

2. What are the key determinants of future mobility and transport systems?

Based on current trends and policies, what will global mobility look like in 2050?

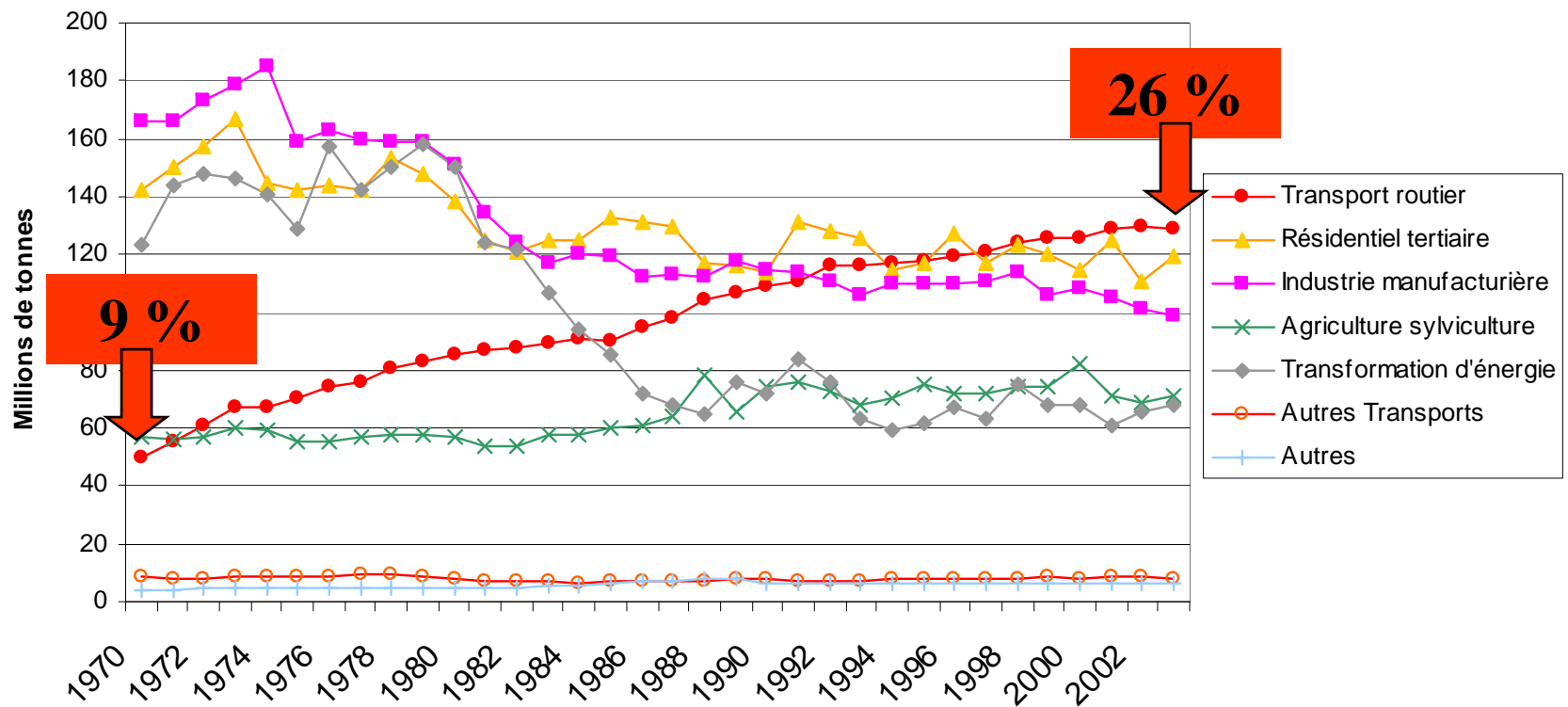
Introduction on general economic, geographic and demographic factors

Alain Bonnafous

Laboratoire d'Economie des Transports



The main issue: the greenhouse effect gas (French case, 25 last years before the crisis)



