to reducing greenhouse gas emissions”

and for rail strategies include

“creating an open European market for rail services”

“developing the trans-European rail network, in particular cross-border sections on major European routes”

Vice President of EC in charge of transport

## 2. Policy case study: UK rail freight

- UK rail freight policy based upon:
  - 'private sector investment in new equipment and rolling stock'
  - 'competition between private sector (rail) operators'
  - (confidence) that rail freight will continue to grow
  - (ensuring that) railway capacity (is used) as efficiently as possible

UK Secretary of State for Transport, 2005
- UK follows EU policy in believing that :
  - open access
  - more intensive use of existing infrastructure

will lead to improved rail freight performance
- In Britain, rail freight tonne km has grown by 70% since liberalisation in 1994
  - evidence of policy success
- EU and UK policies appear entirely similar

### 3. Land use policy

- However, EU transport policy does not explicitly link freight transport and land use policies
- Presumption that non bulk cargo will always require final delivery by road
  - yet this adds hugely to costs
- UK rail benefits from high road fuel taxes and rail operating grants

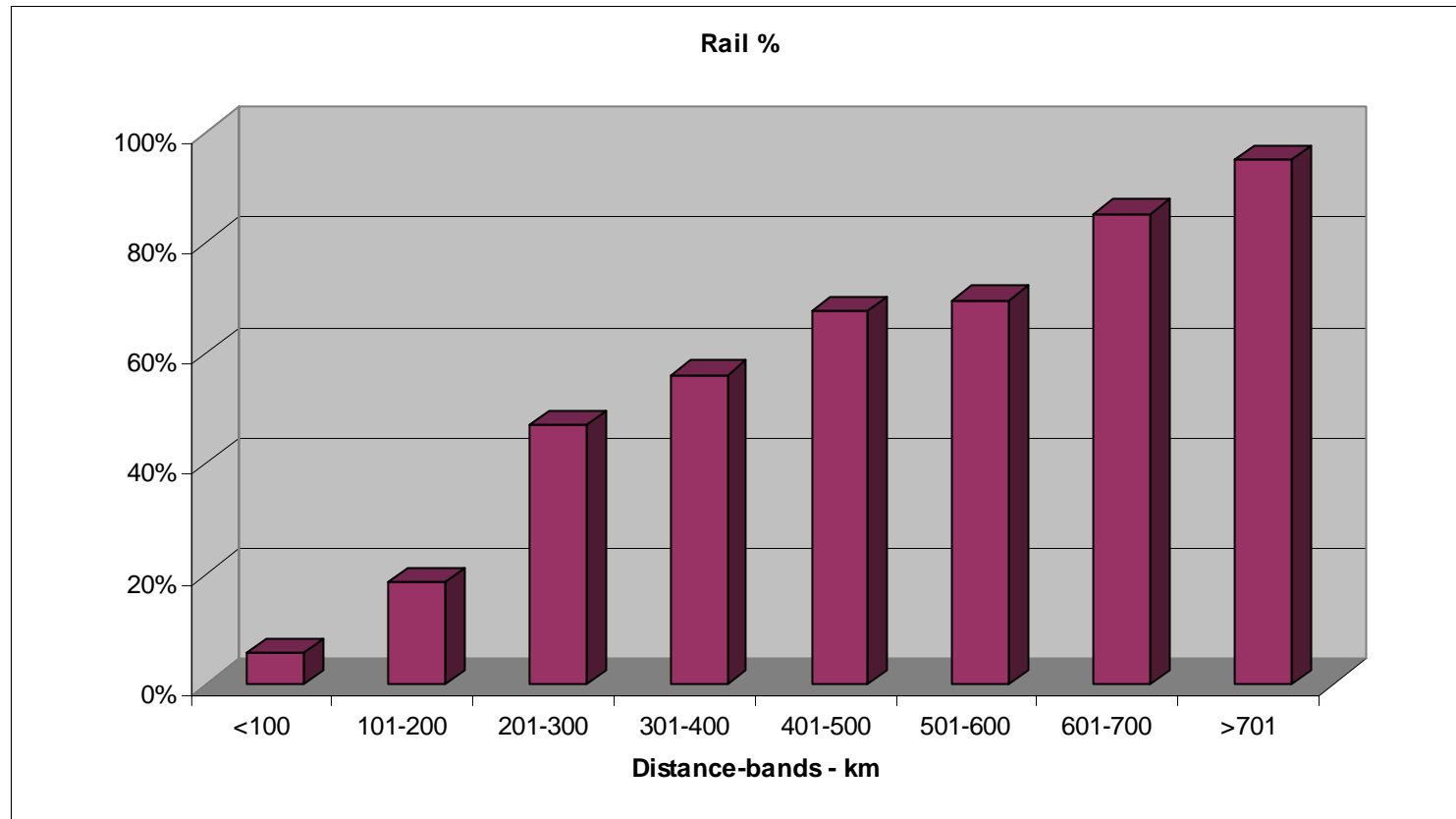
#### Typical delivery cost, UK port to delivery over 200 km

	€/container
Supplementary handling (port):	45
Rail haulage (30 containers per train):	70
Inland terminal:	30
<b>Local typical delivery cost</b>	<b>130</b>
Less grant:	<u>(30)</u>
	245
versus direct haulage:	270

- **Road delivery reflects over half total costs!**
  - can this problem be addressed?

