

Jernbaneverket (JBV)
Norwegian National Rail Administration

Status report on Intermodal transport in Europe

(Final version December 2002)



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- Innovators in the European Transport Business – On-line with the future -

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Preface

This report has been made on assignment from NATO and the Norwegian Infrastructure Manager Jernbaneverket in Oslo, in order to accomplish a thorough survey of the current European intermodal market and hereby an update of the report to the same subject elaborated in 2000.

The overall objective of the status report is to create a general and thorough overview of the intermodal transport market in Europe. Thus both the development until today as well as expected tendencies for the future are analyzed and presented in a clear and comprehensible manner.

The status report is based on existing reports and statistics on the subject, thus the methodology used is primary a market screening to select and collect relevant data and other information, secondly the collected in-put has been structured and analyzed, resulting in a status report outlining the development trends and a detailed bibliography of available background material.

In the first chapter – *General development*, the general economic growth and the general transport development is shown as an introduction to a thorough analysis of the intermodal market. In the second chapter – *Intermodal market*, the framework of intermodal transport in Europe is presented, starting with a brief introduction of glossary and terminologies for intermodal transport. Thereafter the major market actors, the market segments and development are elaborated, ending up with an evaluation of the competitive power of intermodal transport. In the third chapter – *Technical standards for intermodal equipment*, the technical standards for intermodal equipment are presented and evaluated. In the fourth chapter – *Strategies, trends and expectations*, the general European policies and strategies is elaborated, together with trends and expectations to the market development. In the fifth chapter – *Bibliography*, the collected data and other information are thoroughly structured and analyzed in a detailed bibliography, with the following headlines: Title, author, publication information, short description of contents

The report is elaborated by New Thinking – Business Development ApS, Denmark, who is an independent consulting company, with a solid base and understanding of the European intermodal market and specially about the deregulation of the European railway sector. Thus the company possesses a solid expertise within the European transport business, with specialised focus on integration of the railway transport mode in the growing complex logistic set-ups of the future.

A wide array of competencies is available for business development, business process development, analysis and advice within the field of European transport. The company is counselling and facilitating innovative business development within the following areas:

- Intermodal traffic and sustainable mobility
- Deregulation of the railway sector and new opportunities
- Practical market in-put and related tasks
- Research and development assignments
- Traffic planning and logistics
- Business process reengineering and cost cutting
- Market analyses and assessment
- Surveys and market surveillance

As the status report primary is based on other reports and studies, New Thinking – Business Development ApS cannot vouch for the accuracy of the information in the report and declines all responsibility for any use it may be put to.

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Executive summary

The overall objective of this status report is to create a general and thorough survey of the intermodal transport market in Europe. Additionally, the development until today and the expected tendencies for the future are analysed and presented in a clear and comprehensive manner.

The status report is based on existing reports and statistics. The methodology used is primary a market screening for selecting relevant data and information, secondly the collected in-put has been structured and analysed, resulting in a status report outlining the development trends.

General development

The general development seems to have slowed down during the last years. The total Gross Domestic Product (GDP) in Europe was app. 9,2 billion EUR (1999). The EU-member countries and the EFTA countries account for 8 billion EUR, and the Central and Eastern European countries stand for some 1,2 billion EUR.

The importance of the transport sector is obvious when looking at the numbers of employees. In Europe the transport sector account for 23 million employees, equalling 9% of the total workforce. The share of the EU-15 countries is "only" 6 million or 4% of the total in these countries. Additionally the European transport sector alone is estimated to stand for 25-30% of the total energy consumption and around half of the total consumption of oil products are used in the transport sector.

The transport sector within Europe is estimated to generate a GDP of app. 400 billion EUR, which corresponds to app. 5% of the total GDP in the European Union.

Europe has the second largest transport system in the world after The United States. The system serves more than 900 million Europeans of which app. 376 million live in the EU-15 countries. The sector is expected to grow and become even more important in the future, although the activities in the sector are declining. In the last 5 years the average increase in the private consumption in the EU-15 and the EFTA has been around 5% per year, and it is expected that this trend will continue in the coming 5 years.

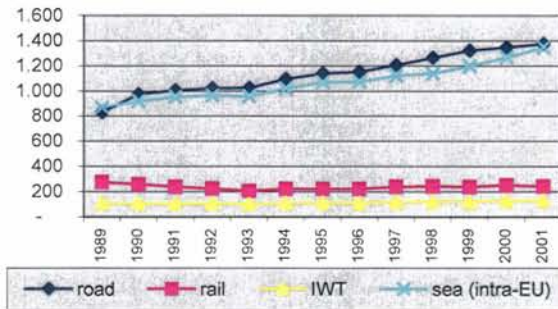
A well-functioning and efficient European transport sector is the basis for growth in general. The guidelines from the European Commission are, that the development of the European transport sector must take place in a sustainable sufficient manner.

General transport development

The rate of growth in the European transport sector has been app. 2% per year over the last 25 years. This growth has mainly been in the road industry, whilst the rail freight (after losses in 1989-93) has increased by about 5-6% in the last years. The railways share of the total freight market has dropped from 32% to less than 15% (excl. sea-bulk market) in the last 25 years, and this trend is expected to continue.

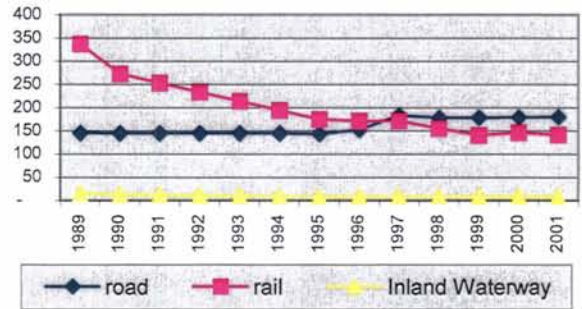
Below is shown the development in the various modes of transport for respectively the EU-15 and for the Central and Eastern European countries:

Development of EU-15 Goods Transport in billion tkm



Source: Eurostat, UIC and estimates

Development of Central & Eastern European Goods Transport in billion tkm

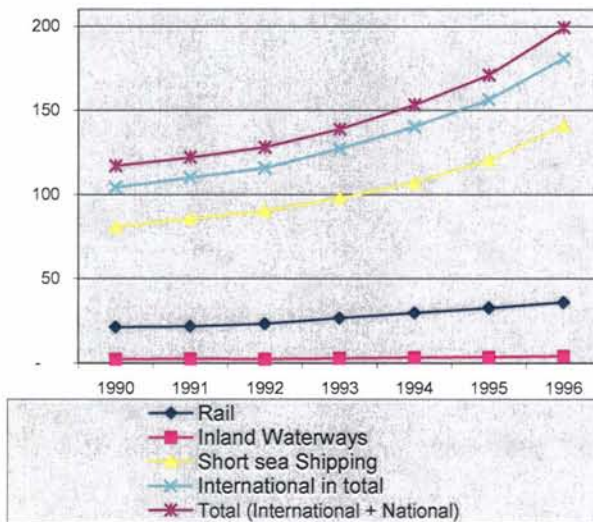


Source: Eurostat, UIC and estimates

The trend for the last 10 years shows an average annual increase of goods transport of 3% compared to the average annual increase in the GDP of only 1,8% per year in the period 1990-99.

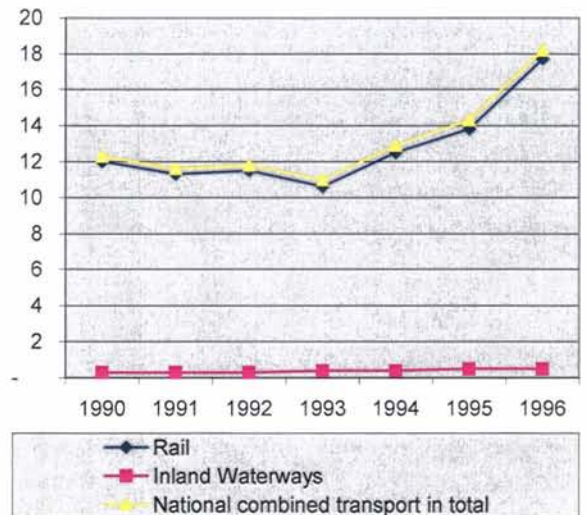
Looking at a study of combined transport made by the EU-Commission the following results are shown:

Development of international combined transport within EU in billion tkm



Source: Eurostat – Combined Transport – DG Energy & Transport study

Development of Central & Eastern European combined transport in billion tkm



Source: Eurostat – Combined Transport – DG Energy & Transport study

The combined transport account for 8% of the total tonne-km transported in Europe in 1996. The international combined transport has an even higher share of 14% within the EU, whereas the domestic combined transport only accounted for 1%.

It should be mentioned that the market share of the road sector has increased from 36,3% in 1970 (487 billion tonne-km) to 45% in 2000 (1.348 billion tonne-km). The transport work has in the same period of time increased with 177%. During the last 10 years the increase of road transport work has been 34%.

The loss of market share for the railway sector is obvious, the sector has gone down from a market share of 11,3% in 1990 to 8,3% in 2000, and the transport work of the railway sector has in the last 10 years only increased with 0,7%. The development has been more positive the last few years. In 2000 the transport work increased by 5,5%.

Intermodal Market

According to an agreement between the European Conference of Ministers of Transport (ECMT), the United Nations (UN) and Eurostat, the overall definition of "Intermodal Transport" is; movements of goods in one and the same loading unit or a vehicle, which uses successively several modes of transport without handling of goods themselves when changing modes.

Market Actors

A normal European border-crossing intermodal transport easily (directly or indirectly) involves 10-15 different actors and 5-6 supply levels. The involvement of so many actors and levels in a very complex structure, with an inadequate structured international co-ordination, is assessed being one of the main reasons to the inefficiency and lack of competitiveness of the European Intermodal business.

The actors involved in an Intermodal transport are normally:

- | | |
|-------------------------------------|--------------------------------------|
| 1. Trucking company by departure | 5. Suppliers of intermodal equipment |
| 2. Trucking company by arrival | 6. Logistic companies |
| 3. Railways providing rail traction | 7. Intermodal terminals |
| 4. Shipping lines | 8. Rail infrastructure managers |

Intermodal market segments and development

With an average increase of 7-8% per year over the last 10 years, the development of the intermodal transport has been very positive. The result is more than double as high as the increase in the general transport work in Europe. In the same period the rail sector in Europe only had a decrease of 0,8% per year. However, the expectations to the intermodal traffic have been clearly higher and have over the last years not developed as well as expected. The main reason is the poor quality of the transports.

In order to be able to analyse the market development in details, the intermodal market in Europe has been divided into the following market segments:

1. Continental transports
2. Overseas transports

However, looking at the market from another angle can also give some interesting directions about the intermodal development:

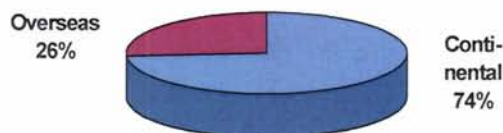
3. International and national road-rail transports
4. International and national road-waterways transport

To illustrate the first two market segments, a large statistical study of the trade between the countries in Europe based on Eurostat material has been made. Thus the following commodities are evaluated to be relevant for intermodal traffic and the border-crossing trade with these commodities on a certain axis, thus represent the total market for intermodal traffic.

Commodity groups suitable for intermodal traffic (NST-R)	
12 – Beverages	84 – Paper pulp and waste paper
13 – Stimulants and spices	89 – Other chemical products
16 – Non-perishable foodstuffs and hops	91 – Transport equipment
52 – Semi-finished rolled steel products	93 – Other machinery apparatus and appliances, engines, parts thereof
54 – Steel sheets, plates, hoop and strip	94 – Manufactures of material
55 – Tubes, pipes, iron and steel castings and forgings	96 – Leather textiles and clothing
56 – Non-ferrous metals	97 – Other manufactures articles

Today the total European trade volume, suitable for intermodal traffic, is estimated to be 659 million tonnes, which corresponds to 17,3% of the total trade volume. 487 million tonnes are estimated to be continental European trade and 172 million tonnes to be overseas European trade.

Total European trade in tonnes 2001 – chosen commodity groups

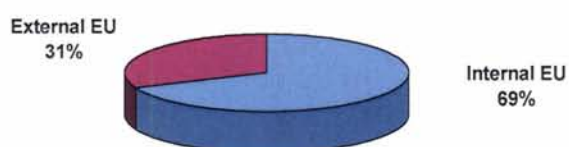


Source: Estimations from Eurostat, Comext database 2001

1. Continental Transports

Of the total continental European trade suitable for intermodal traffic of 487 million tonnes, app. 334 million tonnes are considered to be internal EU trade, and app. 153 million tonnes to be external EU trade between the EU countries and the EFTA countries and the Central and Eastern European countries.

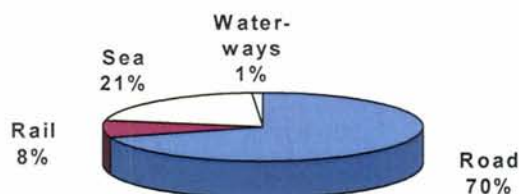
Continental European trade in tonnes 2001 - chosen commodity groups



Source: Estimations from Eurostat, Comext database 2001

As there is no available data, presenting the intermodal transports share of the total European trade, the split per mode of transport in the continental traffic can be illustrated as right.

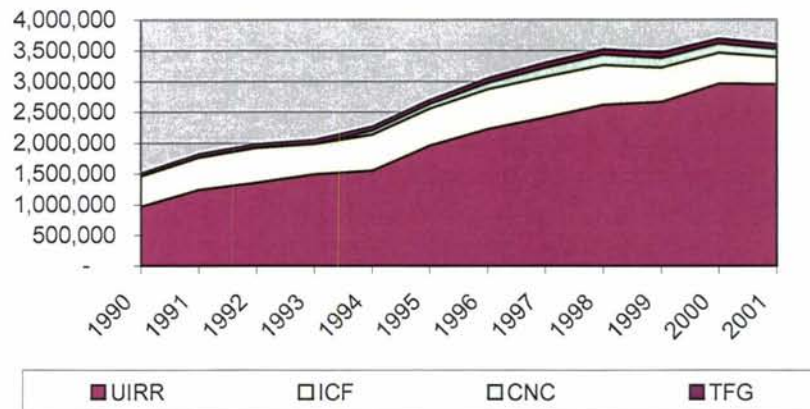
Modal split in continental European trade in tonnes 2001 - chosen commodity groups



Source: Estimations from Eurostat, Comext database 2001

In the beginning of the nineties the combined transport within Europe showed a steady increase. But the last years this has changed to stagnation. The statistic for the international continental intermodal transport in Europe (in TEU) shows an increase of 80% over the last 10 years, which corresponds to an average of 9% per year.

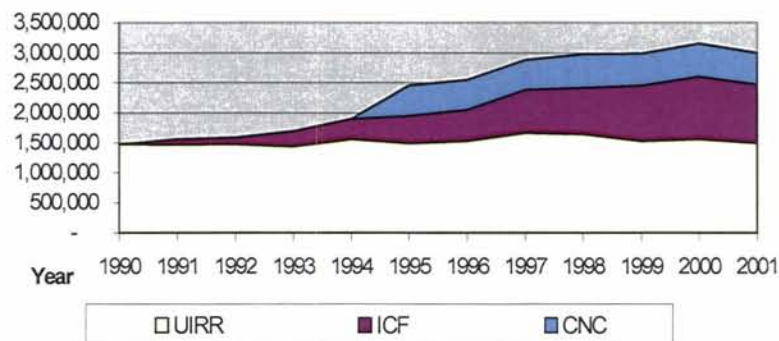
International continental intermodal transports in Europe in TEU



Source: UIRR, ICF and estimates on CNC and TFG

For the national continental intermodal transport (in TEU) the development has been ever better. It shows an increase of 189% over 10 years, corresponding to an average of 21% per year. Unfortunately there are no statistics available for other intermodal actors for national transports.

National continental intermodal transports in Europe in TEU



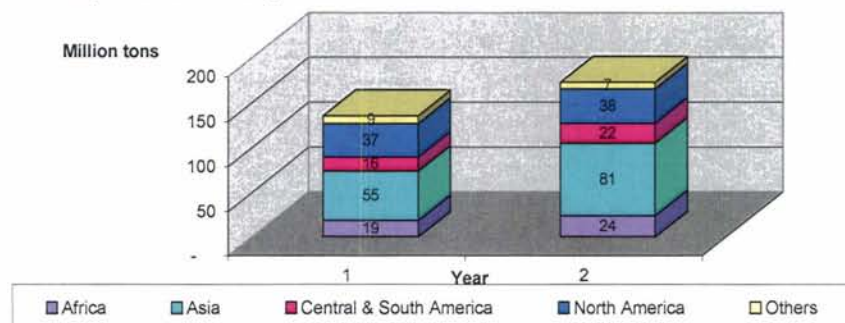
Source: UIRR, ICF and estimates

2. Overseas transports

The total overseas trade with Europe in 2001 was 378 million tonnes exported from Europe and 1.112 million tonnes imported to Europe, or all in all 1.390 million tonnes.

For 2001 the total overseas European trade suitable for intermodal traffic is estimated to be 172 million tonnes or about 12% of the total overseas trade.

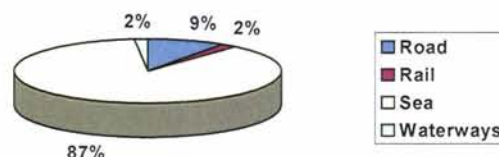
Total European overseas trade of chosen commodity groups in million tonnes; Year 1 = 1997, Year 2 = 2001



Source: Estimations from Eurostat, Comext database in 1997 and 2001

As there is no available statistics presenting the intermodal transports share of the total European trade, the split per mode of transport in the overseas traffic can be illustrated as right.

Modal split in overseas European trade in tonnes 2001 - chosen commodity groups



Source: Estimations from Eurostat, Comext database 2001

The total container transport from the ports in 2001 amounts up to 43 million TEU, which is an increase of 3% compared to year 2000. As can be seen below the 10 largest European container ports had the following development:

Container throughput of the European Ports											
Container throughput in 1.000 TEU											
Port	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	Index 100 = 1992
1 Rotterdam	4,123	4,161	4,539	4,787	4,971	5,495	6,011	6,343	6,275	6,096	148%
2 Hamburg	2,268	2,486	2,726	2,890	3,054	3,337	3,547	3,738	4,248	4,689	207%
3 Antwerpen	1,836	1,876	2,208	2,329	2,654	2,969	3,266	3,614	4,082	4,218	230%
4 Bremen / Bremerhaven	1,315	1,358	1,503	1,518	1,543	1,705	1,811	2,201	2,752	2,915	222%
5 Felixstowe	1,543	1,639	1,747	1,924	2,065	2,251	2,524	2,697	2,793	2,650	172%
6 Gioia Tauro	0	0	0	16	575	1,448	2,126	2,253	2,653	2,488	276%
7 Algeceiras	780	807	1,004	1,155	1,307	1,538	1,826	1,833	2,009	2,152	276%
8 Genova	338	342	512	615	826	1,180	1,266	1,234	1,501	1,527	452%
9 Le Havre	746	895	873	970	1,020	1,185	1,319	1,378	1,486	1,523	204%
10 Valencia	371	385	467	672	708	832	1,006	1,170	1,308	1,506	406%
Total 1 - 10 (2001):	13,319	13,949	15,578	16,876	18,724	21,940	24,700	26,462	29,107	29,763	223%
Total 1 - 50 (2001):	19,345	20,619	22,911	24,985	27,635	31,625	35,536	37,938	41,600	43,009	222%
Hereof 1 - 10:	69%	68%	68%	68%	68%	69%	70%	70%	70%	69%	

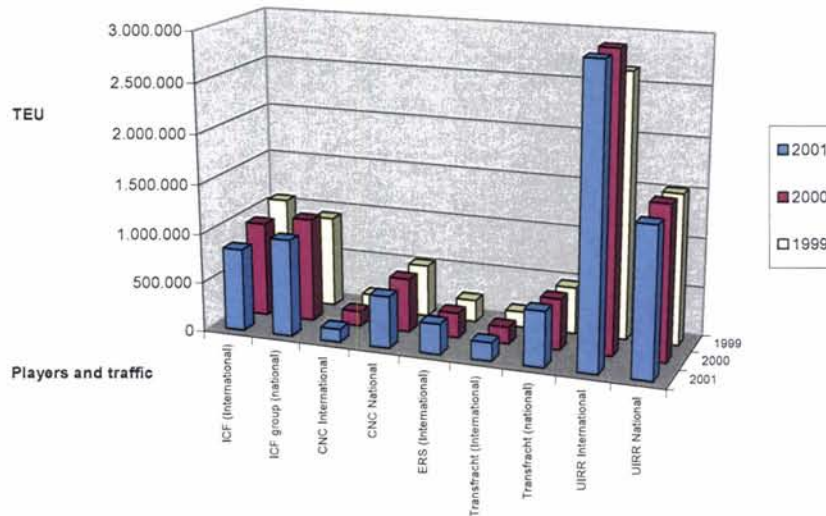
Source: Port of Hamburg

3. International and national road-rail transport

A statistic of intermodal transports is normally not subject to official statistics, and many of the intermodal players are not willing to give detailed information about their traffic. However, in the following various attempts are made to present the development of the different players as well as in the various European countries.