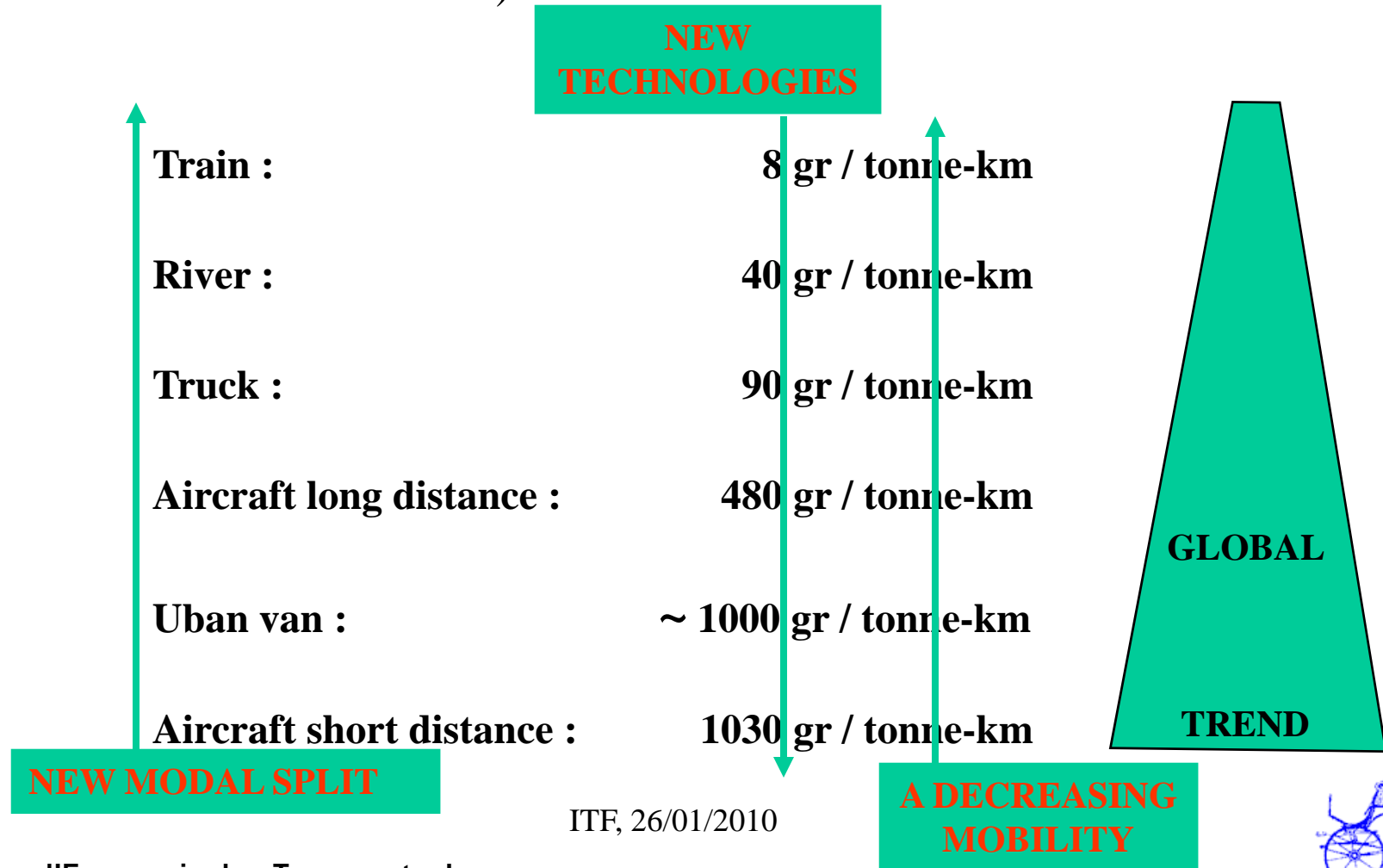
source CITEPA

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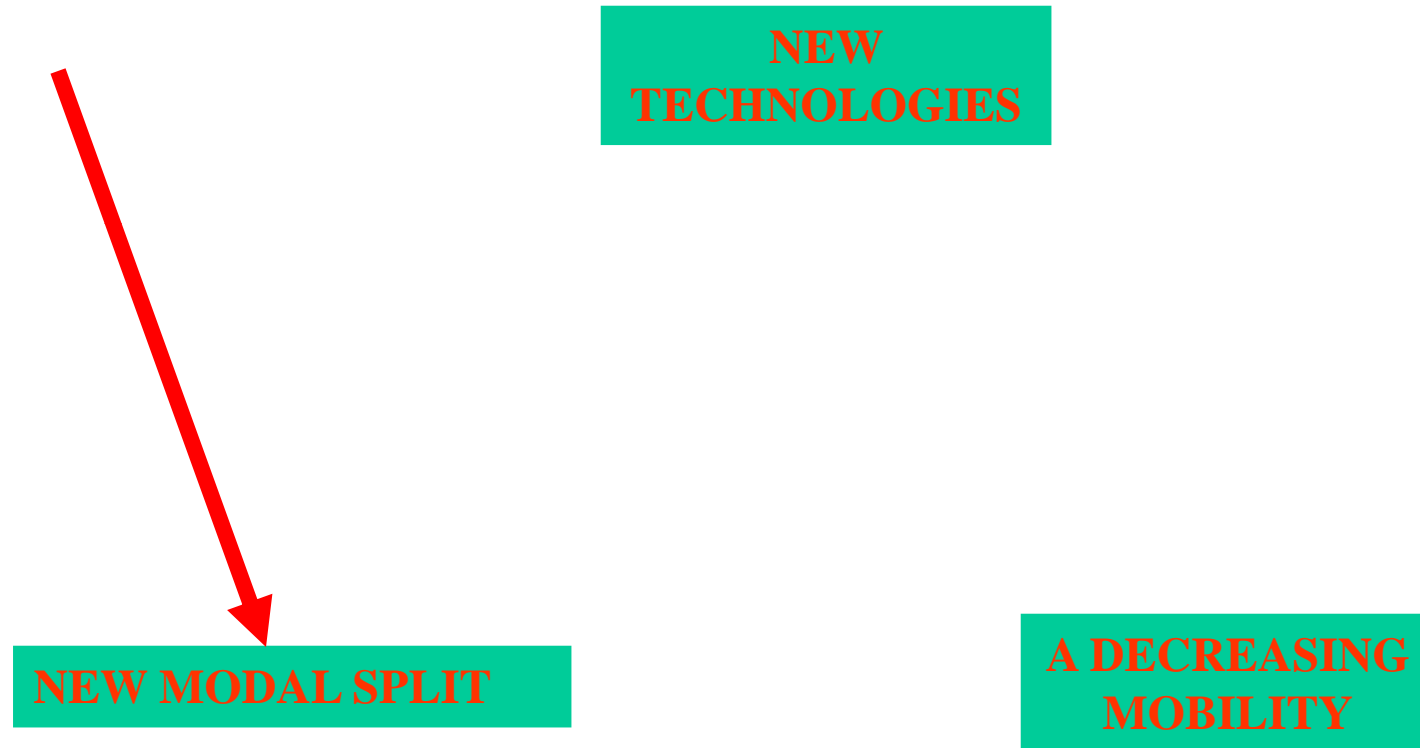


CO2 EMISSIONS CAUSED BY FREIGHT TRANSPORT

(source ADEME - French case)