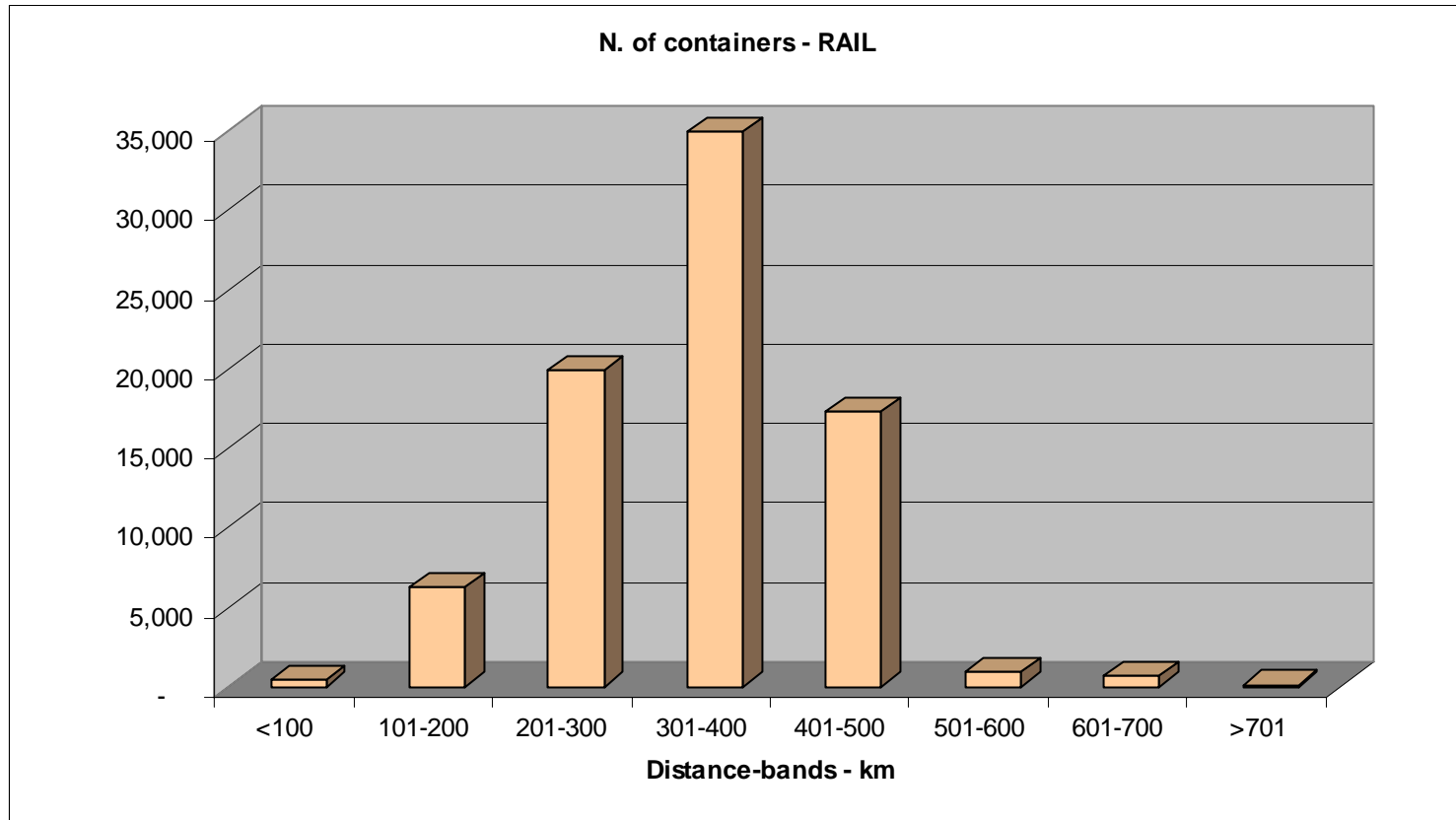
## 4. UK rail share of intermodal port traffic

Estimated rail share by length of haul from the port: > 50% by rail > 300 km



# 5. UK Intermodal rail traffic by length of haul

Britain a small island: few opportunities beyond 500 km!



## 6. Addressing the cost of the 'Final Mile'

### UK land use policies

- Each region defines its own strategy, based on similar principles

### Policy in UK South East

“Encourage development with a high generation of freight and/or commercial movements to be located close to intermodal facilities, rail freight facilities or ports and wharves”

### Similar policies in other regions

- Motivates warehouse developers to create rail linked distribution parks – if they want planning consent
- Offers opportunity to eliminate local delivery costs to new developments
- Policies driven by developers, shipping lines and third party distributors
  - not train operators or infrastructure provider

# 7. The importance of warehousing location

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- In a heavily industrialised economy,
  - most goods move to and from factories
  - internal domestic flows dominate, which are short and fragmented

and factories remain in situ for very long periods

- In a service based economy
  - most consumer goods are imported through a few rail linked ports and stored in large warehouses
  - goods flows are concentrated along busy corridors

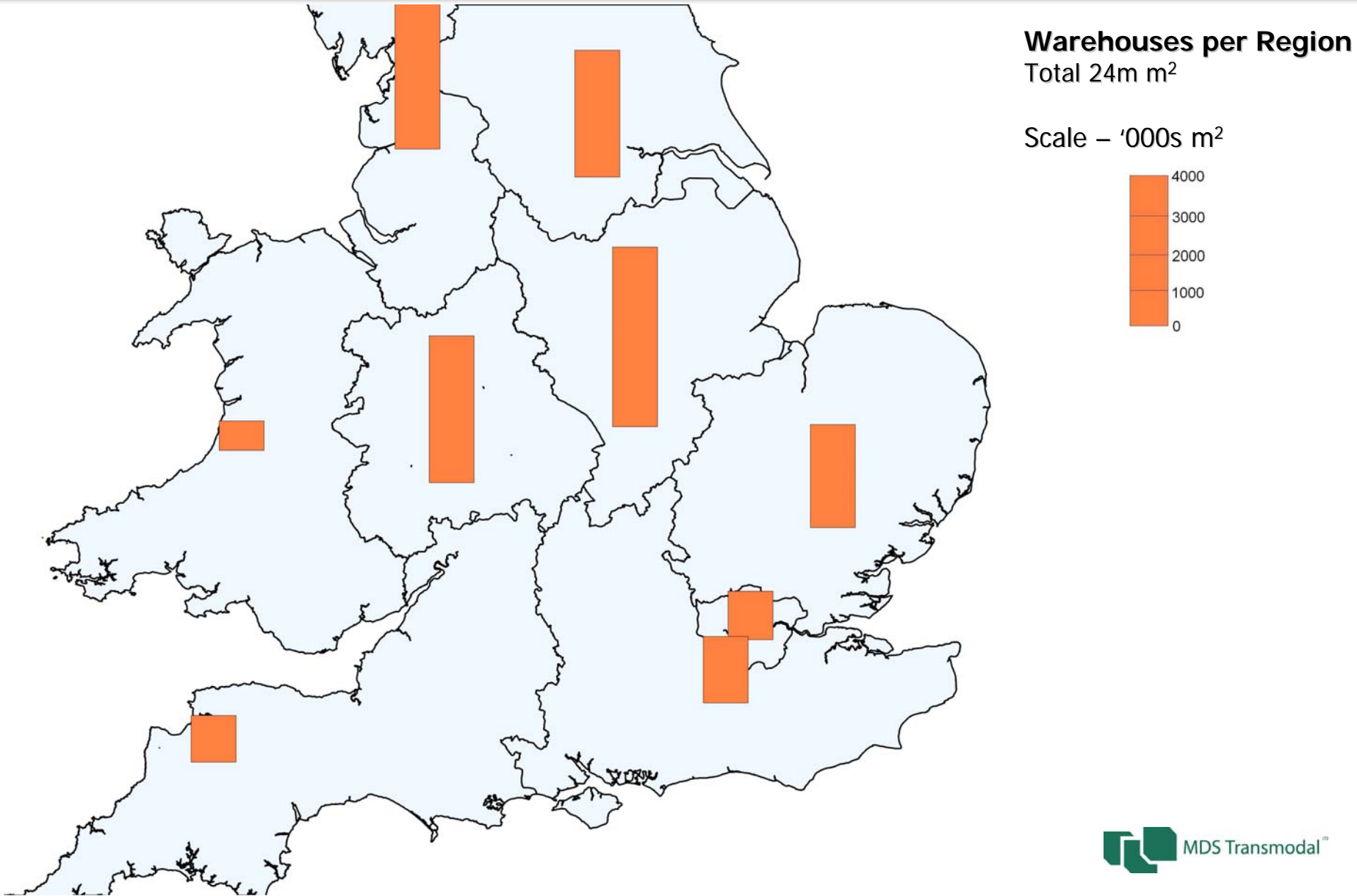
Warehouses represent much lower capital investment and there is frequent relocation/redevelopment of supply chains