When only looking at the largest players, handling the large majority of the European road-rail intermodal volumes, the total volumes showed a decrease of -2,4% in 2001 to 7.968.439 TEU. (Parts of the volumes might have been taken over by other intermodal players not mentioned here). In year 2000 a total of 8.163.851 TEU was achieved, which was an increase of 5,6% compared with 1999.

National and International volumes for main intermodal players

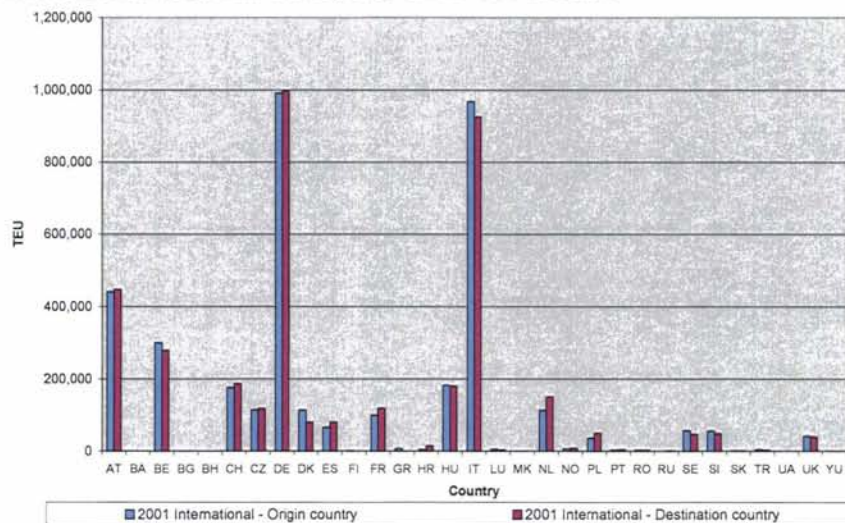


Sources: UIRR, ICF, ERS, Transfracht and estimates

The volume of the two largest players - UIRR and ICF – for 2001 in international road-rail transport were 3,8 million TEU. In 2001 the EU and EFTA countries account for 3,4 million TEU. The total European international road-rail combined transport in 1996 was assessed to have a level of 3,5 million TEU, whereof the traffic between EU and the EFTA countries stands for 3 million TEU.

The largest countries within international combined road-rail transport are clearly Germany with an annual volume of some 2 million TEU in 2001 *in and out* (1,75 million TEU in 1996) and Italy with an annual volume of some 1,8 million TEU in 2001 *in and out* (1,6 million TEU in 1996). An up comer is Austria with 0,9 million TEU in 2001 *in and out* (0,8 million TEU in 1996).

International road-rail transports UIRR+ICF in 2001

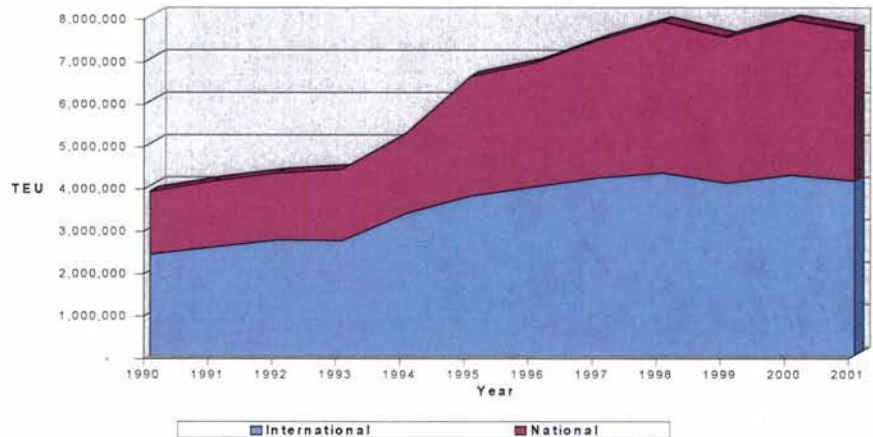


Sources: UIRR, ECMT and estimates

In order to present a picture of the development within this segment, the largest and most important pan-European intermodal logistic companies have been asked about their development in traffic over the last 10 years.

The total development of those companies shows that the traffic has doubled over a 10 years period, whereof the national traffic has had the largest increase, with a yearly average growth of some 22% and the international traffic has had a yearly average increase of some 16%.

National and International road-rail traffic 1990 - 2001



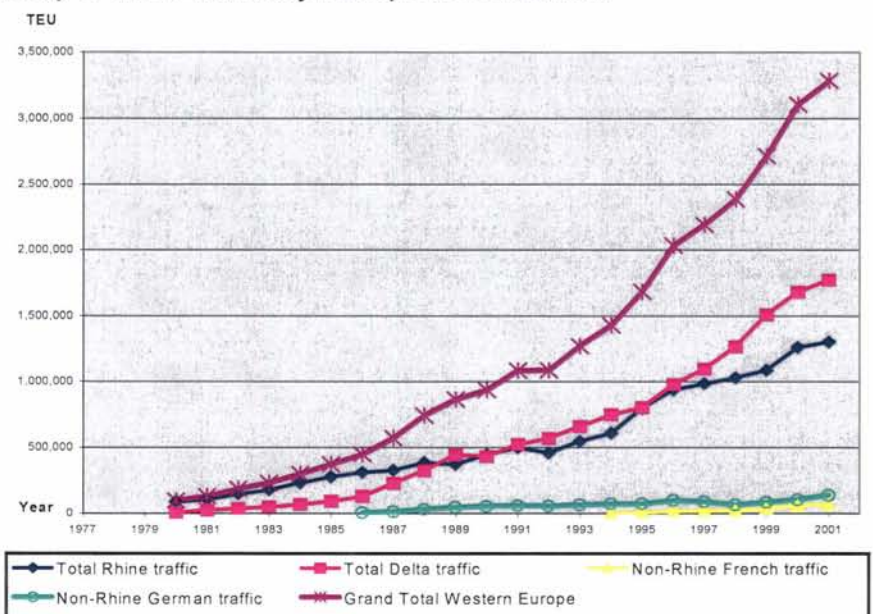
Sources: UIRR, ICF, CNC, TFG, ERS and estimates

4. International and national road-waterway transport

Looking at the statistics for the last 10 years of the Western European waterways the transport of containers have increased 204% since 1991, corresponding to 1.1 million TEU in 1991 increasing to 3.3 million TEU in 2001. The trend for an even longer period is shown in the curve below.

The Inland Waterway Transport – IWT container traffic crossed the 1 million mark in 1991, the 2 million mark in 1996, and the 3 million mark in year 2000. It is expected that the container traffic on inland waterway will increase further than the 5% today, due to the development of container traffic in Europe in general.

Recap of Inland Waterway Transport of containers

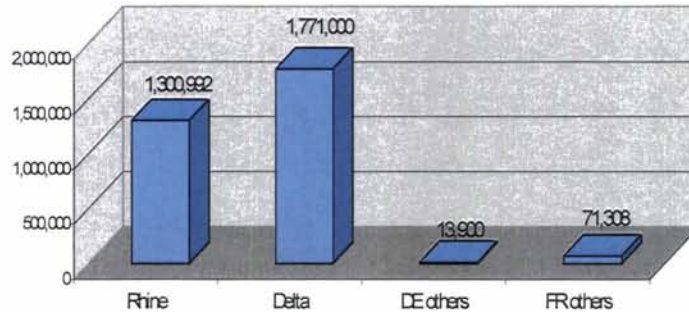


Source: AFTM, Association for a Fluid Traffic, Multimode 2002

The inland waterway transports are becoming an increasingly important intermodal transport mode. Already some 5% of European inland waterway traffic is carried in containers, some 33 million tonnes. This leads to some 5-6 billion ton-km generated by containers on European waterways.

The most important inland waterways are the Rhine with 1,3 million TEU and the Delta with 1,77 million TEU transported per year.

National and International Road-Waterway combined transport 2001

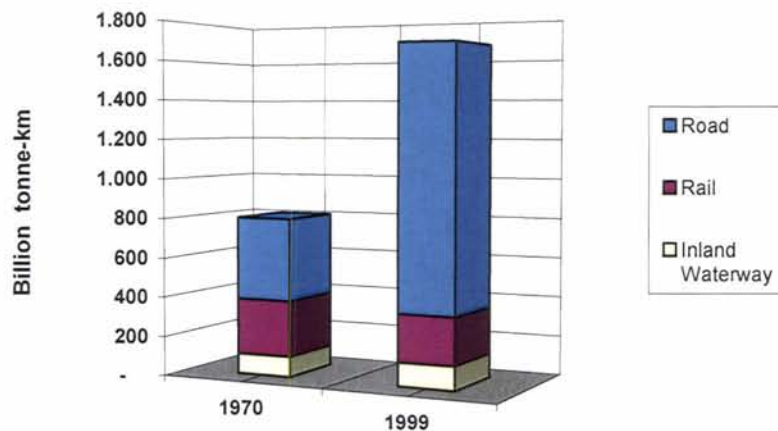


Source: AFTM – Association for a Fluid Mode, Multimodal

Competitive power

The most important and successful transport sector in Europe is without doubt the road sector. Although a lot initiatives in the last 12 years have been taken to increase the competitiveness of intermodal transport, rail and inland waterway it can be concluded, that it has not been possible to break the trend of rapid increase in the road sector.

National and International Road-Waterway combined transport 2001



Sources: Eurostat – Performance 1970-99 (ECMT,UIC, national statistics)

The only way this situation can be changed is to develop competitive intermodal routes. In order to evaluate the present market situation a SWOT-analysis (enlarging the Strengths, Weaknesses, Opportunities and Threats) is in order.

Strengths (internal situation)
<ul style="list-style-type: none"> • Utilising large free capacity on rail- and water-networks • Low energy consumption, low energy costs, low emissions • Large volumes can be transported with limited personal resources • High cost-efficiency potentials when streamlining shuttles/concentrated flows • More efficient border-crossing set-up's are established • Well-established structures in the supply chain (but poor flexibility) • Advanced technology

Weaknesses (internal situation)
<ul style="list-style-type: none"> • Partly inefficient working methods • Large and complex production & networks • Separated ISO-CEN systems (sea vs road) • Inadequate border crossing set-up • Inadequate terminal facilities, -structures, - ownership • Bureaucratic organisations by the railways • Too many levels and too many actors in the supply chain • Inflexible product planning • Costs still too high, lack of finances • Lack of innovation and development • Complicated and expensive technology • Lack of customer orientated actions • Too many national rules and regulations • Lack of internationalisation (alliances)

Opportunities (external situation)	Threats (external situation)
<ul style="list-style-type: none"> • EU political focus and goodwill • Environmentally friendly and safe products • Congested road network • A closing gap ISO-CEN • Large market potential • Market interest from major players • Ongoing process of revitalisation and deregulation of the European rail market • General growing market 	<ul style="list-style-type: none"> • Bad image • Fast product development in the road industry • New technology in the road industry • Reduced local political focus and goodwill • General economical stagnation or recession • General tiredness and lack of interest from the market

Although it is easy to identify the potential intermodal routes in Europe, the establishment of new intermodal routes only progressing slowly. The most important factors for new intermodal transport routes are identified as; Transport price, transport time, flexibility and precision.

Technical standards for intermodal equipment

Today no official European single standard exists for the intermodal equipment. The equipment is based on the existing and already proven technology from the road vehicle industry, the shipping container industry and the conventional railway industry.

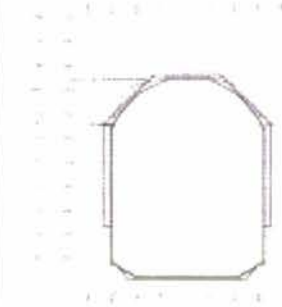
As in the past the future development of the intermodal equipment will be influenced by the coming national regularities of the maximum weight and dimensions allowed in road transport combined with the loading profiles of the national railway networks. Below is shown some of the limitations on the European road network:

Permissible weights in Europe (in tonnes)							
Country	Weight per bearing axle	Weight per drive axle	Lorry 2 axles	Lorry 3 axles	Road Train 4 axles	Road Train 5 axles and +	Articulated Vehicle 5 axles and +
Albania							
Austria	10	11.5	18	25 (1)	36	38 (2)	38 (2)
Azerbaijan	10		18	25	36	38	38
Belarus							
Belgium	10	12	19	26	39	44	44
Bosnia-Herzegovina							
Bulgaria	10	10 / 11.5 (3)	16	26	36	40	40
Croatia	10						
Czech Republic	10	11.5	18	25 / 26	36	42	42
Denmark (4)	10	10 / 11.5	18 / 19	24 / 26	38	44 / 40	40 / 48
Estonia	10	11.5	18	26	36	40	40
Finland (5)	10	11.5	18	26	38	60	48
France	13	13	19	26	38	40	40
FYR Macedonia							
Georgia	10	-	18	38			
Germany	10	11.5	18	26	36	40	40
Greece	10	11.5	18	26	36	40	40
Hungary	10	11	20	24	36	40	40
Ireland	10	10.5	17	26	35	40	40 (6)
Iceland	10	11.5	18	26	37	40	44
Italy	12	12	18	26	40	44	44
Latvia	10	11.5	18	25	36	40	40
Liechtenstein	10	11.5	18	26	36	40	40
Lithuania	10	11.5	18	26	36	40	40
Luxembourg (7)	10	12	19	26	-	44	44
Moldova	10	10	16	24	36	40	40
Netherlands	10	11.5	21.5	33	40	50	50
Norway (8)	10	11.5	-	26	-	50	47
Poland	10	11.5	19.5	29.5	37	40	40
Portugal	10	12	19	26	38	40 (10)	40 (10)
Romania	11		18	24	34	40	40
Russia	10		18	25	36	38	38
Slovak Republic	10	11.5	18	26	40	40	40
Slovenia	10	11.5	18	25		40	40
Spain (10)	10	11.5	18	26	36	40	40
Sweden (11)	10	11.5	18	26	-	60	60
Switzerland	10	11.5	18	25 (12)	34	34	34
Turkey	10	11.5	18	25	36	40	40
Ukraine							
United Kingdom (13)	10	11.5	18	26	36	40	40
Yugoslavia							

Source: ECMT, 05/06/2002

The loading profiles on the railway network also differ widely between the European countries. For obvious reasons, all intermodal equipment must fall within the maximum dimensions allowed for each specific link. The closest to a European standard gauge is the UIC GB profile which has the below mentioned dimensions.

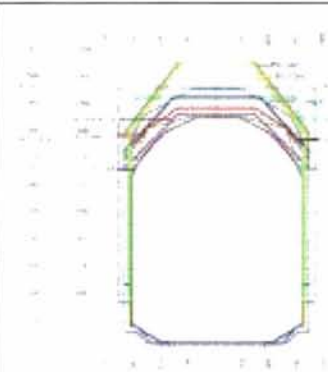
UIC GB – enhancement of GA in order to facilitate combined transports, to be exact the high-cube containers (2900 mm) on standard container wagons (1180 mm). Applicable on most lines north of the Alps, and a few lines south of the Alps.



Source: RRRRail Resource Management AS

Thus the railway profile also in some extent limit the framework for future technical developments. In the following some different railway profiles in Europe are described.

Sweden C – new standard specially designed for industrial transports, both wagonloads and special containers. Also combined short sea.



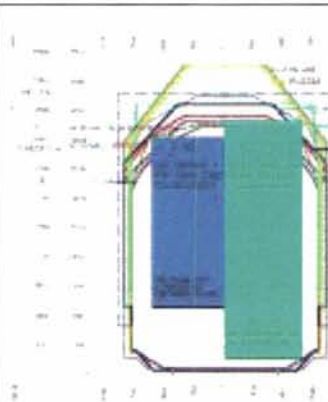
Source: RRRRail Resource Management AS

Loading gauges - examples of combined transport

UIC combined transports codes C/P.
2-digit max. 2500 mm wide - 3-digit max 2600 mm wide.

Standards:

- Sweden C/P410 (whole network)
- Denmark C/P410 (major lines)
- Germany C/P410 (major lines)
- Norway C/P407, all lines except
 - Narvik line P400 (P407++ from 2003)
 - Bergen line (P407 from 2003)
- Finland C/P400 (could be 420?)



Source: RRRRail Resource Management AS

The intermodal traffic has not become the success it was expected to be. One reason is the lack of development and innovation within the field of intermodal equipment. The equipment presently being used is fundamentally based on techniques developed to other transport modes. Worth mentioning is containers to maritime traffic, swap-bodies, semi-trailers to road traffic and rail-wagons to conventional bulk cargo.

Strategies and trends of today

In the White Paper, published in 1992, with the title “The common future development of transport policy – An extensive community strategy for sustainable mobility” the objectives of the EEC transport policy for the 1990’s are described, with the aim to ensure:

- Integration of transport modes so that they will establish integrated systems, where the different modes of transport, when it is appropriate, are combined on the same journey.
- Integration of the national transport networks, so a coherent European network is established.

According to the paper, the amount of traffic should rise with app. 30% until the year 2000.

In 1996 the Commission published the Green Paper with the title: “Towards fair and efficient pricing in transport – policy options for internalising the external cost of transport in the European Union”. By this paper the Commission states that the right pricing, with consideration to a correct underlying cost allocation between the different modes of transport, is a condition for a suitable development of the whole of the European transport sector.

The Commission estimated the external costs for the road and rail sector in Europe as follows:

Effect (in 1.000 million ECU/tear)	Freight on road	Freight on rail
Traffic accidents	21	0,2
Noise	12	1,2
Air-pollution and climate	23	0,5
Total	56	1,8

Source: INFRAS/IWW (1995)

Effect (in ECU/ton-km.)	Freight on road	Freight on rail
Traffic accidents	22,2	0,9
Noise	12,7	4,7
Air-pollution and climate	23,6	1,8
Total	58,4	7,3

Source: INFRAS/IWW (1995)

With the Communication of “Intermodality and intermodal freight transport in the European Union” in 1997, the EU-Commission explains the strategies and actions for an enhanced efficiency of an integrated European transport system. The following obstacles have been identified:

- Lack of connected networks of methods and connections
- A lack of technical interoperability between and within methods
- Variable regulation and standards for transport means
- Data-interchange and procedures
- Conflicting performance, services and quality levels
- Different levels of reliability and lack of information

The Communication also present the key actions towards intermodality:

- Integrated infrastructure and transport modes
- Interoperable and interconnected operations
- Means independent services and regulations

In 1997 the Commission published the report on the application of directive 92/106/EEC, COM (97) 372. The essences of the report was:

1. The number of units carried in 1994 was 7.640.000 TEU, showing a growth of almost 60% between 1990 and 1994. Although in tonne-km, this corresponds only about 5% of the total road transport, but equals about 23% of the rail freight transport.
2. On some routes e.g. Alp-crossing the share of combined transport is much higher than average.
3. While growth in volume has been registered, reliability and price are not yet always competitive with road transport.
4. The scope of the measures taken until now for combined transport is limited and the practical impact of these measures is small.
5. Member States and professional bodies have made suggestions to improve the situation, some of which can appropriately be included in a revision of directive 92/106.

Additionally the report proposes that the competitiveness can be improved in the following ways:

1. Extension of the tax rebates from vehicles tax to each combined transport operation.
2. Lifting of weekend and similar driving restrictions for initial and final road haulage that is part of combined transport.
3. Amendment of Directive 96/53/EC to allow a maximum total weight of at least 44 tonnes in all Member States of the EU for the road haulage part of the combined transport operation.