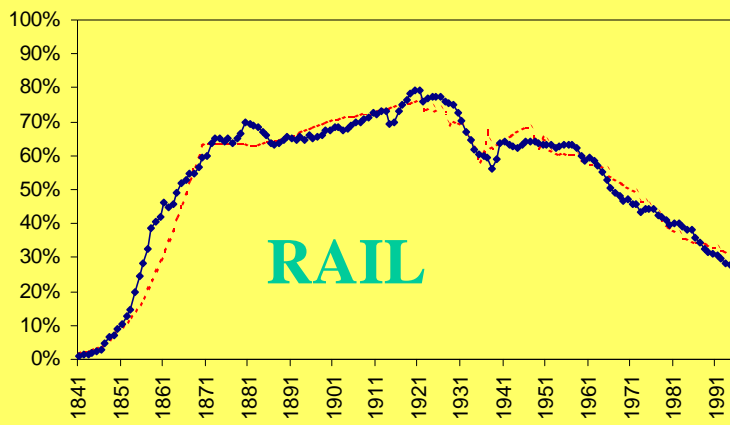


CO2 EMISSIONS CAUSED BY FREIGHT TRANSPORT

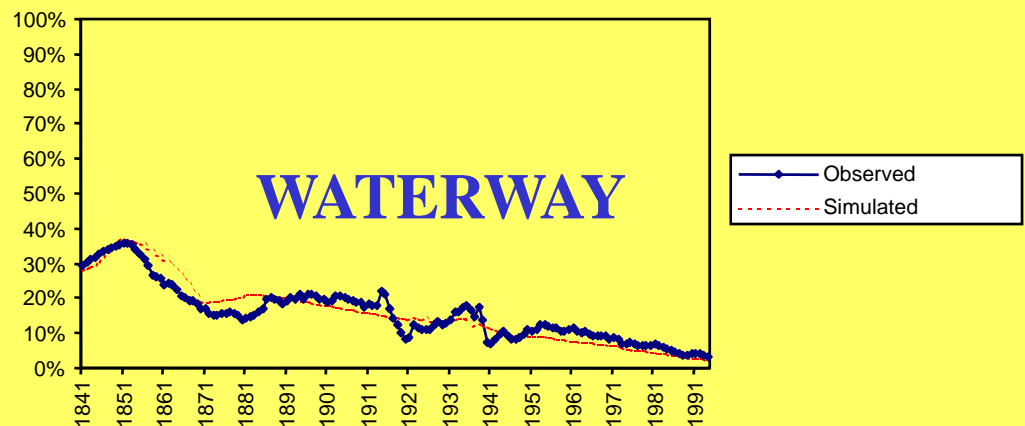
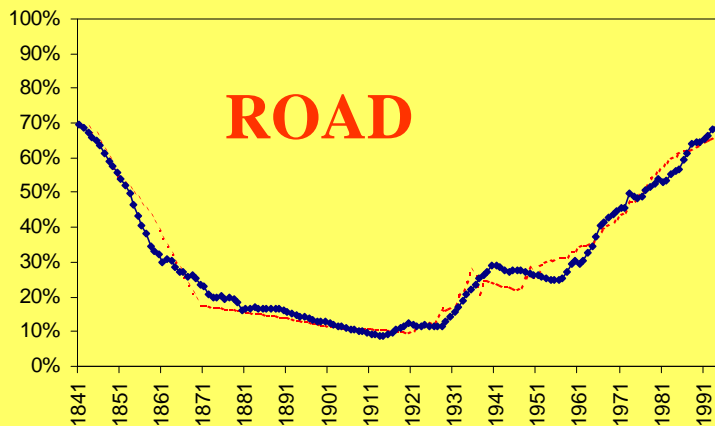


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Empirical and theoretical evolution of the market share for each mode (1840-1994)

