

Traffic predictions and environmental benefits

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- Self-fulfilling-prophecy?
- Show what we expect?
or what we
- Want – how things should be?

**Problem: often Basis for
Decision making process...**

**Useless without
aims/objectives/goals
and purposes...**

In reality: influenced by limits:

- Inside the transport infrastructure: (e.g. capacity), induced traffic, etc.
- Outside the transport system: Limits of growth, damage of environmental system,...



Transport System of today is man-made, artificial and not a natural phenomenon

Problems arising must have the causes in the professional disciplines dealing with Transport

Source: Knoflacher

- During the last 50 years nearly no traffic problems were solved, but much more have been produced:
- Congestion, Noise, Airpollution, environmental damage,
- Cultural damage, etc.
- Damage of local economy....

Changes in the means of transportation were not „God-given“, they were made...

See: EU-WHITE PAPER: „Roadmap to a Single European Transport Area – Towards a competitive and resource efficient transport system“

**Alpine Transport
Problems**

**Car and Truck
- behaviour**

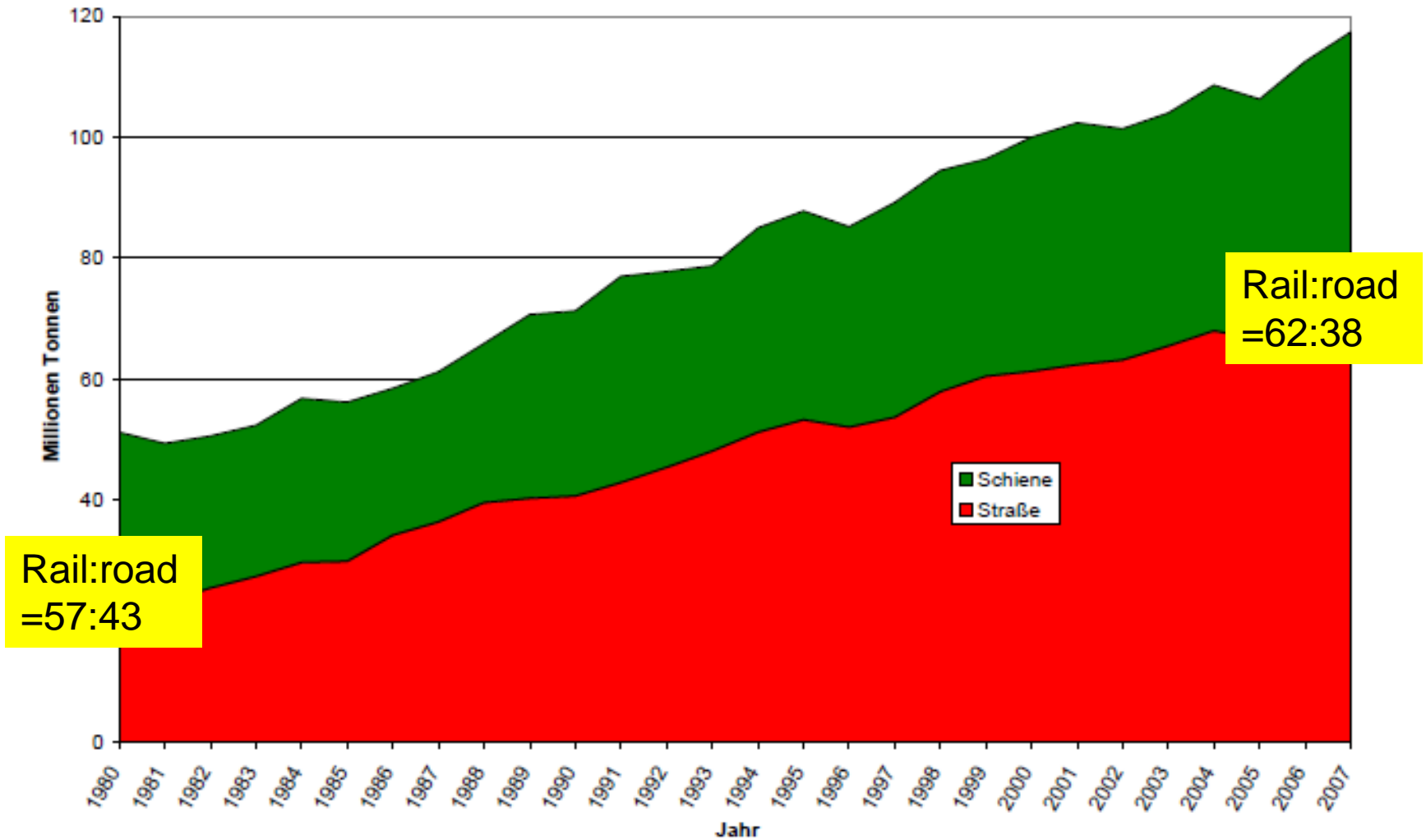
**CAR – and TRUCK
STRUCTURES**

The cause of the problems are structures

The solution can be found only if the structures are changed

Alpine crossing freight transport (inner arc of alps – Mont Cénis-Brenner) 1980-2007

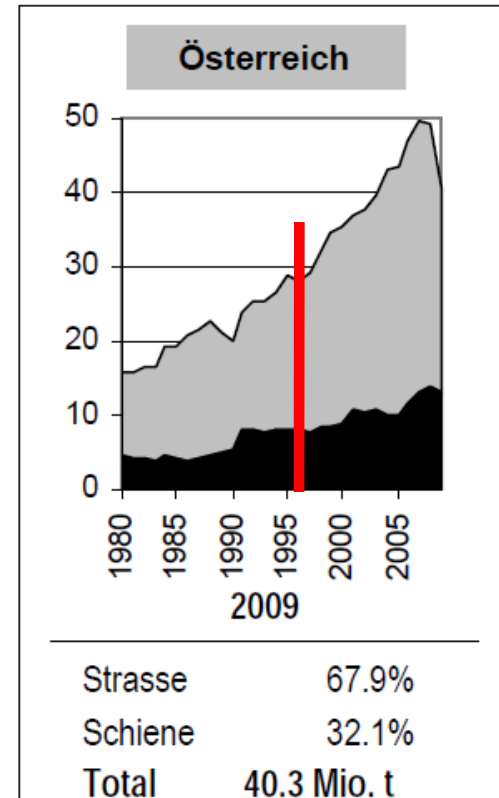
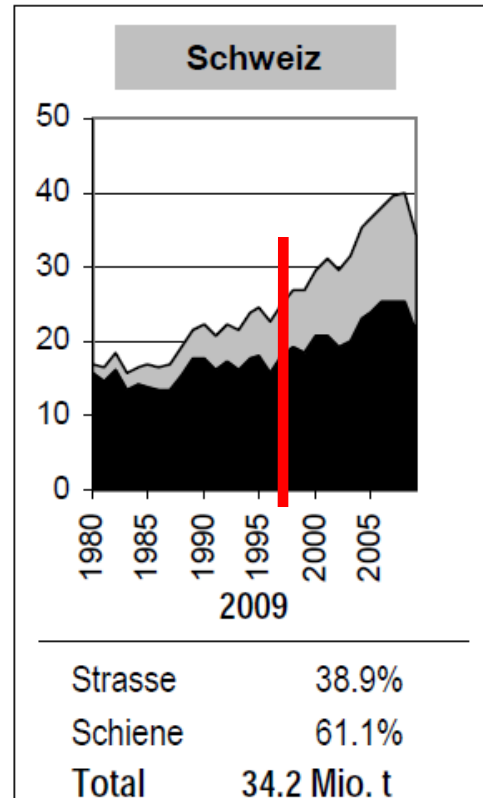
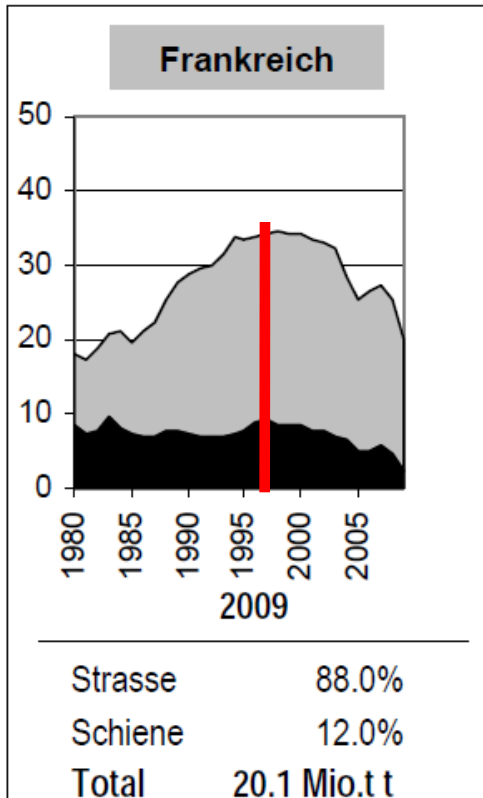
2007



The results of the existing structures...

Alpenquerender Güterverkehr 1980-2009

Mont-Cenis / Fréjus - Brenner Mio. Tonnen/Jahr (Netto)



Legende: Strasse Schiene inkl. kombinierter Verkehr

This is not happening. This is made by policy!

Road

LENGTH OF MOTORWAYS

	1990	1995	2000	2005	2007	2008
EU-27	41 885	47 970	54 719	62 218	65 300	66 700
EU-15	39 616	45 468	51 490	57 995	60 610	61 521
EU-12	2 269	2 502	3 229	4 223	4 690	5 179



Railways

LENGTH OF LINES IN USE

	1990	1995	2000	2005	2007	2008	2009
EU-27	231 582	227 125	217 378	211 789	212 452	212 851	212 528
EU-15	162 132	160 020	151 967	149 753	150 879	151 128	151 048
EU-12	69 450	67 105	65 411	62 036	61 573	61 723	61 480

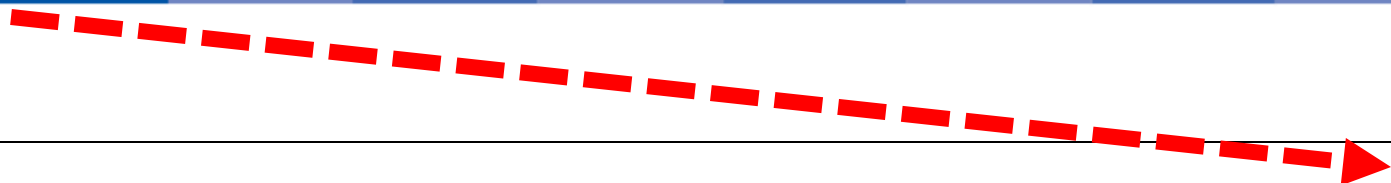
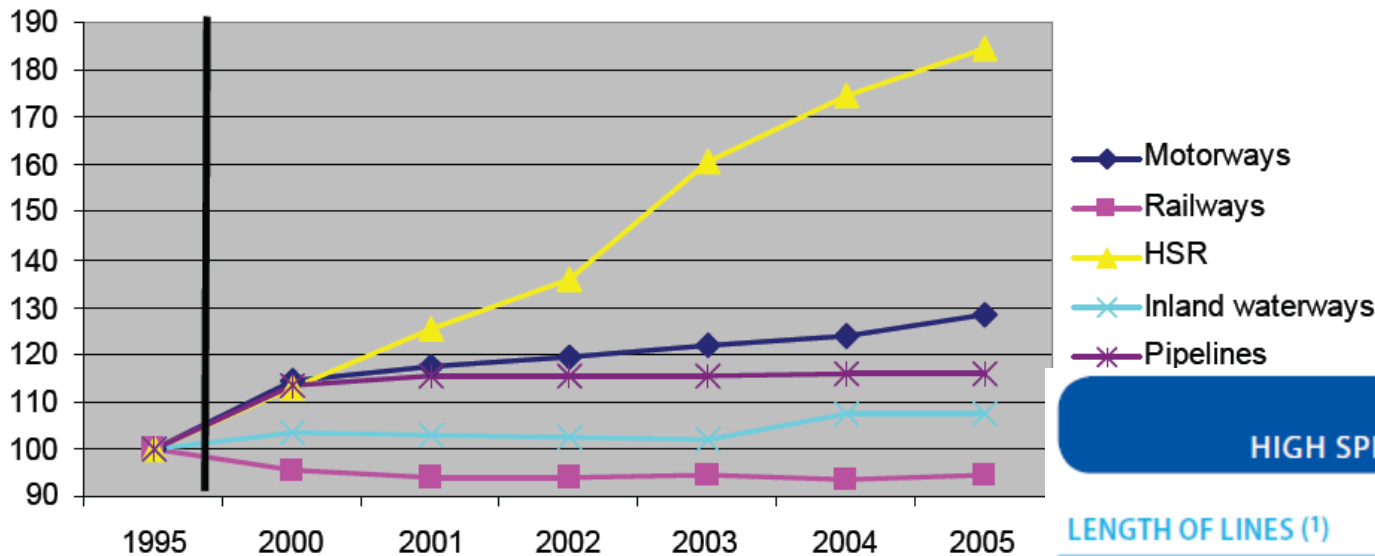


FIGURE 3.7

CHANGE IN INFRASTRUCTURE ENDOWMENT IN EU25 1995-2005
(1995=100)



Note: HSR=High Speed Rail. Source: Eurostat

Railways
HIGH SPEED RAIL NETWORK

LENGTH OF LINES (1)

	km (at end of year)							EU
	BE	DE	ES	FR	IT	NL	UK	
1985	-	-	-	419	224	-	-	643
1990	-	90	-	710	224	-	-	1 024
1995	-	447	471	1 281	248	-	-	2 447
2000	72	636	471	1 281	248	-	-	2 708
2001	72	636	471	1 540	248	-	-	2 967
2002	137	833	471	1 540	248	-	-	3 229
2003	137	875	1 069	1 540	248	-	74	3 943
2004	137	1 196	1 069	1 540	248	-	74	4 264
2005	137	1 196	1 090	1 540	248	-	74	4 285
2006	137	1 285	1 272	1 540	876	-	74	5 184
2007	137	1 285	1 511	1 872	562	-	113	5 480
2008	137	1 285	1 599	1 872	744	-	113	5 750
2009	209	1 285	1 604	1 872	923	120	113	6 126
2010	209	1 285	2 056	1 896	923	120	113	6 602

Notes: Length of lines or of sections of lines on which trains can go faster than 250 km/h at some point during the journey.