- providing opportunity to relocate distribution centres

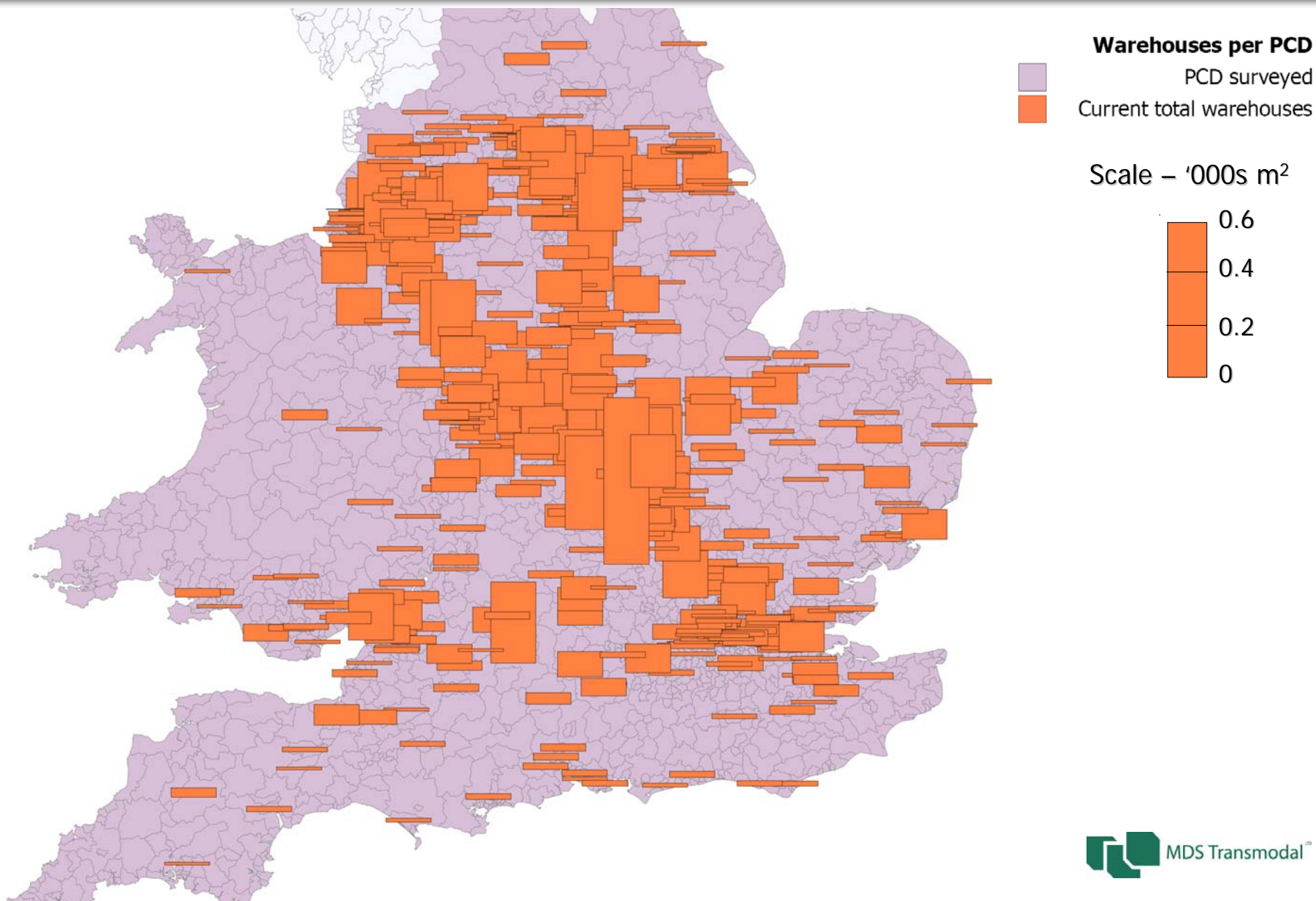
## 8. Warehouse supply in England & Wales

- Approximately 24 million m<sup>2</sup> of warehouses > 10,000 m<sup>2</sup>
- Most located in 'clusters' that could support rail services for domestic and international traffic
- Stock of buildings renewed approximately every 30 years
  - including trade growth, 1.0–1.5m m<sup>2</sup> of new buildings built every year
- Planning policies encourage private sector led new developments at rail and port linked sites
  - approximately 25 new developments in the course of preparation
  - each expected to offer its own intermodal terminal
  - total new warehouses planned approximately 9-10m m<sup>2</sup>
- An individual site of 500,000m<sup>2</sup> could attract 2,000 trucks or container loads per day
  - equivalent to 60-70 train loads per day if all by rail!
  - major opportunity for modal switch – even if rail has the minority share