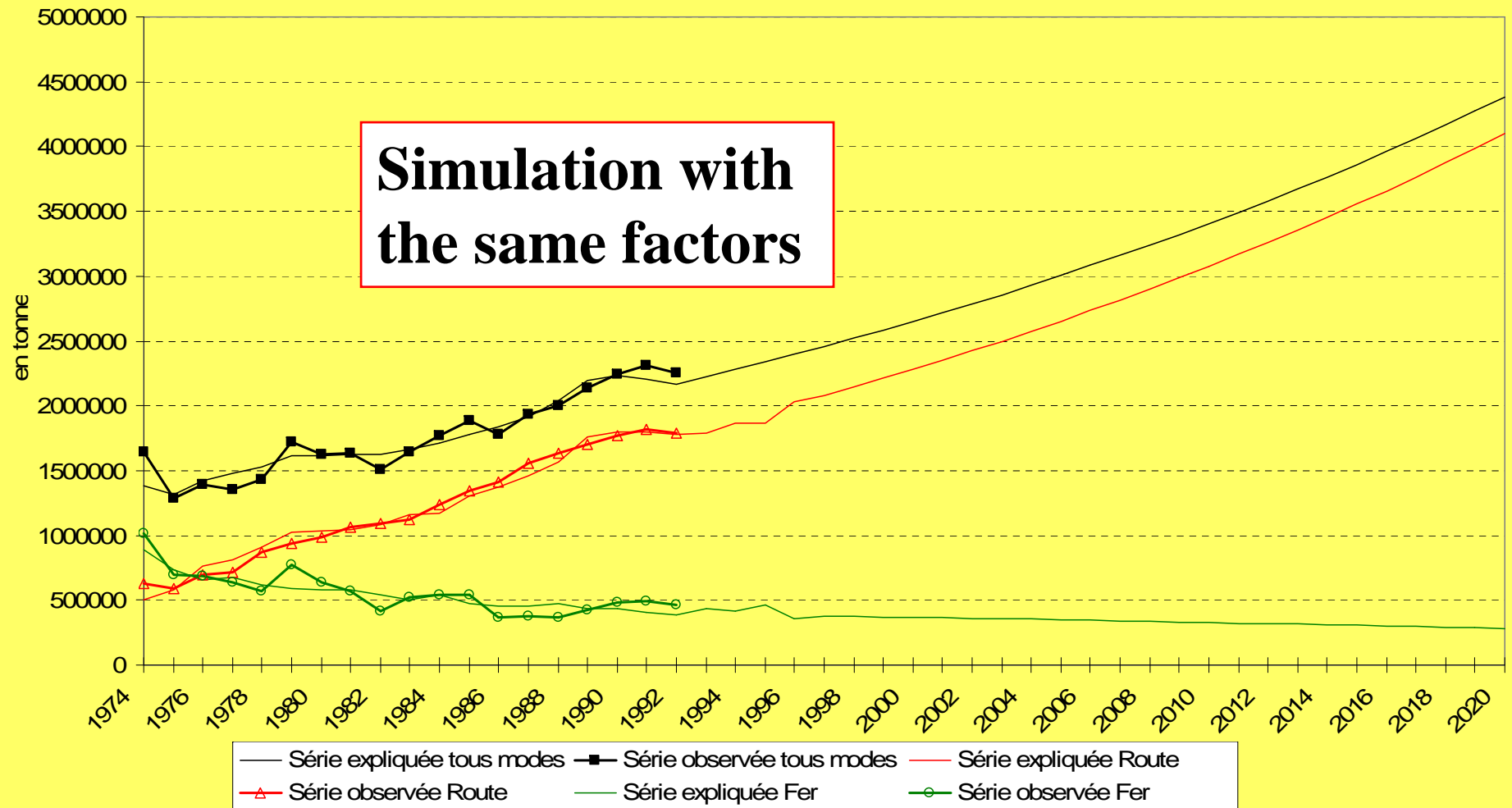


—●— Observed
- - - - - Simulated

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