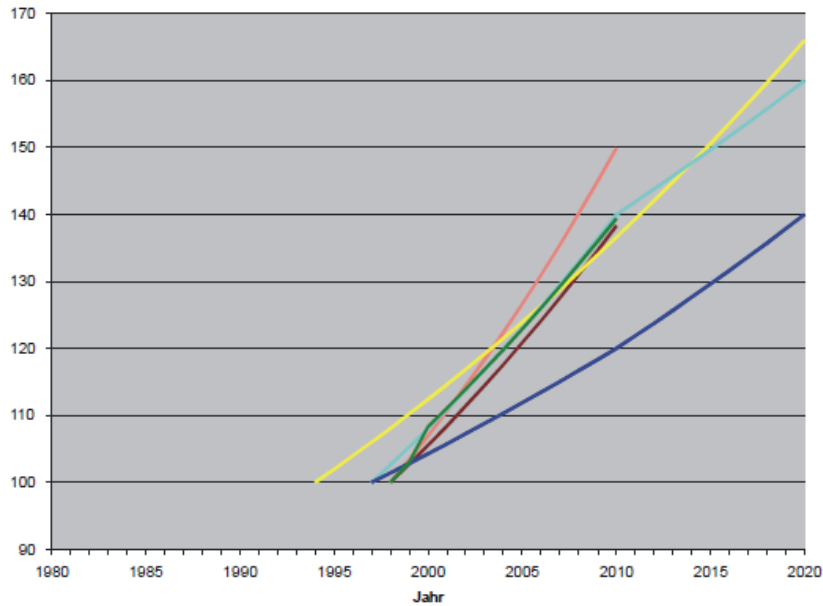
**High speed railway network increasing,
Total Railway network decreasing**

High Speed Transport
is always the indicator for poor
policy ...and the indicator
for market distortion in favor of big
economic units Source: Knoflacher

Forecast studies

Wachstumsprognosen Güterverkehrstrasse, tkm

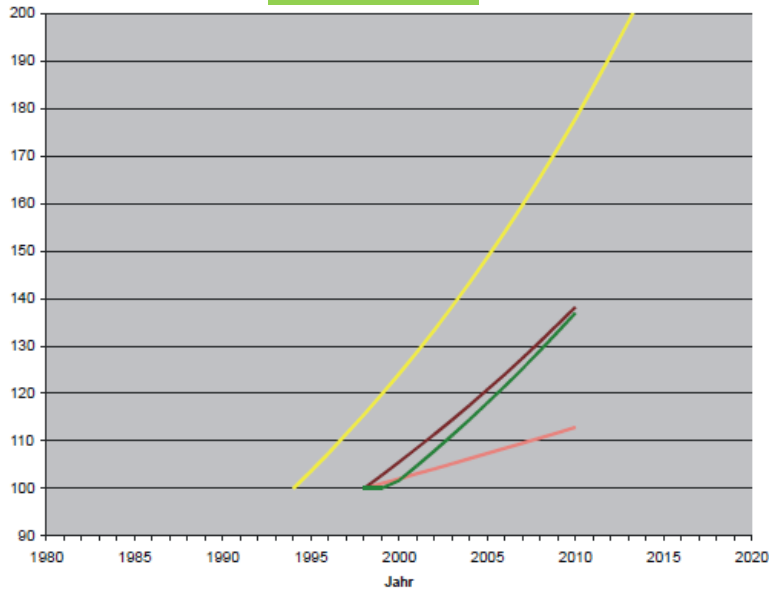
road



- Livre blanc, prévision tendancielle
- Livre blanc, option C
- STREAMS
- Delphi EU+CH+N Ist-Szenario
- Delphi EU+CH+N Soll-Szenario
- Prognos, European Transport Report 2000

Wachstumsprognosen Schiene, tkm -2020:

rail



- Livre blanc, prévision tendancielle
- Livre blanc, option C
- STREAMS
- Prognos, European Transport Report 2000

are

are

The desire...?
To double the transport load...

Rail

ALPS AND PYRENEES CROSSING TRAFFIC

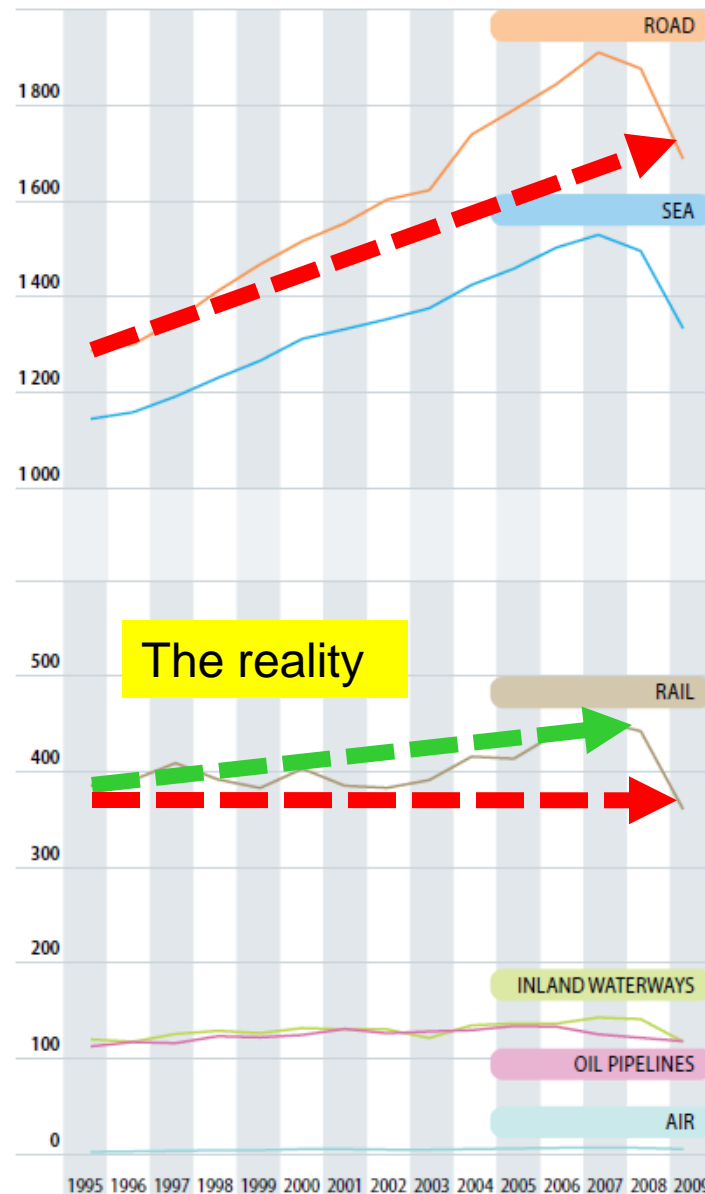
ALPS CROSSING FREIGHT TRAFFIC (1)

Alpine Arc: Mont-Cenis to Brenner					MILLION TONNES	
	Switzerland		Austria	France	TOTAL	
	St. Gotthard	Simplon	Brenner	Mont-Cenis		
1985	11.2	2.8	4.7	7.5	26.2	
1990	13.6	4.3	5.5	7.2	30.6	
1994	13.2	4.7	8.3	7.7	33.9	
1995	13.6	4.4	8.4	8.0	34.4	
1996	11.7	4.0	7.9	9.7	33.3	
1997	13.7	4.3	7.8	10.1	35.9	
1998	15.0	4.3	8.6	9.3	37.2	
1999	14.9	3.5	8.3	8.4	35.1	
2000	16.8	3.8	8.7	8.6	37.9	
2001	15.8	4.8	10.7	8.6	39.9	
2002	14.2	4.8	10.5	8.6	38.1	
2003	14.3	5.6	10.7	7.8	38.4	
2004	16.1	6.8	10.7	6.4	40.0	
2005	15.6	8.1	10.0	5.2	38.9	
2006	16.2	9.0	11.6	4.8	41.6	
2007	15.5	9.7	13.3	5.7	44.2	
2008	15.5	9.9	14.0	4.6	44.0	
2009	11.6	9.2	12.9	2.4	36.1	

AVERAGE ANNUAL CHANGE					
'85/'00	+ 2.7%	+ 2.1%	+ 4.2%	+ 0.9%	+ 2.5%
'00/'09	- 4.0%	+ 10.3%	+ 4.5%	- 13.2%	- 0.5%
'08/'09	- 25.2%	- 7.1%	- 7.9%	- 47.8%	- 18.0%

EU-27 Performance by Mode for Freight Transport – 1995-2009

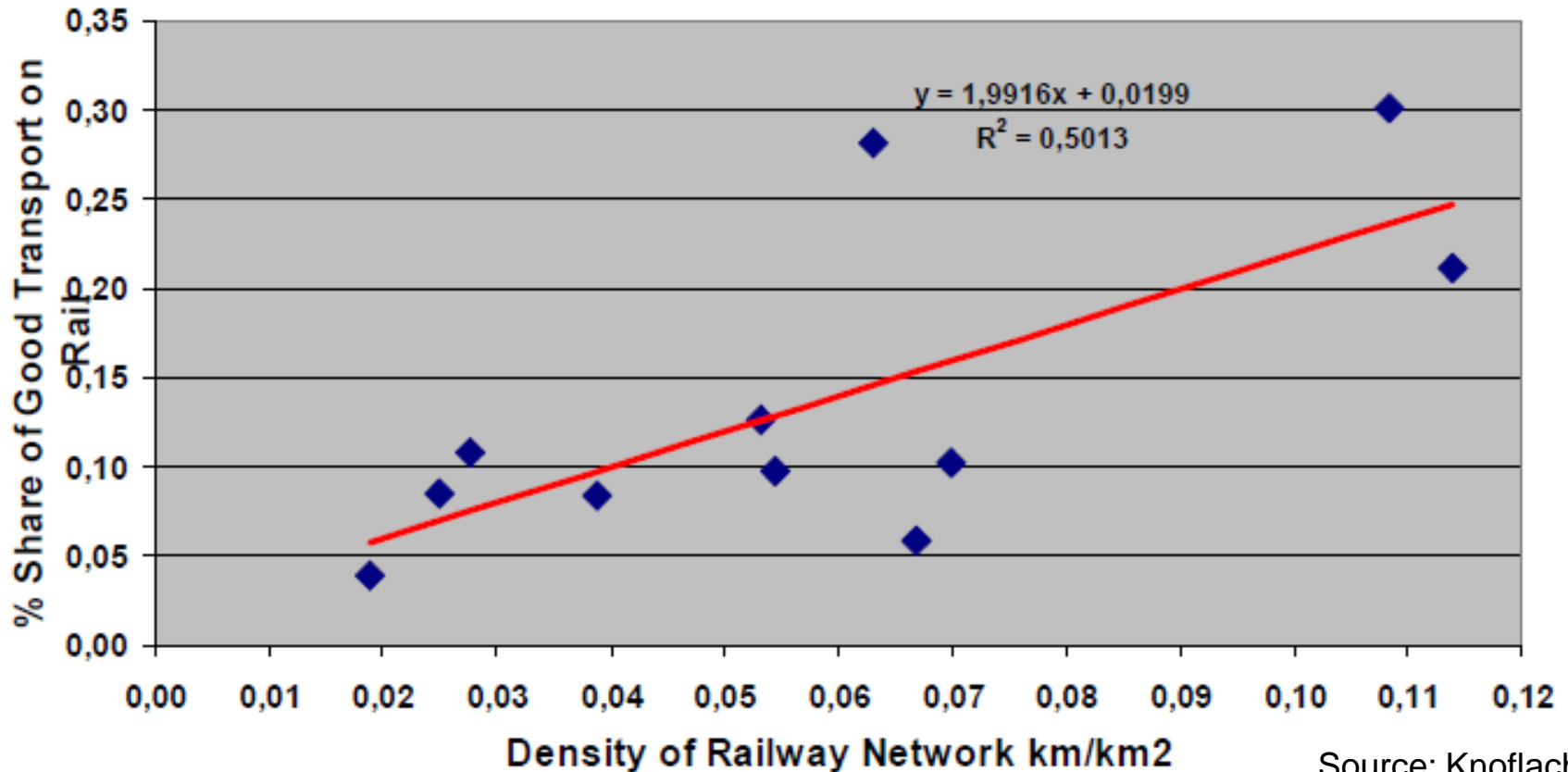
billion tonne-kilometres





Network Density and not single projects are necessary to enhance the share of railway transport