Strategies and intentions for the future

The White Paper “European Transport policy for 2010, Time to decide” of 2001, by the EU-Commission present the Commissions’ contributions to the objectives of shifting the balance between the transport modes. The aim is to support the efficient door-to-door movement of goods using two or more modes of transport in an integrated transport chain. The objectives are:

1. Shifting the balance between modes of transport
 - a. Improving quality of the road sector
 - b. Revitalising the railways
 - c. Adapting the maritime and inland waterway system
 - d. Link up the modes of transport
2. Eliminating bottlenecks
3. Placing users at the hart of the transport policy
 - a. Unsafe roads
 - b. Facts behind the costs to the user
 - c. Rights and obligations of users
4. Managing the effects of transport globalisation

In 2002 the “Proposal for a regulation of the European Parliament and the Council on the granting of community financial assistance to improve the environmental performance of the freight transport system” COM/2202/0054 final was presented. The purpose is to grant financial assistance to improving the performance of the transport system. This is to be done by:

1. Start-up support for new non-road freight transport services, which should be available in the midterm.
2. Support for launching freight services or facilities of strategic European interest
3. Simulation co-operational behaviour in the freight logistic market

The Regulation is applicable to modal shift actions involving the territory of at least 2 EU-Member States or 1 Member State and a 3rd country.

Trends in the market

The “Short-Term Trends Study” made by ECMT is one of latest evaluation of the transport market. The study is based on the development from the year 2000 to 2001. In the following the result of this study is summed up to present a general picture of the trends of the transport market.

1. Short-term trends in long-standing member counties

a) Economic situation

For eight of the thirteen long-standing Member countries (AT, BE, FR, DE, LU, NL, NO, CH) for which information are available, the industrial output did not change in 2001. Although small, the increase in output for Finland, Spain and Sweden (1,5-2,0 %) was positive. This was not the case for Ireland. As the only country Ireland experienced a major decline in the industrial activity of -19,9%. Portugal came next with a decrease of -2,6%. In general the trend reflected the economic situation in the Western world due to the bursting of the “new economy” bubble combined with the 11th of September 2001.

b) Freight transport

The negative trend in the economic situation is reflected even more clearly in the *Domestic rail freight activity*. In fact, of the fifteen countries for which information is available (AT, BE, DK, FI, FR, DE, IT, LU, NL, NO, PT, ES, SE, CH, UK) ten countries faced a decrease in the domestic rail freight activity. Decrease was especially drastic in Denmark (-26,8%), but also Norway and Switzerland follow closed by with a decline of -21%. The Netherlands, Italy, Belgium and France had a downward going trend of app. 10%. The strongest growth was reported in The United Kingdom (6%) but also Sweden and Spain had a minor increase (2,3% and 1,1% respectively).

In the *international rail freight sector*, eight out of thirteen countries (BE, FI, FR, DE, LU, NL, PT, SE) showed a decline in the activity. The largest decrease was found in Belgium, France and Luxembourg (-10,3, -9,4 and -8,0% respectively). This development indicates the effect of the economic situation mentioned above. A decline of a lesser scale was seen in Sweden, the Netherlands and in Germany (av. -4,5%). A positive development was found in especially Denmark and Switzerland (12,5 and 9,2 % respectively). This equalises a part of the decline in the domestic rail activity for both countries. Norway and Austria also had an increase in the activity but of a smaller scale (4,1 and 2,5%).

The *road freight haulage sector* performance was as negative as the rail freight sector.

For the twelve countries for which information was available in the *domestic haulage other than cabotage* sector five countries had a positive development. The frontrunner was Portugal with an increase of 34,9% followed by Norway and Spain (6,6%). A smaller rise was to be found in France and Germany (3,4 and 1,5%). The strongest fall in the activity was reported in Belgium (13%) followed by Sweden, Finland and The Netherlands with an av. decline of 3,4%. The development in Austria, Denmark and the United Kingdom were unchanged compared to 2000.

The gap between the negative and positive development was larger for the *international road freight haulage* sector than for the domestic. The most intense decrease was reported in Belgium, Denmark, Norway, United Kingdom and Finland (-15,4, -13,5, -11,5, -10,9 and -10,8% respectively). A minor decline of -3,9% was seen in France. There were no changes in the activities for The Netherlands and Sweden compared to 2000. An increase was found in Spain and Austria (12,6 and 10,3%) closely followed by Portugal and Germany (8,2 and 7,0% respectively).

2. Short-term trends in central and eastern European countries and the Baltic countries

a) Economic situation

Industrial output indicators for the year 2001, suggest a substantial economic decline in Eastern Europe and the Baltic countries compared to the activity in the previous year. Of the twelve countries (AL, BH, BG, HR, EE, MK, HU, LV, LT, MAL, PL, RO, SK, SL, YU), which had information available, only two countries reported of a positive development. The most significant increase was seen in Albania (29%) followed by FYR Macedonia in a slightly smaller scale (3,4%-point). The most radical decline in the industrial activity was reported by Lithuania (-29,4%) but also Estonia, Romania, the Czech Republic, the Slovak Republic and Latvia had a downturn at an av. of -7,4%. Slovenia had the smallest decrease of only -3,3%.

As a whole the Eastern European and Baltic countries show an even more radical negative trend than the Western countries due to the same causes.

b) Freight transport

The economic situation had a serious negative influence on the *domestic rail freight transport*. Of the thirteen countries covered by the evaluation (BG, HR, CZ, EE, MK, HU, LV, LT, PL, RO, SK, SL, YU) seven experienced a decline in the activities. FYR Macedonia tops the list with a decrease of -50% followed by Slovenia and Poland (-17 and -13,3%). A slightly smaller decline was reported in Bulgaria (-8,1%) and Czech Republic, Slovak Republic and Estonia with an av. drop of -4,2%. A positive development was seen in Lithuania with an increase in the activity of 33,4%. Romania followed with 19,5% and the Croatia and Latvia (12,6 and 10,5%).

In the *international rail freight sector*, for the same thirteen countries, the development shows the same trend. Romania and Bulgaria had the largest decline followed by Lithuania and FYR Macedonia (-20 and -10,7%). On the other hand a positive development was reported. The frontrunner was Croatia (13,8%) then Latvia, Estonia and Yugoslavia (av. of 6%).

The decline in the rail freight transport sector was not only due to the economic situation but also to the boom in road transport. For instance in the twelve countries for which data is available (BG, HR, CZ, EE, MK, HU, LV, LT, RO, SK, SL, YU), the *domestic road freight haulage* sector had a positive development in five countries. FYR Macedonia had an increase of 887,6%, which is extraordinary but also Croatia had a high increase of 68,6%. The decline in activities was reported in Yugoslavia and Estonia (-17,6 and -12,6%) but a smaller scale of decrease were seen in Slovak Republic, Malta and Hungary (-5,3, -1,8 and -2,5%).

International road freight haulage saw an increase in nine (BG, HR, CZ, EE, H, LV, LT, RO, SK, SL, YU) out of eleven countries. The most massive increase was reported in Croatia (275,8%). Romania, Bulgaria and Estonia also had a high activity. It rose by 79,2, 41,7 and 35,4% respectively. The rest of the countries had an av. increase of 7,7%. Lesser decreases were seen in Yugoslavia and Hungary with an av. of -5,5%.

In all a better result than the one of the Western European countries.

3. Trends in the CIS

Of the three countries of which data was available, Azerbaijan had a decline in the *domestic rail freight transport* (-38,2%) in 2001 while Moldova had an increase of 43,2%. The same pattern was not seen in the *International rail freight transport* where both countries experienced an increase (av. 26%). The only data to mention for the *domestic road freight transport* are Belarus (5,1%) and Moldova with a decline of -10,3%.

General economic development

The general economic development seems to slow down during the last years. The total Gross Domestic Product in Europe is estimated being some EUR 9.165 billion annually (1999). Hereby the EU-Member States account for some EUR 8.004 billion, whereas the EFTA countries, Candidate countries and other Central and Eastern European countries account for some EUR 1.163 billion.

GDP IN BILLION EUR IN 1999					
EU:					Total
BE-Belgium 234	DK-Denmark 165	DE-Germany 1.982	GR-Greece 117	ES-Spain 563	3.061
FR-France 1.350	IE-Ireland 88	IT-Italy 1.108	LU-Luxemburg 18	NL-Netherlands 374	2.938
AT-Austria 197	PT-Portugal 107	FI-Finland 121	SE-Sweden 226	UK 1,353	2.004
Total EU:					5.999
Share EU:					83,8%
Central and Eastern Europe					subtot.
BA-Belarus 27	BG-Bulgaria 12	CH-Switzerland 243	CZ-Czech Rep. 50	EE-Estonia 5	336
HU-Hungary 45	LI-Liechtenstein 2	LT-Lithuania 10	LV-Latvia 6	NO-Norway 144	207
PL-Poland 146	RO-Romania 32	RU-Russia 173	SK-Slovakia 19	SL-Slovenia 19	388
Further European countries					Total
TR-Turkey 173	UA-Ukraine 39	Malta 3	Cyprus 9	Iceland 8	232
Total non-EU:					1.163
Share non-EU:					12,7%
Total Europe:					7.162

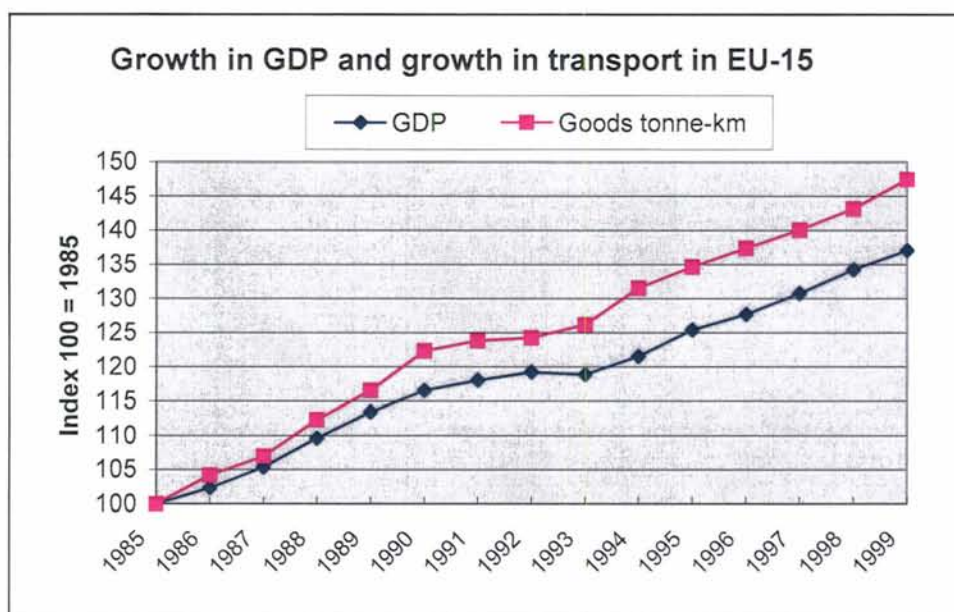
Source: Eurostat Transport in figures: General Economic Data, Other European Countries Population, GDP, Unemployment

The importance of transport business in Europe is obvious, when looking at the number of employed in the transport sector and hereto-related sectors throughout Europe. Some 9% of the total available European workforce is connected with the transport business. The importance is also obvious, when looking at the level of GDP that is generated through the transport sector. The total number of employees in the European transport sector is app. 23 million, or 8% of the total workforce. The EU-15 countries share is only 6 million, or 4% of the total workforce. Additionally the European transport sector is estimated to stand for 25-30% of the total energy consumption, and around half of the total consumption of oil products are used in the transport sector.

The transport sector within EU alone is estimated to generate a GDP of some 400 billion EUR, which corresponds to around 5% of the total EU GDP. The EU transport business alone is estimated to be around 320 billion EUR, which corresponds to some 4% of the total EU GDP. Europe has the second largest transport system in the world. (The United States is ranked first). It serves more than 900 million Europeans, of which app. 376 million live in the EU-15 countries.

As the world trade will keep on rising is the transport sector in Europe expected to become even larger and more important in the future. The EU-15 and EFTA countries has the last 5 years experienced an average increase in the private consumption of app. 5% per year, and it is foreseen, that this trend will continue in the next 5 years.

It is of great importance that the transport sector will develop in an efficient way due to the influence on the European economic in general. In order to illustrate the importance of the European transport sector for the general growth in the European GDP, the following picture can be presented.



Sources: Eurostat, ECMT, DG II - estimations from 1996

Looking back 10 years in Europe, the transports have increased even more than the general GDP-increase in the period. Transports are important for the Community, and restrictions of for example road traffic are very hard to achieve.

A well-functioning and efficient European transport sector is the basis for further growth in Europe, and the guidelines from the European Commission are, that the development of the European transport sector shall take place in a sustainable sufficient manner. Thus an increase in transport efficiency is essential, if for example further increases in the road congestion, that is already costing industrialised economies about 2% of GDP annually, are to be avoided in the future.

The growth rate in the European transport sector, over the last 25 years, is in average about 2% per year. This growth has mainly taken place in the road industry, whilst rail freight has increased by about 5-6% in the last few years, after losses 1989 - 1993. The railways share of the total freight market has dropped from 32% to under 15% (excluding sea-bulk market) in the last 25 years.

The trend is forecast to escalate, so that the transport volumes over the next 10 years will increase by about 50%. Most of this growth is projected to be on the road, thus both the need and the potential to use intermodal solutions to increase the efficiency of movement, and thus obtaining a sustainable development in the transport sector, are self-evident.

The economic importance of the European transport sector goes well beyond borders. It affects the ability of European businesses to compete in the expanding global economy. International trade has always been important in Europe, as it already had its roots in the middle ages. Thus in the EU-15 countries only 1% of the GDP in these countries, equal to some 80 billion EUR, is yearly spent to develop and improve the transport infrastructure.

The ability of the transport sector to meet the logistical needs at the lowest possible costs, in the safest and most environmentally friendly way, is a responsibility, which is to be shared between public agencies, private enterprises and individuals. Because transport, and the world it serves, is constantly changing, informed decisions require continuous updating of the transport sector, how it shall be used, how it can contribute, how it shall be changed and what effect it has.

An important political discussion, which at present is ongoing, on as well national levels as EU level, is how to implement "fair pricing in the transport sector". In a Green Paper published by the EU Commission in 1996, it is estimated, that the road congestion yearly cost 2% of the GDP in the EU-15 countries. Accidents alone accounts for further 1,5% and the pollution and noise minimum 0,6%. In total these factors accounts to approximately 250 billion EUR yearly, and more than 90% of these costs can be related to the road transport sector.

The today's system for road tax is far away from covering these enormous costs. Thus the aim is to develop new models for fair pricing, taking these external factors into account, and where the effective costs are related directly to various transport modes. One example hereof is the upcoming road toll in Germany (Maut). Such models are intended to result in a user behaviour effect, by choosing mode of transport in the future.

In the following a brief overview of the economy and development in the main Western European countries is made.

Austria (AT), with its well-developed market economy and high standard of living, is closely tied to other EU economies, especially Germany's. Membership in the EU (since 1995) has drawn an influx of foreign investors attracted by Austria's access to the single European market and proximity to EU aspirant economies. Slowing growth in Germany and elsewhere in the world slowed the economy to only 1,2% growth in 2001; the economy is expected to do little better in 2002. To meet increased competition from both EU and Central European countries, Austria will need to emphasize knowledge-based sectors of the economy, continue to deregulate the service sector, and lower its tax burden.

Belgium (BE): This modern private enterprise economy has capitalized on its central geographic location, highly developed transport network, and diversified industrial and commercial base. Industry is concentrated mainly in the populous Flemish area in the north. With few natural resources, Belgium must import substantial quantities of raw materials and export a large volume of manufactures, making its economy unusually dependent on the state of world markets. About three-quarters of its trade is with other EU countries. Belgium's public debt is expected to fall to

about 100% of GDP in 2002, and the government has succeeded in balancing its budget. Belgium, together with 11 of its EU partners, began circulating euro currency in January 2002. Economic growth in 2001 dropped sharply due to the global economic slowdown. Prospects for 2002 depend largely on recovery in the EU and the US.

Denmark's (DK) thoroughly modern market economy features high-tech agriculture, up-to-date small-scale and corporate industry, extensive government welfare measures, comfortable living standards, a stable currency, and high dependence on foreign trade. Denmark is a net exporter of food and energy and has a comfortable balance of payments surplus. The government has been successful in meeting, and even exceeding, the economic convergence criteria for participating in the third phase (a common European currency) of the European Monetary Union (EMU), but Denmark, in a September 2000 referendum, reconfirmed its decision not to join the 11 other EU members in the euro. Even so, the Danish currency remains pegged to the euro.

Finland (FI) has a highly industrialised, largely free-market economy, with per capita output roughly that of the UK, France, Germany, and Italy. Its key economic sector is manufacturing - principally the wood, metals, engineering, telecommunications, and electronics industries. Trade is important, with exports account for almost one-third of GDP. Except for timber and several minerals, Finland depends on imports of raw materials, energy, and some components for manufactured goods. Because of the climate, agricultural development is limited to maintaining self-sufficiency in basic products. Forestry, an important export earner, provides a secondary occupation for the rural population. Rapidly increasing integration with Western Europe - Finland was the only Nordic state to join the euro monetary system (EMU) at its invitation in January 1999. Growth in 2001 was held back by the global slowdown and this trend is expected to be the same in 2002.

France (FR) is in the midst of transition, from a well-to-do modern economy that featured extensive government ownership and intervention, to one that relies more on market mechanisms. The Socialist-led government has partially or fully privatised many large companies, banks, and insurers, but still retains large stakes in several leading firms, including Air France, France Telecom, Renault, and Thales, and remains dominant in some sectors, particularly power, public transport, and defence industries. The telecommunications sector is gradually being opened to competition. France's leaders remain committed to a capitalism in which they maintain social equity by means of laws, tax policies, and social spending that reduce income disparity and the impact of free markets on public health and welfare. The current government has lowered income taxes and introduced measures to boost employment, but has done little to reform an overly expensive pension system, rigid labour market, and restrictive bureaucracy that discourage hiring and make the tax burden one of the highest in Europe. In addition to the tax burden, the reduction of the workweek to 35 hours, which is to be extended to small firms in 2002, has drawn criticism for lowering the competitiveness of French businesses. The current economic slowdown has thrown the government's goal of balancing the budget by 2004 off track.

Germany's (DE) affluent and technologically powerful economy turned in a relatively weak performance throughout much of the 1990s. The modernization and integration of the eastern German economy continues to be a costly long-term problem, with annual transfers from west to east amounting to roughly \$70 billion. Germany's ageing population, combined with high unemployment, has pushed social security outlays to a level exceeding contributions from workers. Structural rigidities in the labour market - including strict regulations on laying off workers and the setting of wages on a national basis - have made unemployment a chronic problem. Business and income tax

cuts introduced in 2001 did not spare Germany from the impact of the downturn in international trade, and domestic demand faltered as unemployment began to rise. The government expects growth to gain pace in the second half of 2002, but to fall short of 1% for the year again. Corporate restructuring and growing capital markets are setting the foundations that could allow Germany to meet the long-term challenges of European economic integration and globalisation, particularly if labour market rigidities are addressed.

Greece (GR) has a mixed capitalist economy with the public sector accounting for about half of GDP. Tourism is a key industry, providing a large portion of GDP and foreign exchange earnings. Greece is a major beneficiary of EU aid, equal to about 3,3% of GDP. The economy has improved steadily over the last few years, as the government tightened policy in the run-up to Greece's entry into the EU's Economic and Monetary Union (EMU) on 1 January 2001. Major challenges remaining include the reduction of unemployment and further restructuring of the economy, including privatising several state enterprises, undertaking social security reforms, overhauling the tax system, and minimizing bureaucratic inefficiencies. Economic growth is forecast at 3-3,5% in 2002.

Iceland's (ICE) Scandinavian-type economy is basically capitalistic, yet with an extensive welfare system, low unemployment, and remarkably even distribution of income. In the absence of other natural resources (except for abundant hydrothermal and geothermal power), the economy depends heavily on the fishing industry, providing 70% of export earnings and employing 12% of the work force. The economy remains sensitive to declining fish stocks as well as to drops in world prices for its main exports: fish and fish products, aluminium, and ferrosilicon. The centre-right government plans to continue its policies of reducing the budget and current account deficits, limiting foreign borrowing, containing inflation, revising agricultural and fishing policies, diversifying the economy, and privatising state-owned industries. The government remains opposed to EU membership, primarily because of Icelanders' concern about losing control over their fishing resources. Iceland's economy has been diversifying into manufacturing and service industries in the last decade, and new developments in software production, biotechnology, and financial services are taking place. The tourism sector is also expanding, with the recent trends in eco-tourism and whale watching. Growth has been remarkably steady over the past five years at 4%-5%.