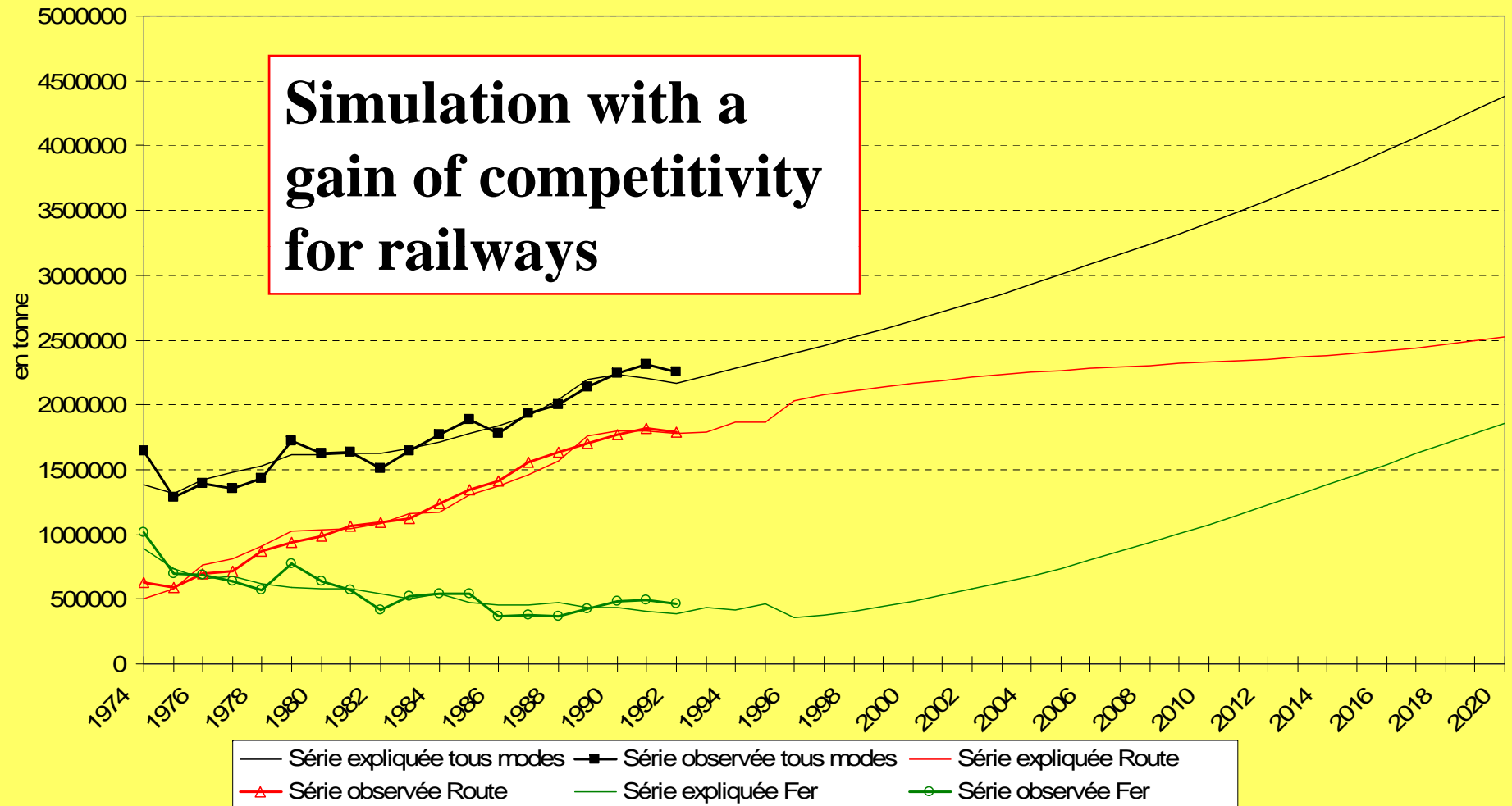
Road and rail in the Rhône Valley corridor