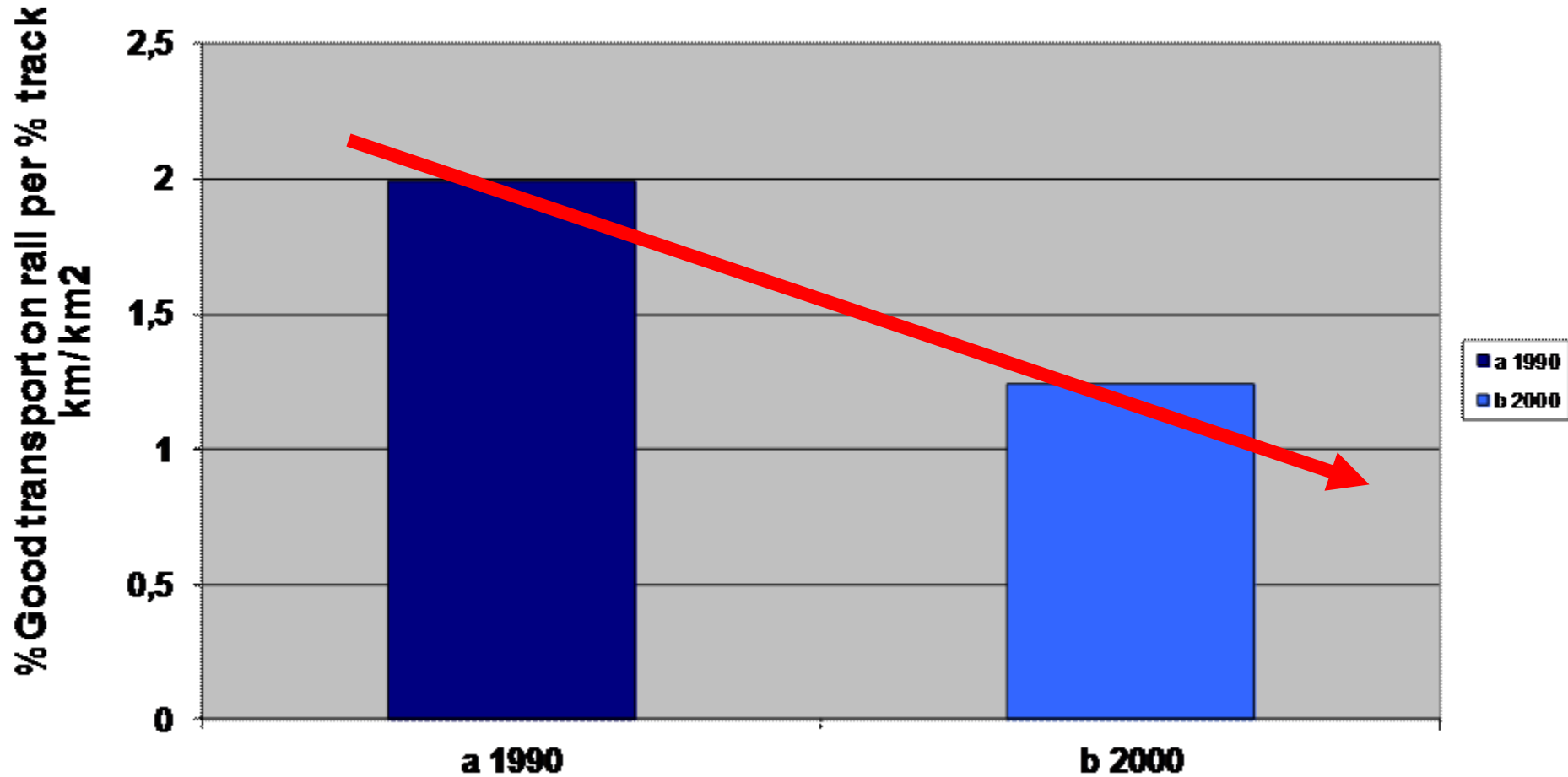
Railway Network Density - Share of Good Transport on Rain 1990



Source: Knoflacher

The density of railway networks in kilometres per square kilometres is the key indicator and not a single project. If we compare the situation in 1990 to 2000 we must recognise that the power of the network is decreasing. The rail system of today is in danger due to the diminishing network effects.

Rail is endangered due to diminishing network effects



Source: Knoflacher

Structures of the last 50 years: Systematic Distortion of the Transport Market

Road

**Dense network 10-times rail
still expanding**

Accessible everywhere

Weak or no Control

**Market distortion on social,
Ecological & economical
level**

Open uncontrolled System

Rail

Small and shrinking network

**Limited Accessibility
stations**

Controlled System

**No chance on the market
due to distortion**

Closed controlled System

Goals of the EU, argumentation for Ten-t infrastructure investments

Economic Growth

- competitiveness (normally with the USA and Japan) and
- employment
- reduction of this disparities between periphery regions and central regions of the EU the so called cohesion.

Transport infrastructure is seen as essential in order to guarantee the operation of the single market, and must promote competitiveness and sustainable growth.

•Trade policy and competition law have a dramatic impact

- liberalisation and deregulation

•Mythos „Growth“ and whole economic system.

•National possibilities of decision and influence erode dramatically!

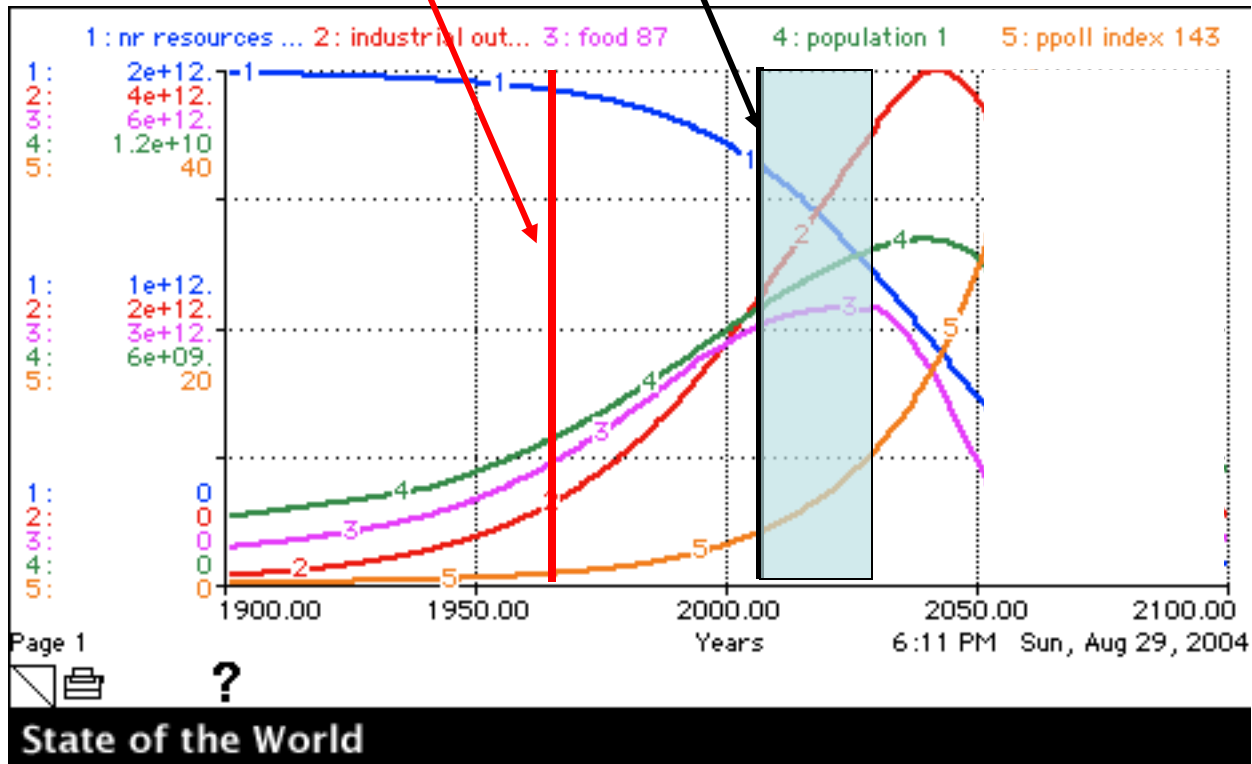
=> Change of Transport Sector & behaviour and sustainable development can not (only) be reached by changes within transport sector!

Club of Rome: Limits to Growth 1972

The Reference Scenario

Original Report

Today



Pollution

Population

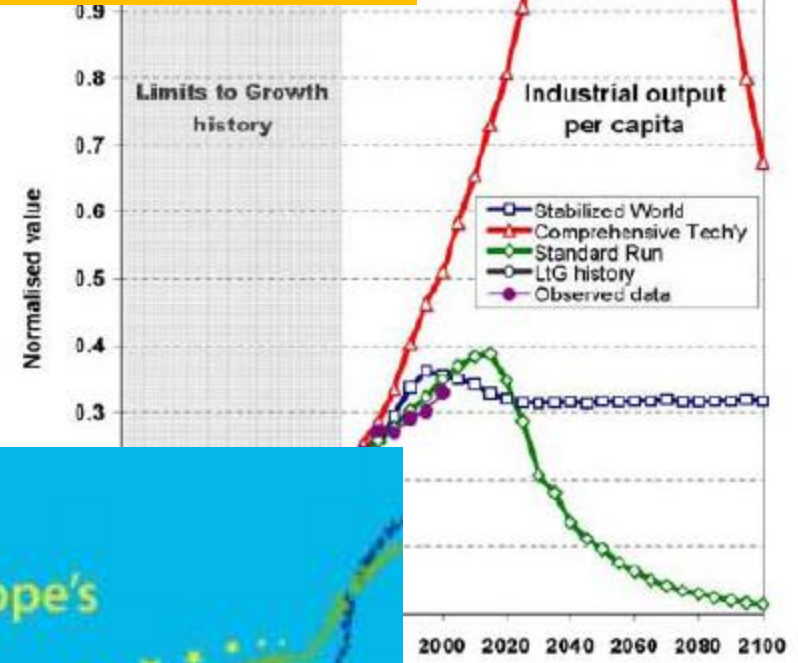
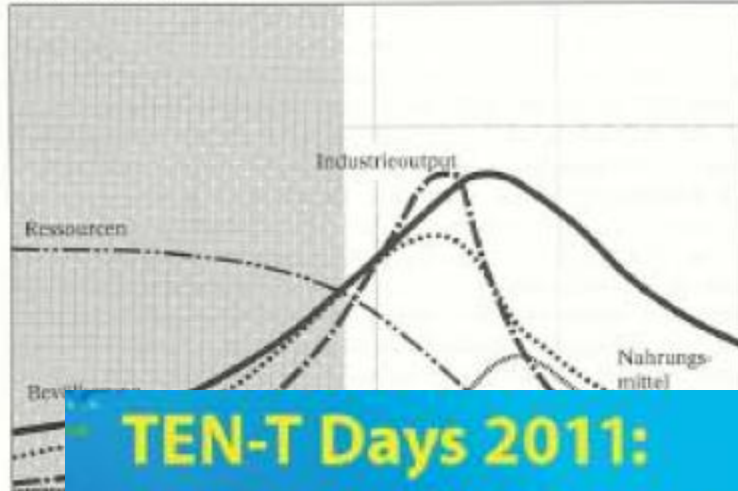
Industrial Output