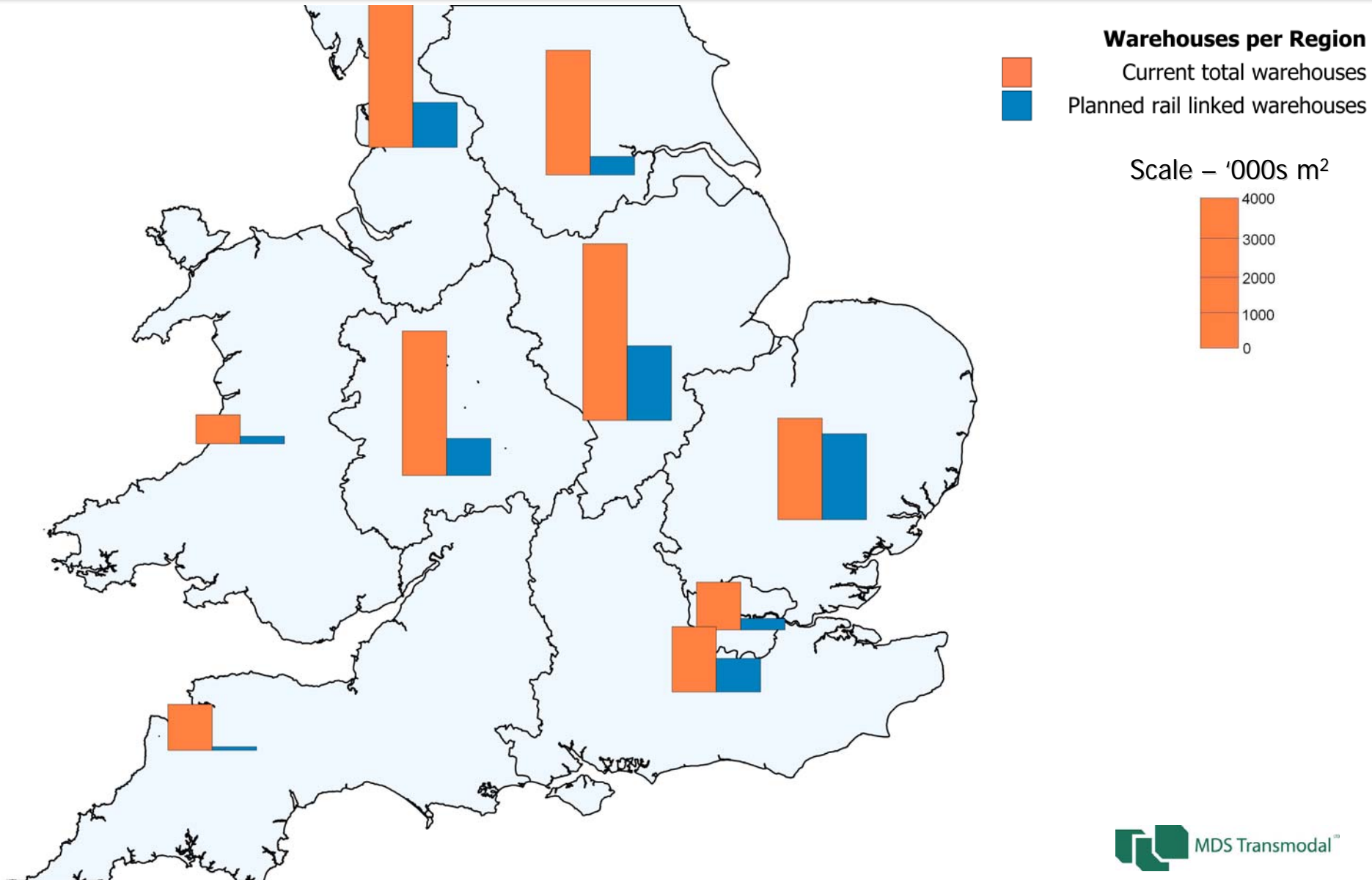
# 9. Warehouse distribution in Great Britain – buildings > 10,000 m<sup>2</sup>



# 10. Warehouse distribution in Great Britain – building > 10,000 m<sup>2</sup>



# 11. Current plans for rail linked distribution sites - current versus planned



# 12. Rail freight forecasts

- Current rail freight volume in Britain approximately 124m tonnes per annum
- Calibrated model developed (GBFM) created that explains present mode shares
- Increases in imports, economic growth and rising cost of driver wages forecast to raise rail freight to 168m tonnes in 2030 (1.3% per annum growth)
- Impact of new warehousing (+ 9m m<sup>2</sup>, 40% of forecast total build to 2030) forecast to add 30m tonnes of freight to rail (+20% share of tonne kms)
  - saving of 1 million tonnes of CO<sub>2</sub> per annum
- Further impact of oil prices 'doubling' to \$175 per barrel would add further 50m tonnes of rail freight by further shift in road v. rail costs
- Co-location of warehousing and intermodal terminal therefore a powerful policy instrument in a de-industrialising economy!

# 13. Commercial implications: identifying the prime movers

- Rail infrastructure operator passive
  - not a developer
  - but pressure to provide network capacity for new developments
- Train operators passive
  - expanding the market depends on factors outside their control
- Regulators passive
  - role limited to ensuring on-rail competition leads to efficient traction suppliers
- Ports may play a role
  - if their geography means they benefit from rail being competitive
- Major shipping lines may play a role
  - because they can consolidate trainload volumes to serve new distribution park terminals
- Shippers and 3PLs can benefit
  - by occupying rail linked sites can cut transport costs
- Warehouse developers are making the investments themselves
  - in the hope they exploit transport cost savings by charging higher rents
- Key opportunity to link investors in logistics infrastructure with an expansion in rail market share
  - because planning policy gives them little choice!

# 14. Economic benefit of rail connection at 500kms: Continental mainland

Rail	€
<i>Traction (12 hours)</i>	3,000
<i>Fuel (@ €0.6/litre)</i>	1,350
<i>Infrastructure 500 @ €2</i>	1,000
<i>Wagon hire (36 platforms)</i>	1,800
<b>Total line haul</b>	<b>7,650</b>
Rail line haul per unit	255
Terminals	70
Overheads	35
Local delivery (one end)	120
<b>Total by rail</b>	<b>480</b>
<b>Road haulage over 500 kms</b>	<b>500</b>

- 5000km per train per week productivity
- At typical Continental mainland fuel tax levels
- Without grants
- At 500km rail linkage one end of the journey means internal rail services become viable.

