



PROVINCIA AUTONOMA DI TRENTO



CONVEGNO  
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# OLTRE L'INFRASTRUTTURA PER UNA NUOVA CULTURA DELLA MOBILITÀ

10<sup>ma</sup> edizione dello SWOMM

Scientific Workshop on Mountain Mobility and Transport

*in collaborazione con*

Ministero dell'Ambiente e della Tutela del Territorio e del Mare



**SWOMM**  
Scientific Workshop  
on Mountain Mobility and Transport



Consorzio dei  
Comuni Trentini

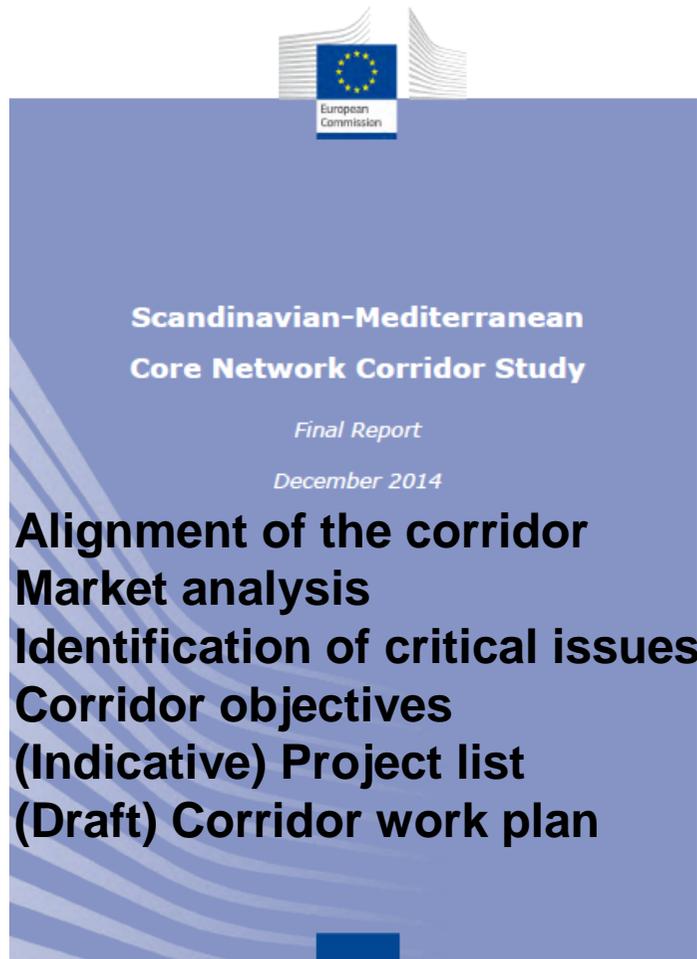


# **The results of studies drawn up for the development of the Scandinavian-Mediterranean Core Network Corridor**

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KombiConsult GmbH

Trento, 06.03.2015

# Presentation of Final Report in December 2014



## Annexes

1. List of identified stakeholders
2. List of reviewed studies and other sources
3. List of projects, arranged by country and by mode
4. ERTMS deployment plan
5. Multimodal Transport Market Study
6. Minutes of Meeting of Corridor Forum meetings

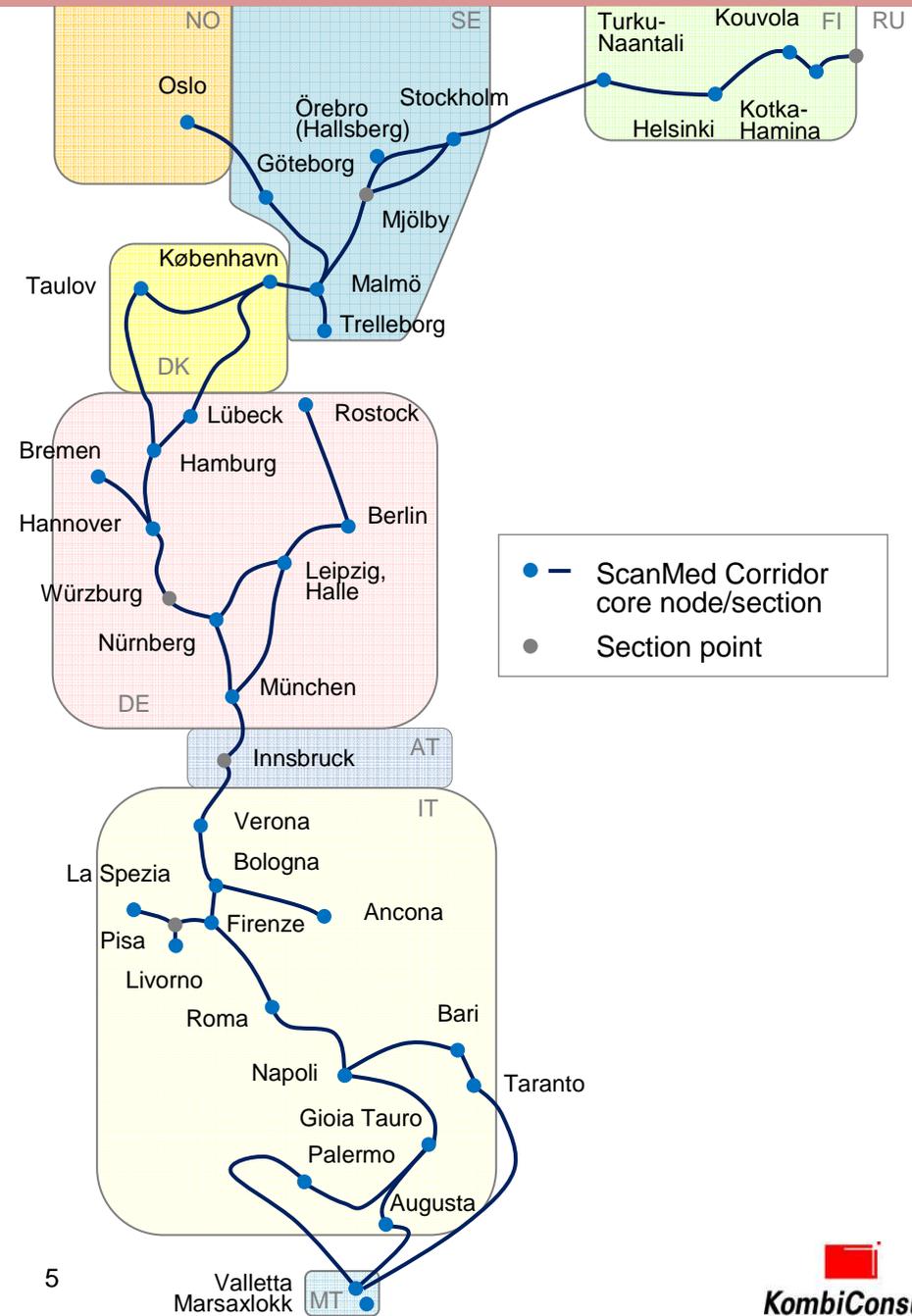
[http://ec.europa.eu/transport/themes/infrastructure/ten-t-guidelines/corridors/corridor-studies\\_en.htm](http://ec.europa.eu/transport/themes/infrastructure/ten-t-guidelines/corridors/corridor-studies_en.htm)

## Corridor Work Plan, once approved,...

- will guide the development of the corridor in the short and longer term.
- has time horizon 2030 (completion target of core network).
- integrate the objectives and priorities of EU funding during the 2014 – 2020 period, but goes far beyond this.
- sets the framework for investment in transport infrastructure
  - from public and private, European and national sources.
- leads the way for concentrated implementation efforts to contribute to the key objectives of the trans-European transport networks policy:
  - Strengthening the basis for trade flows and citizens' mobility within the Union and with external markets;
  - Reinforcing territorial, social and economic Cohesion in the Union;
  - Enhancing the infrastructure basis for an efficient and sustainable mobility system which stands for future-oriented and high-quality transport services for passengers and freight.