Food

Resources

No unlimited growth in a finite world

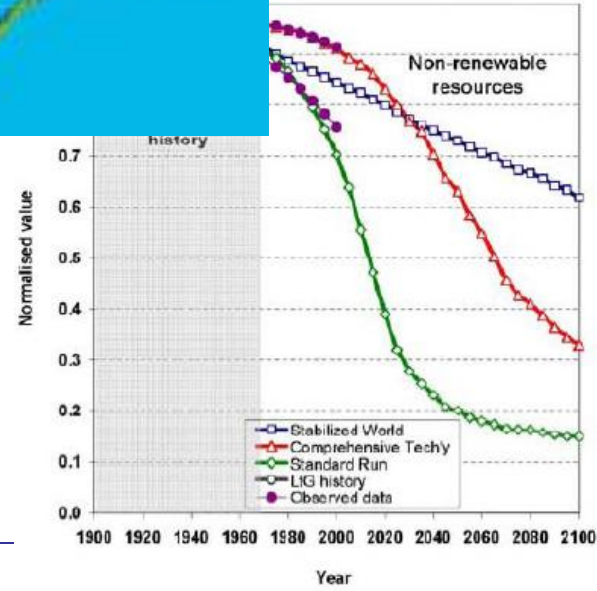
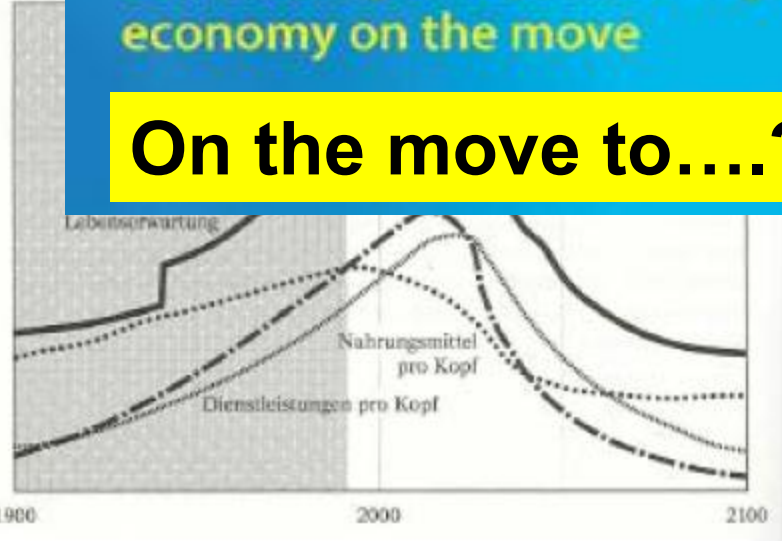
Zustand der Welt



TEN-T Days 2011:
 Connecting Europe: Putting Europe's
 economy on the move

On the move to....?

1900
Mater

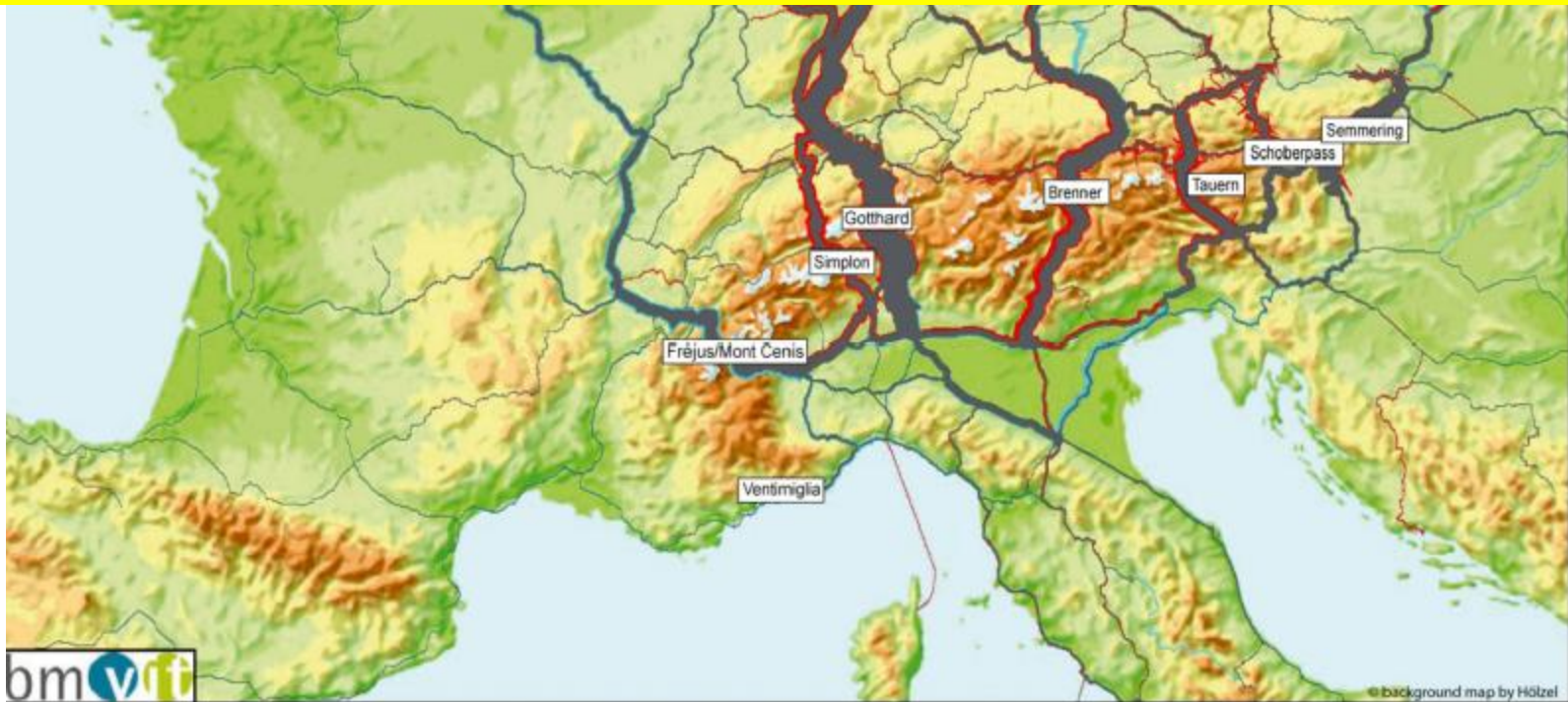


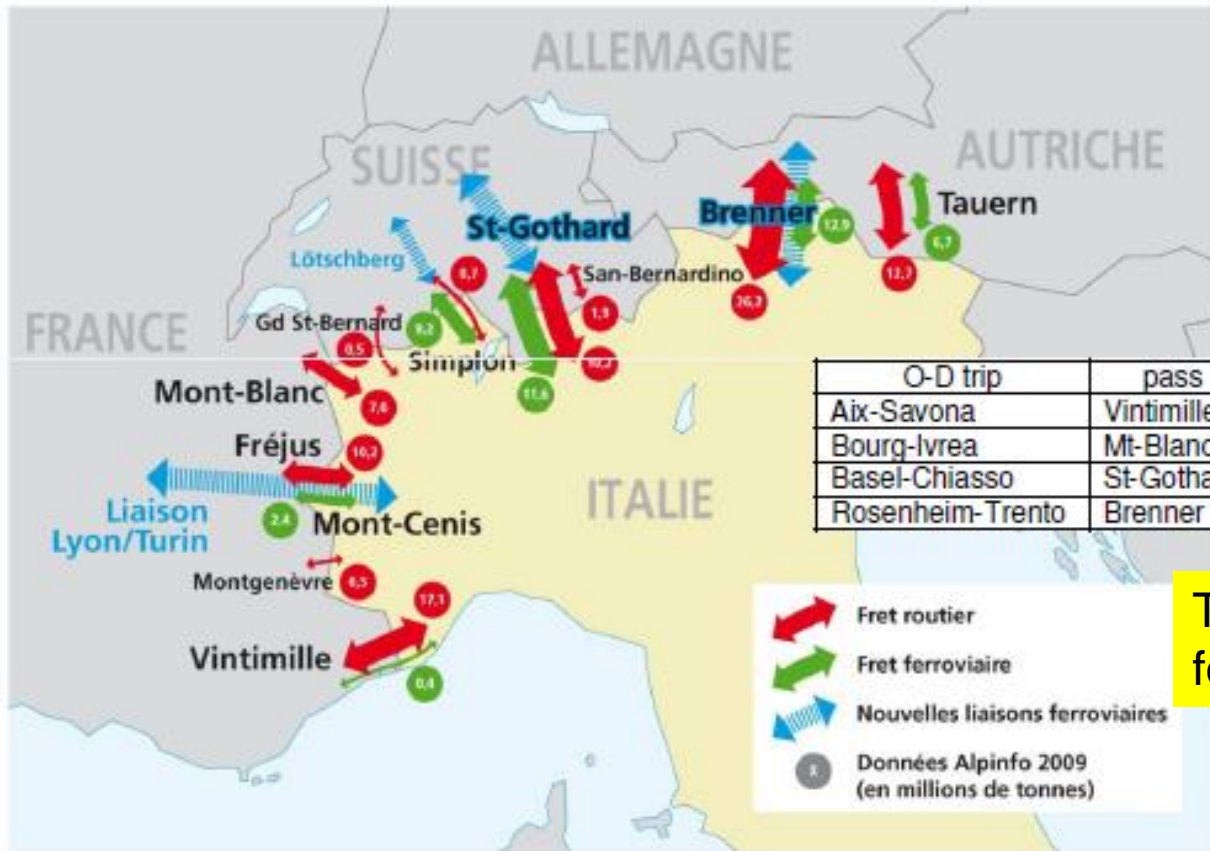
Alpine Crossing Rail Freight Transport 1999 and 2004: Tonnes

Privileg:

70% of national cross border transport is not crossing the border of corporations! Public pays the internal transport system for international corporations

Source: Knoflacher





O-D trip	pass	distance	Toll fares	Rate /km
Aix-Savona	Vintimille	316 km	87,00 €	0,28 €/km
Bourg-Ivrea	Mt-Blanc	311 km	296,25 €	0,95 €/km
Basel-Chiasso	St-Gothard	287 km	188,22 €	0,66 €/km
Rosenheim-Trento	Brenner	282 km	89,97 €	0,32 €/km

Source : LET 2011

Toll fares 2times – 3times higher for Gotthard or Mt.Blanc

encore faut-il que l'alternative

Overcapacity through the Alps will enforce competition between regions and countries – and will result in lower transport costs – on taxpayers cost.

What is not seen...:

The **TEN ROAD** network has a **feeder system** of roads which is **10 times longer** than the TEN road system, accessible **without barriers**.

The **TEN RAIL** system has **negligible feeder network** and a lot of **physical!!! barriers**.

Source: Knoflacher



Where are the accompanying measures which guarantee the success of the project?

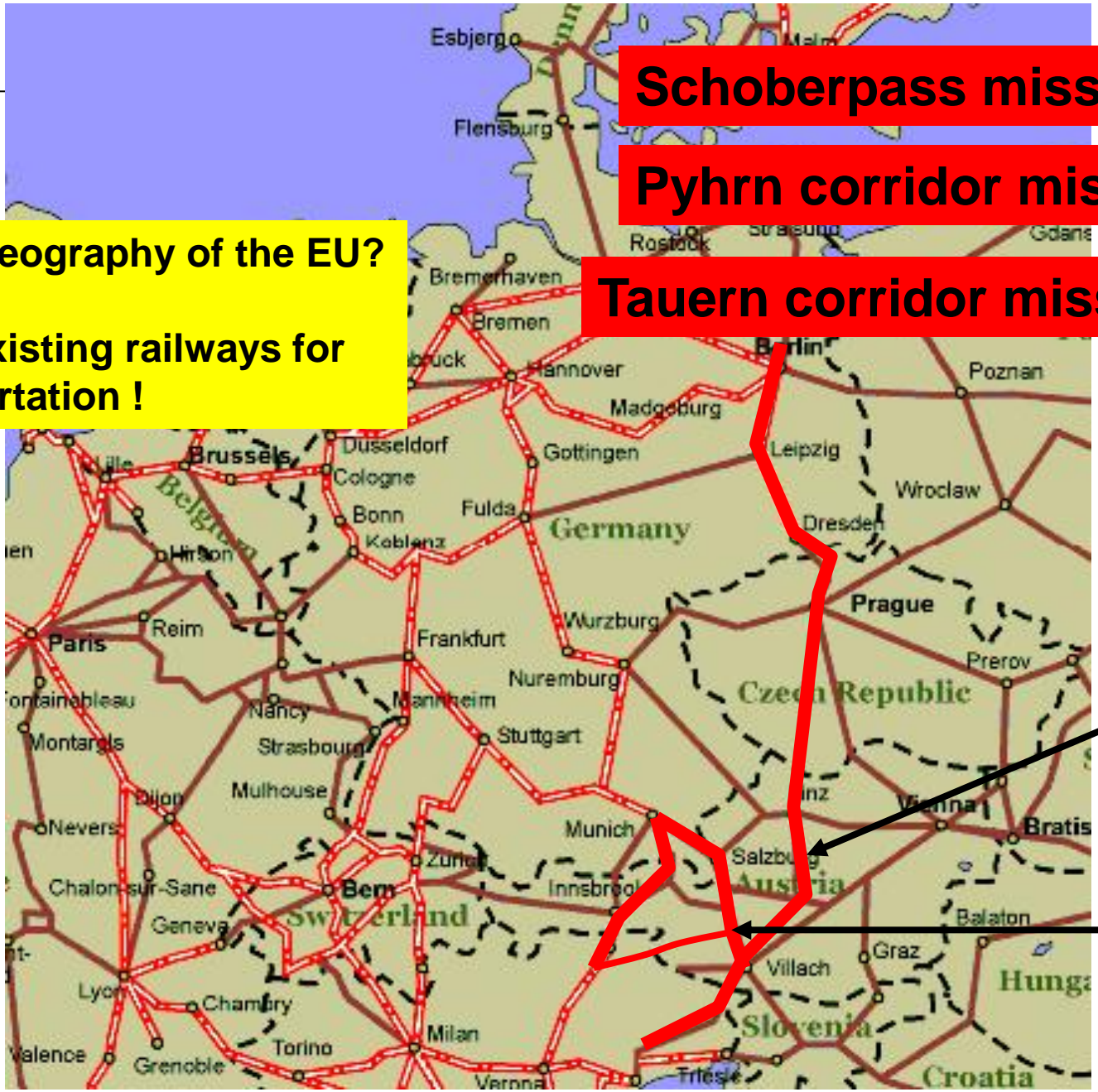
- **What are the alternatives which have been tested?**
- **What will be the effects of this project on the system?**
- **When will these effects occur?**

Traffic geography of the EU?
Using existing railways for Transportation !