# 15. A wider European lesson?

- Logistics platforms already well established in several countries
  - EuroPlatforms have 60 member companies with such sites
  - Other sites operating, particularly around ports
  - But scope to expand!
- On international services, in 2007 UIRR members hauled:
  - 44 million tonnes (gross) – say 35 million tonnes net
  - 1.9m consignments, mean distance 852km: 60% > 750 kms.
- On national services, UIRR members hauled
  - 24 million tonnes (gross) over mean distance of 408 kms.

Substantial volumes already moving by rail: but opportunity to carry more.

- Transport cost analysis suggests closer commercial integration of logistics platforms can:
  - reduce mean viable length of haul and expand market further

# 16. Overall freight moved within Europe in 2005 by distance bands: major flows only

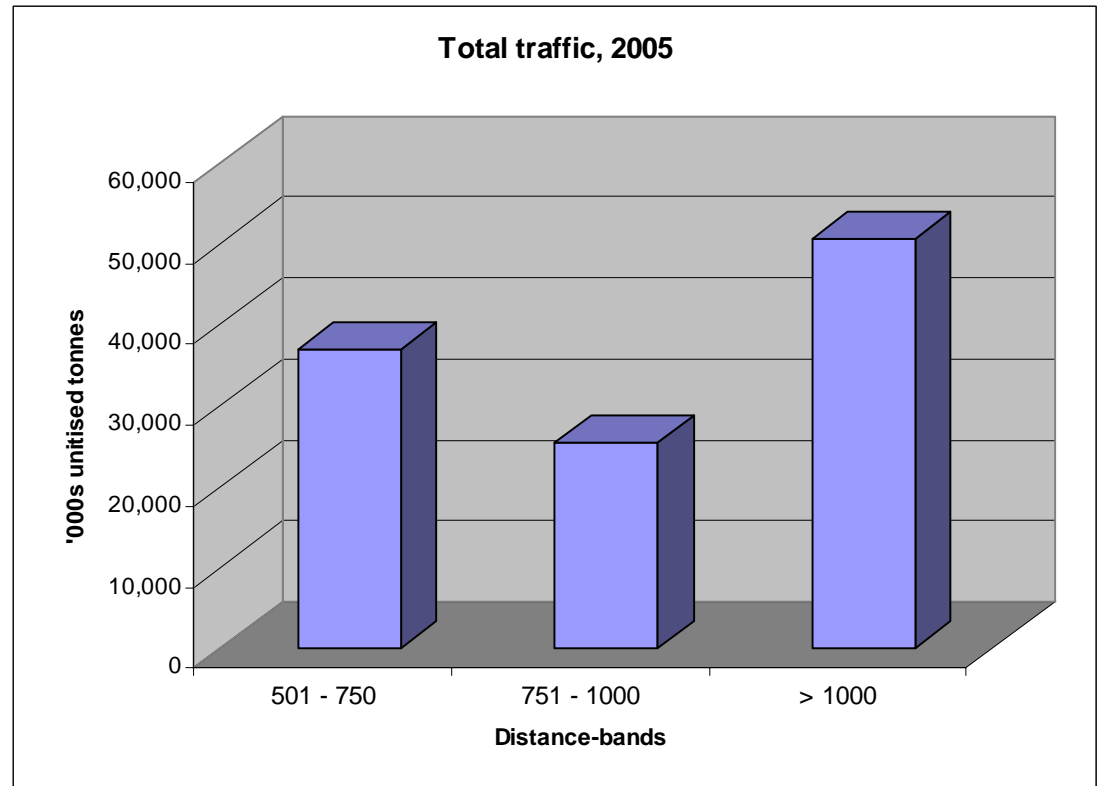
Total traffic, 2005 ('000s unitised tonnes)

Distance-Bands	Traffic
< 500	150,463
501 - 750	36,882
751 - 1000	25,485
> 1000	50,616
Total	263,447

Note = traffic > 100,000t, excluding UK and Ireland

Source: MDS Transmodal

- Based on Intrastat/regional statistics by commodity
- 113 million tonnes > 500km
  - where region/region/flow > 100,000 tonnes p.a.



# 17. International traffic moved by rail within Europe in 2007 - UIRR statistics

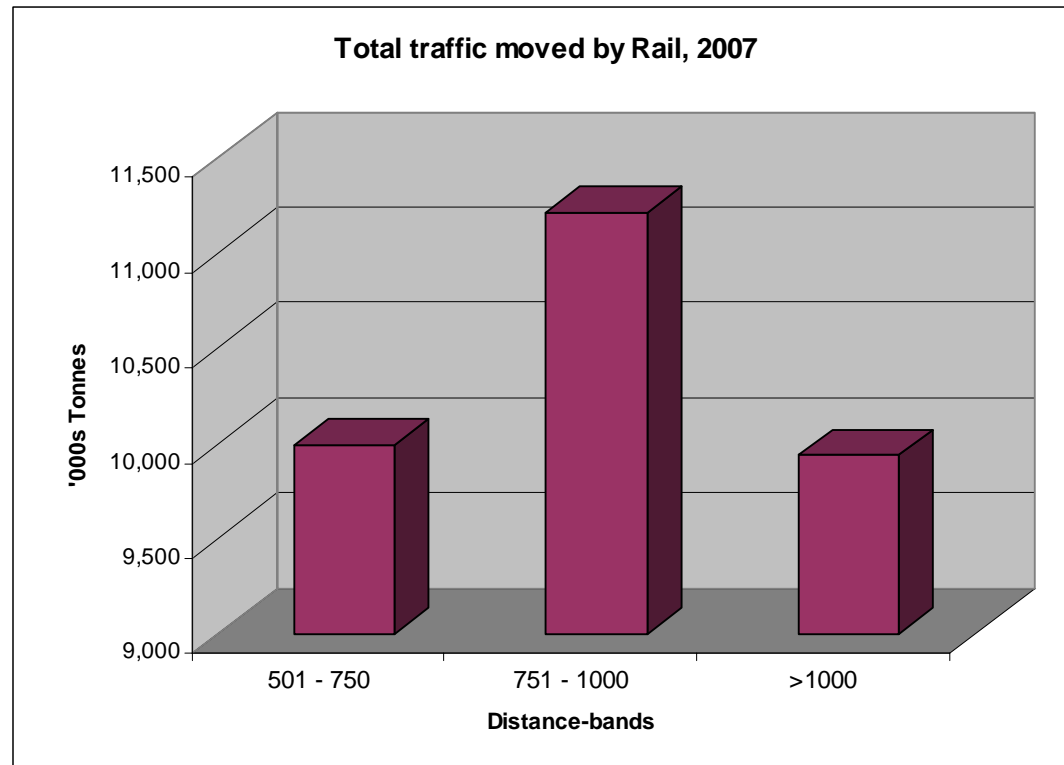
Estimated international traffic moved by rail\*, 2007