Ireland (IE) is a small, modern, trade-dependent economy with growth averaging a robust 9% in 1995-2001. Agriculture, once the most important sector, is now dwarfed by industry, which accounts for 38% of GDP, about 80% of exports, and employs 28% of the labour force. Although exports remain the primary engine for Ireland's robust growth, the economy is also benefiting from a rise in consumer spending and recovery in both construction and business investment. Over the past decade, the Irish government has implemented a series of national economic programs designed to curb inflation, reduce government spending, increase labour force skills, and promote foreign investment. Ireland joined in launching the euro monetary system (EMU) in January 1999 along with 10 other EU nations. The economy felt the impact of the global economic slowdown in 2001, particularly in the high-tech export sector; the growth rate was cut by nearly half. Growth in 2002 is expected to fall in the 3-5% range.

Italy (IT) has a diversified industrial economy with roughly the same total and per capita output as France and the UK. This capitalistic economy remains divided into a developed industrial north, dominated by private companies, and a less developed agricultural south, with 20% unemployment. Most raw materials needed by industry and more than 75% of energy requirements are imported. Over the past decade, Italy has pursued a tight fiscal policy in order to meet the requirements of the

Economic and Monetary Unions and has benefited from lower interest and inflation rates. Italy's economic performance has lagged behind that of its EU partners, and the current government has enacted numerous short-term reforms aimed at improving competitiveness and long-term growth. Rome has moved slowly, however, on implementing needed structural reforms, such as lightening the high tax burden and overhauling Italy's rigid labour market and expensive pension system, because of the current economic slowdown and opposition from labour unions.

Liechtenstein (LI) has despite its small size and limited natural resources developed into a prosperous, highly industrialized, free-enterprise economy with a vital financial service sector and living standards on a par with the urban areas of its large European neighbours. Low business taxes - the maximum tax rate is 18% - and easy incorporation rules have induced 73.700 holding or so-called letterbox companies to establish nominal offices in Liechtenstein, providing 30% of state revenues. The country participates in a customs union with Switzerland and uses the Swiss franc as its national currency. It imports more than 90% of its energy requirements. Liechtenstein has been a member of the European Economic Area (an organization serving as a bridge between European Free Trade Association (EFTA) and EU) since May 1995. The government is working to harmonise its economic policies with those of an integrated Europe.

Luxembourg (LU) is a stable country with high-income economy features solid growth, low inflation, and low unemployment. The industrial sector, initially dominated by steel, has become increasingly diversified to include chemicals, rubber, and other products. Growth in the financial sector has more than compensated for the decline in steel. Services, especially banking, account for a substantial proportion of the economy. Agriculture is based on small family-owned farms. The economy depends on foreign and trans-border workers for 30% of its labour force. Although Luxembourg, like all EU members, has suffered from the global economic slump, the country has maintained a fairly robust growth rate. On 1 January 2002, Luxembourg - together with 11 of its EU partners - began to replace its circulating national currency with the euro.

The Netherlands (NL) is a prosperous and open economy depending heavily on foreign trade. The economy is noted for stable industrial relations, moderate inflation, a sizable current account surplus, and an important role as a European transportation hub. Industrial activity is predominantly in food processing, chemicals, petroleum refining, and electrical machinery. A highly mechanised agricultural sector employs no more than 4% of the labour force but provides large surpluses for the food-processing industry and for exports. The Netherlands, along with 11 of its EU partners, began circulating the euro currency on 1 January 2002. The country continues to be one of the leading European nations for attracting foreign direct investment. Economic growth slowed considerably in 2001, as part of the global economic slowdown, but for the four years before that, annual growth averaged nearly 4%, well above the EU average.

Portugal (PT) has become a diversified and increasingly service-based economy since joining the European Community in 1986. Over the past decade, successive governments have privatised many state-controlled firms and liberalized key areas of the economy, including the financial and telecommunications sectors. The country qualified for the European Monetary Union (EMU) in 1998 and began circulating its new currency, the euro, on 1 January 2002 along with 11 other EU member economies. Economic growth has been above the EU average for much of the past decade, but GDP per capita stands at just 75% of that of the leading EU economies. The government has failed to reign in a widening deficit and to advance structural reforms needed to boost Portugal's economic competitiveness. A poor educational system, in particular, has been an

obstacle to greater productivity and growth. Portugal has been increasingly overshadowed by lower-cost producers in Central Europe and Asia as a target for foreign direct investment.

Spain's (ES) mixed capitalist economy supports a GDP that on a per capita basis is 80% that of the four leading West European economies. Its centre-right government successfully worked to gain admission to the first group of countries launching the European single currency on 1 January 1999. The Aznar administration has continued to advocate liberalization, privatisation, and deregulation of the economy and has introduced some tax reforms to that end. Unemployment has been steadily falling under the Aznar administration but remains the highest in the EU at 13%. The government intends to make further progress in changing labour laws and reforming pension schemes, which are key to the sustainability of both Spain's internal economic advances and its competitiveness in a single currency area. Adjusting to the monetary and other economic policies of an integrated Europe - and further reducing unemployment - will pose challenges to Spain over the next few years.

Sweden (SE) has an enviable standard of living under a mixed system of high-tech capitalism and extensive welfare benefits. It has a modern distribution system, excellent internal and external communications, and a skilled labour force. Timber, hydropower, and iron ore constitute the resource base of an economy heavily oriented toward foreign trade. Privately owned firms account for about 90% of industrial output, of which the engineering sector accounts for 50% of output and exports. Agriculture accounts for only 2% of GDP and 2% of the jobs. The government's commitment to fiscal discipline resulted in a substantive budgetary surplus in 2001, but is expected to shrink somewhat in 2002, due to the global economic slowdown, tax cuts, and spending increases. The Swedish central bank (the Riksbank) is focusing on price stability with an inflation target of 2% for 2002.

The United Kingdom (UK), a leading trading power and financial centre, is one of the quartet of trillion dollar economies of Western Europe. Over the past two decades the government has greatly reduced public ownership and contained the growth of social welfare programmes. Agriculture is intensive, highly mechanized, and efficient by European standards, producing about 60% of food needs with only 1% of the labour force. The UK has large coal, natural gas, and oil reserves; primary energy production accounts for 10% of GDP, one of the highest shares of any industrial nation. Services, particularly banking, insurance, and business services, account by far for the largest proportion of GDP while industry continues to decline in importance. GDP growth slipped in 2001 as the global downturn, the high value of the pound, and the bursting of the "new economy" bubble hurt manufacturing and exports. Still, the economy is one of the strongest in Europe; inflation, interest rates, and unemployment remain low, and the government expects growth of 2-2,5% in 2002. The relatively good economic performance has complicated the Blair government's efforts to make a case for Britain to join the European Economic and Monetary Union (EMU). The Prime Minister has pledged to hold a public referendum if membership meets Chancellor of the Exchequer Brown's five economic "tests". Scheduled for assessment by mid-2003, the tests will determine whether joining EMU would have a positive effect on British investment, employment, and growth. Critics point out, however, that the economy is thriving outside of EMU, and they point to public opinion polls that continue to show a majority of Britons opposed to the single currency.

Norway's (NO) economy is a prosperous bastion of welfare capitalism, featuring a combination of free market activity and government intervention. The government controls key areas, such as the

vital petroleum sector (through large-scale state enterprises). The country is richly endowed with natural resources - petroleum, hydropower, fish, forests, and minerals - and is highly dependent on its oil production and international oil prices; in 1999, oil and gas accounted for 35% of exports. Only Saudi Arabia and Russia export more oil than Norway. Oslo opted to stay out of the EU during a referendum in November 1994. Growth picked up in 2000 to 2,7%, compared with the meagre 0,8% of 1999, but fell back to 1,3% in 2001. The government moved ahead with privatisation in 2000, even proposing the sale of up to one-third of the 100% state-owned oil company Statoil. With arguably the highest quality of life worldwide, Norwegians still worry about that time in the next two decades when the oil and gas begin to run out. Accordingly, Norway has been saving its oil-boasted budget surpluses in a Government Petroleum Fund, which is invested abroad and now is valued at more than \$43 billion.

Switzerland (CH) is a prosperous and stable modern market economy with a per capita GDP higher than that of the big western European economies. The Swiss in recent years have brought their economic practices largely into conformity with the EU's to enhance their international competitiveness. Although the Swiss are not pursuing full EU membership in the near term, in 1999 Bern and Brussels signed agreements to further liberalize trade ties. They continue to discuss further areas for cooperation. Switzerland remains a safe haven for investors, because it has maintained a degree of bank secrecy and has kept up the Swiss franc's long-term external value. The GDP growth rate dipped to 1,6% in 2001, and the government projects that it will slow further to 1,3% in 2002.

As the candidate countries and the other Central and Eastern European countries (CEEC) are not as economically solid as many of the Western European countries, a short general economic information on the different CEEC countries is presented below for a more differentiated view than the general picture above.

Belarus (BA) has seen little structural reform since 1995, when President Lukashenko launched the country on the path of "market socialism". In keeping with this policy, Lukashenko reimposed administrative controls over prices and currency exchange rates and expanded the state's right to intervene in the management of private enterprise. In addition to the burdens imposed by extremely high inflation, businesses have been subject to pressure on the part of central and local governments, e.g., arbitrary changes in regulations, numerous rigorous inspections, and retroactive application of new business regulations prohibiting practices that had been legal. Further economic problems are two consecutive bad harvests, 1998-99, and persistent trade deficits. Close relations with Russia, possibly leading to reunion, colour the pattern of economic developments. For the time being, Belarus remains self-isolated from the West and its open-market economies.

Bulgaria (BG), a former communist country struggling to enter the European market economy, suffered a major economic downturn in 1996 and 1997, with triple digit inflation and GDP contraction of 10,6% and 6,9%. The current government - which took office in May 1997 after pre-term parliamentary elections - stabilized the economy and promoted growth by implementing a currency board, practicing sound financial policies, invigorating privatisation, and pursuing structural reforms. Additionally, strong assistance from international financial institutions - most notably the IMF that approved a three-year Extended Fund Facility worth approximately USD 900 million in September 1998 - played a critical role in turning the economy around. After several years of tumult, Bulgaria's economy has stabilized. Its better-than-expected economic performance

in 1999 - despite the impact of the Kosovo conflict, the 1998 Russian financial crisis, and structural reforms - and strong growth in 2000 portends solid growth over the next few years; this assumes continued fiscal restraint, additional structural reforms, aid from abroad, and prosperous times in the EU economy.

Before the dissolution of Yugoslavia, the Republic of **Croatia (HR)**, after Slovenia, was the most prosperous and industrialized area, with a per capita output perhaps one-third above the Yugoslav average. Croatia faces considerable economic problems stemming from: the legacy of long-time communist mismanagement of the economy; damage during the internecine fighting to bridges, factories, power lines, buildings, and houses; the large refugee and displaced population, both Croatian and Bosnian; and the disruption of economic ties. Stepped-up Western aid and investment, especially in the tourist and oil industries, would help bolster the economy. The economy emerged from its mild recession in 2000 with tourism the main factor. Massive unemployment remains a key negative element. The government's failure to press the economic reforms needed to spur growth is largely the result of coalition politics and public resistance, particularly from the trade unions, to measures that would cut jobs, wages, or social benefits.

The **Czech Republic (CZ)** is basically one of the most stable and prosperous of the post-Communist states; the Czech Republic has been recovering from recession since mid-1999. The economy grew about 2,5% in 2000 and should achieve somewhat higher growth in 2001. Growth is led by exports to the EU, especially Germany, and foreign investment, while domestic demand is reviving. Uncomfortably high fiscal and current account deficits could be future problems. Unemployment is down to 8,7% as job creation continues in the rebounding economy; inflation is up to 3,8% but still moderate. The EU put the Czech Republic just behind Poland and Hungary in preparations for accession, which will give further impetus and direction to structural reform. Moves to complete banking, telecommunications and energy privatisation will add to foreign investment, while intensified restructuring among large enterprises and banks and improvements in the financial sector should strengthen output growth.

In 2000, **Estonia (EE)** rebounded from the Russian financial crisis by scaling back its budget and reorienting trade away from Russian markets into EU member states. After GDP shrank 1,1% in 1999, the economy made a strong recovery in 2000, with growth estimated at 6,4% - the highest in Central and Eastern Europe. Estonia joined the World Trade Organization in November 1999 - the second Baltic state to join - and continues its EU accession talks. For 2001, Estonians predict GDP to grow around 6%, inflation of between 4,2-5,3%, and a balanced budget. Substantial gains were made in completing privatisation of Estonia's few remaining large, state-owned companies in 2000 and this momentum are expected to continue in 2001. Estonia hopes to join the EU during the next round of enlargement tentatively set for 2004.

Hungary (HU) continues to demonstrate strong economic growth and to work toward accession to the European Union. The private sector accounts for over 80% of GDP. Foreign ownership of and investment in Hungarian firms is widespread, with cumulative foreign direct investment totalling USD 23 billion by 2000. Hungarian sovereign debt was upgraded in 2000 to the second-highest rating among all the Central European transition economies. Inflation - a top economic concern in 2000 - is still high at almost 10%, pushed upward by higher world oil and gas and domestic food prices. The Orban government has not yet addressed economic reform measures such as health care reform, tax reform, and local government financing.

In 2000, **Latvia's (LV)** transitional economy recovered from the 1998 Russian financial crisis, largely due to the Skele government's budget stringency and a gradual reorientation of exports toward EU countries, lessening Latvia's trade dependency on Russia. Latvia officially joined the World Trade Organization in February 1999 - the first Baltic state to join - and was invited at the Helsinki EU Summit in December 1999 to begin accession talks in early 2000. Unemployment fell to 7,8% in 2000, down from 9,6% in 1999, and 9,2% in 1998. Privatisation of large state-owned utilities and the shipping industry faced more delays in 2000, and political instability will continue to delay completion of the privatisation process over the next year. Latvia projects 6% GDP growth, 2,5-3,0% inflation, and a 1,7% fiscal deficit in 2001. Preparing for EU membership over the next few years remains a top foreign policy goal.

Lithuania (LT), the Baltic state that has conducted the most trade with Russia, has been slowly rebounding from the 1998 Russian financial crisis. High unemployment and weak consumption have held back recovery. GDP growth for 2000 - estimated at 2,9% - fell behind that of Estonia and Latvia, and unemployment is estimated at 10,8%, the country's highest since regaining independence in 1990. For 2001, Lithuanians forecast 3,2% growth, 1,8% inflation, and a fiscal deficit of 3,3%. In early 2001, the Lithuanian Government announced that it would repeg its currency, the litas, to the euro (the litas is currently pegged to the dollar) some time in 2002. Lithuania must ratify 25 agreements along with other legal documents and obligations by 1 May 2001 before gaining World Trade Organization membership. Lithuania was invited to the Helsinki summit in December 1999 and began EU accession talks in early 2000. Privatisation of the large, state-owned utilities, particularly in the energy sector, remains a key challenge for 2001.

Poland (PL) has steadfastly pursued a policy of liberalizing the economy and today stands out as one of the most successful and open transition economies. GDP growth has been strong and steady since 1992 - the best performance in the region. The privatisation of small and medium state-owned companies and a liberal law on establishing new firms has allowed for the rapid development of a vibrant private sector. In contrast, Poland's large agricultural sector remains handicapped by structural problems, surplus labour, inefficient small farms, and lack of investment. Restructuring and privatisation of "sensitive sectors" (e.g., coal, steel, railways, and energy) has begun. Structural reforms in health care, education, the pension system, and state administration have resulted in larger than expected fiscal pressures. Further progress in public finance depends mainly on privatisation of Poland's remaining state sector. The government's determination to enter the EU as soon as possible affects most aspects of its economic policies. Improving Poland's outsized current account deficit and reining in inflation are priorities. Warsaw leads the region in foreign investment and needs a continued large inflow.

Romania (RO), one of the poorest countries in Central and Eastern Europe, began the transition from communism in 1989 with a largely obsolete industrial base and a pattern of output unsuited to the country's needs. Over the past decade economic restructuring has lagged behind most other countries in the region. Consequently, living standards have continued to fall - real wages are down over 40%. Corruption too has worsened. The EU ranks Romania last among enlargement candidates, and the European Bank for Reconstruction and Development (EBRD) rates Romania's transition progress the region's worst. The country emerged in 2000 from a punishing three-year recession thanks to strong demand in EU export markets. A new government elected in November 2000 promises to promote economic reform. Bucharest hopes to receive financial and technical assistance from international financial institutions and Western governments; negotiations over a

new IMF standby agreement are to begin early in 2001. If reform stalls, Romania's ability to borrow from both public and private sources could quickly dry up, leading to another financial crisis.

Slovakia (SK) continues the difficult transition from a centrally planned economy to a modern market economy. The economic slowdown in 1999 stemmed from large budget and current account deficits, fast-growing external debt, and persistent corruption. Even though GDP growth reached only 2,2% in 2000, the year was marked by positive developments such as foreign direct investment of USD 1,5 billion, strong export performance, restructuring and privatisation in the banking sector, entry into the OECD, and initial efforts to stem corruption. Strong challenges face the government in 2001, especially the maintenance of fiscal balance, the further privatisation of the economy, and the reduction of unemployment.

Although **Slovenia (SL)** enjoys one of the highest GDPs per capita among the transition economies of Central Europe, it needs to speed up the privatisation process and the dismantling of restrictions on foreign investment. About 45% of the economy remains in state hands, and the level of foreign direct investment inflows as a percent of GDP is the lowest in the region. Analysts are predicting between 4,0% and 4,2% growth for 2001. Export growth is expected to slow in 2001 and 2002 as EU markets soften. Inflation rose from 6,1% to 8,9% in 2000 and remains a matter of concern.

Turkey's (TR) dynamic economy is a complex mix of modern industry and commerce along with traditional agriculture that still accounts for nearly 40% of employment. It has a strong and rapidly growing private sector, yet the state still plays a major role in basic industry, banking, transport, and communication. The most important industry - and largest exporter - is textiles and clothing, which is almost entirely in private hands. In recent years the economic situation has been marked by erratic economic growth and serious imbalances. Real GNP growth has exceeded 6% in most years, but this strong expansion was interrupted by sharp declines in output in 1994 and 1999. Meanwhile the public sector fiscal deficit has regularly exceeded 10% of GDP - due in large part to the huge burden of interest payments, which now account for more than 40% of central government spending - while inflation has remained in the high double digit range. Perhaps because of these problems, foreign direct investment in Turkey remains low - less than \$1 billion annually. Prospects for the future are improving, however, because the Ecevit government since June 1999 has been implementing an IMF-backed reform programme, including a tighter budget, social security reform, banking reorganization, and accelerated privatisation. As a result, the fiscal situation is greatly improved and inflation has dropped below 40% - the lowest rate since 1987. The country experienced a financial crisis in late 2000, including sharp drops in the stock market and foreign exchange reserves, but is recovering rapidly, thanks to additional IMF support and the government's commitment to a specific timetable of economic reforms.

General transport development

The European market of transport is divided into the following statistical modes of transport:

1. Road transport
2. Rail transport
3. Inland waterway transport
4. Sea

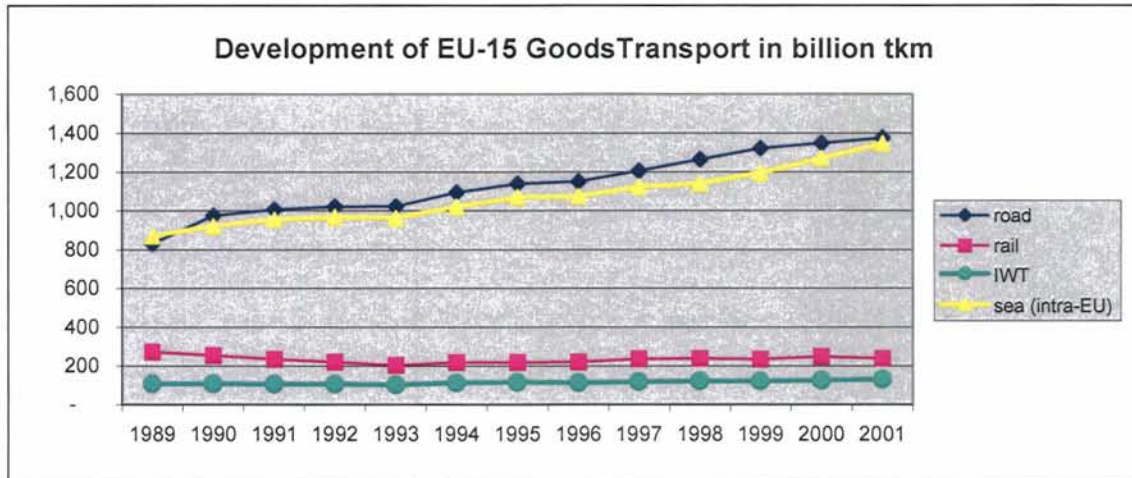
Statistical data on the intermodal transport traffic in Europe is lacking. The reason is that intermodal transport is not registered as a separate mode of transport, but as a chain of several modes of transport. Therefore the general development trends especially within the common intermodal modes rail and inland waterway can also be seen as general development tendencies for the intermodal development in Europe.