Schoberpass missing

Pyhrn corridor missing

Tauern corridor missing



Pyhrn

Tauern

Article 7

General transport-policy strategy

1. In order to ensure sustainability, the Contracting Parties undertake to promote rational, safe transport management in a harmonised, cross-border network that:

(a) ensures coordination between different carriers, modes and types of transport and encourages intermodality;

(b) optimises the use of existing transport systems and infrastructures

in the Alps, including through the use of electronic data transmission, and charges external and infrastructure costs to polluters in line with the damage caused;

(c) encourages, by means of structural and regional planning measures, the transfer of the carriage of passengers and goods to more environmentally-friendly means of transport and to intermodal transport systems;

(d) recognises and utilises the opportunities for reducing traffic volume.

PECULIAR FEATURES OF THE INTERNATIONAL TRANSPORT IN THE ALPS

findings from the first Report on the state of the Alps

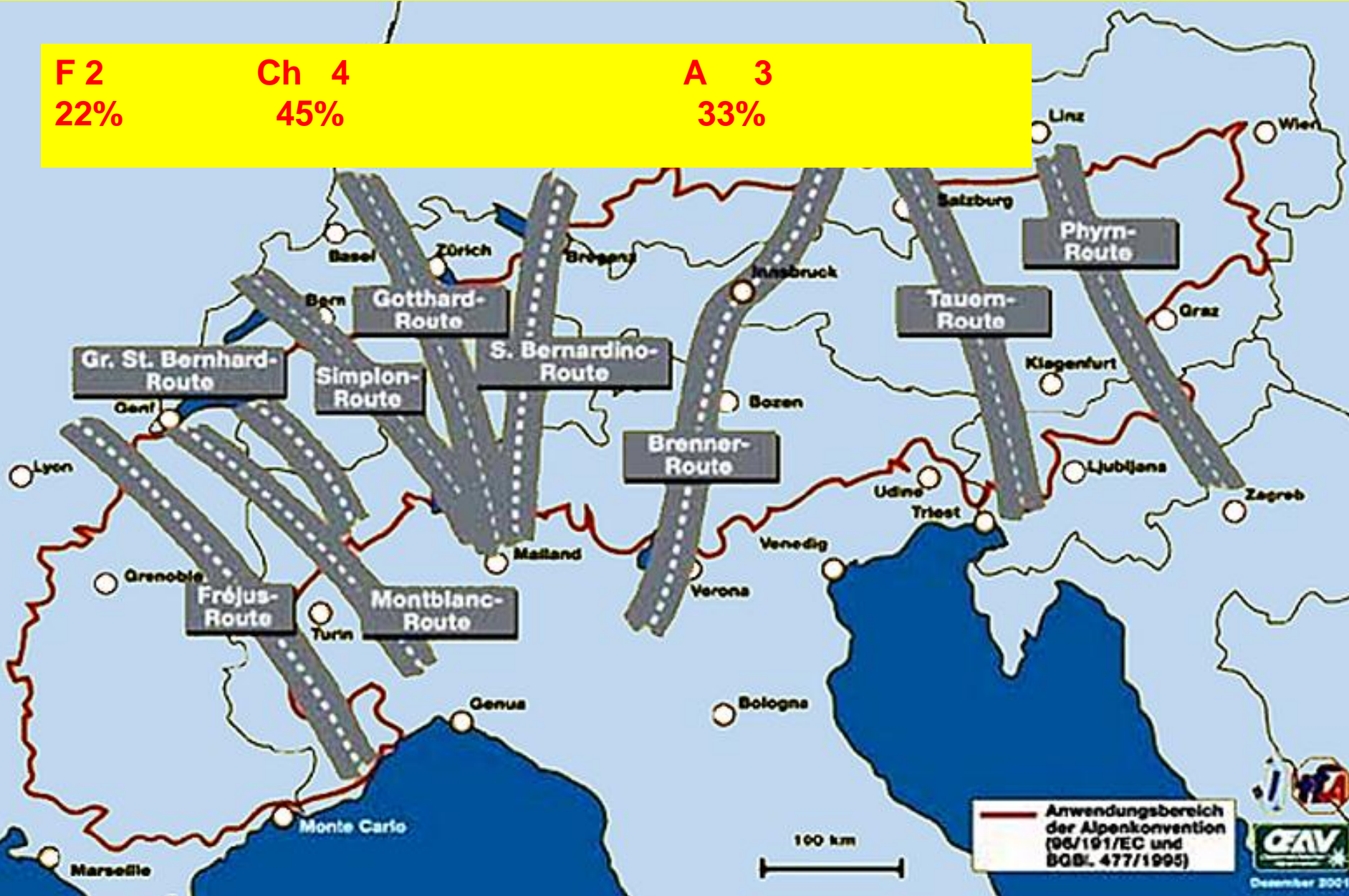
- **No clear correlation between regional added value and transport infrastructure**
- **Very difficult assessment of external costs of transport in the Alps**
- **Economic effects of new infrastructures can be negative and positive**

the way the transit traffic over the alps should be distributed

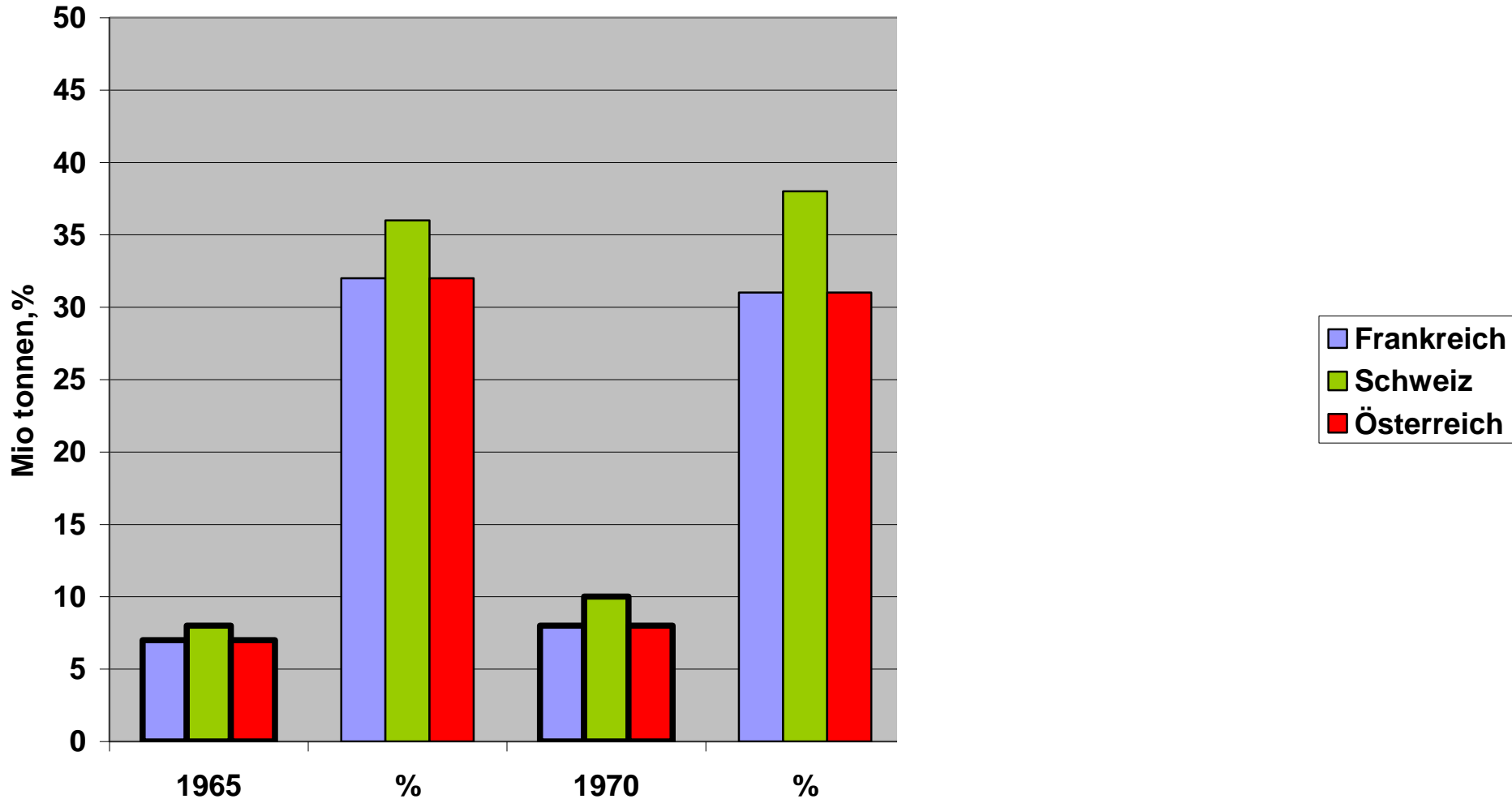
F 2
22%

Ch 4
45%

A 3
33%



absolute and relative distribution of North-South traffic before construction of Brenner motorway



1972 the

...and after the traffic opening

Vergleich zwischen den tatsächlich beförderten Gütermengen auf der Eisenbahn mit den theoretischen Kapazitäten der einzelnen Linien*

	<i>Fréjus</i>	<i>Simplon/L.</i>	<i>Gotthard</i>	<i>Brenner</i>	<i>Tarvis</i>	<i>Gesamt</i>
<i>2003 beförderte Gütermengen in Mio Nt**</i>	7,8	5,6	14,3	10,7	5	43,3
<i>Realistisch erreichbare Kapazität der Linie in Mio Nt</i>	30	30	30	30	30	150
capacity utilisation	26%	19%	48%	36%	17%	29%

* Nicht berücksichtigt wurden die Grenzübergänge Ventimiglia und Villa Opicina

** Quelle: www.are.admin.ch

capacity utilisation and usage of the effective capacities of the rail = ~ one third