# Alignment of Corridor

- Land and maritime sections, according to Regulation (EU) 1316/2013 Annex I Part 1



Source: Final Report, Figure 16

# Characteristics of ScanMed Corridor

Mode/ Node	Dimension	FI	NO	SE	DK	DE	AT	IT	MT	Total
Rail	network length [km]	518	169	1.462	476	3.532	127	3.053	-	9.337
Road		376	116	1.039	440	1.869	109	2.401	22	6.372
Airports	number	2	1	3	1	7	-	4	1	19
Seaports		4	1	4	1	4	-	9	2	25
RRT		5	1	7	2	16	0	13	-	44

Rail	Share of Corridor [%]	5,5%	1,8%	15,7%	5,1%	37,8%	1,4%	32,7%	n.a.	100,0%
Road		5,9%	1,8%	16,3%	6,9%	29,3%	1,7%	37,7%	0,3%	100,0%
Airports		10,5%	5,3%	15,8%	5,3%	36,8%	n.a.	21,1%	5,3%	100,0%
Seaports		16,0%	4,0%	16,0%	4,0%	16,0%	n.a.	36,0%	8,0%	100,0%
RRT		11,4%	2,3%	15,9%	4,5%	36,4%	0,0%	29,5%	n.a.	100,0%

Updated in line with RRT analysis and final rail lines as well as road network in Malta on 13.11.2014.

## Review of Studies in 2014

- Pre-identified sections and projects
- Existing co-operations
- TEN-T Priority Projects
- Studies including ERTMS and Rail Freight Corridor
- Transport (market) studies
- ...
- **$\Sigma > 155$  documented, plus further more quoted in the Report**

# Stakeholder involvement in 2014

Stakeholder group		Country								cross-border	Total
		NO	FI	SE	DK	DE	AT	IT	MT		
Governments/ authorities	national	1	1	1	1	1	1	1	1	0	8
	regional	0	8	10	3	12	1	14	0	0	48
Infrastructure managers/ providers	rail	1	1	1	2	1	1	1	0	2	10
	road	0	1	1	2	1	1	3	1	1	11
	seaports	1	4	3	0	6	0	9	2	1	26
	inland ports	0	0	0	0	0	0	0	0	0	0
	airports	0	2	1	1	7	0	5	2	0	18
<b>Total</b>		<b>3</b>	<b>17</b>	<b>17</b>	<b>9</b>	<b>28</b>	<b>4</b>	<b>33</b>	<b>6</b>	<b>4</b>	<b>121</b>

Source: Final Report, Table 11

## International Rail Freight Volumes, 1.000 tons, 2010

		Destination							Total
		FI	NO	SE	DK	DE	AT	IT (via Brenner)	
Origin	FI	-	26	193	1	10	0	1	231
	NO	0	-	1.068	3	130	0	1	1.202
	SE	129	501	-	124	2.087	202	154	3.198
	DK	7	2	76	-	91	1	214	392
	DE	11	91	2.099	380	-	8.219	5.105	15.904
	AT	1	0	154	45	6.553	-	3.001	9,53
	IT (via Brenner)	0	0	71	142	3.165	1.985	-	5.364
	Total	148	620	3.660	695	12.035	10.408	8.476	36.043

Table 43: International rail freight volumes (1.000 tons) covering ScanMed Corridor countries in 2010 (based on ETIS Plus 2010, AlpInfo 2012)

## International Road Freight Volumes, 1.000 tons, 2010

		Destination							Total
		FI	NO	SE	DK	DE	AT	IT (via Brenner)	
Origin	FI		407	2.714	85	64			3.270
	NO	59		901	542	315			1.817
	SE	2.059	936		1.441	1.503	67	36	6.042
	DK	30	689	1.827		5.666	0	162	8.374
	DE	45	374	1.595	5.694		1.798	9.061	18.566
	AT			59	0	1.326		692	2.077
	IT (via Brenner)			29	100	9.654	420		10.203
	Total	2.193	2.406	7.125	7.862	18.528	2.284	9.951	50.349

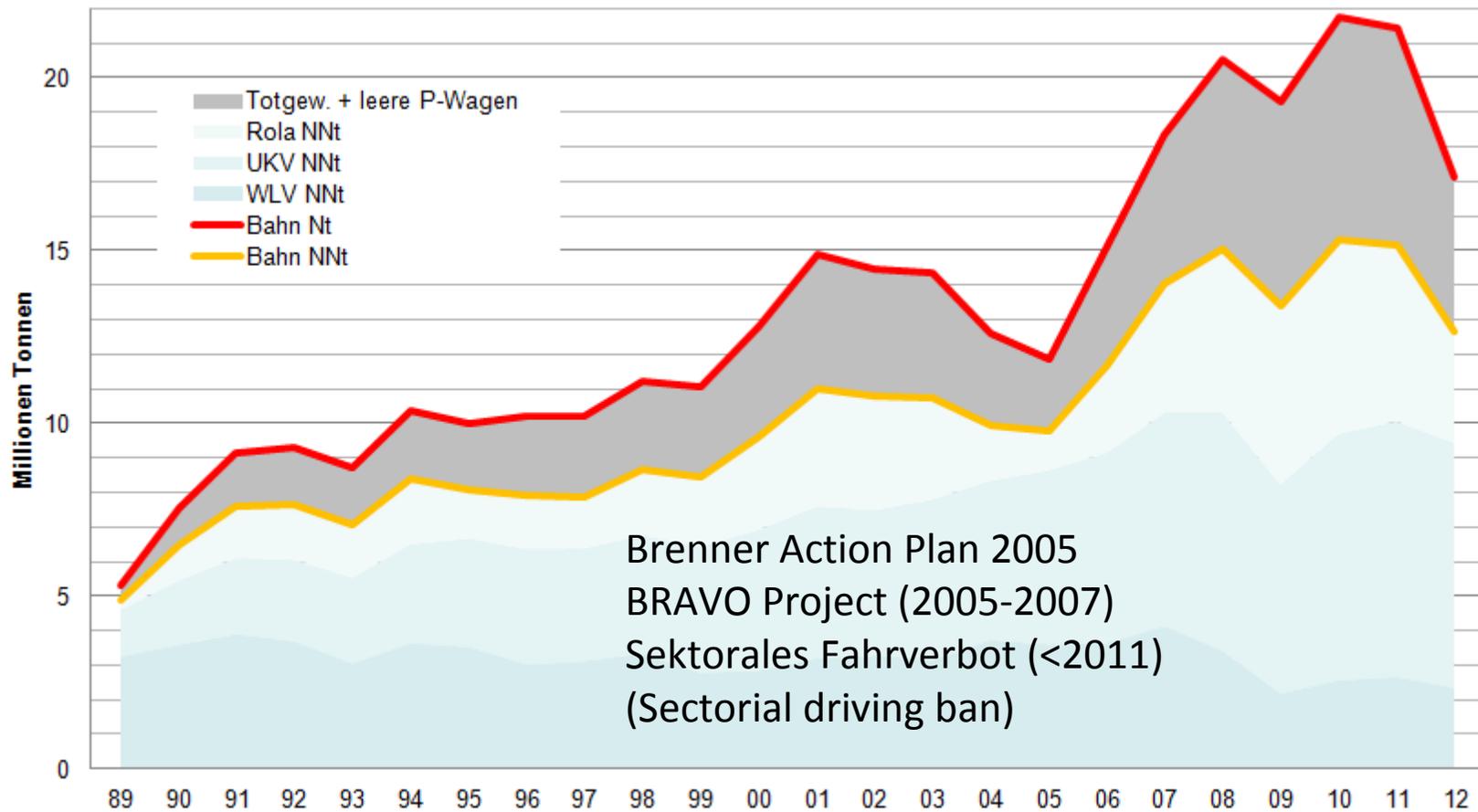
Table 44: International road freight volumes (1.000 tons) covering ScanMed Corridor countries in 2010 (ProgTrans AG (2012) World Transport Reports, based on Eurostat, AlpInfo 2012)