However Eurostat and ECMT (the European Conference of Ministers) are some of the official sources that generate a general picture of the intermodal transport development through different studies and surveys. The main results of these studies will also be presented on the following pages.

Additionally must be noted a statistical problem concerning the date of the entering of Sweden and Finland into the European Union. The ferry statistics were changed from the former intermodal version with rail wagons on ferry and road vehicles on ferry, to not having to explain the intermodality of the ferry traffic. For the Scandinavian countries, always having to use a ferry to reach the Continent, this has caused large difficulties in finding out the main mode of transport for the trade statistics, as the mode of transport used by passing the border is to be informed.

Looking at the transport between the Continent and Scandinavia it has always been intermodal transport, even after the building of the Öresundsbridge. But accompanied road vehicles, not using other modes than road and ferry are not intermodal transports.

The development in the various modes of transport for the EU-15 countries is shown in the below figure:

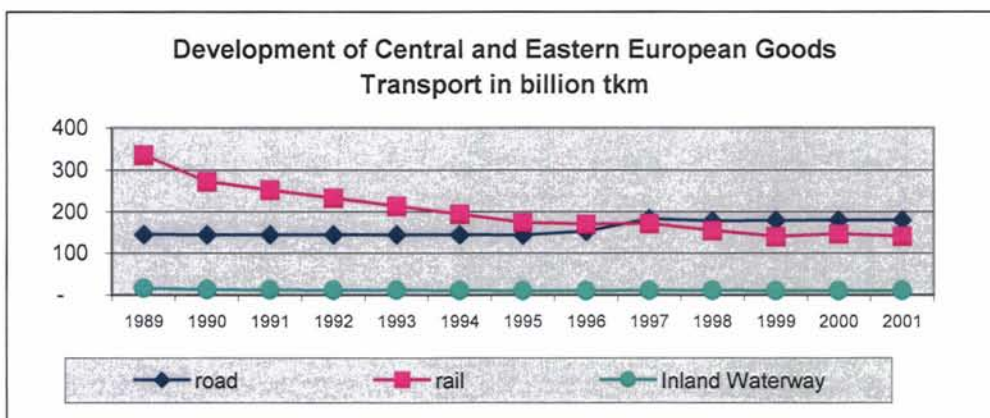


Source: Eurostat, UIC and estimates for 2001

The average annual change per mode in the EU-15 countries in the years 1991 – 2000 as well as between 1999 and 2000 was:

	1991 – 2000	1999 – 2000
Road:	+3,3%	+2,0%
Rail:	+0,7%	+5,5%
Inland Waterways:	+1,8%	+3,6%
Sea (intra-EU):	+3,2%	+6,1%

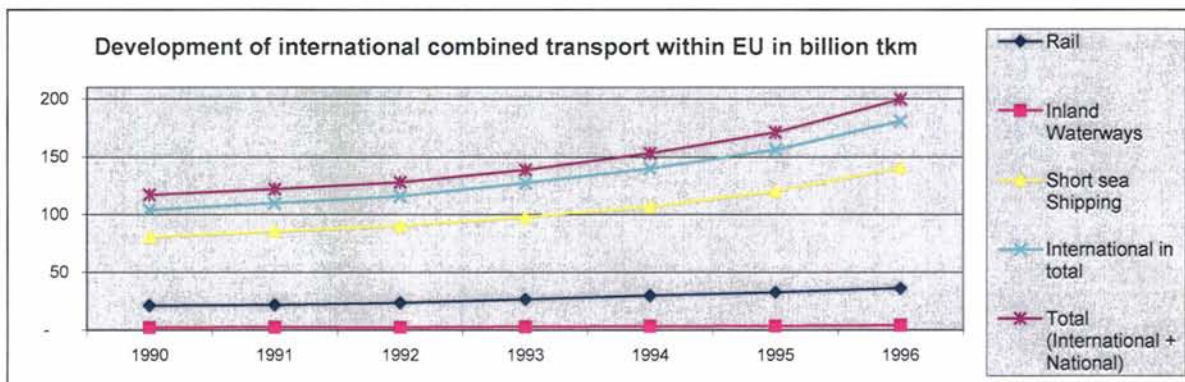
The development in the various modes of transport for the Central and Eastern European countries is shown in the below figure:



Source: Eurostat, UIC and estimates for 2000 and 2001

In the figure above the development for 1991 – 1994 has been calculated, as no data are available. Goods transports in Europe have grown with 114% since 1970, and the trend for the last 10 years is an average annual increase of Goods transport with 3%, compared with the average annual GDP-increase of some 1,8% in the period 1990 – 1999. Unfortunately later figures are not available.

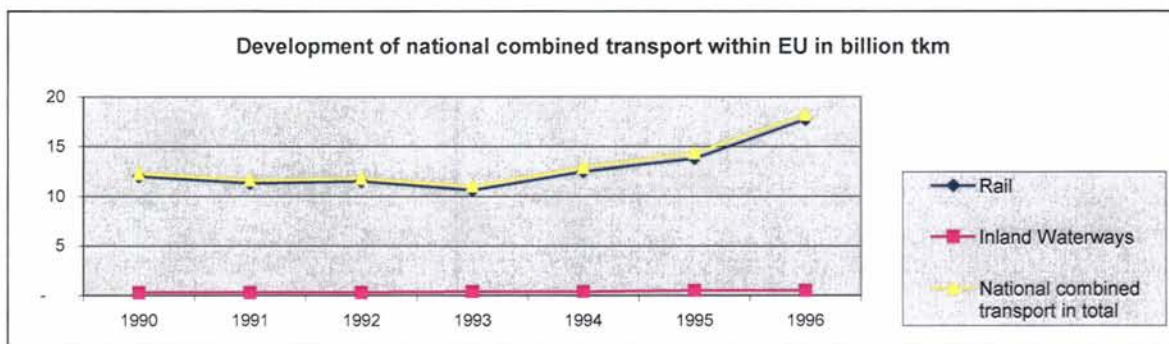
In a study by EU-Commission – DG Transport & Energy, the following results are shown:



Source: Eurostat – Combined Transport – DG Energy & Transport study

The results are based on different assumptions for the different modes. For example is an average distance for short sea shipping is 800 km, whereas the IWW-Rhine transports are 500 km.

If looking at the domestic combined transports, the same study shows the following results:



Source: Eurostat – Combined Transport – DG Energy & Transport study

In addition is it worth mentioning, that the above-mentioned study also compared the combined transports with other modes of transport. The combined transports accounted for 8% of the total tonne-km transported in Europe in 1996, while the international combined transports accounted for 14% of the international transport within the EU, whereas the domestic combined transports only accounted for 1% of the total tonne-km transported. Updated information is not available.

The combined transport share of the total tonne-km is shown below.

Combined transport share of total tonne-km in 1996			
	International	Domestic	Total
Rail	36%	15%	
Inland Waterways	5%	2%	
Short Sea Shipping	13%	-	
All modes	14%	1%	8%

Source: Eurostat – Combined Transport – DG Energy & Transport study

It was calculated, that 13% of the short sea transports are combined transports, 5% of the international inland waterway transports and 2% of the domestic inland waterway transports. Furthermore is 36% of the international rail transport a combined transport, whereas the domestic combined rail transport only accounted for 15%. It has not been possible to receive a sample of the study, wherefore it has not been possible to check the figures.

Combined transport by mode in billion tkm									
	1990	1991	1992	1993	1994	1995	1996	1997	1998
Sea	80.8	85.7	90.3	97.9	107	120.2	140.7	164.5	178.5
Combined part of total sea	8.8%	9.0%	9.3%	10.3%	10.5%	11.2%	13.1%	14.6%	15.6%
Rail	33.4	33.2	34.8	37.2	42.2	46.5	53.7	61.1	62
Combined part of total rail	13.1%	14.1%	15.7%	18.1%	19.2%	21.1%	24.6%	25.8%	25.8%
Inland Waterway	2.7	2.9	2.7	3.3	3.8	4	4.7	5	5.1
Combined part of total Inland Waterway	2.5%	2.7%	2.6%	3.2%	3.4%	3.5%	4.2%	4.2%	4.2%
Total combined transport	116.9	121.8	127.8	138.4	153	170.7	199.1	230.6	245.6
Total traffic (all modes)	2,329.0	2,381.9	2,411.4	2,374.4	2,525.6	2,627.0	2,641.2	2,768.2	2,852.4
Combined part of total traffic	5.0%	5.1%	5.3%	5.8%	6.1%	6.5%	7.5%	8.3%	8.6%

Source: Eurostat Transport in figures Dec 2002

It should be mentioned that the market share of the road sector has increased from 36,3% in 1970 (487 billion tonne-km) to 45% in 2000 (1.348 billion tonne-km). The transport work has in the same period of time increased with 177%. During the last 10 years the increase of road transport work has been 34%. When excluding the sea transports intra-EU in the statistics, the road sector accounted for 55,9% in 1970 and for 78,2% in 2000.

The loss of market share for the railway sector is obvious, the sector has gone down from a market share of 11,3% in 1990 to 8,3% in 2000, and the transport work of the railway sector has in the last 10 years only increased with 0,7%. The development has been more positive the last few years. In 2000 the transport work increased by 5,5%. When looking at the inland transport work i.e. excluding sea intra-EU, rail accounted for 32,4% of the transport work in 1970 and 14,5% in 2000.

On the following pages, the latest developments from the UIC – International Railway Union are presented, together with estimates for the figures missing in the UIC statistics. Below the results from the Western European railways in 2001 are presented in two tables. The first table shows the development of the total rail freight traffic within the EU15 and EEA countries and the second table shows the development in the international transports as part of the total rail freight transports. Furthermore there are 2 equivalent tables for the Central and Eastern European countries.

Comments to the tables below

For Western Europe, the year 2000 was an all time high due to the positive economic trend with almost 1 billion tonnes transported. In the period 1998-2001 the total transported volume for the Western European countries decreased with –1,2%, whereas the decrease was –2,3% for the EU-Member States. When looking at the total transport work the Western European countries achieved a total increase of 1,1% for the period 1998-2001 where the EU-Member States achieved a total increase of 0,6%.

Austria achieved a positive trend throughout the period with all in all some 13% increase 1998-2001. For Switzerland there was a decrease of volumes in 2001 of -2,7%, but for the period 1998-2001 the volumes were increased with 19%. In the UK the freight volumes have decrease with 7,9%, but the transport work has increased with 11,6%. In Norway the volumes increase with 26,6% for the period 1998-2001 and the transport work with 14,3%.

The international transports have had a very positive trend although the figures are missing for some countries as the UK. In the period 1998-2001 the total international volume increased with 2% to 393,6 million tonnes. The international volumes accounted for 41,2% of the total volumes in 2001, whereas only 39,9% in 1998. As the international figures for Sweden and UK are missing in 2001, the international volumes are estimated to an even larger share of the total volume transported on rail.

Rail freight in Central and Eastern Europe: Although the figures are not available from all countries the large volumes reached in year 2000 due to the positive economic trend throughout Europe were almost on the level of the 1998-figures. The figures for year 2001 with a decrease of some 2% are again following the general economic trend. Notable is that Ukraine and Bosnia-Herzegovina have upheld a positive trend since 1998. Many of the Central and Eastern European countries are however still far from the very high historic levels, where the railway was the dominant mode of transport. Many of the countries are also very dependent on the economic trends in Russia, as their main volumes are between the ports and Russia, for example the Baltic States.

All in all the European countries transported more than 2 billion tons in 2001 and that is some - 2,7% less than in 2000 and some -1,7% less than in 1998. The transport work decreased with - 2,8% in 2001, but achieved a small increase of 0,6% for the period 1998-2001. The international transport volume is still more than 4% above the volume in 1998, and has therefore taken shares from the inland rail freight traffic. Here it has to be noted that there are figures missing for both UK and Sweden for 2001 for example. The international traffic showed an all time high in 2000 as can be seen below with increases compared with 1999 of more than 12%.

Total rail transport volume in Europe						
	million tonnes	Difference	Index 100=1998	million ton-km	Difference	Index 100=1998
2001	2,010.7	-2.7%	98.3	603,863	-2.8%	100.6
2000	2,065.9	4.6%	101.0	621,061	6.8%	103.5
1999	1,974.5	-3.5%	96.5	581,776	-3.0%	97.0
1998	2,045.6		100.0	599,996		100.0
Hereof total international rail transport volume in Europe						
	million tonnes	Difference	Index 100=1998	million ton-km	Difference	Index 100=1998
2001	899.6	-2.3%	104.3	313,320	-3.9%	104.4
2000	921.2	12.2%	106.8	326,037	12.6%	108.6
1999	821.1	-4.8%	95.2	289,441	-3.6%	96.4
1998	862.4		100.0	300,237		100.0

Source: estimates from UIC statistics

TOTAL RAIL FREIGHT IN WESTERN EUROPE																	
EUROPEAN UNION	Million tonnes								Million ton-km								Comment
	2001	%	2000	%	1999	%	1998	2001	%	2000	%	1999	%	1998			
AT ÖBB	PV)	86.4	2.0%	84.7	8.6%	78.0	2.0%	76.5	17,387	1.6%	17,110	10.0%	15,558	1.4%	15,348		
BE SNCB/NMBS		57.0	-7.0%	61.3	3.7%	59.1	-2.6%	60.7	7,080	-7.7%	7,673	3.8%	7,393	-2.7%	7,600		
CH CFF/SBB/FFS		57.7	-2.7%	59.3	6.7%	55.6	14.6%	48.5	9,661	-7.4%	10,436	9.4%	9,539	9.2%	8,733		
DE DB AG		277.0	-3.6%	287.3	2.9%	279.3	-3.2%	288.6	74,449	-3.1%	76,816	7.4%	71,494	-2.4%	73,274		
DK Railion Denmark (DSB)		7.2	-8.9%	7.9	9.7%	7.2	-7.7%	7.8	2,068	-2.1%	2,112	12.8%	1,872	-6.7%	2,007		
ES RENFE		25.2	-0.4%	25.3	2.0%	24.8	-0.8%	25.0	11,666	1.1%	11,542	1.0%	11,423	1.9%	11,214		
FI VR		41.7	3.0%	40.5	1.3%	40.0	-1.7%	40.7	9,857	-2.5%	10,107	3.6%	9,752	-1.3%	9,885		
FR SNCF	5)	126.3	-10.9%	141.7	3.6%	136.8	0.1%	136.7	50,396	-9.0%	55,352	3.6%	53,438	-1.0%	53,959		
GR CH	PV)	0.0		3.0	25.0%	2.4	9.1%	2.2	0		370	6.6%	347	7.8%	322		
IE CIE		2.6	-3.7%	2.7	-3.6%	2.8	10.5%	2.5	516	6.2%	486	-2.8%	500	17.9%	424		
IT FS Spa	2)	77.5	-2.6%	79.6	7.6%	74.0	-2.4%	75.8	21,763	-4.6%	22,815	5.9%	21,549	-4.0%	22,454		
LU CFL		17.0	-7.1%	18.3	4.0%	17.6	6.0%	16.6	585	-7.4%	632	3.9%	608	5.9%	574		
NL Railion Benelux/NS		24.6	-3.1%	25.4	9.5%	23.2	-2.5%	23.8	3,834	0.4%	3,819	7.6%	3,549	-6.1%	3,778		
NO NSB BA		8.1	2.5%	7.9	-2.5%	8.1	26.6%	6.4	2,450	2.1%	2,399	-1.2%	2,429	13.3%	2,143		
NO MTAS	6)	12.2	-11.6%	13.8	19.0%	11.6	-18.3%	14.2	478	-11.5%	540	18.9%	454	-18.2%	555		
PT CP	1)	9.1	1.1%	9.0	-3.2%	9.3	3.3%	9.0	2,138	-2.1%	2,183	0.2%	2,179	6.4%	2,048		
SE Green Cargo AB		29.8	-3.6%	30.9	5.8%	29.2	5.0%	27.8	14,862	-3.6%	15,422	4.3%	14,785	3.8%	14,250		
UK GB -National Railways		95.4	3.0%	92.6	-8.3%	101.0	-2.5%	103.6	19,200	4.9%	18,300	2.2%	17,900	4.1%	17,200		
TOTAL WESTERN EUROPE		954.8	-3.7%	991.2	3.3%	960.0	-0.7%	966.5	248,390	-3.8%	258,114	5.5%	244,769	-0.4%	245,768		
TOTAL EU		876.8	-4.4%	910.2	4.7%	884.7	-0.7%	897.3	235,801	-4.5%	244,739	5.9%	232,347	-1.1%	234,337		

Notes and comments – see below!

TOTAL RAIL FREIGHT IN WESTERN EUROPE - HEREOF INTERNATIONAL																	
EUROPEAN UNION		Million tonnes							Million ton-km							Comment	
		2001 %	2000 %	1999 %	1998 %	1998	2001 %	2000 %	1999 %	1998 %	1998						
AT	ÖBB	PV)	64.7	3.0%	62.8	9.2%	57.5	-0.2%	57.6	13,348	2.4%	13,031	9.9%	11,855	-0.7%	11,944	
BE	SNCB/NMBS		34.9	-6.7%	37.4	5.4%	35.5	-1.9%	36.2	5,226	-7.4%	5,643	5.4%	5,353	-1.5%	5,433	
CH	CFF/SBB/FFS		35.2	-5.1%	37.1	35.7%	27.3	-6.0%	29.1	7,070	-6.5%	7,560	13.2%	6,676	7.2%	6,228	9-99, 9-98
DE	DB AG		96.6	-1.9%	98.5	9.7%	89.8	-3.6%	93.2	38,441	-3.4%	39,804	10.9%	35,882	-3.2%	37,063	
DK	Railion Denmark (DSB)		4.2	-2.3%	4.3	-14.0%	5.0	-5.7%	5.3	1,412	11.7%	1,264	-9.9%	1,403	-3.2%	1,449	
ES	RENFE		4.8	-5.9%	5.1	8.5%	4.7	-16.1%	5.6	1,973	-3.1%	2,037	3.3%	1,972	-10.5%	2,204	
FI	VR		17.7	7.9%	16.4	31.2%	12.5	-26.9%	17.1	3,269	-1.1%	3,305	30.2%	2,538	-28.9%	3,572	
FR	SNCF	5)	45.3	-10.3%	50.5	8.1%	46.7	1.3%	46.1	20,470	-8.9%	22,472	6.7%	21,052	-0.9%	21,234	
GR	CH	PV)					2.1	16.7%	1.8					244	24.5%	196	
IE	CIE		-		-		-		-								
IT	FS Spa	2)	48.6	1.0%	48.1	7.8%	44.6	-2.2%	45.6	11,087	0.5%	11,027	5.5%	10,452	-5.1%	11,019	
LU	CFL		15.3	-8.4%	16.7	6.4%	15.7	4.7%	15.0	546	-8.2%	595	5.9%	562	4.3%	539	
NL	Railion Benelux/NS		21.6	-1.4%	21.9	9.5%	20.0	-1.5%	20.3	3,453	2.7%	3,362	15.0%	2,923	-1.2%	2,959	
NO	NSB BA		3.8	26.7%	3.0	-6.3%	3.2	-3.0%	3.3	933	-1.0%	942	5.8%	890	85.4%	480	
NO	MTAS	6)															
PT	CP	1)	0.9	-10.0%	1.0	0.0%	1.0	-16.7%	1.2	304	-2.3%	311	-2.2%	318	-22.4%	410	
SE	Green Cargo AB				8.6	2.4%	8.4	0.0%	8.4			5,440	6.0%	5,134	2.0%	5,031	
UK	GB -National Railways																
TOTAL WESTERN EUROPE			393.6	-4.3%	411.4	10.0%	374.0	-3.0%	385.8	107,532	-7.9%	116,793	8.9%	107,254	-2.3%	109,761	
TOTAL EU																	

Notes and comments:

The percentages and totals are based on figures that have not been rounded off.