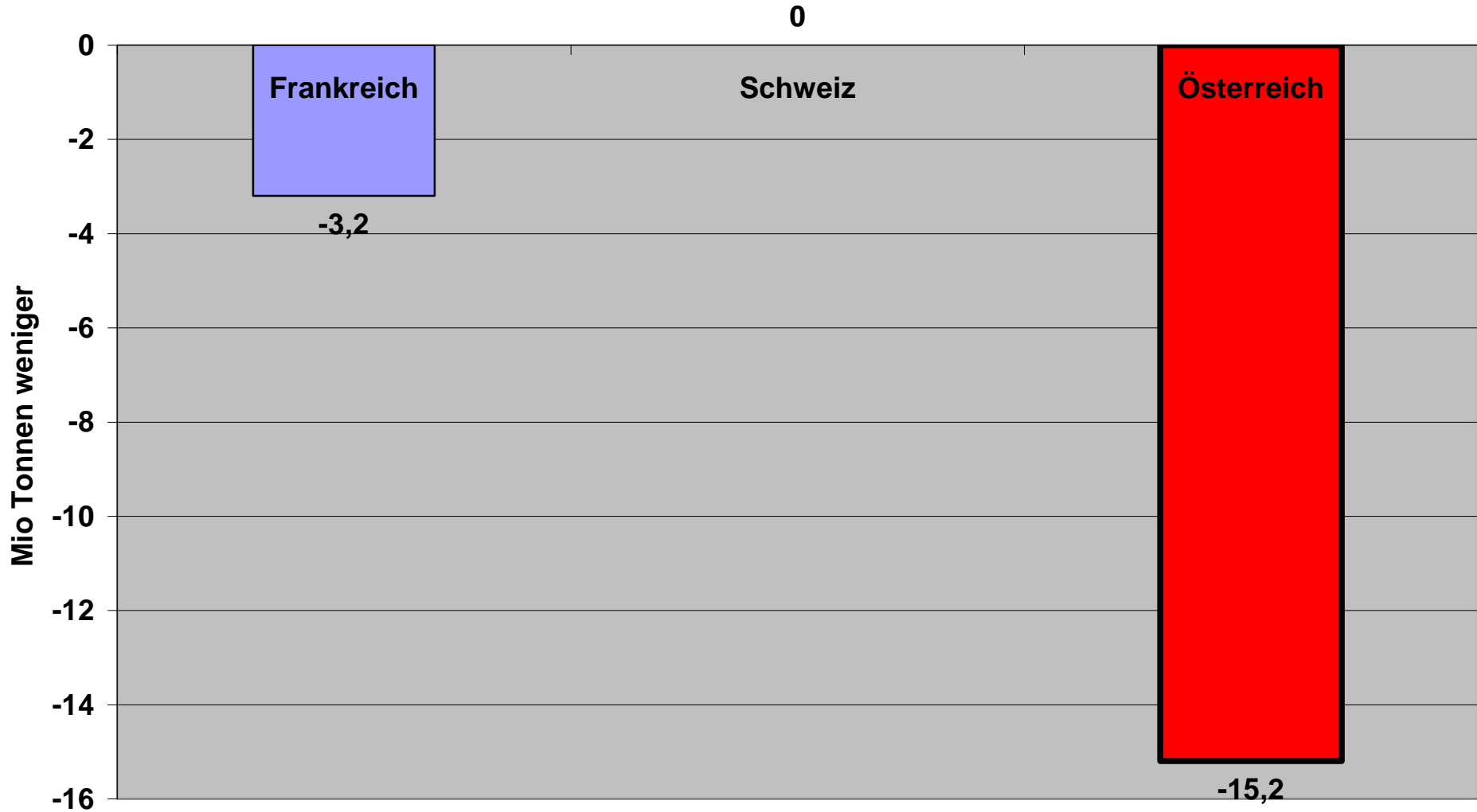
Today: the result of failure

Rail freight transit over the alps



If the swiss transport policy would be effective in the whole alpine area...

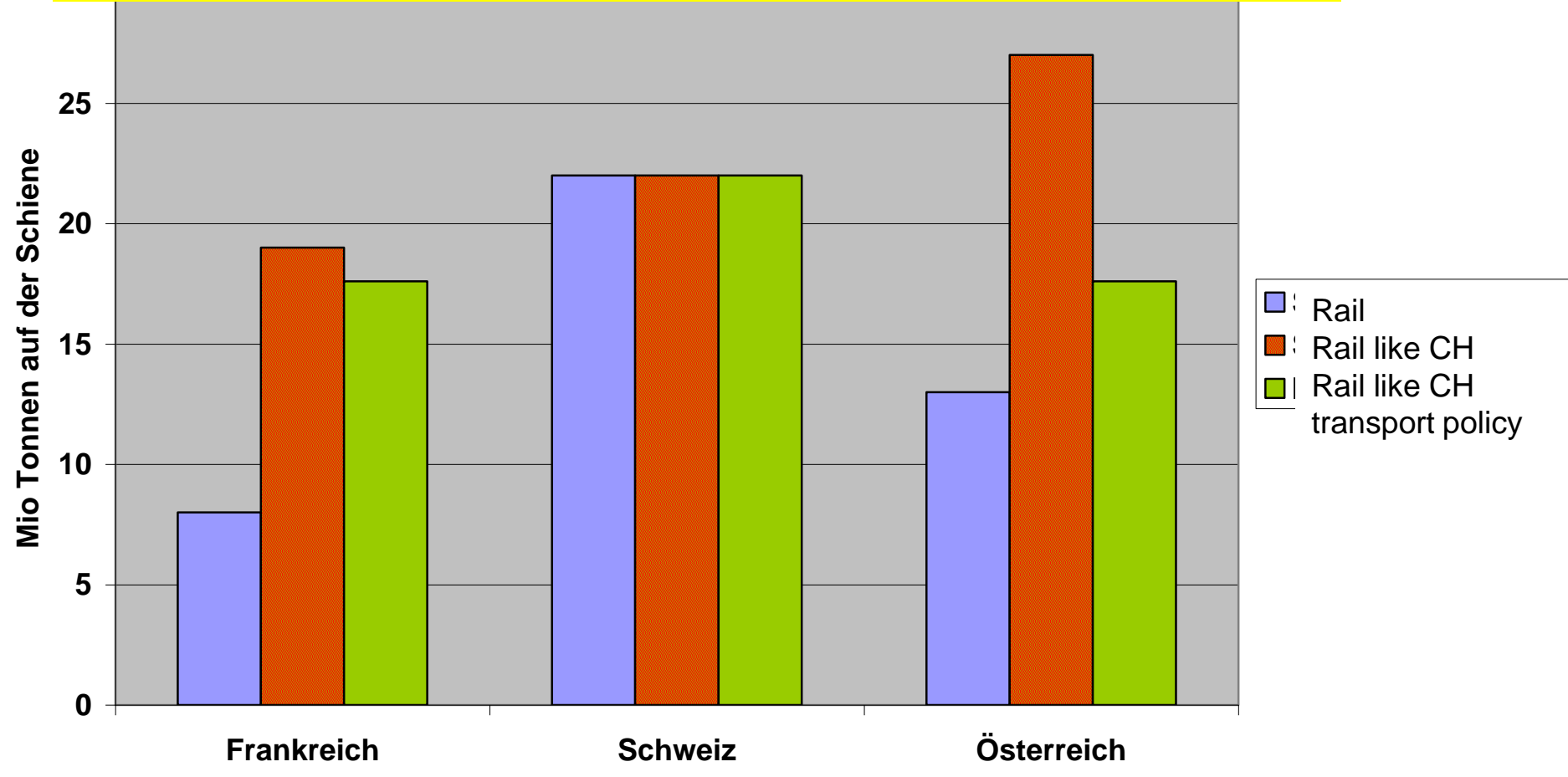
Comparison status-quo with swiss transport policy



Amount of transported goods with the swiss transport policy

Schienentransit Ist und bei Schweizer Verkehrspolitik

Capacity of double tracked railway lines (Brenner+ Tauern)



No argumentation for the BBT possible

Who benefits from the TEN-T network & huge tunnels through the alps?

- Construction industry
- Lobbies
- Transnational corporations

Costs of opportunity

What kind of measures can be done in the rail network with the amount of money?

Overall investment needs for networks of European importance amount to about EUR 1 trillion for the period up to 2020 - About EUR 500 billion in transport...

The questions:

Where are the accompanying measures??

Who can guarantee the success of these big projects???

What are the alternatives??

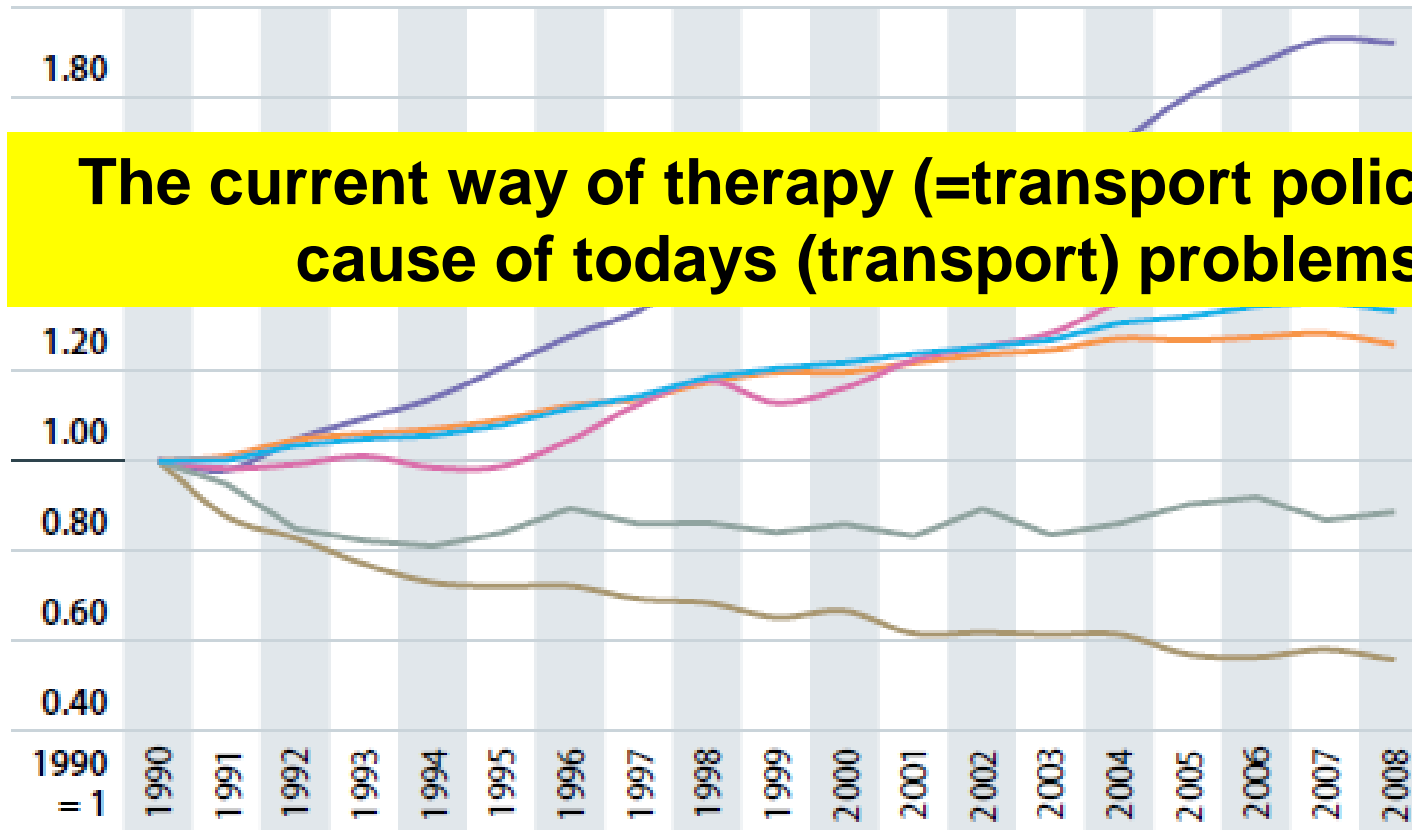
What will be the effects of this projects?

When????

Etc. etc.

GHG emissions EU-27

Total Civil Aviation - Road Transportation - Railways (***) - Total Navigation - Other - Total Transport



The current way of therapy (=transport policy) is the cause of today's (transport) problems.

Notes: (*) Excluding international bunkers (international traffic departing from the EU);
 (**) Including International Bunkers but excluding LULUCF; (***) Excluding indirect emissions from electricity consumption; (****) Combustion emissions from all remaining transport activities including pipeline transportation, ground activities in airports and harbours, and off-road activities.

Scientific based transport management

Traditional transport believes shared by EU policies	Scientific based transport management
<ul style="list-style-type: none"> ➤ Believe on growth of mobility 	<ul style="list-style-type: none"> ➤ There is no growth of mobility in the transport system
<ul style="list-style-type: none"> ➤ Believe on Time saving by increasing speed 	<ul style="list-style-type: none"> ➤ No time saving in the transport system is possible
<ul style="list-style-type: none"> ➤ Believe on Freedom of modal choice 	<ul style="list-style-type: none"> ➤ Real behaviour of people: structures determine behaviour

Fuel consumption

Single impact

Real system impact

Figure 2. Fuel Consumption per Kilometer ($\epsilon_V = 0$)
of a Typical Motor Car (Otto Engine)