## International Sea Freight Volumes, 1.000 tons, 2010

		Destination								
		FI	NO	SE	DK	DE	AT	IT	MT	Total
Origin	FI		503	6.255	908	8.808	0	1.139	2	17.614
	NO	2.200		9.104	3.448	16.437	0	2.184	5	33.378
	SE	8.359	2.053		5.848	13.148	0	473	44	29.925
	DK	687	2.278	10.707		4.390	0	219	5	18.287
	DE	5.210	2.206	9.761	5.730		0	1.468	47	24.422
	AT	0	0	0	0	0		0	0	0
	IT	110	144	345	69	739	0		1.633	3.040
	MT	0	0	4	0	138	0	2.166		2.308
	Total	16.566	7.184	36.176	16.003	43.659	0	7.650	1.736	128.974

Table 45: International sea freight volumes (1.000 tons) covering ScanMed Corridor countries in 2010 (based on ETIS Plus 2010)

# Rail Freight Transport via Brenner, 1989-2012



Source: KombiConsult based on Land Tirol: Verkehrsbericht, different years

# Road Traffic loads, 2030

- Fehmarn Belt Fixed Link the only major missing road link
- Road standards are generally very high in the Corridor, and measures to further increase the high-standard
- Generally high traffic loads in and around agglomerations
- Capacity extension required
- 2->3 lanes per direction
- Traffic Management Systems
- Safe parking
- Green Fuels

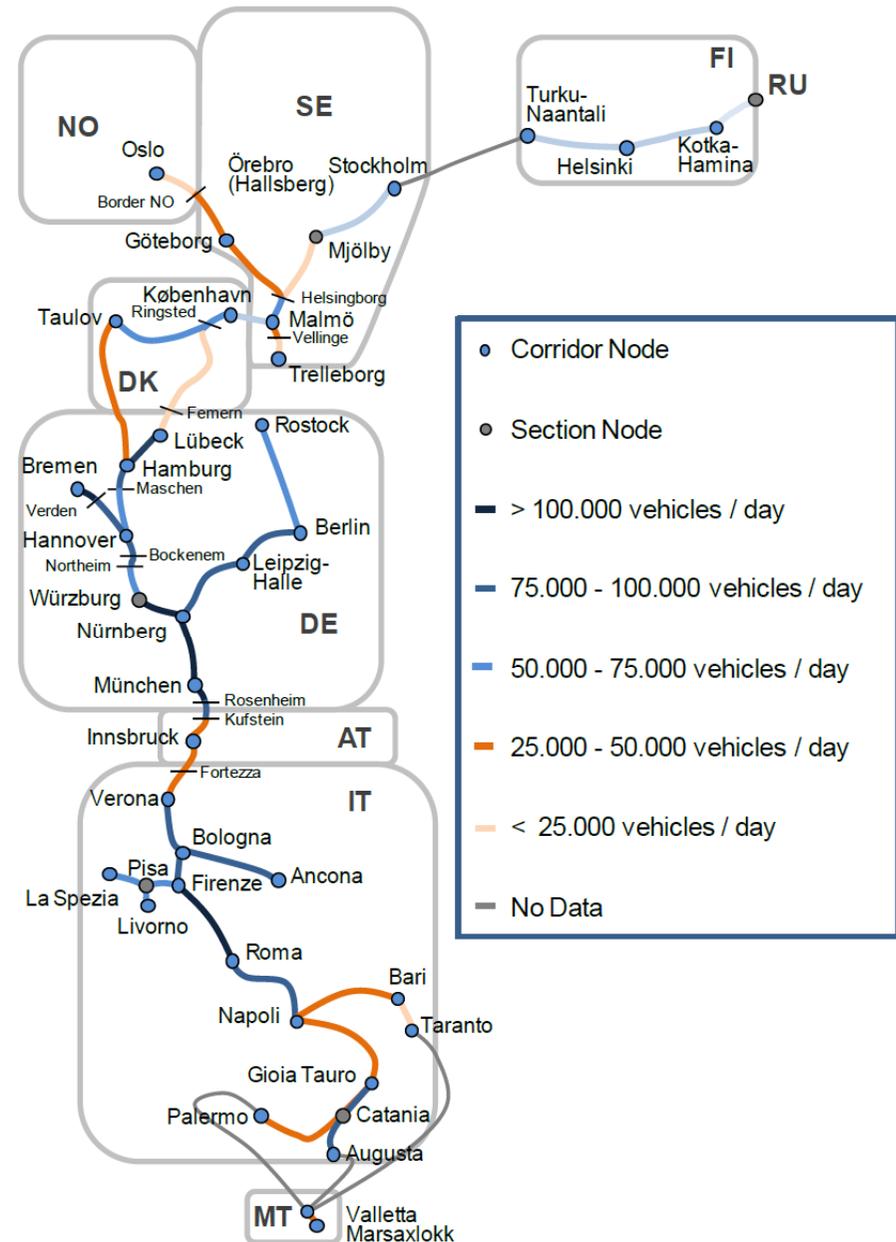
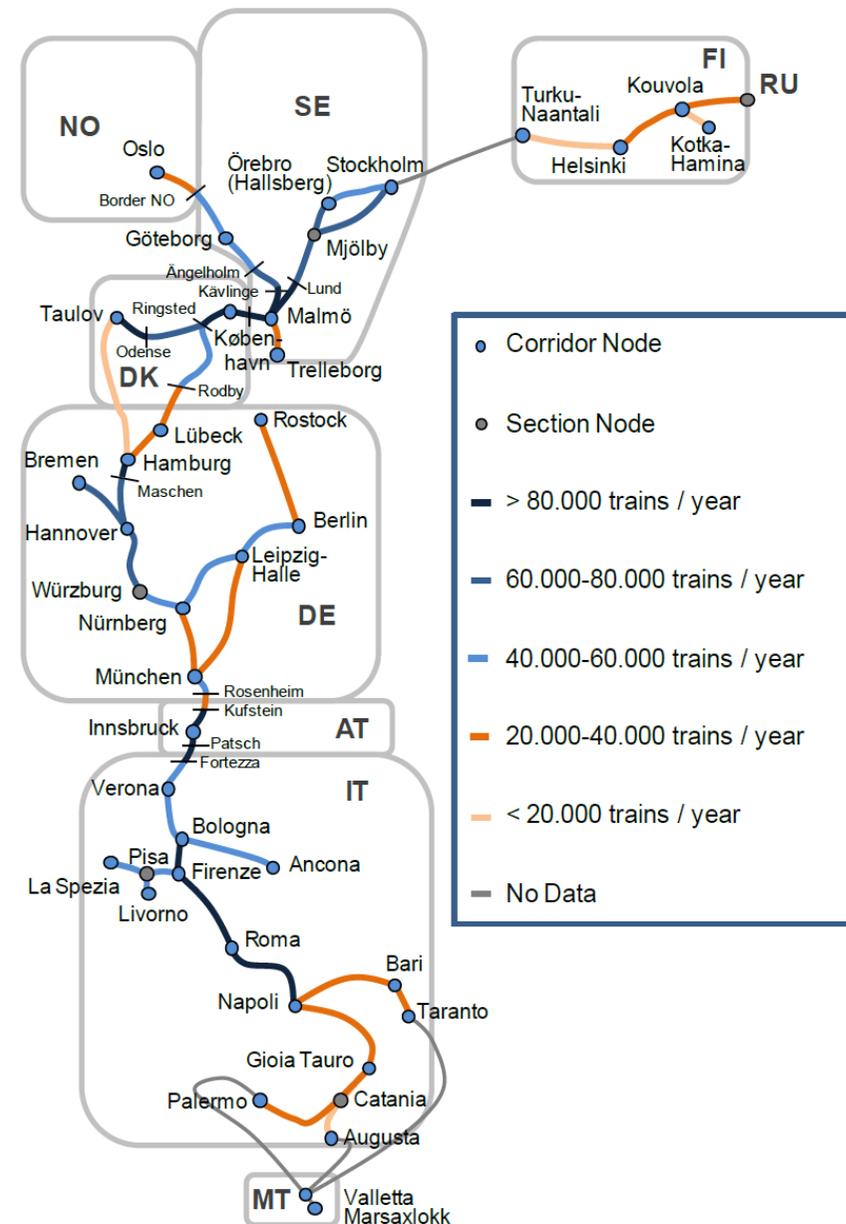