Distance-Bands	Traffic ('000s t)	% of total
< 500	4,024	11%
501 - 750	9,991	28%
751 - 1000	11,208	32%
>1000	9,938	28%
Total	35,161	100%

\* based on UIRR statistics, less 20% for tare weight & empty units

Source: [www.uirr.com](http://www.uirr.com)

- 89% > 500 km = 31m tonnes



# 18. Most recent rail freight traffic statistics by commodity from Eurostat, 2002

Countries	Export ('000s tons)	Import ('000s tons)
Germany	11,103	12,551
Italy	8,092	15,146
Belgium	5,923	4,563
Austria	5,302	3,535
Netherlands	2,826	3,441
France	2,327	2,983
Switzerland	2,205	
Sweden	1,950	
Czech Republic	1,657	
Spain	930	1,414
Others	3,127	1,809
Grand Total	45,442	45,442

Source: <http://epp.eurostat.ec.europa.eu>

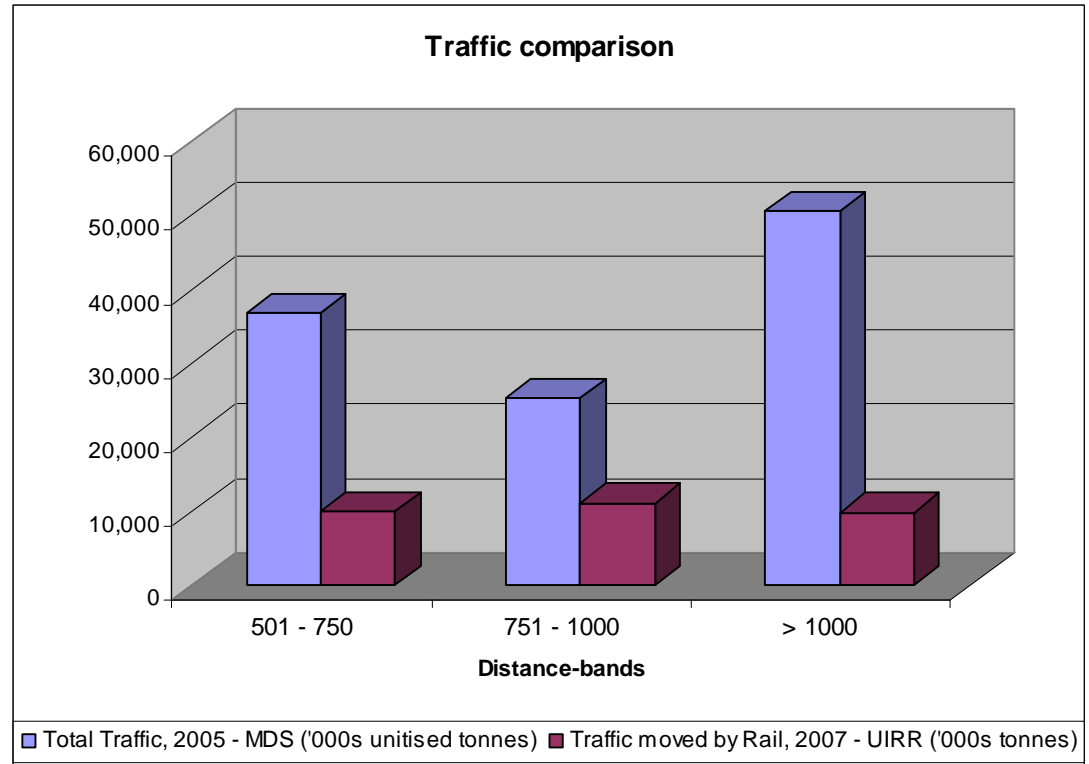
- Based on non bulk commodities
  - total rail freight intra Europe approximately 45m tonnes
  - consistent with UIRR results

# 19. UIRR traffic moved by rail of total traffic

Traffic comparison

Distance-Bands	Total Traffic, 2005 - MDS ('000s unitised tonnes)	Traffic moved by Rail, 2007 - UIRR ('000s tonnes)
< 500	150,463	4,024
501 - 750	36,882	9,991
751 - 1000	25,485	11,208
> 1000	50,616	9,938
Total	263,447	35,161

- For international non bulk freight > 500 k
- UIRR rail market share approx. 27% (31m tonnes/113m tonnes)