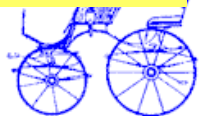
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Road and rail in the Rhône Valley corridor



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MARKET SHARE IN EUROPE

In EU (15 members)

Waterways: from 8,3 % (1993) to 6,6 % (2007)

Railways: from 16,1 % (1993) to 14,1 % (2002)

**But with various figures from 2002 to 2007
for the rail**

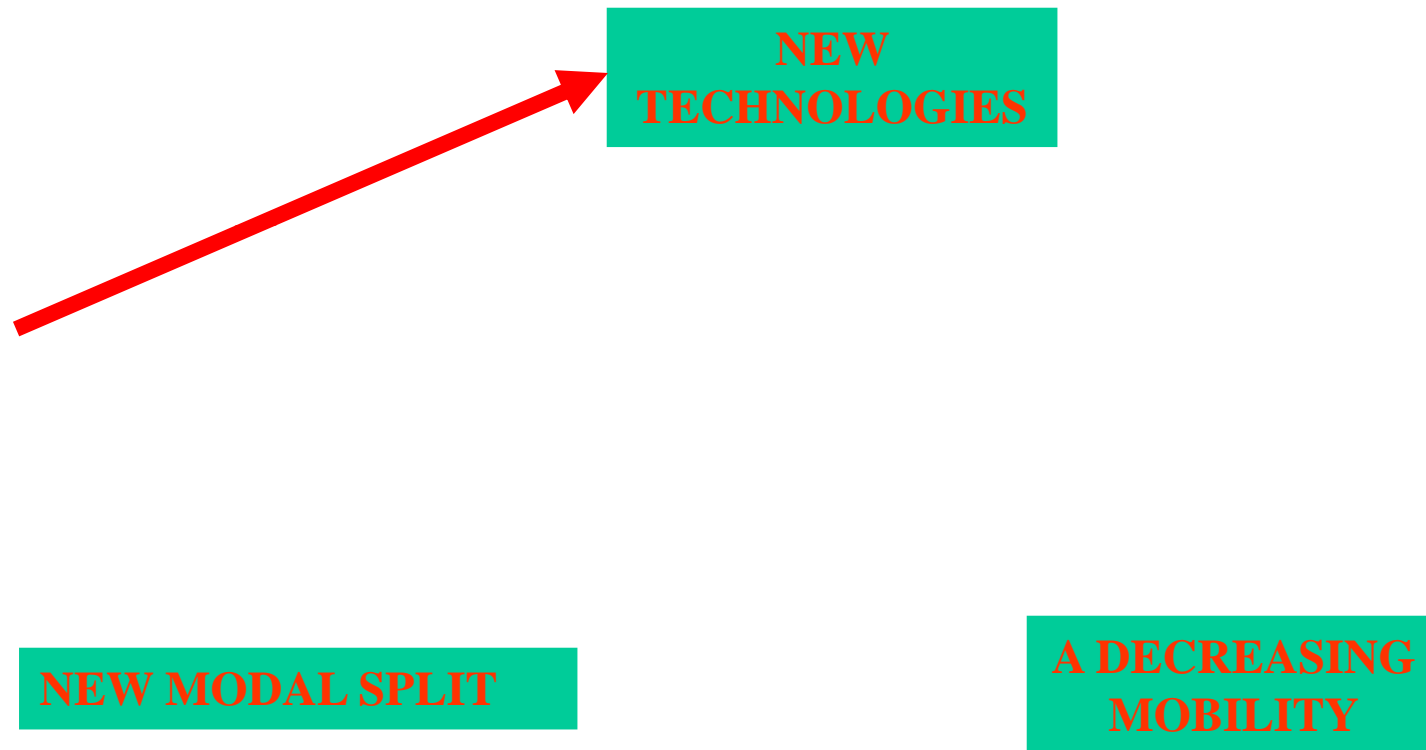
Positive trend:

Austria	+5,5 %
UK	+3,1 %
Germany	+3,1 %
Finland	+2,7 %
Belgium	+2,5 %
Netherlands	+2,2 %
Suède	+2,0 %
Italy	+2,0 %

Negative trend:

Luxembourg	- 1,5 %
Denmark	- 0,1 %
Portugal	- 1,6 %
Spain	- 2,0 %
Ireland	- 2,2 %
France	- 3,8 %

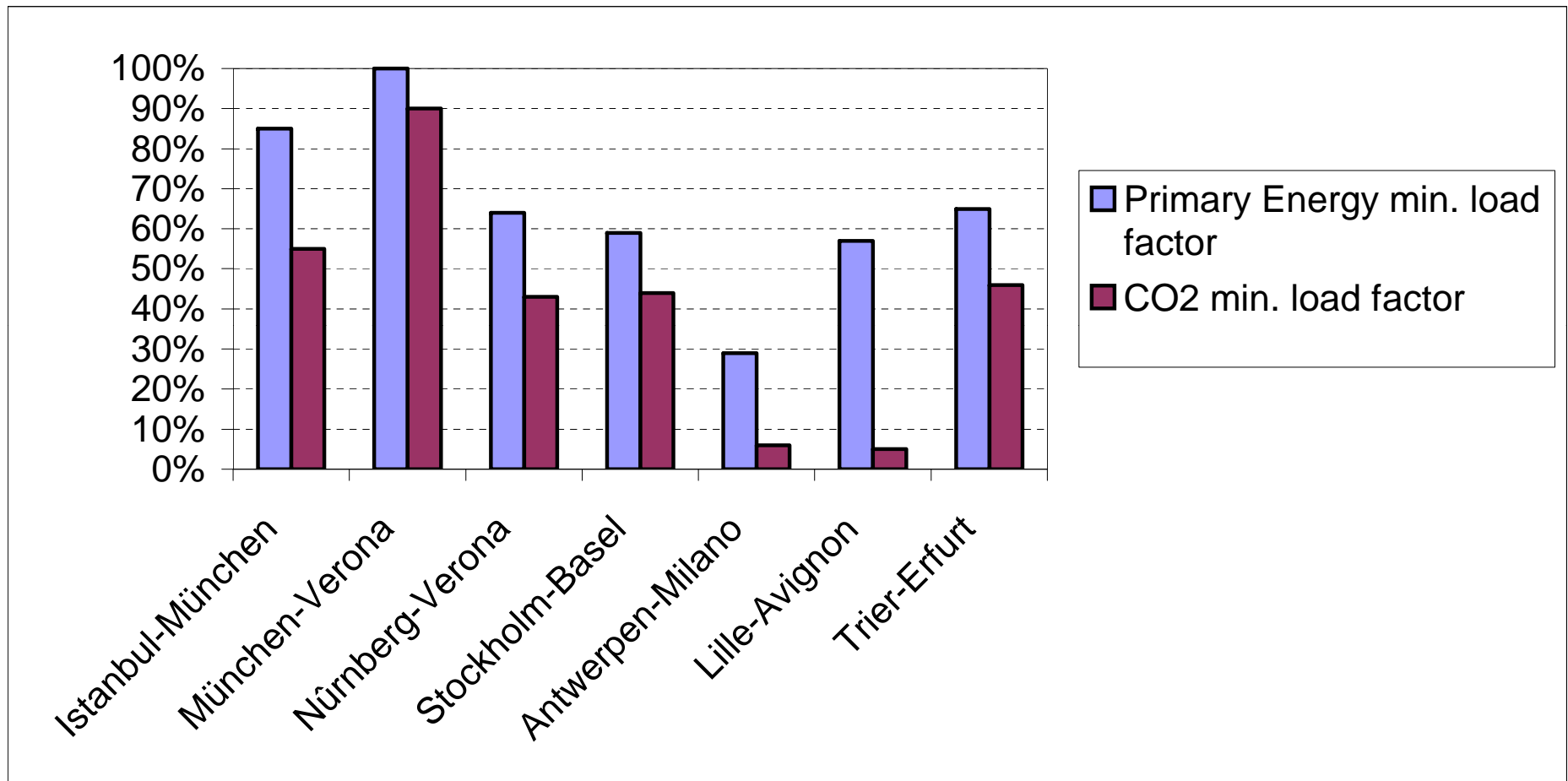
CO2 EMISSIONS CAUSED BY FREIGHT TRANSPORT



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Required train loading rates for combined transport's primary energy consumption and CO2 emissions to be lower than road transport's



Source: IFEU and SGKV (2002)