Figure 45: Road traffic loads for market sections of ScanMed Corridor in 2030

# Rail Traffic loads, 2030

- Fehmarn Belt Fixed Link and Brenner Basetunnel as missing links on cross border sections
- High traffic loads on specific corridor sections
- Current capacity limiting further growth
- Non homogeneous infra parameters hampering efficient rail (freight) transoprt

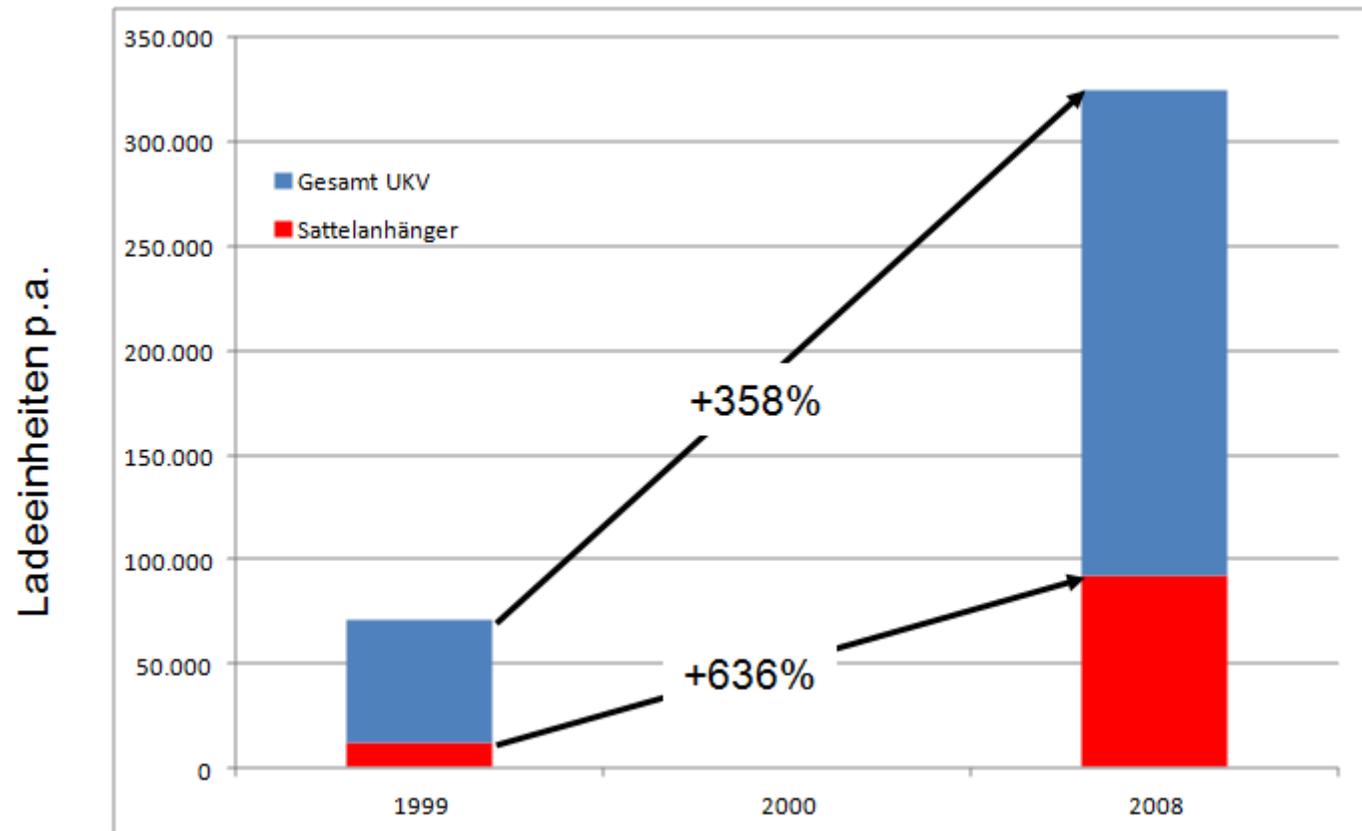


14 Remark: Rail passenger and freight forecast figures for Austria are shown for 2025  
Figure 46: Rail traffic loads for market sections of ScanMed Corridor in 2030