What we all know and experience

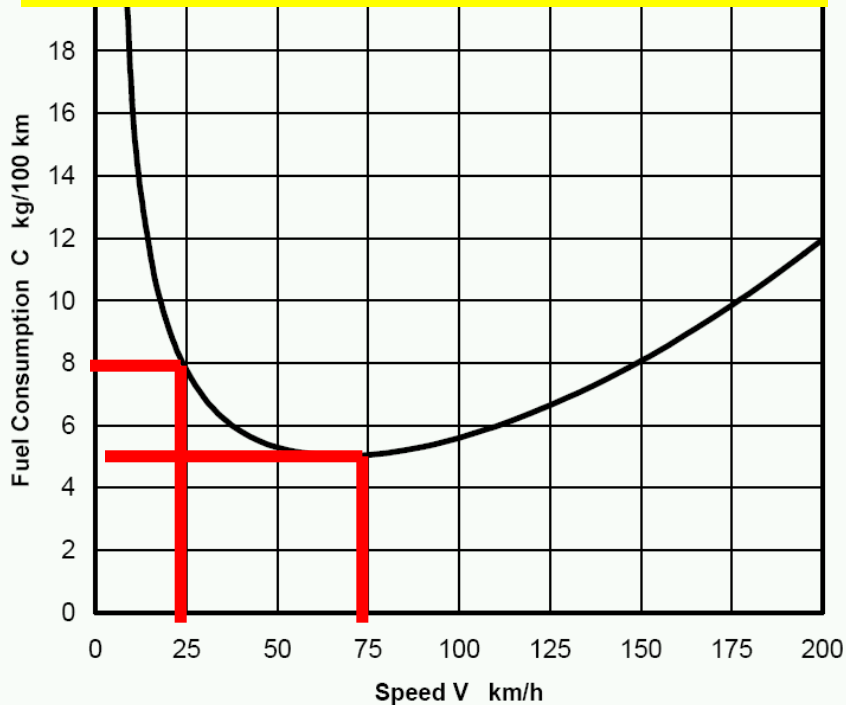
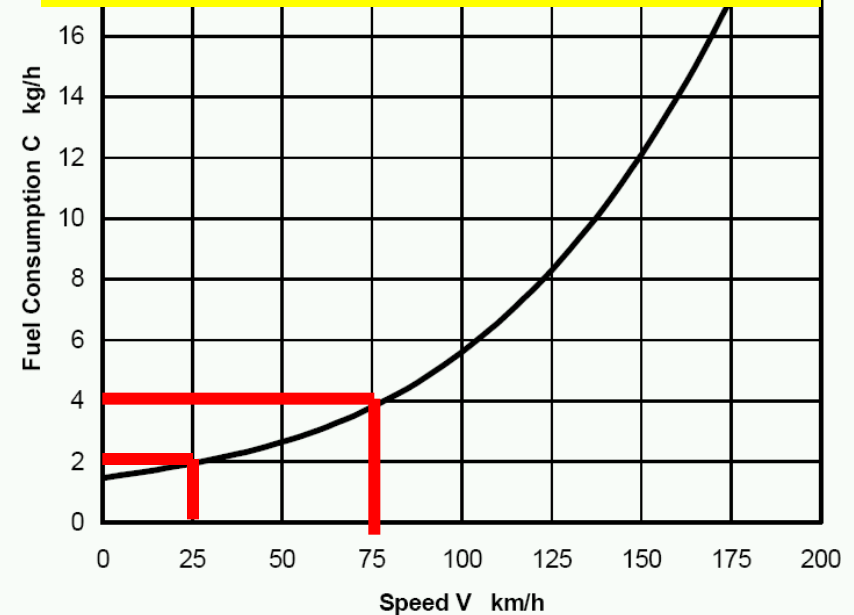


Figure 3. Fuel Consumption per Hour ($\epsilon_V = 1$)
of a Typical Motor Car (Otto Engine)

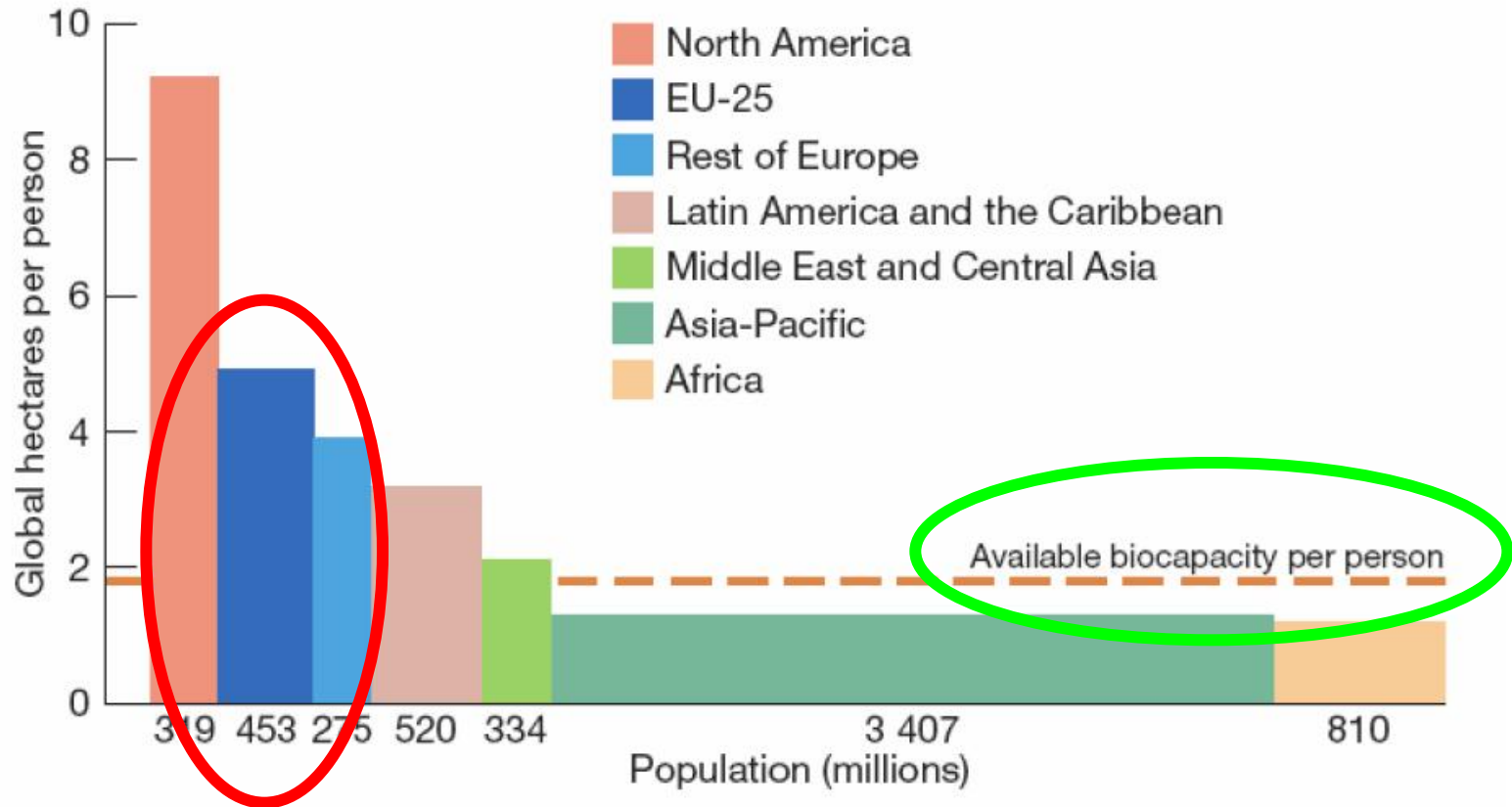
How the system works –
speed matters



Source: Pfleiderer, Dieterich, 2002

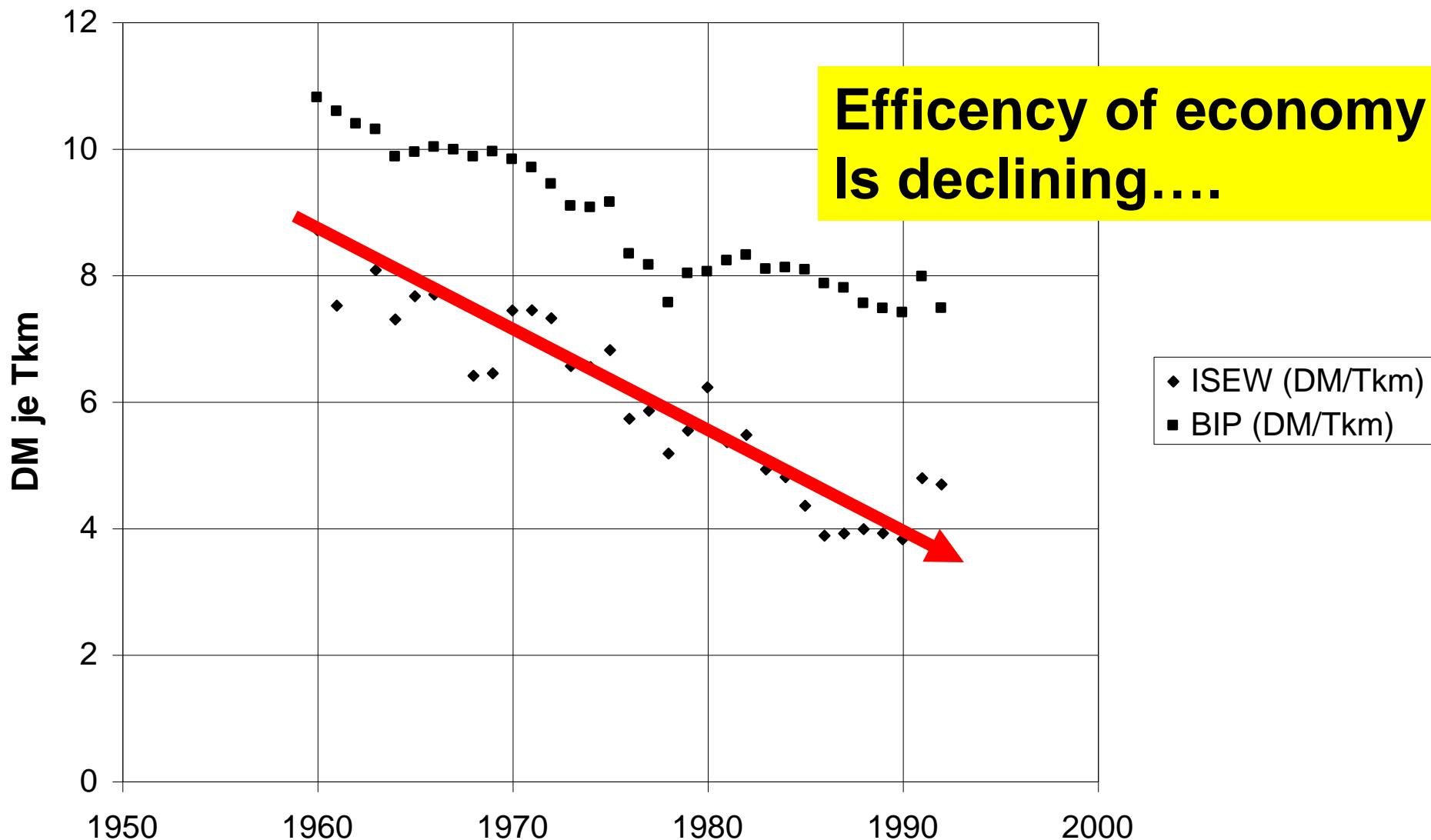
On the useful indicators for sustainability...

The Ecological Footprint 2001



Source: www.footprintnetwork.org/download.php?id=6

More km in relation to GDP



- Accompanying **night time ban** for Truck traffic through the Alps
- Compensation payment** for detour transport on the existing rail routes
- Areawide **loading and unloading facilities** ->**Access points!**
- Intelligent transport system management**