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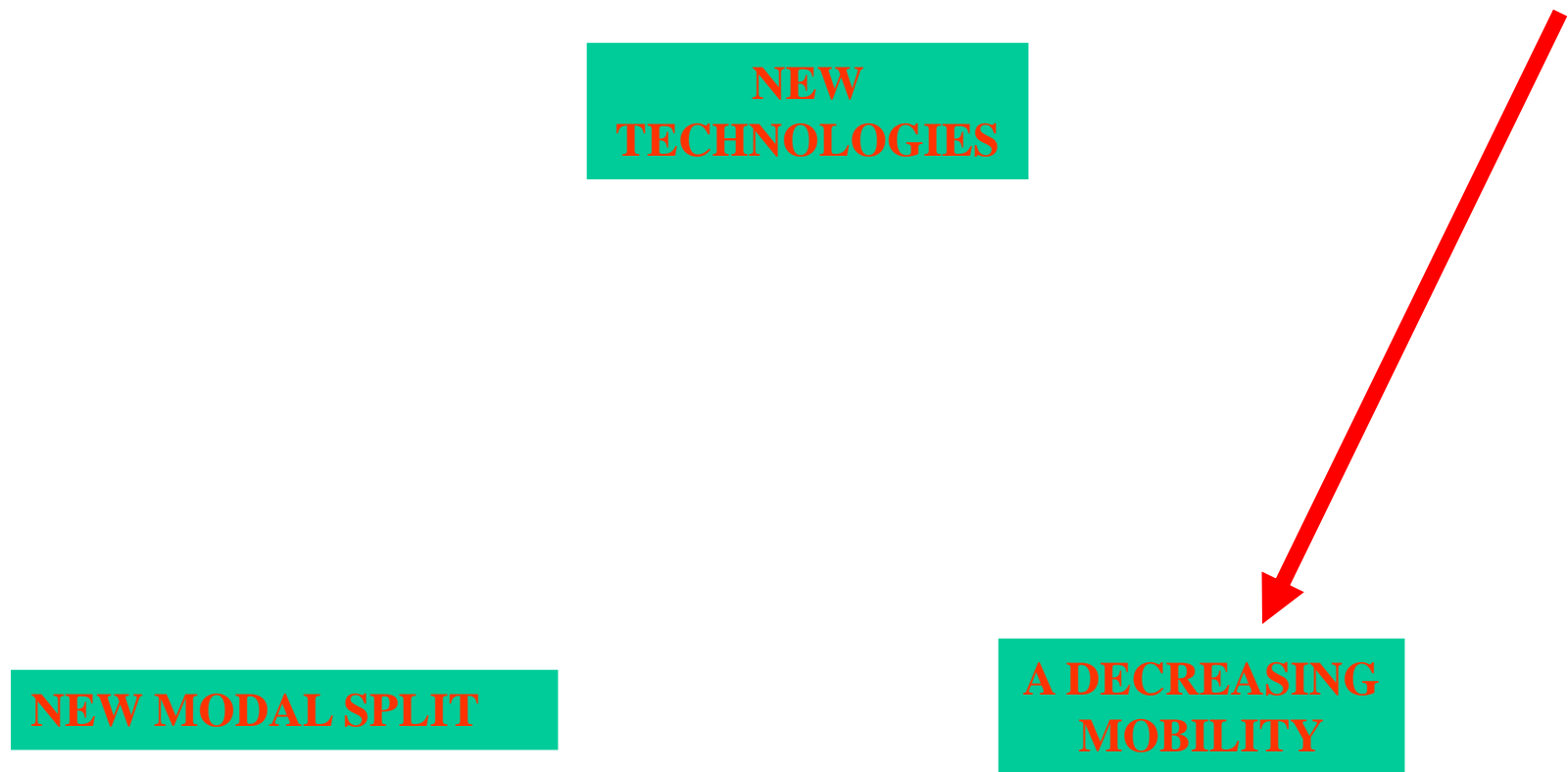
Weight of freight transport in urban traffic (including purchasing trips)

- 9 to 15 % of vehicles trips
- 13 to 20 % of vehicles*km
- 15 to 25 % of vehicles*km as equivalent of individual car
but more than 50% in the city centre.
- Pollution (based on the Marseille survey):
 - 25 % of greenhouse effect gas (CO₂)
 - 1/3 of SO₂ and NO_x
 - 44 % of particles
 - Noise : adds 4dB to the noise of individual cars

A GLOBAL PROBLEM



CO2 EMISSIONS CAUSED BY FREIGHT TRANSPORT



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**A DECREASING MOBILITY COULD BE DESIRABLE BUT...
...ARE NEEDS CORRECTLY SATISFIED ?**



**Don 't forget the difficulties
in the developing world**

**Tout le monde veut sauver la planète,
Mais personne ne veut descendre les poubelles.**

Jean Yanne

MERCI

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