# Mega-Trailer Pocketwagon

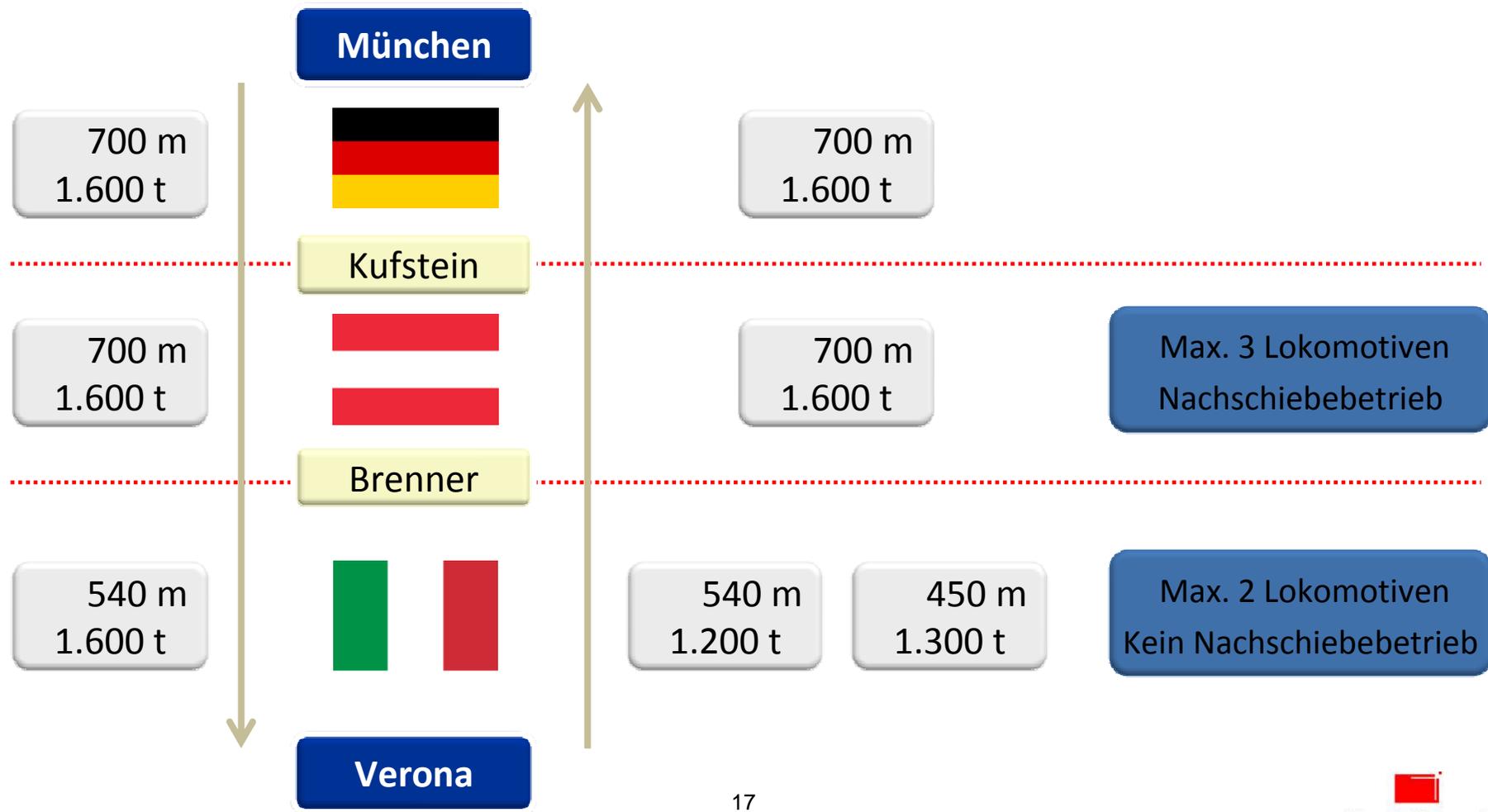


# Intermodal transport after “P400”-Loading profile



“P400”-Loading Profile on Brenner Corridor

# Maximum Train Parameters



## Modern Lokomotives and adapted Regulations



# Competition on rail



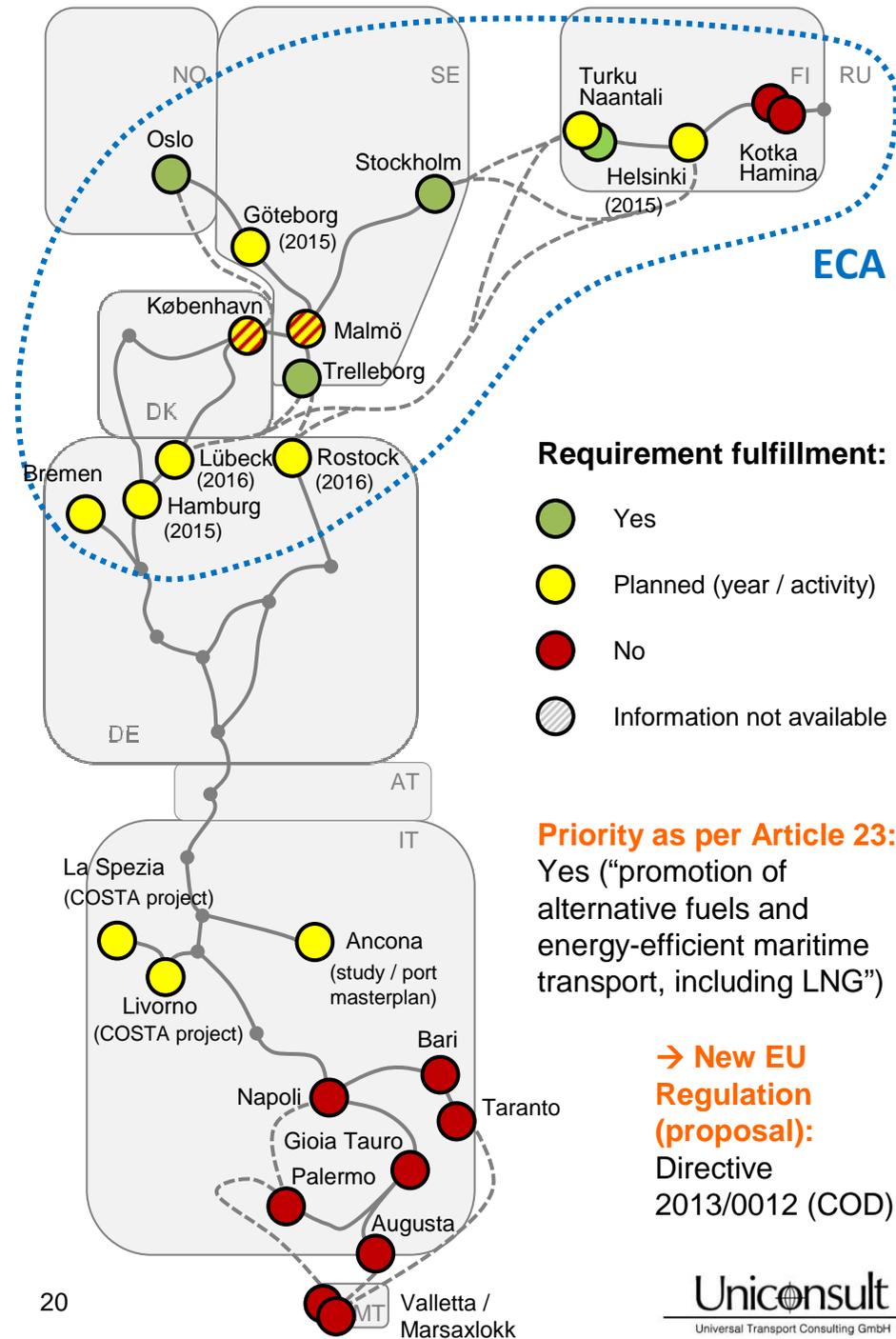
# LNG bunkering facilities

## Core requirement Article 22 (2):

“ Member States shall ensure that ports include equipment necessary to assist the environmental performance of ships in ports ”