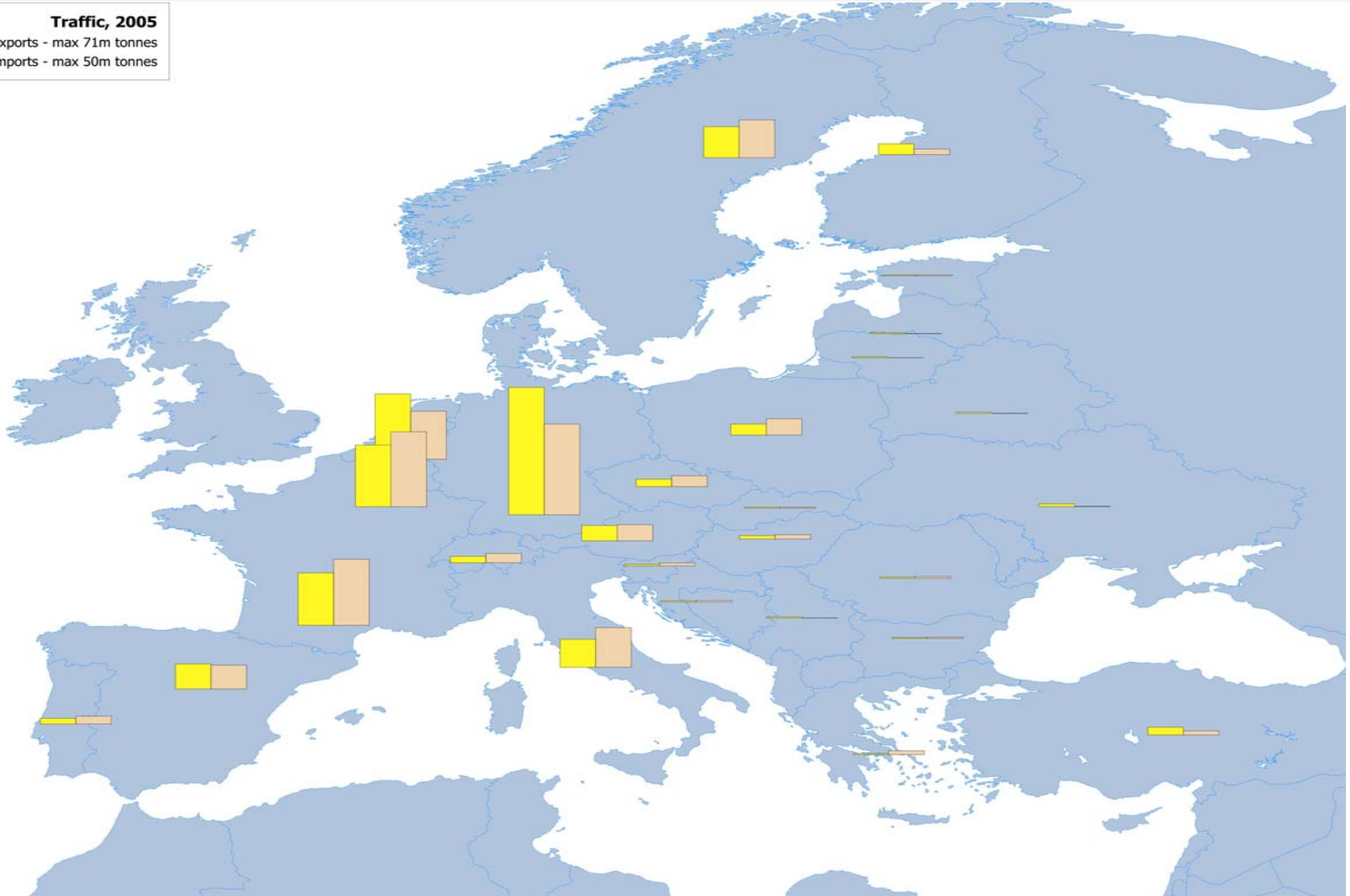


## 20. Identifying distribution hub opportunities

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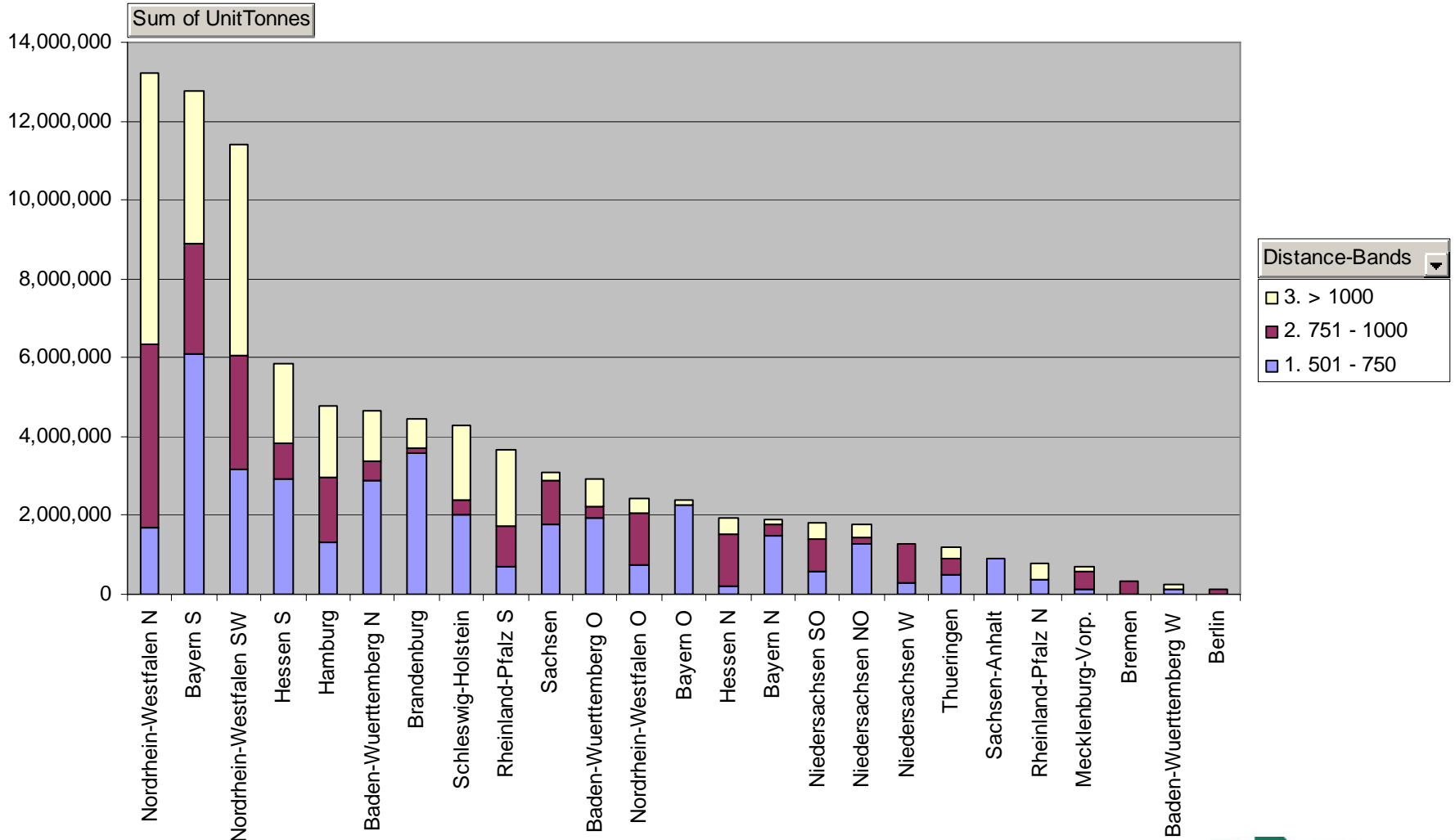
- Based on region – region flows > 500 km > 100,000 non bulk tonne
  - total volume 113m tonnes
  - opportunities principally in Germany, Belgium, Netherlands, France and Italy
- Some regions individually generate > 12m tonnes of long distance cargo
  - equivalent to need for 1m m<sup>2</sup> of warehousing capacity