PV) Freight traffic including empty privately owned wagons

Railways' remarks – 2001

2) The methodology to calculate passengers and passengers-km has been revised by TRENITALIA. Data 2000 and 2001 are comparable because on the same data base

3) NS.NV - passengers, RAILION Benelux – freight

5) SNCF: passenger traffic data not corrected in the course of the financial year for main line and TER traffic. The figures were all corrected in the month of December. As regards freight, SERNAM traffic is no longer taken into account because SERNAM has become a subsidiary. Strikes 2001: 29/03-13/04; 16/10; 29/11.

6) MTAS - Malmtrafik i Kiruna AS (Norwegian)

Railways' remarks – 1999

1) FS- 1998-1999 Methodological change.

2) SBB - Only consignments invoiced are included in the freight figures. In addition change of accounting system used in 1999.

3) NSB - International traffic: changes in data capture procedures

Sources: UIC, GC Annual Report 2001

Rail freight in Central and Eastern Europe															Period note
Central and Eastern Europe	Million tons							Million ton-km							
	2001	%	2000	%	1999	%	1998	2001	%	2000	%	1999	%	1998	
HSH Albania	0.0		0.0		0.0		0.0	0		0		0		0	
BC Belarus	84.6	-3.8%	88.0	2.1%	86.2	-2.0%	87.9	29,727	-5.4%	31,425	2.9%	30,529	0.5%	30,371	
BDZ Bulgaria	19.3	-8.5%	21.1	0.0%	21.1	-13.8%	24.5	4,904	-11.4%	5,538	4.5%	5,297	-13.9%	6,152	
ZBH Bosnia-Herzegovina	4.1	24.2%	3.3	20.3%	2.7	5.3%	2.6	162	15.5%	140	22.0%	115	58.2%	73	
ZRS Bosnia	0.0	6.3%	0.0	-8.0%	0.0	#DIV/0!	0.0	105	42.5%	74	136.3%	31	#DIV/0!	0	
CD Czech Republic	87.4	-2.0%	89.2	8.6%	82.1	-12.1%	93.5	16,558	-3.8%	17,220	4.6%	16,458	-10.0%	18,286	
EVR Estonia	39.0	-2.0%	39.8	6.4%	37.4	17.1%	31.9	8,222	5.6%	7,788	10.9%	7,020	21.3%	5,786	
HZ Croatia PV)	8.3	-18.3%	10.1	-12.2%	11.5	-9.0%	12.6	1,548	-13.4%	1,788	-3.3%	1,849	-7.6%	2,001	
MAV Rt. Hungary PV)	43.4	0.4%	43.2	0.2%	43.1	-8.1%	46.9	7,367	-4.6%	7,721	4.6%	7,380	-5.1%	7,778	
LG Lithuania	29.2	-5.0%	30.7	8.3%	28.3	0.0%	28.3	7,741	-13.2%	8,918	13.6%	7,849	0.0%	7,849	
LDZ Latvia	37.9	4.0%	36.4	9.6%	33.2	-12.3%	37.9	14,179	6.5%	13,310	9.0%	12,210	-6.0%	12,996	
CFM Moldova	10.6	28.5%	8.2	24.2%	6.6	-40.4%	11.1	2,050	33.3%	1,538	24.8%	1,232	-53.5%	2,652	
CFARYM Macedonia	2.8	-13.3%	3.2	49.0%	2.2	-19.6%	2.7	461	-12.6%	527	38.8%	380	-7.0%	408	
PKP Poland	165.7	-10.6%	185.3	0.1%	185.1	-8.7%	202.9	47,656	-11.8%	54,015	-1.9%	55,076	-9.6%	60,937	
CFR Romania	71.7	0.5%	71.4	13.6%	62.8	-17.3%	76.0	15,902	-2.6%	16,326	11.4%	14,658	-16.6%	17,584	
ZSR Slovakia	53.6	-1.1%	54.2	10.3%	49.1	-13.2%	56.6	10,930	-2.7%	11,233	13.9%	9,859	-16.1%	11,753	
SZ Slovenia	13.6	-0.6%	13.7	4.9%	13.0	-0.9%	13.2	2,600	-0.6%	2,616	1.8%	2,570	-2.4%	2,632	
TCDD Turkey	14.7	-24.9%	19.6	27.9%	15.3	-2.0%	15.6	7,896	-20.5%	9,929	21.7%	8,158	-1.4%	8,277	
UZ Ukraine	370.2	3.6%	357.3	6.8%	334.6	-0.1%	335.1	177,465	2.7%	172,840	10.6%	156,336	-1.5%	158,693	
JZ Yugoslavia	0.0		0.0		0.0		0.0	0		0		0		0	
Total with estimates for annual volumes	1,055.9	-1.7%	1,074.7	5.9%	1,014.5	-6.0%	1,079.1	355,473	-2.1%	362,947	7.7%	337,007	-4.9%	354,228	
Total UIC registered volumes	1,038.0	-2.6%	1,066.0	5.3%	1,012.4	-6.2%	1,079.1	348,261	-3.6%	361,429	7.4%	336,633	-5.0%	354,228	

Notes and comments:

The percentages and totals are based on figures that have not been rounded off.

PV) Freight traffic including empty privately owned wagons.

For Croatia, the figures available for 2001 are only 2 months, wherefore the figures have been divided with the number of months available and multiplied with 12 for an annual estimate.

For Turkey, the figures available for 2001 are only 3 months. Therefore the figures have been divided with the number of months available and multiplied with 12 for an annual estimate.

Source: UIC and estimates

Rail freight in Central and Eastern Europe - Hereof International freight															
Central and Eastern Europe	Million tons							Million ton-km							Period note
	2001	%	2000	%	1999	%	1998	2001	%	2000	%	1999	%	1998	
HSB Albania	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
BC Belarus	57.2	-5.1%	60.2	12.3%	53.6	2.3%	52.4	21,828	-6.8%	23,425	10.4%	21,222	5.1%	20,200	
BDZ Bulgaria	2.8	-18.5%	3.4	39.3%	2.5	-9.4%	2.7	765	-26.0%	1,034	27.3%	812	-4.0%	846	
ZBH Bosnia-Herzegovina	0.0		0.0		0.0		0.0	0		0		0		0	
ZRS Bosnia	0.0	8.0%	0.0	119.7%	0.0		0.0	104	46.0%	71	196.7%	24	#DIV/0!	0	
CD Czech Republic	51.9	-0.6%	52.2	10.0%	47.5	-11.6%	53.7	9,797	-3.0%	10,097	5.2%	9,596	-8.7%	10,513	
EVR Estonia	33.4	3.2%	32.4	7.5%	30.1	27.1%	23.7	7,829	6.0%	7,386	13.7%	6,494	21.5%	5,347	
HZ Croatia PV)	7.2	-7.8%	7.8	-3.7%	8.1	-8.4%	8.8	1,332	0.0%	1,332	7.8%	1,236	-5.9%	1,314	
MAV Rt. Hungary PV)	26.9	-2.8%	27.7	7.3%	25.8	-8.0%	28.0	5,479	-5.7%	5,813	12.9%	5,150	-6.9%	5,533	
LG Lithuania	22.8	-8.8%	25.0	5.5%	23.8	0.0%	23.8	6,220	-20.0%	7,774	15.0%	6,758	0.0%	6,758	
LDZ Latvia	35.9	3.5%	34.7	10.8%	31.3	-11.7%	35.4	13,789	6.4%	12,958	9.5%	11,829	-5.7%	12,543	
CFM Moldova	9.7	27.9%	7.6	26.9%	6.0	-40.7%	10.1	1,933	32.7%	1,457	26.8%	1,149	-53.5%	2,472	
CFARYM Macedonia	2.7	-11.3%	3.0	51.0%	2.0	-21.5%	2.5	451	-10.7%	505	38.4%	365	-7.7%	395	
PKP Poland	45.8	-3.9%	47.6	14.4%	41.6	-19.4%	51.6	13,370	-7.5%	14,448	13.9%	12,686	-22.4%	16,347	
CFR Romania	11.5	-13.3%	13.3	68.5%	7.9	-22.9%	10.2	2,737	-29.6%	3,886	43.1%	2,715	8.4%	2,505	
ZSR Slovakia	42.3	-0.1%	42.3	15.3%	36.7	-11.3%	41.4	8,723	-2.2%	8,918	19.7%	7,452	-14.1%	8,678	
SZ Slovenia	12.3	2.7%	12.0	4.3%	11.5	-2.6%	11.8	2,427	2.8%	2,361	-1.0%	2,385	-3.2%	2,465	
TCDD Turkey	0.9	-31.0%	1.4	12.8%	1.2	-16.2%	1.4	252	-24.6%	334	16.8%	286	-29.2%	404	
UZ Ukraine	142.8	2.6%	139.2	18.4%	117.6	-1.2%	119.0	108,752	1.2%	107,444	16.8%	92,027	-2.3%	94,155	
JZ Yugoslavia	0.0		0.0		0.0		0.0	0		0		0		0	
Total with estimates for annual volumes	506.0	-0.7%	509.8	14.0%	447.1	-6.2%	476.6	205,788	-1.7%	209,244	14.9%	182,187	-4.4%	190,476	
Total UIC registered volumes	499.3	-0.8%	503.2	13.0%	445.4	-6.5%	476.6	204,489	-1.8%	208,141	14.4%	181,914	-4.5%	190,476	

Notes and comments:

The percentages and totals are based on figures that have not been rounded off.

PV) Freight traffic including empty privately owned wagons.

For Croatia, the figures available for 2001 are only 2 months, wherefore the figures have been divided with the number of months available and multiplied with 12 for an annual estimate.

For Turkey, the figures available for 2001 are only 3 months. Therefore the figures have been divided with the number of months available and multiplied with 12 for an annual estimate.

Source: UIC and estimates

Intermodal market - Introduction

The present chapter aims at presenting the framework of intermodal transport in Europe. First the special glossary and terminologies for intermodal transport will be briefly introduced, and in the following chapters the major market actors, the market segments and the development within the different segments are described, ending up with an evaluation of the competitive power of intermodal transport.

Intermodal Glossary

The intermodal market in Europe has in many ways its own glossary and terminology due to the special techniques that are applicable but also as to make certain that a common understanding of the terms used throughout the whole intermodal transport business is reached.

The Economic Commission for Europe of United Nations (UN/ECE), the European Conference of Ministers of Transport (ECMT) and the European Commission (EC) have agreed on a common terminology on combined transports that was prepared in 2001. This Terminology is found in "Annex I – Terminology".

Also for intermodal statistics in Europe a need for a common glossary and terminology has been found, and as an attempt to seek a common understanding the European Conference of Ministers of Transport (ECMT), the United Nations (UN) and Eurostat have agreed on a glossary for intermodal transport statistics– the Second edition of 1997 is found in "Annex II – Glossary statistics".

In principle the present report uses these terms and definitions.

The overall definition of "intermodal transport" is:

"Movement of goods in one and the same loading unit or a vehicle, which uses successively several modes of transport without handling of goods themselves when changing modes".

The very common related term; "combined transport" is used where the major part of the journey is by rail, inland waterways or sea, and any initial and/or final leg carried out by road is as short as possible. The relatively new term: "multimodal transport" is used for carriage of goods by at least two different modes of transport. Thus intermodal transport is therefore a particular type of multimodal transport.

At the European level, combined transport is understood as an individual mode of transport, which makes maximum use of the advantages of the various modes of land transport and short sea shipping, choosing those modes most suitable. Combined transport thus implies the organisation of intermodal door-to-door transport by transferring goods from one mode of transport to another without changing the loading unit. To be more precise, combined transport is based on an Intermodal Transport Unit (ITU) in which the goods are transported from door to door by using the most adequate modes of transport. I.e. the road for initial and terminal hauls only, and rail and/or inland waterways and/or short sea for the major part of the journey.

Traditionally road/rail/road transport has been considered to be the most important form of combined transport in Europe. Much less attention has in the past been given to integrate the possibilities of inland waterways and coastal shipping in the intermodal transport chain. However, during the last years this option has become increasingly important. Door-to-door transport organisers more and more use a combination of the three modes, with road transport being used for initial and terminal hauls only. Hereby generating a truly multimodal transport, as even more than 2 transport modes are used!

Intermodal transport statistics in general

The different market actors each have their way of handling the statistics, which will be described in the following chapter on the intermodal market development. But one has to remember the difficulties in the statistics over intermodal traffic. Since there are no general rules as how to acknowledge the intermodal consignments, many actors have their own way. Some only count the laden ITUs; some count the number of ITU indifferent of length, weight and whether they are empty or laden. For the sea transport, the use of TEU is generally used, but here the empty units are not always counted.

For a consignment from for example Norway to Italy many operators and in many cases also many modes of transport are involved, since the consignment crosses many borders, with operators in each of the transit countries, Sweden, Denmark, Germany, Switzerland or Austria, apart from the operator at departure in Norway and operator at delivery in Italy, considerations has to be taken to not count the same consignment several times.

Therefore, for instance the statistics of the UIRR-group uses the export consignments. But the operators themselves also include the transit consignments etc. in their own statistics, as they count all the consignments where they are operators at departure, at arrival or in transit for the other UIRR-members on these volumes. For instance the largest intermodal operator in Europe, the German intermodal operator Kombiverkehr had according to themselves 906.000 consignments in total in 2001, where the UIRR statistics show 539.000 consignments for Kombiverkehr.

Intermodal transport volumes are as mentioned not subject to official statistics, wherefore one has to rely on many different sources to create a picture of the overall European intermodal transport volumes. There are a number of governmental as well as non-governmental authorities and organisations collecting and publishing data on intermodal transports, but no single source gives a clear, total picture of the European Intermodal Transport market.

For instance, Scandinavia was until the opening of the Öresundsbridge forced to use ferries to reach the Continent, whereby there was no officially register of the ferry volumes per mode. This means that rail wagons, unaccompanied trailers, trucks and other units on ferries was and for probably about half of the volume still is registered as ferry transports. This was and partly still is also the case with United Kingdom, as well as Ireland.

The different deliveries of intermodal statistics also use different ways to convert the volumes to a common unit.

The maritime operators, ports etc. and Intercontainer-Interfrigo (ICF) s.c. measure their volumes in TEU – which means 20' or some 6,1 meters for equivalent units.

The UIRR-companies count consignments, which means 2 swap bodies, a trailer or a truck for rolling road. These units differ in length, for instance some swap bodies are 7,15 meters, which would mean $2 \times 1,17 = 2,34$ TEU, and a trailer of 13,7 meters would mean 2,25 TEU. UIRR has therefore decided, that one consignment is equivalent to 2,3 TEU.

Some do not count the empty units, and some count the light containers as empty...

One example of national statistics based on its own principles is shown below. This concerns intermodal traffic by the German State Railway – Deutsche Bahn AG, through its subsidiary DB Cargo. The volume showed is all combined transports of piggyback units as well as containers of at least 6 meter's length – 20' or more. And the containers must be laden with more than 2 cubic meters; otherwise it is not included in the statistics.

Year		1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
Tonnes	in 1.000	1.705	1.887	26.309		20.446	23.348	26.012	27.814	27.335	26.796	31.928	30.007
Tonne-km	mill. tkm	9.713	11.098	12.136		9.713	11.098	12.136		11.772	12.390	14.491	13.489
Number of units	1.000	1.317	1.412	1.483	1.560	1.705	1.887	2.087		2.450	2.376	2.840	2.848
Average tonnes / unit		1,29	1,34	17,74		11,99	12,37	12,46		11,16	11,28	11,24	10,54
Average tonne-km / unit		7.375	7.860	8.183		5.697	5.881	5.815		4.805	5.215	5.102	4.736

Source: Verkehr in Zahlen 1998 – Bundesministerium für Verkehr, Germany

DB Cargo does not give out information about their intermodal volumes, as this information is considered as being confidential. Therefore, it has been difficult to elaborate the figures for one of the largest countries in Europe, also for intermodal transports.

As can be seen from the above, it is difficult to get a clear and thorough picture of the intermodal market. Thus although the figures used in this chapter have been carefully analysed, they have been puzzled together from many different sources and they should therefore be read as a best attempt to create a picture of the development within the complex European intermodal transport market.

Market actors

The picture of the complex structures in the supply chain and the roles of the different actors within the European intermodal business, seen from the outside, are traditionally not very transparent, and the tasks of the different suppliers are normally not clearly defined and easily seen through. Thus behind the "curtain", a normal European border-crossing intermodal transport easily involves 10-15 different actors, directly or indirectly, on 5-6 supply levels. The fact that a normal intermodal transport does involve so many levels and so many actors in a very complex structure, with an inadequately structured international co-ordination, is assessed being one of the main causes to the inefficiency and lack of competitiveness of the European intermodal business in general.

The actors involved in an intermodal transport are roughly:

- Trucking company by departure
- Trucking company by arrival
- Railway undertakings (RU's) providing rail traction
- Providers of rolling stock
- Shipping lines
- Suppliers of intermodal equipment
- Logistic companies (forwarders, agents)
- Intermodal terminals
- Rail infrastructure managers

In general the organizational structure in praxis is very inefficient, as a lot of time and costs are generated by co-ordinating the activities on the different levels in the supply chain. Further the borderlines between the tasks of the individual actors are not clearly defined, which in many cases result in double work, also resulting in inefficiency and higher costs. An example is, that many actors on various levels in the supply chain today are working with traffic surveillance and trouble shooting in a very cost intensive way.

The total number of actors in the EU and EEA countries, as well as in the Central and Eastern European countries, within the different supply levels is already today very high, thus identifying and listing all these is a large study in itself. However, on the following pages the largest and most important pan-European as well as the largest national intermodal logistic companies, organizations and associations are presented in order to give a good picture of the main actors on the market and their activities and development.

Groupings and latest trends

An important tendency the last years is the increased focus on intermodal transports that some large national railway companies and others have shown. Here there are some larger groups to be mentioned:

- *DB Cargo /Railion, Kombiverkehr, Transfracht – Germany, Netherlands and Denmark*

The German rail freight operator DB Cargo and its international organisation Railion including Railion Benelux in the Netherlands and Railion Denmark have intensified their intermodal activities. DB Cargo has now a 50% share of the stocks in the German UIRR-member and the largest national intermodal operator Kombiverkehr for the continental intermodal transports. Transfracht International, which is owned by DB Cargo to 50% and by the Port operator in Hamburg HHLA to 50% since May 2002, operates maritime hinterland transports with the main North-European ports.

DB Cargo is also taking over Transfracht activities in the Benelux, with the intention to market this as Conliner, and in the summer of 2002 MarCo was established another joint venture for Hinterland transports.

To the Railion/DB Cargo group the intermodal operators Hangartner – Switzerland and Euroshuttle – Denmark also belong, that are specialised in providing the whole intermodal transport chain towards its customers.

With the takeover of the shares of the large logistics operator Stinnes that recently has been approved by the competition authorities, focus is certainly set on intermodal transports within the Stinnes/Railion/DB Cargo umbrella.

- *SBB Cargo, HGK, Hupac Intermodal, Trailstar and Swiss Rail Cargo Köln – Switzerland, Netherlands and Germany*

Another intermodal railway group that has appeared during the latest years consist of the Swiss rail freight operator SBB Cargo, the German private railway Hafen- und Güterverkehr Köln AG and the Swiss intermodal operator and UIRR-member Hupac. Hupac has one large subsidiary in the Dutch UIRR-member Trailstar. Together the companies have formed a new company Swiss Rail Cargo Köln for the international transports.

- *CargoNet A/S, Rail Combi AB, Hupac Intermodal and Kombiverkehr – Norway, Sweden, Switzerland and Germany*

The Norwegian-Swedish rail freight operator Cargo Net A/S (with 45% of the shares belonging to Swedish Green Cargo AB, and the remaining 55% to Norwegian NSB BA) has made the intermodal transports the focus for its rail freight business. Cargo Net A/S and its subsidiary the Swedish intermodal operator Rail Combi AB has made a cooperation agreement with the intermodal operators and UIRR-members Hupac Intermodal and Kombiverkehr for the intermodal traffic between Scandinavia and the Continent.