➔ Many ports within the Emission Control Area (ECA) of North and Baltic Sea already have established or are planning LNG bunkering facilities

➔ Ports in the southern part of the corridor have started LNG planning activities



# Objectives of ScanMed Corridor

Mode	Objective
Rail	Full electrification
	Axle load 22.5 t
	Line speed 100 km/h, minimum
	740 m freight trains
	ERMTS fully implemented
	Standard gauge 1435 mm for new lines
Road	Express road or motorway
	Intelligent transport systems (ITS) / tolling systems
	Parking areas every 100 km, minimum
	Infrastructure for alternative clean fuels
Airports	Terminal open to all operators
	Infrastructure for air traffic management, SESAR
	Infrastructure for alternative clean fuels
	Main airports connected to (high-speed) rail network
Maritime transport, Ports, MoS	Connection to rail, road, IWW (where possible)
	Infrastructure for alternative clean fuels
	Facilities for ship generated waste
	VTMIS, SafeSeaNet, e-Maritime services
Multimodal transport	All transport modes connected at freight terminals, passenger stations, airports, maritime ports
	Real time information on freight terminals, maritime ports, cargo airports
	Sufficient transshipment equipment on freight terminals
	Continuous passenger traffic through equipment and telematic applications in railway stations, coach stations, airports, maritime ports
Environmental targets	Specific target values more detailed than those mentioned in the TEN-T Regulation could be identified for specific sections of the corridor by the member States concerned in accordance with European legislation

In addition to these, the measures and projects agreed upon by the Member States shall be implemented by the year 2030 the latest, under the provisions made in Article 1 (4) of the Regulation (EU) 1315/2013.

Source: Final Report, Table 13

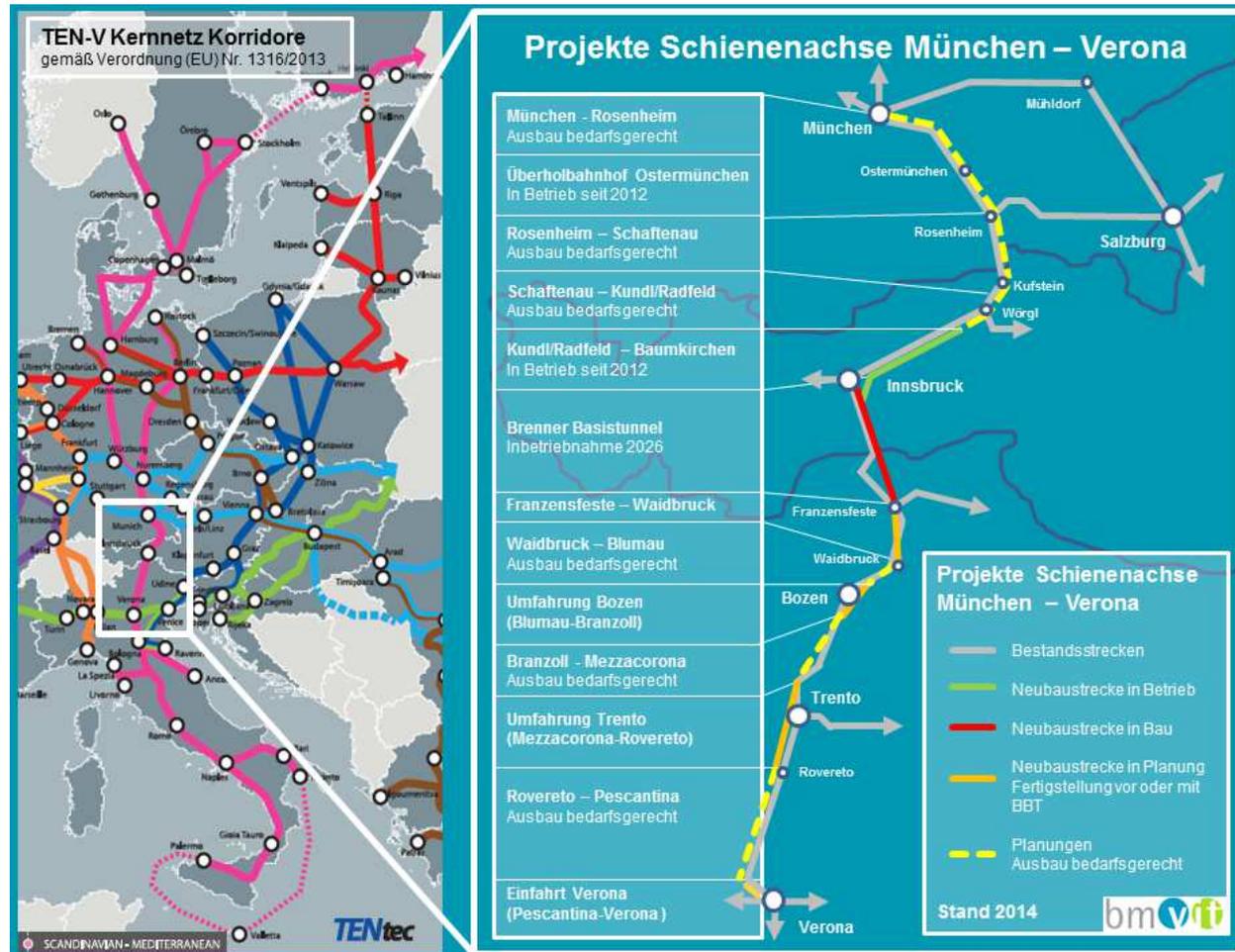
# RFC 3 and ScanMed CNC – Comparison

Back-up

Criterion	RFC 3	CNC
Scope	Rail Freight	Multimodal Freight & Passengers
Main character	Annual time table among business partners Pre-arranged train path One-Stop-Shop	Infrastructure planning where co-ordination at EU level is needed
Traffic	Trains crossing one corridor border and origin and/or destination on corridor	Network load on respective corridor sections
Target year (market analysis)	≈ 2017 (short term) ≈ 2030 (long term)	2030
Scheduling of market studies' completion	Short term by 11/2014 Long term by 11/2015	by 9/2014
Alignment of Infrastructure	Exact infrastructure will be defined after the TMS has been approved	Defined in the EU-Regulation already

The Commission's ambition that RFC 3 results can be used as part of the Multimodal Transport Market Study are not achievable for ScanMed Corridor due to these differences.