# 21. Traffic > 500 km moved on Continental mainland in 2005 by trip end



# 22. Traffic moved within Europe in 2005: example – from German regions

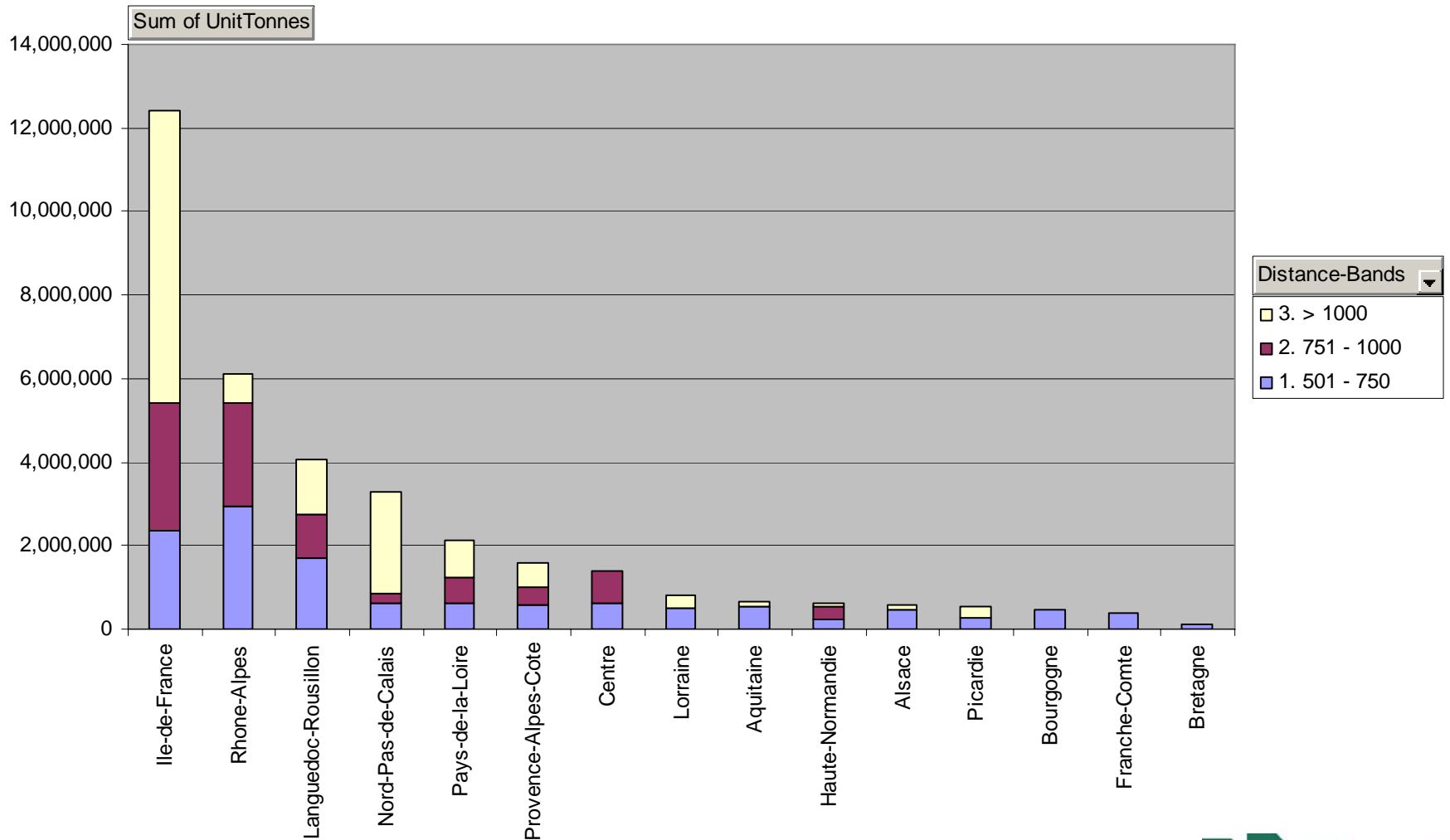
DestinationCountry (All) ToRegion (All) OriginCountry GERMANY



FromRegion

# 23. Traffic moved within Europe in 2005: example – to French regions

DestinationCountry FRANCE FromRegion (All) OriginCountry (All)



ToRegion

## 24. A win : win opportunity

- Government (and the EU) have a responsibility to create the market conditions to promote sustainable freight solutions: but this should extend to land use

“The Commission will encourage... infrastructure managers to set up, together with the players concerned, an efficient and appropriate network of terminals and marshalling yards”

EC COM (2007) 608

- Regulators should have the responsibility to ensure there is:
  - low cost, efficient, open access rail services
  - adequate rail network capacity and capability
  - environmentally friendly planning policies to generate rail linked distribution sites.
- Warehouse developers do have the commercial opportunity to earn higher rents
  - by shifting cargo origins and destinations to rail linked sites

## 25. Quantifying the opportunity for major distribution hubs

- Key load centres can be defined by regions with high volumes of long distance terminating flows
  - for maximum efficiency, sites are shared between short and long haul freight traffics (road and rail deliveries)
- Tonnages of intra European cargo where
  - volume > 100,000 tonnes/flow and distance > 500 km
  - equates to 113m tonnes x 2 = 226m tonnes lifted
  - equates to demand for approx. 20m m2 of warehousing
  - opportunity much greater when short haul traffic arriving by road is added!
- Many such hubs already exist
  - but are warehouse developers always incentivised to promote and exploit rail freight?
  - only around 25% of the rail opportunity currently exploited

## 26. Towards a strategy

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- Rail market share across Europe continuing to fall
  - traditional heavy industry in decline
- Winning consumer good flows depends upon:
  - competitive market for rail traction
  - investment in rail linked distribution sites
  - commercial engagement by companies controlling cargo
- Limited success to date
  - lack of trust by shipping lines and logistics companies in the railway industry
- Responsibility therefore on Government's to create a liberal railway market to protect the public interest
- Responsibility on warehouse developers and occupiers to promote shareholder interests by exploring rail based opportunities