EU has to make this solutions in order to obey their own principles

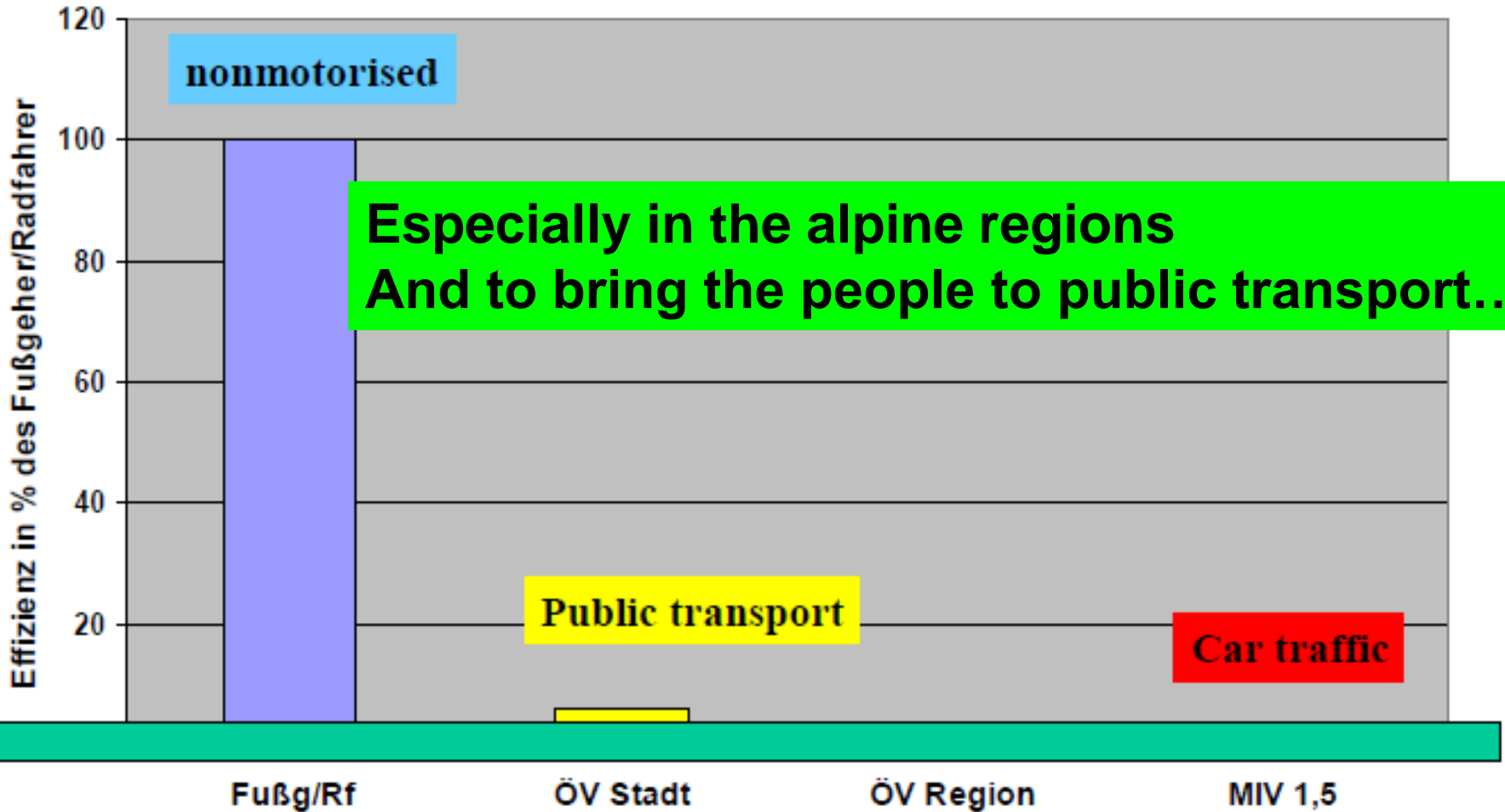
.....this is a network solution

.....this provides better access to the network

- **better use of existing networks**
- **Cheaper,**
- **Within few years available**
- **Revitalising endangered rail sections**
- **More flexibility**
- **Stimulates local economy**
- **Compensates bad investment into roads**
- **Provide many access points to the network**
- **Create an intelligent tool for qualified Transport policy**
- **Save nature and budgets**
- **Create new employment**

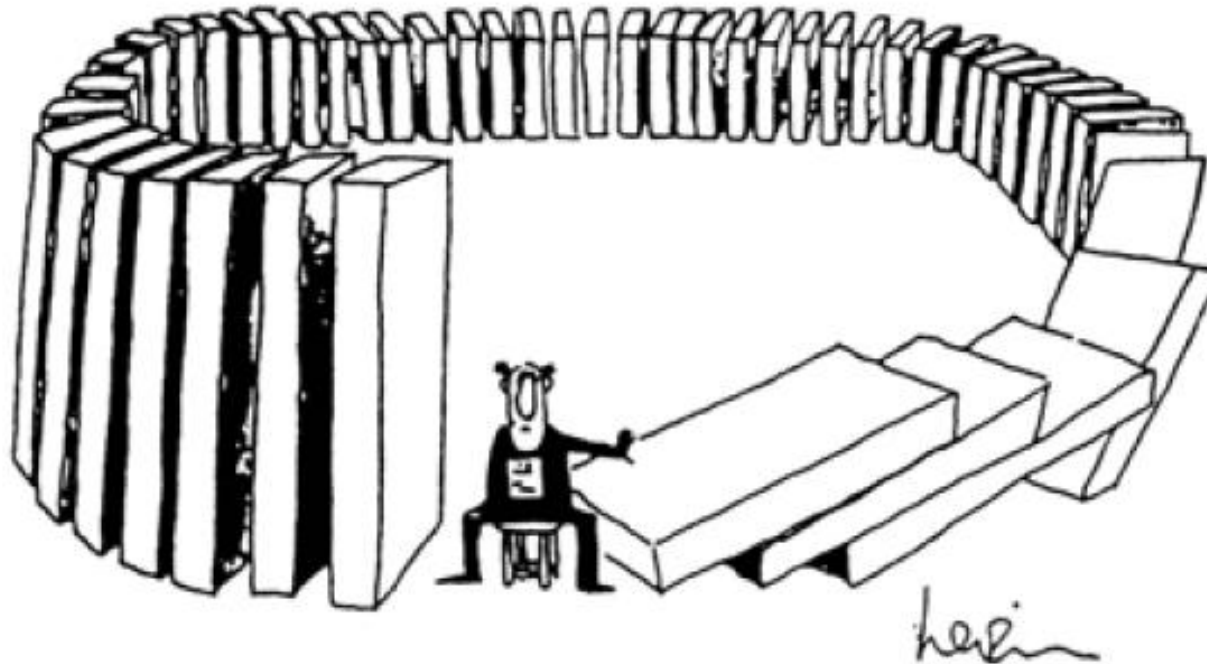
There is no sustainable solution if the most efficient transport modes are excluded.

Sustainability is: what survive in the long term



- **Short term measures with long lasting effects**
- **Change of system behavior into the desired direction**
- **Network and not project approach**
- **Using available system capacities**
- **Adaptability and flexibility of Solutions**
- **Reduce tensions and conflicts with people, regions, nature**

Thank you for your attention!



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**The main problem is not the traffic flow –
The main problem is the wrong Physical Structure
at the origins and destinations of all Trips.**

**The Transport System has not been developed as
a System.**

**Car Traffic has been optimised individually,
without any regard of the whole System,
the environment, the rail and other public transport.**

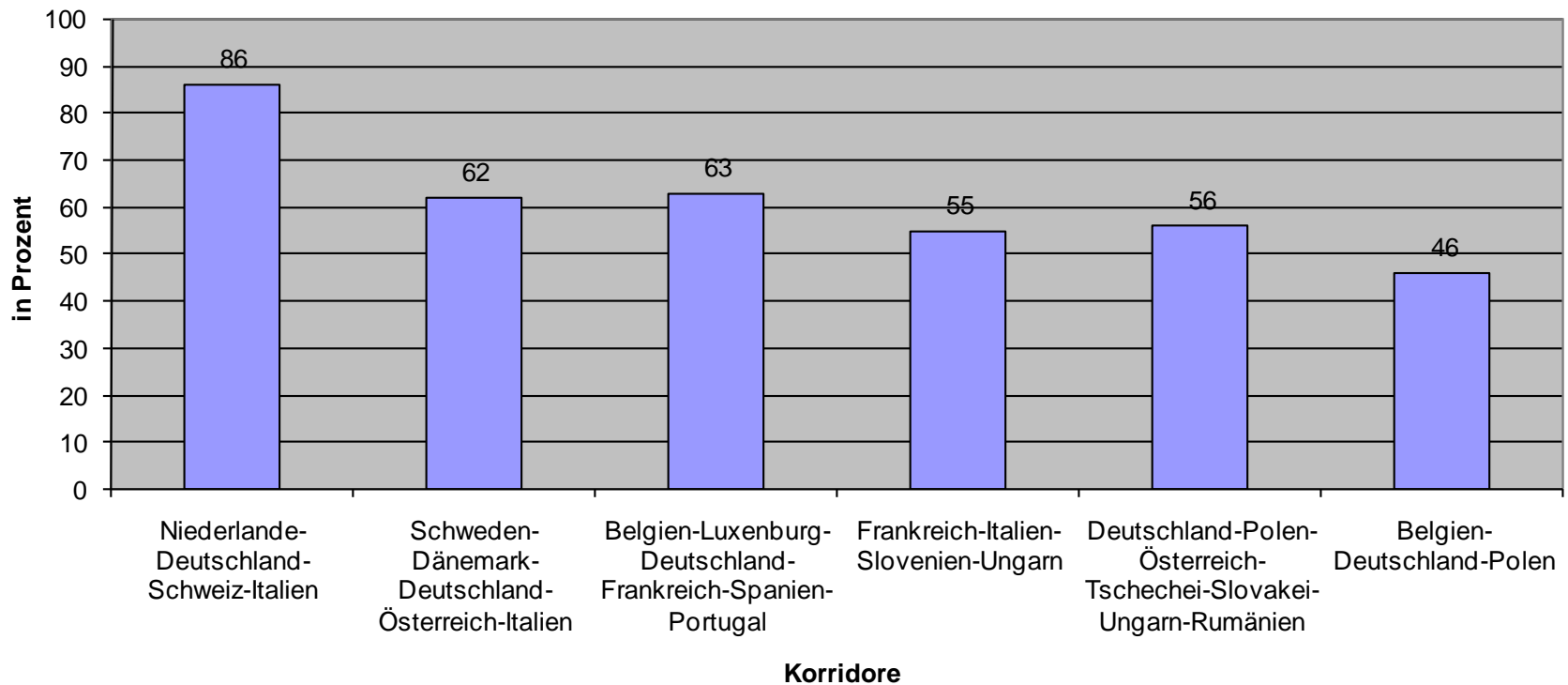
**This mistake can never be compensated by concentration
on high speed rail projects without regarding the network.**

The effects of high speed and cheap Transport have not been taken into consideration:

Not only **Urban Sprawl, but also **Concentration** of economic activities**

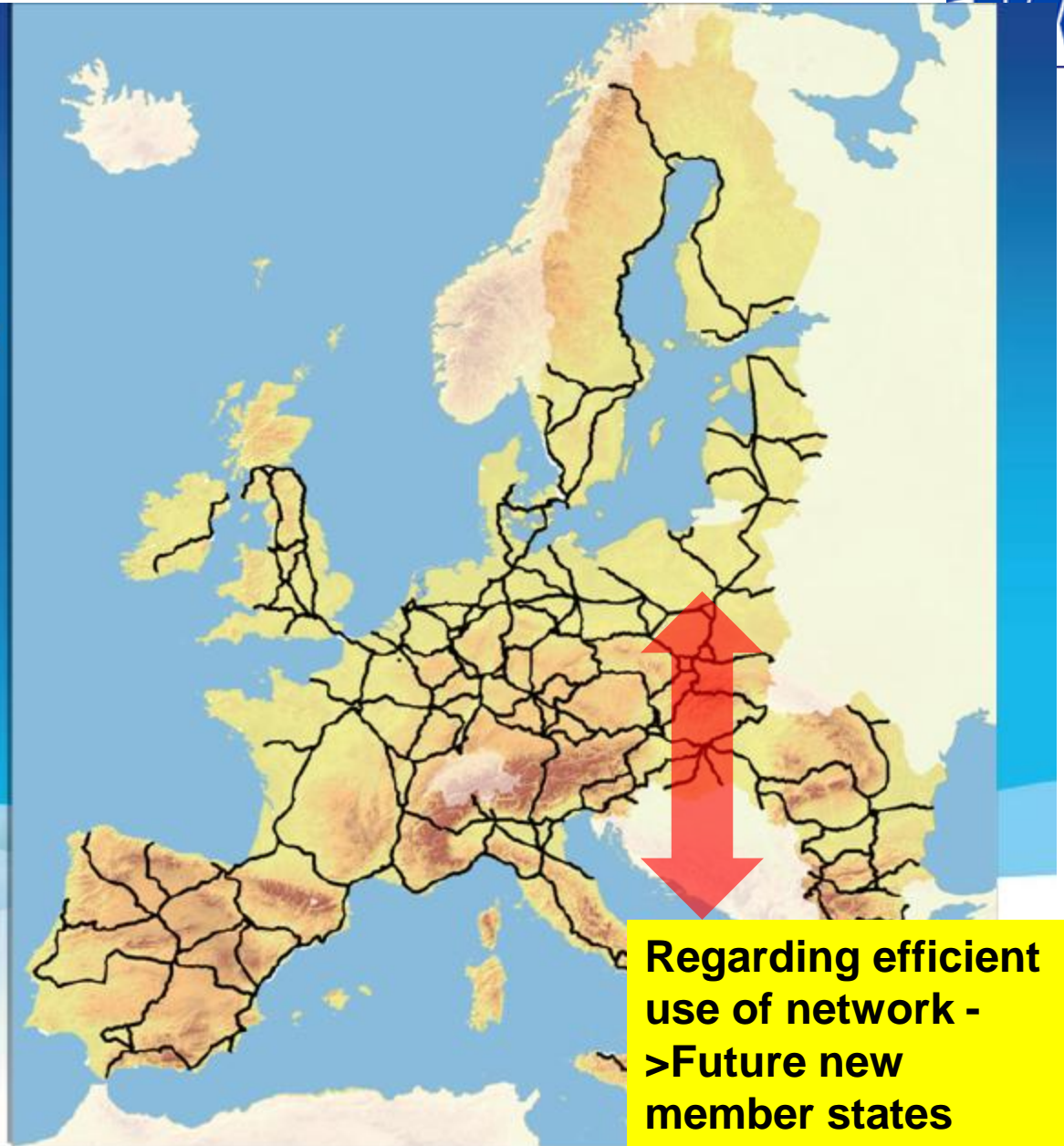
„Particular Quality“ of Alpine regions are the Landscape, the clean air, the quiet environment, etc.

Forecast of growth of transport load until 2020



CER-Study

EU 27 Core Network to be completed by 2030



Directorate-General
for Mobility
and Transport