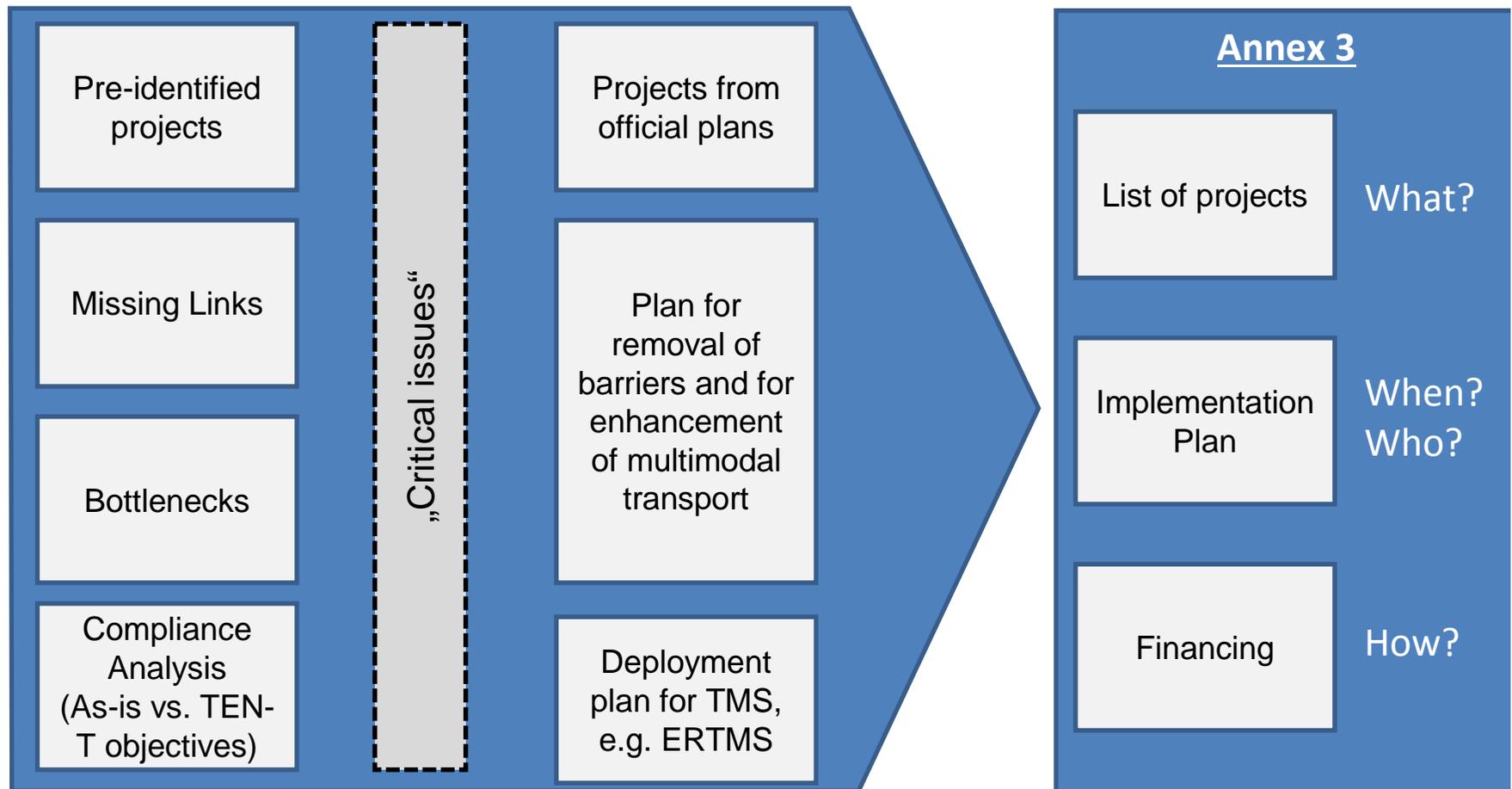
# Projects in section München - Verona



Source: Final Report, Figure 59

# „Analysis“, „Measures“, „List of projects“

Back-up

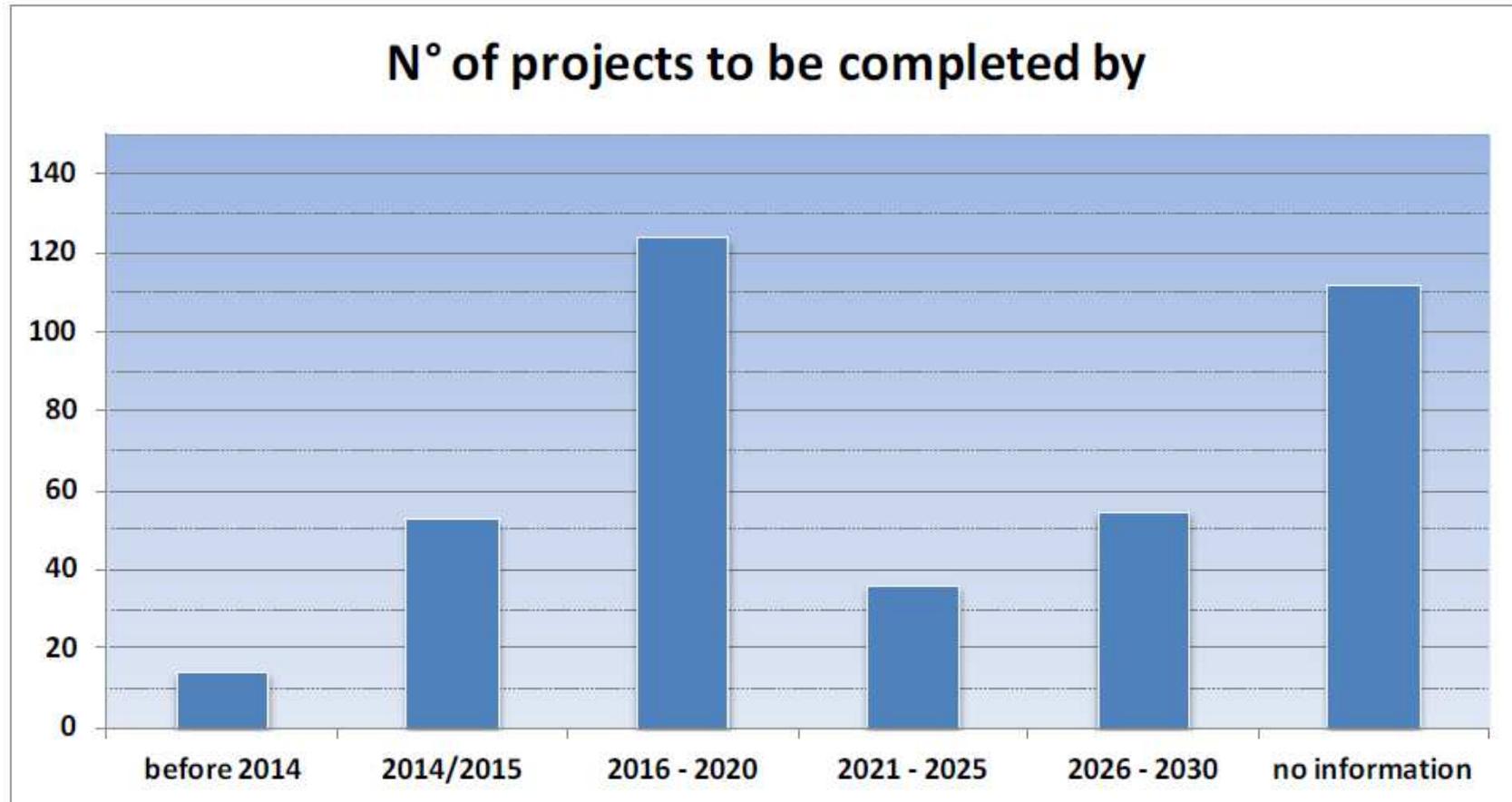


## Projects by mode and country

Country	Rail	Rail + other	Road	Road + other	Sea-port	Sea-p. + MoS	MoS	Air-port	RRT	Other	Total
FI	15	1	5	1	2	1		2	3	2	32
FI/SE						1					1
SE	22	3	15		4	3	1	2	1		50
SE/DK		1									1
DK	10		5	1	2	1		2	1		22
DK/DE		1									1
DE	29	9	31		10	1	1	26	6	1	114
DE/AT			1								1
AT	6		6						1		13
AT/IT	2										2
IT	62	13	13	3	21	4	1	1	1		119
IT/MT						1		6			1
MT			3		10						19
NO	1		1					1	1		4
Diverse							14				14
<b>Total</b>	<b>147</b>	<b>28</b>	<b>80</b>	<b>5</b>	<b>49</b>	<b>11</b>	<b>17</b>	<b>40</b>	<b>14</b>	<b>3</b>	<b>394</b>

Source: Final Report, Figure 14

# Timing of projects



Source: Final Report, Figure 63

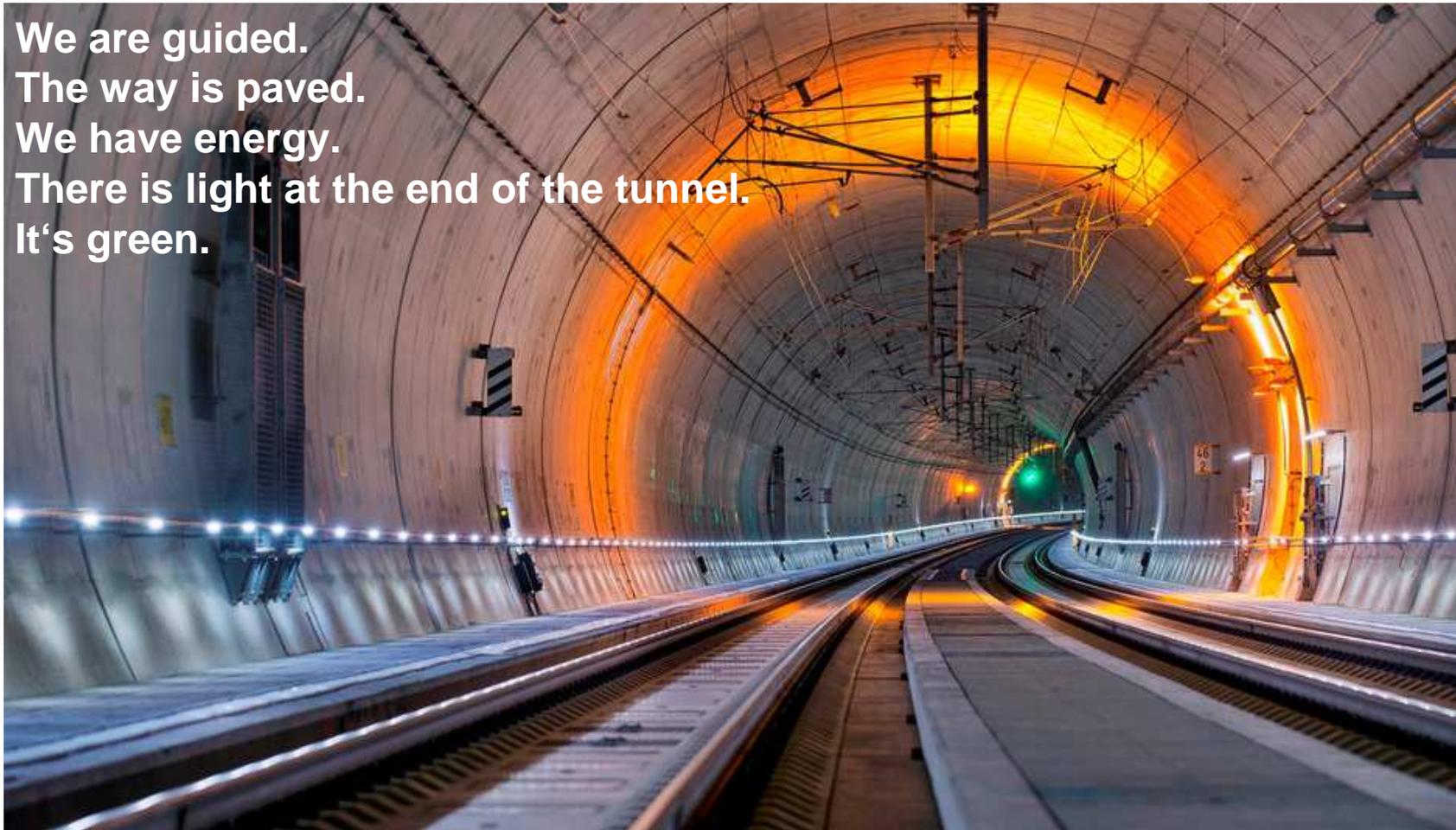
## Costs of projects by “mode” and “country” in MEUR

Country	Rail	Rail + other	Road	Road + other	Sea-port	Sea-port + MoS	MoS	Air-port	RRT	Multi-modal	Total
FI	7.316	165	1.307	90	325	400		914	4	4	10.567
SE	13.335	1.115	7.112		745	130	75				22.511
SE/DK											
DK	6.926		994	350	65						8.335
DK/DE		6.174									6.174
DE	29.545	378	2.421		419			279	188		33.230
DE/AT			10								10
AT	4.907		85						35		5.026
AT/IT	10.000										10.000
IT	26.781	940	18.450	263	1.234		3	115			47.785
MT			85		44			22			151
NO											
Diverse							844				844
Total	98.810	8.771	30.464	703	2.831	530	922	1.330	226	6	144.633

Source: Final Report, Figure 54

# What do you see?

We are guided.  
The way is paved.  
We have energy.  
There is light at the end of the tunnel.  
It's green.



Source of the photo: ÖBB

## Brenner Base Tunnel and access lines

The main arguments for realizing the project are:

- To supply sufficient additional rail capacity for alpine crossing transport in order to support the modal shift objectives of the Alpine area, which are – in brief – to reduce the impact of transport on the local population and the environment in the sensitive alpine region,
- To reduce the travel time Innsbruck –Bolzano from 2 hrs to one and for the 425 km distance between München and Verona from 5.5 to 3 hrs, in order to make those stretches more attractive for passenger and freight services,
- To improve efficiency of rail freight transport, since longer and heavier trains will be able to run with less locomotives, so that the competitive advantage of rail transport can be improved.

## Example: Unterinntal



Source of the photo: ÖBB

## Personal Conclusions

- Year 2014 was the year of the infrastructure guys
- Year 2015 should become the time for:
- Regions, Member States & Commission to agree upon accompanying measures
- Railway Undertakings and Intermodal operators to develop efficient operation concepts
- Logistic service providers and shippers to establishing multimodal solutions

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# Thank you for your attention

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