- *RailCargo Austria and Ökombi – Austria – (an expected grouping)*

Another example worth mentioning would be the negotiations of closer cooperation between the Austrian UIRR-Member and intermodal operator Ökombi and the Austrian railway ÖBB through its rail freight operator RailCargo Austria that are well on the way. ÖBB has always had a 30% share of Ökombi, but new negotiations regarding a new Ökombi foresee that ÖBB will have 50% of the shares, and the Ökombi forwarders and transport companies the remaining 50%. Ökombi is by far the largest customer of ÖBB, accounting more than 20% of the turnover in 2001, and Ökombi could in the first half of 2002 render a volume growth of 19,7%, whereas ÖBB listed a negative figure of -3,6% in the intermodal transports. The official status is however still of cooperation, as there is no official information of larger ownership changes by Ökombi.

- *European Rail Shuttle B.V., Maersk Sealand and P&O Nedlloyd – The Netherlands, UK and Denmark as well as throughout Europe*

On the market there are several intermodal operators that have been active already for many years. But there are also some new intermodal operators that only have existed some years and still can book an impressive growth during this short period. One example hereof is ERS, a joint venture of the shipping lines Maersk Sealand and P&O Nedlloyd that in 7 years can book an increase from some 20.000 TEU to 306.000 TEU or some 200% increase per year.

Another fact is that still more intermodal operators take over the larger part of the operation of the intermodal chain and this includes for example the train operation. Here there are several examples of railway companies taking larger part as intermodal operators and also the other way around. This is a development that is expected more in the future as the intermodal business is changing, although there of course also still will be a large market for the operators offering a broad network of connections on own hands or together with partners.

Pan-European intermodal logistic companies

- *Intercontainer-Interfrigo (ICF) s.c., Basel*

Founded in 1968 ICF is the oldest pan-European intermodal logistic company, and the company is owned by most of the European state railways. The objective of the company is to co-ordinate and market border-crossing intermodal rail operation, and thus develop intermodal products by adding extra services such as transport monitoring, rolling stock and traffic surveillance to the rail operation. The ICF-Group had a total turnover of 1,8 million TEU in 2001.

- *Kombiverkehr, Frankfurt*

The German Railway Deutsche Bahn AG to 50% owns Kombiverkehr, and 240 German road hauliers own the remaining 50%. The objective is to develop intermodal products. The company is with an annual turnover of almost 2,1 million TEU in 2001 and 22,5 million tons the largest alone standing European intermodal operator. UIRR-member Kombiverkehr accounts for 30% of the total UIRR-volumes. The newest and very successful national product – Kombinetz 2000+ was introduced in January 2000, with 26 trains, covering some 60 routes in Germany. Kombi-Netz 2000+ went into its second phase in the summer 2001 and was extended by seven additional trains. With further optimisation the national system now includes 76 relations, linked through Gateway terminals to the international integrated train network. Very promising volumes have been reached - more than 20% increase in 2001, compared with 2000. The transport quality of more than 90% punctuality is one of the reasons here for.

- *Hupac Intermodal, Chiasso*

Hupac is the Swiss UIRR-company and they have had an explosive growth in the last years. The company wishes to consolidate the position as transalpine combined operator, with some 10.000 shuttle trains per year handled. With subsidiaries in Germany and Italy, the Dutch UIRR-company Trailstar, and shares of the Swedish operator Swe-Kombi, as well as in the Belgian private rail operator Dillen & LeJeune Cargo – DLC, Hupac is one of the most interesting and progressive intermodal players at the moment.

- *Ökombi, Wien*

The Austrian UIRR-company has a large stake in the intermodal traffic with Southern and Eastern European countries through shares in the intermodal UIRR-companies in Belgium, Hungary, Bulgaria, the Czech Republic and Slovenia. The turnover was 1,4 million TEU in 2001.

- *European Rail Shuttle – ERS, Rotterdam*

ERS was founded in 1994 and is a rapidly growing rail operator for maritime Hinterland traffic. With basic cargo from the owners; the world's two largest shipping lines Maersk Sealand and P&O Nedlloyd, they market the remaining capacity of the trains to others. Since the start in 1994 with 6 departures per week, they today have 220 departures per week, between the main European ports (Rotterdam, Bremerhaven and Hamburg) and inland terminals all over Europe. In 2001 some 306.000 TEUs were transported.

- *Transfesa, Madrid*

The Spanish Transfesa Group is a pan-European integrated logistics operator, which has built up a large fleet of special interchangeable rail wagons for Spanish as well as Euro tunnel traffic. Further they have a fleet of some 1.300 special swap bodies. The Transfesa Megacombi swap bodies are 13,6 meter long with an indoor height of 3 meter and a volume of 96 cbm, and they are transported on special low-loading rail wagons.

- *CNC Transports, Vincennes*

The French CNC, to 71% owned by the French state railway SNCF through SNCF Participations, is on its way to be a pan-European intermodal operator. In 2001 they operated 651.000 TEU, within France, as well as in international traffic (almost half of the turnover). With a fleet of some 5.000 ITU and some 4.500 rail wagons they operate 100 trains per day, 7 days per week. CNC is an associated UIRR-member.

- *Intercontainer Austria GesmbH (ICA), Wien*

ICA is a part of the ICF-Group, whereas the ICF share was 70% at the foundation in 1993, the present shareholders are; Spedition Holding AG 54 % (a part of the Austrian rail operator ÖBB), Intercontainer-Interfrigo s.c. (ICF) 26%, Hungarian state railway (MAV) 10 % and Raab-Ödenburg-Ebenfurter Eisenbahn AG (ROeEE) 10%. With a large focus on the development on the Southeast European countries, ICA has established subsidiaries in Romania and Hungary. With some 257.000 TEUs in 2001, an increase of some 65% compared with year 2000 could be reached.

- *Transfracht International, Frankfurt (TFGI)*

Transfracht was until May 2002 a subsidiary of the German rail operator DB Cargo, but now the Hamburger Hafen und Lagerhaus Aktiengesellschaft (HHLA) and DB Cargo own 50% each of TFGI. TFGI operates Hinterland traffic mainly from the North European ports to inland destinations in Germany and Austria. TFGI is responsible for the marketing of intermodal transports and operates some 740.000 TEU mainly in overseas Hinterland traffic with primarily German and Benelux ports. The Berlin – Moscow route has been taken over by other parties, and DB Cargo is taking over the Hinterland transports on Benelux ports in the name of Conliner.

- *Norfolkline, Copenhagen*

With two own international train systems the company is a niche player in a pan-European context. The two corridors where they play an important role is: Scandinavia – Germany – Italy and UK – Benelux – France – Italy. With a large fleet of swap bodies and trailers Norfolkline markets themselves as door-to-door logistic provider, and the trains are operated by ICF or the UIRR-companies.

- *Hangartner, Aarau (CH)*

The Swiss intermodal and logistics operator Hangartner has a very long history as a family-owned business. During 2002 the shares of the company were taken over by German DB Cargo, but it will still act as a separate company on the market. In 2001 Hangartner transported 36.749 consignments (some 84.500 TEU) and for 2002 a large growth up to some 46.000 consignments (some 105.000 TEU) is foreseen, a growth of some 25%!

- *Ambrogio, Gallarate (IT)*

The privately owned Ambrogio Group has offered intermodal transports since 1970 and the main routes are between Italy, Benelux, Germany and Spain. Some 46.000 consignments are transported per year.

National rail intermodal logistic companies

- *Cemat, Italy*

The company is the Italian member of the UIRR organisation. They manage 31 intermodal terminals throughout Italy and operate on frequent daily schedules a large number of shuttle trains connecting most of these terminals. The turnover in 2000 was 644.000 units.

- *CargoNet, Oslo and RailCombi, Stockholm*

The Norwegian-Swedish rail freight operator Cargo Net A/S (with 45% of the shares belonging to Swedish Green Cargo AB, and the remaining 55% to Norwegian NSB BA) has made the intermodal transports the focus for its rail freight business. Cargo Net A/S and its subsidiary the Swedish intermodal operator Rail Combi AB cooperate with Kombiverkehr and Hupac on the European Continent, among others. The international traffic uses the national network also for international traffic – broken transports via Trelleborg Port for the Continent or via the Øresundsbridge.

- *N.V. Inter Ferry Boats (IFB), Zeebrugge*

The company is a subsidiary of SNCB, the Belgian state railway. They operate a terminal in Antwerp and Ghent and offer a complete combined transport service, door to door for third party units. The main domestic services are run daily overnight from Antwerp to Zeebrugge, Bressoux, Athus and Ghent. In total they operate some 8.000 trains per year and the IFB intermodal products have an annual volume of 500.000 TEU and as agent for ICF and CNC they operate some 250.000 TEU.

- *Novatrans, Paris*

The company is the French member of the UIRR organisation. The company offers basically domestic traffic in France, but the national traffic accounts for 54% of the turnover and the international turnover in cooperation with other UIRR-members account for 46%. As a speciality they use wagons, which can run up to 160 km per hour, whereas the normal European standard can only run up to 120 km per hour. The turnover was 560.000 TEU in 2001.

Intermodal organizations and associations

- *BIC – International Bureaux of Containers, Paris*

BIC promotes professional debate on containerisation and intermodal transport worldwide.

- *CEMT / ECMT, European Conference of Ministers of Transport, Paris*

ECTM, with 42 Member countries in Europe, has the objective to take whatever measures may be necessary, at general or regional level, to achieve the most efficient use and rational development of European inland transport of international importance, co-ordinate and promote the activities of the international organisations concerned with European inland transport - rail, road, inland waterways - taking into account the work of supranational authorities in this field.

- *CER, Community of European Railways, Brussels*

CER represents railway interests at European level, with the aim to contribute to the development of transport and related policies by European Union institutions, promote a genuine synergy. The organisation works closely together with UIC.

- *EIA, European Intermodal Association, Brussels*

EIA has the objective to develop combined transport at a European level through, promoting combined transport and its socio-economic and environmental advantages, in particular with the European Union institutions and other international organisations, assisting market penetration, in particular towards Central and Eastern Europe, promoting new technologies and dealing with associated Intermodal Transport Unit standards, improving profitability. EIA is recognised as an NGO (Non-Governmental Organization) with UNO and ECMT.

- *CLECAT – Comité de Liaison Européen de Comissionaires et Auxiliaires de Transport, Brussels*

CLECAT is the organisation for forwarding agents in Europe.

- *EFIP - European Federation of Inland Ports, Brussels*

EFIP represents interests of EU inland Ports.

- *ESPO - European Sea Ports Organisation, Brussels*

ESPO was set up in 1993 as a body to represent the interests of EU Ports within the European Community. ESPO represents 98% of the seaports within EU, and has direct contacts in some 500 ports across Europe.

- *FEPOR - Federation of Private Port Terminals, Brussels*

FEPOR represents the interests of private port terminal operators within the European Community.

- *IRU - International Road Transport Union, Genève*

The IRU, through its national associations, represents the entire road transport industry worldwide. In all international bodies that make decisions affecting road transport, the IRU acts as the industry's advocate. The working group of experts on combined transport is responsible for the promotion of combined and intermodal transport.

- *UIC - Union Internationale des Chemins de fer, Paris*

The organisation represents 158 railway companies worldwide and has the objective to promote co-operation between members and execute activities to develop the railway mode of transport, maintain and develop the overall coherence of the whole of the railway system, mainly throughout Europe, in particular by consolidating its interoperability with the aim of strengthening its competitiveness especially in international traffic, disseminate information on modern technologies and methods of management among members, work to develop cohesion and solidarity among members, strive to identify common arguments in support of the role of rail transport.

- *UIRR, International Union of Combined Road - Rail Transport Companies, Brussels*

The UIRR is an organisation of totally 19 members, which are all private operators, with road hauliers and freight forwarders or their organisations holding a majority share, while a railway company is usually represented with a minority holding. The objective of the organisation is to develop as well national as border crossing intermodal products primary for the shareholders and hereby to promote combined transport, exchange of information, management of wagon pools and relations with international organisations.

Intermodal Market Actors' overview

A list of the largest European intermodal operators is found below with information on the traffic, the ownership, total volume as well as the total turnover in 2001 (when available).

As regards the traffic, many of the UIRR-members cooperate closely in offering a European network of international intermodal connections throughout mainly the countries where the different UIRR-members are situated. In these cases the countries with UIRR-members have been mentioned.

It is to be noted that it seems possible to add the figures from all the operators and thereby achieving a figure for the European intermodal traffic. This is however not possible in this manner. For many of the assignments, there are several intermodal operators involved. This means that one intermodal consignment from one country to another can be listed twice, as the operators do include both export and import movements for example. Please look in the following chapters for further details as to the European intermodal volumes.

		Intermodal operators 2002																																									
		C	TC	SB	T	RH	Traffic in and between																																				
							NL	BE	LU	DE	CH	AT	IT	FR	UK	ES	PT	DK	SE	NO	FI	PL	CZ	SK	SL	HR	BH	YU	MK	GR	HU	RO	BG	TR	RU	UA	BA	MD	EE	LV	LT		
Kombi Dan A/S	DK	X	X	X	X	X	X	X		X	X		X	X		X	X		X	X		X	X		X	X																	
Combiberia	ES	X	X	X	X			X	X							X																											
Novatrans	FR	X	X	X	X			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X					X															
Hungarokombi GmbH für die Organisation des kombinierten Verkehr	HU	X		X	X	X		X	X		X	X				X						X	X	X	X	X		X	X														
Alpe Adria S.p.A., Trieste	IT	X							X		X	X										X						X															
Ambrogio	IT	X		X		X		X	X		X	X	X	X																													
Cemat S.p.A.	IT	X	X	X	X						X																																
Italcontainer SpA	IT	X	X	X				X	X	X	X	X	X	X	X	X							X	X	X	X	X		X							X	X						
ACTS Nederland bv, Utrecht	NL	X		X				X	X		X																																
European Rail Shuttle B.V.	NL	X	X	X				X	X		X											X	X	X			X	X															
Railmax C.V.	NL			X				X			X		X																														
Trailstar N.V.	NL	X	X	X	X			X	X	X	X	X	X	X	X	X	X	X	X	X	X																						
TTK Polkombi	PL	X	X	X	X			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X									X	X	X		X	X	X
Rail Combi AB	SE	X	X	X	X																	X	X	X	X																		
Adria Kombi d.o.o. in drugi k. d., Ljubljana	SL	X	X	X	X	X																																					
Allied Continental Intermodal Services Ltd. (ACI), Reading	UK	X	X	X				X	X	X	X	X	X																														
CTL Combined Transport Ltd.	UK	X	X	X							X	X	X	X																													
Freightliner	UK	X	X										X																														

C = Containers
 TC = Tank Containers
 SB = Swap Bodies
 T = Trailers
 RH = Rolling Highway

Sources: DVZ September 2002, company websites and annual reports

Intermodal operators 2002					
Country	Traffic	Owners / Shareholders	TEU 2001	Turnover 2001	
Ökombi - Österreichische Gesellschaft für den kombinierten Verkehr Ges.mbH & Co KG	AT	National AT and international in almost all European countries with UIRR-Partners	Zentraverband der Spediteure 30%, Kombiverband Strassengüterverkehr 30%, Austrian railway ÖBB 30% and Vereinigung österreichischer Verloader und Werkverkehrstreibender 10% - some 360 kommanditisten	1,500,000	158,000,000
Inter Ferry Boats n.v.	BE		SNCB 89,02%, CNC Transports 7,41%, ICF 2,08%, EWS 1,22% and others 0,27%	360,000	60,000,000
T.R.W. n.v.	BE	Offers to almost all European countries with UIRR-partners	French operator Novatrans 21%, Italian operator Cemat 20% and Belgian railway SNCB 44%.	271,403	65,000,000
Unilog n.v.	BE	To and from UK through the Channel Tunnel	Belgian operator Inter Ferry Boats 55% (subsidiary of Belgian railway SNCB) and British rail freight operator EWS 45%.	17,000	6,100,000
Hupac Intermodal S.A.	CH		Hupac SA 100%	859,960	186,500,000
Intercontainer-Interfrigo (ICF) s.c.	CH		Shares split between 25 railways	834,894	303,100,000
Bohemiakombi, Prague	CZ	CZ/SK - other countries & CIS	Czech Railway, Cesmad Bohemia, Czech Forwarder and Logistics Organisation, Kombiverkehr (DE) and Ökombi (AT) all 20%	220,000	unknown
CSKD Intrans	CZ	International traffic	SAK Andelen(Joint venture Port of Rotterdam and ECT Rotterdam) 80%, Czech state 12% and others 8%	132,000	?
Metrans a.s.	CZ	Hamburg/Bremerhaven - Prag (CZ), Zlin(SK), D. Streda (SK/HU) and Győr (HU)	Hamburger Hafen- und Lagerhaus-AG (HHLA) 50%, Metrans-Management 15% and DB Cargo 34%	360,000	51,000,000
boxXpress.de GmbH	DE	Hamburg & Bremerhaven, München, Nürnberg, Stuttgart and Augsburg	Eurogate Intermodal GmbH 38%, European Rail Shuttle 47% and Nllog Netzwerk Logistik GmbH 15%	70,000	unknown
BTT Bahn Tank Transport GmbH	DE	All European relations	DB Cargo AG 100%	49,000	unknown
BTZ Bayerische Trailerzug Gesellschaft für bimodalen Güterverkehr mbH	DE	Trailerports in Köln, München and Verona	Europäische Trailerzug Beteiligungs-Gesellschaft mbH 99,85% and Landesverband Bayerischer Transport unternehmen (LBT)	Unknown	unknown
Danzas Euronet GmbH	DE	Parcel Intercity (PIC) DPT trains	Deutsche Post 100%	175,000	?
Eurogate Intermodal GmbH	DE	BoxXpress: DE terminals, Donau-Elbe-Express: Hamb/Brh-Hungary, Int. Ctr traffic CZ, SK, SL, AT, IT.	Eurogate GmbH & Co KGaA, KG 100%	58,000	20,000,000
Kombiverkehr Deutsche Gesellschaft für kombinierten Güterverkehr mbH & Co KG	DE	national DE and international with several countries	DB Cargo AG 50% and 243 forwarders and transport companies to 50%	2,100,000	274,000,000
Polzug Polen-Hamburg Transport GmbH	DE	HamburgBremerhaven - Poland, Ukraine, Latvia, Lithuania, Russia and others	Hamburger Hafen- und Lagerhaus-AG (HHLA) 33%, Polish railway PKP 33% and Geramn rail freight operator DB Cargo AG 33%.	50,000	?
TFGI Transfracht International	DE	European wide seaport hinterland traffic	German rail freight operator DB Cargo and Hamburger Hafen- und Lagerhaus-AG (HHLA) 50% each.	740,000	208,000,000

Sources: DVZ September 2002, company websites and annual reports

Intermodal operators 2002					
Country	Traffic	Owners / Shareholders	TEU 2001	Turnover 2001	
Kombi Dan A/S	DK	national DK and international with UIRR-Partners	88 shareholders - transport companies and forwarders	36,000	?
Combiberia	ES		?	?	6,100,000
Novatrans	FR	National FR and international mainly in cooperation with UIRR-Partners	SNCF Fret 40% and road transport companies 60%	549,815	106,100,000
Hungarokombi GmbH für die Organisation des kombinierten Verkehr	HU	National traffic HU and international with UIRR-partners	Ökombi 26%, Road transporters 22%, Raaberbahn ROEE 19%, Hungarian railway MAV 15% and forwarders 18%	40,000	31,000,000
Alpe Adria S.p.A., Trieste	IT	Between the port of Trieste and AT, SK, HU, South DE. National between Trieste and Padova, Milano and Bologna.	FS, Port Authority Trieste and Regione Friuli Venezia Giulia to 33% each	70,000	8,500,000
Ambrogio	IT		The Ambrogio family	106,500	93,500,000
Cemat S.p.A.	IT	European continental transports in cooperation with UIRRpartners	Trenitalia 41,25% and Transport companies 58,75%	1,463,633	148,440,000
Italcontainer SpA	IT	national with Italian ports, and international	Trenitalia S.p.A. 71% and ICF 29%	365,000	42,400,000
ACTS Nederland bv, Utrecht	NL		Railion Benelux NV, AVR, VAM, BFI and Icova - 14,3% each, v. Gansewinkel - 12,6% and others 16,1%.	200,000	8,000,000
European Rail Shuttle B.V.	NL	220 trains/week	Maersk Sealand and P&O Nedlloyd 50% each	310,000	?
Railmax C.V.	NL	Germany, France and Spain	Wheels Road Rail Logistics GmbH & Co 50% and Transfesa Transportes Ferroviarios Especiales S.A. 50%	42,240	25,600,000
Trailstar N.V.	NL	Daily shuttles between NL and several European countries with UIRR-Partners	Swiss operator Hupac 86,4% and Dutch rail freight operator Railion Benelux 13,6%	95,000	12,800,000
TTK Polkombi	PL	Between Poland and almost all European countries with UIRR-Partners	TOWIN Spzoo 50,52%, PSM C. Hartwig 24,21%, Kolmex SA 11,11%, Polish railway PKP 8,52% and Others 5,64%	26,098	4,100,000
Rail Combi AB	SE	Intermodal transports in Scandinavia	CargoNet A/S (NO) 100% of which Swedish rail freight operator Green Cargo AB owns 40%	425,000	49,000,000
Adria Kombi d.o.o. in drugi k. d., Ljubljana	SL	and many other countries	Slovenian Railway and Spedition Intertrans 26% each, Ökombi 25,1%, Slovenian Chamber of Commerce and the road transport union Intertransport with 11,45% each.	91,200	11,500,000
Allied Continental Intermodal Services Ltd. (ACI), Reading	UK		Intercontainer-Interfrigo (ICF) 50%, English Welsh & Scottish Railway - EWS and SNCF with 25% each	55,000	30,700,000
CTL Combined Transport Ltd.	UK	national UK & international with UIRR partners	Novatrans 46%, Road transport companies 39%, EWS 10% and SNCF 5%	?	?
Freightliner	UK	National UK with ports and inland terminals; bulk rail freight	Three I & Electra (investment companies) have 60%, Freightliner-Management owns 30% and Freightliner co-workers own 10%	615,600	232,300,000

Sources: DVZ September 2002, company websites and annual reports

Market segments and development

The intermodal market erupted by the end of the 1950ies, as the first internationally standardised containers saw the day of light. But the early development was slow and only by the end of the 1960ies the development was speeded up, as container ships arrived into the European ports, and the containers had to be moved further onto the European continent. At the same time the early intermodal trailers were introduced on the market, mainly on national markets throughout Europe.

With only few exceptions, the intermodal market in Europe more or less only consisted of overseas container traffic to and from the European ports until the mid-80ies, as the development of the intermodal trailer transports was slow. But since the 1980ies the intermodal market for continental traffic in Europe has had a heavy development, and swap bodies and trailers suitable also for border-crossing combined road/rail traffic were introduced in a large scale.

In total the intermodal market has in the last 10 years had an average annual growth of some 7-8%, which offhand can be evaluated to be very good. The result is more than double as high as the general increase in the total transport work in Europe. Further the European rail sector had in the same period a decrease of 0,8% per year, and the successful European road sector, had in the same period "only" an increase of 3,9% per year. However, the expectations on the intermodal traffic have been clearly higher, and the last years have not lived up to the expectations, where one of the main reasons therefore being the poor transport quality.

The total European trade can be seen from the table below:

2001	Export in tons	% of total	Import in tons	% of total	Total trade in tons
AL-Albania	3,079,748	0.2%	195,033	0.0%	3,274,780
AT-Austria	50,386,575	2.9%	30,697,027	1.5%	81,083,602
BA-Belarus	1,234,574	0.1%	5,850,593	0.3%	7,085,168
BE-Belgium	152,235,629	8.8%	125,345,860	6.0%	277,581,489
BG-Bulgaria	21,924,698	1.3%	10,913,466	0.5%	32,838,164
BH-Bosnia & Herzegovina	2,633,012	0.2%	888,140	0.0%	3,521,152
CH-Switzerland	35,379,400	2.0%	14,606,078	0.7%	49,985,477
CZ-Czech Rep.	34,581,989	2.0%	36,093,732	1.7%	70,675,721
DE-Germany	338,832,182	19.6%	236,859,321	11.4%	575,691,503
DK-Denmark	31,456,594	1.8%	25,972,417	1.3%	57,429,011
EE-Estonia	2,524,233	0.1%	8,583,653	0.4%	11,107,886
ES-Spain	91,543,616	5.3%	56,765,353	2.7%	148,308,969
FI-Finland	24,914,946	1.4%	24,299,185	1.2%	49,214,130
FR-France	167,219,143	9.7%	142,694,221	6.9%	309,913,364
GR-Greece	34,261,586	2.0%	52,723,404	2.5%	86,984,990
HR-Croatia	7,801,937	0.5%	9,867,998	0.5%	17,669,935
HU-Hungaria	15,576,107	0.9%	14,907,529	0.7%	30,483,637
IE-Ireland	23,545,180	1.4%	11,796,364	0.6%	35,341,544
IT-Italy	110,651,385	6.4%	82,274,499	4.0%	192,925,884
LI-Liechtenstein	296,127	0.0%	119,011	0.0%	415,138
LT-Lithuania	2,843,573	0.2%	8,587,173	0.4%	11,430,747
LU-Luxemburg	16,037,570	0.9%	9,415,626	0.5%	25,453,196
LV-Latvia	3,649,206	0.2%	10,368,447	0.5%	14,017,653
MD-Moldova	721,075	0.0%	3,158,511	0.2%	3,879,586
MK-FYR Macedonia	2,882,888	0.2%	763,253	0.0%	3,646,141
NL-The Netherlands	185,789,731	10.7%	253,649,143	12.2%	439,438,874
NO-Norway	24,935,125	1.4%	176,111,465	8.5%	201,046,589
PL-Poland	25,999,585	1.5%	52,743,081	2.5%	78,742,666
PT-Portugal	25,490,155	1.5%	11,883,059	0.6%	37,373,214
RO-Romania	6,593,193	0.4%	8,423,755	0.4%	15,016,948
RU-Russia	13,162,602	0.8%	342,167,243	16.5%	355,329,844
SE-Sweden	43,682,292	2.5%	44,193,287	2.1%	87,875,579
SK-Slovakia	15,582,560	0.9%	19,344,848	0.9%	34,927,408
SL-Slovenia	8,429,344	0.5%	3,692,455	0.2%	12,121,800
TR-Turkey	18,361,648	1.1%	20,482,488	1.0%	38,844,136
UA-Ukraine	4,983,294	0.3%	76,992,391	3.7%	81,975,685
UK-United Kingdom	169,639,471	9.8%	111,142,820	5.4%	280,782,291
YU-Yugoslavia	6,488,781	0.4%	1,537,913	0.1%	8,026,693
OTHERS	6,224,666	0.4%	27,517,600	1.3%	33,742,267
TOTAL:	1,731,575,422	100.0%	2,073,627,441	100.0%	3,805,202,863

Source: calculations from Eurostat Comext database for 2001

Comment: This is more than the total trade between the concerned countries, as the trade between EU-Member states and the Accession countries is listed both ways – as declarant country for import as well as for export. This table is made in order to get a picture of the trade per country.

In order to analyse the market development, it has been assessed useful to split up the market into segments. The intermodal market in Europe can be divided into the following market segments:

1. Continental transports

This segment mainly consists of transports with swap bodies and trailers for cargo traded between countries on the European continent – Continental European trade.

2. Overseas transports

This segment mainly consists of container traffic with cargo traded between countries in Europe and countries on other continents – Overseas European trade.

As the intermodal market is very complex, it is assessed useful to also look from another angle, namely to split the market into:

3. International and national road-rail transports

This segment consists of traffic with swap bodies or trailer as well as container traffic transported by road and rail either in a national or international context. The classic road-rail transport is also called combined transport.

4. International and national road-waterways transports

This segment consists mainly of container traffic transported by road and inland waterway either in a national or international context.

To illustrate the above two first market segments, the trade between all countries in Europe has been scrutinized, in a large statistic material from Eurostat (European official statistics office) for the year 2001. Due to lack of complete statistical material on a "country - country level" between all EU, EFTA and Central and Eastern European countries, the analyse has been carried out with a point of reference in a EU-15 import and export statistic, thus giving an total picture on "country - country level" and also import and export statistics for the 10 EU-accession countries. Hereby some of the trade between the EFTA, Central and Eastern European countries is not included. This however is appraised being insignificant for the total result. More precisely, the statistics for EFTA internal trade (between Norway, Iceland, Liechtenstein and Switzerland) as well as between the non-Accession states in Central and Eastern Europe is not included.

The previous report concerned statistics from 1997, whereas only information from the EU-Member states on import and export with different countries was available. Therefore comparisons between the previous report and the present report are made based on the EU-Member states reports for export and import. This is made although the present statistics for 2001 are more comprehensive than in the previous report.

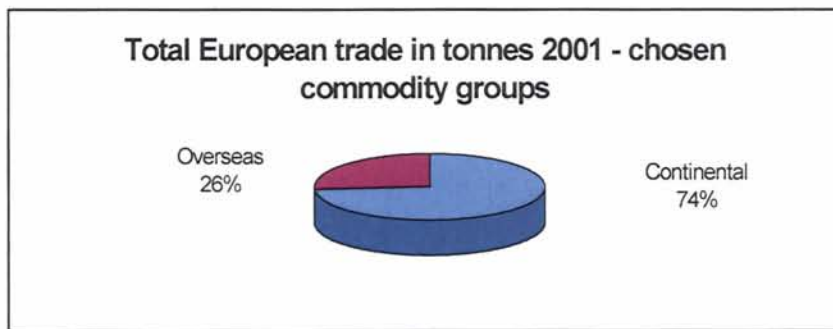
The following commodities are evaluated to be relevant for intermodal traffic, and the border-crossing trade with these commodities on a certain axis, thus represents the total market for international intermodal traffic.

Commodity groups suitable for intermodal traffic (NST-R)	
12 – Beverages	84 – Paper pulp and waste paper
13 – Stimulants and spices	89 – Other chemical products
16 – Non-perishable foodstuffs and hops	91 – Transport equipment
52 – Semi-finished rolled steel products	93 – Other machinery apparatus and appliances, engines, parts thereof
54 – Steel sheets, plates, hoop and strip	94 – Manufactures of material
55 – Tubes, pipes, iron and steel castings and forgings	96 – Leather textiles and clothing
56 – Non-ferrous metals	97 – Other manufactured articles

The total European trade volume suitable for intermodal traffic is for 2001 estimated to be 659 million tonnes, which is approx. 17,3% out of the total trade volume.

The total European trade of the chosen products (import + export) is estimated to 1.088 million tonnes in 2001. This is based on the figures from all EU-Member states as well as from the Accession countries, wherefore the actually transported volume is not as high, while the trade between the EU-Member states is enclosed for both import and export of both concerned countries. This also applies for the Accession countries. Therefore an estimate based on the export of the declaring countries, as well as the import from other countries has been used as base.

Therefore, some 487 million tonnes are estimated to be continental European trade and some 172 million tonnes are estimated to be overseas European trade.



Source: Estimations from Eurostat, Comext database 2001

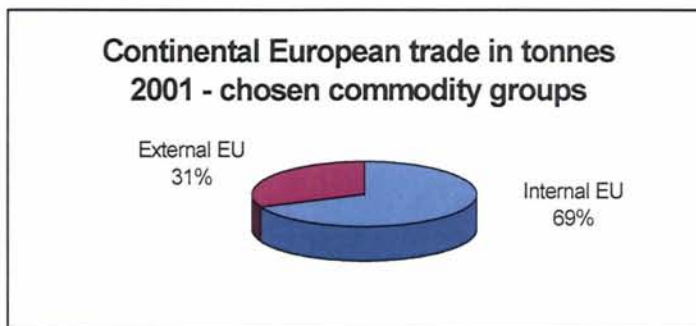
This would mean an increase of the trade of the chosen commodities of 28% since 1997. However, as the figures on 1997 only were based on EU-Member States, they did not include the trade between EFTA-countries, as well as Central and Eastern European countries. The figures for 2001 include the Candidate countries, wherefore a more precise picture of the European trade is given.

In order to create a better picture of the difference, the 2001 figures for European trade of the chosen products based on EU-Member states only has been compared with the 1997 figures. Hereby the total trade of the chosen products is estimated to 584 million tonnes (516 million tonnes in 1997) whereby an increase of 13,2% can be seen for the 4-year-period. The continental volumes accounted for 422 million tonnes, which is an increase of 8,8% compared to the 388 million tonnes in 1997. When looking at the overseas volumes there has been an increase of volumes of 20% to 162 million tonnes in 2001, compared with the 135 million tonnes in 1997. Hereby a noticeably large increase of the overseas volumes has been noted for the EU-countries since 1997.

As can be seen from the above, the trade with the EU-Member states account for some 90,4% of the total European trade suitable for intermodal transports. The Overseas trade with EU-Member states accounts for 94,2% of the total Overseas trade with the chosen products, whereas the EU continental trade accounts for 86,7% of the total trade with the chosen products.

1. Continental transports

The total continental European trade suitable for intermodal traffic is estimated to be some 487 million tonnes. Some 334 million tonnes hereof is to be considered as internal EU trade between the EU Member States, and some 153 million tonnes is to be considered as external EU trade between the EU Member States and the EFTA and Central and Eastern European countries.



Source: Estimations from Eurostat, Comext database 2001

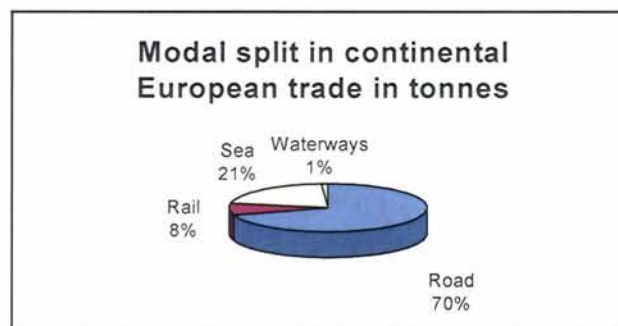
In order to define the main European transport routes, which also can be seen as present or potential intermodal routes, the transported volumes have been analysed further. A detailed Eurostat statistic on a country-country level for the total European trade (excluding the trade between the EFTA and some Central and Eastern European countries) has been consulted. From this the chosen product groups have been extracted, and hereby analysed towards potential intermodal routes on country-country level. Thus the following section presents a total picture of the transport flows in the continental European trade pinpointing the largest and most important European border crossing transport flows in the continental European trade.

Making the assumption, that the total trade balance in a given country-country relation has to consist of more than 500.000 tons cargo suitable for intermodal traffic per year (corresponding to some 500 single loads per week) before the trade relation has enough substance for at least one viable intermodal route, it can be concluded that it in theory should be possible to establish some 750-800 intermodal routes in Europe based on the continental European trade alone. One single load is 15-16 tons in a trailer, 40' container or equivalent unit.

Thus in the tables at the end of this chapter a rough picture of the potential European border crossing country-country routes based on the continental European trade of cargo suitable for intermodal transport is presented. Please note that an intermodal route is seen as being both ways – for example from Germany to Italy as well as from Italy to Germany the number of corridors should be added up and split in two, in order to receive the number of intermodal corridors.

Of course the information above only gives a very rough picture and an indication of the most important transport flows in Europe, and it can on this basis not be ruled out, that other European relations may also have large potential for border crossing intermodal routes. Further the above picture does not take collecting and distribution zones crossing national borders into consideration.

As there is no available statistic, which on an overall level presents the intermodal transports share of the total European trade, the today's split per mode of transport in the continental traffic of the chosen commodities can be illustrated as follows:



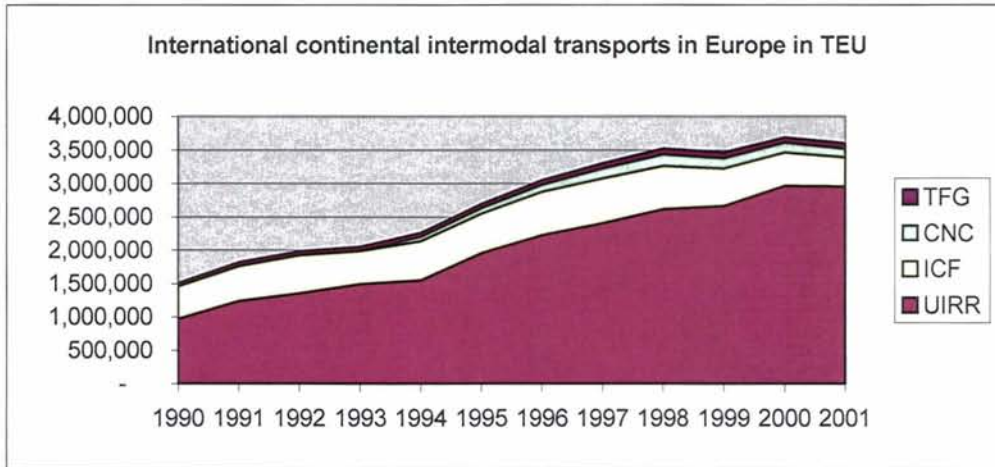
Source: Estimations from Eurostat, Comext database 2001

Development in Continental transports

The combined transports within Europe have had a steady increase in the beginning of the nineties, but in the last few years the development seems to stagnate.

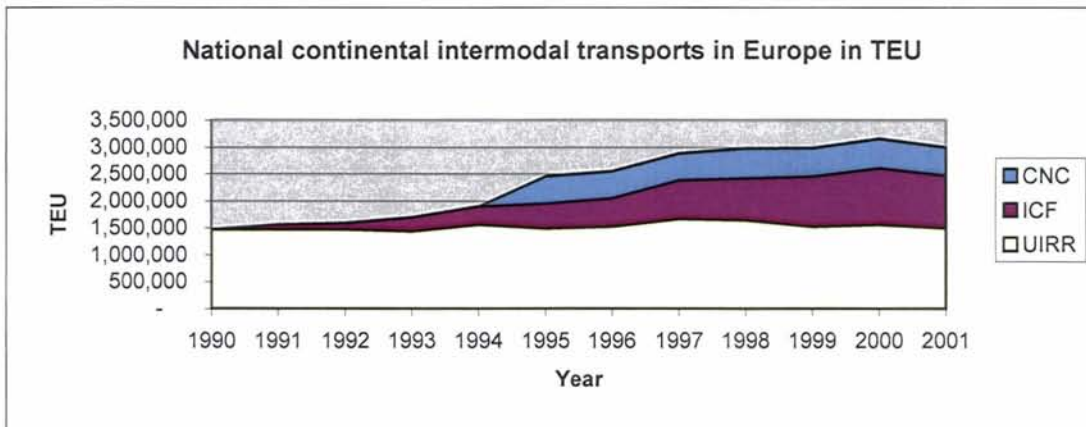
Of the main actors, the UIRR-companies work with continental transports only, carrying mainly swap bodies, trailers and rolling highway vehicles. ICF has increased their market share in the continental market in the nineties, from having more than half of its volume in maritime traffic. In 1990 some 500.000 TEU or 42% of their international volumes were continental, and in 1998 some 650.000 TEU or 52% of the international volumes were continental. Further information on the split-up between continental and maritime transports is not available. ICF has had a downturn for some years now, whereas the ICF-Group companies seem to have a stable development.

The split between continental and maritime traffic in the national statistics is difficult to elaborate, since there are so many different issues, as for example, that short sea shipping is a large part of the traffic, which is continental, although it runs from a maritime port. There is no official split up to be found. However the available data from many separate sources gives the following rough picture of the development in the segment of continental intermodal transports.



Source: UIRR, ICF and estimates on CNC and TFG

As it can be seen from the above table the total market of the major pan-European intermodal players of international continental intermodal transports in Europe measured in TEU increased with more than 80% over a 10 years periods of time. Or in other words the average increase was 9% per year. There are also new players coming up, whereby the development is increasing more than listed above. The figures of these new operators are not available. This is a normal market reaction, whereas other market players as for example TFG is concentrating on the Hinterland transports mainly with the German ports in the future.



Source: UIRR, ICF and estimates

As it can be seen from the above table the total market of the major intermodal players of national intermodal transports in Europe measured in TEU increased with 189% over a 10 years periods of time. Or in other words the average increase was 21% per year.

Of course there are other intermodal players offering national intermodal transports, however it has not been possible to get all figures from for example large players as CNC in France and TFG in Germany, as they have a policy of not handing out such detailed information.

Intermodal potential corridors

A thorough analysis of Eurostat statistics for year 2001 for 14 chosen product groups has been made in order to find the potential for intermodal transports on an overall country-country level. The potential has been split up for export and import, as well as for European continental transports and European overseas transports. The statistics is based on the information from the 15 EU-Member States and the 10 accession countries, which are assumed to be EU-Member States within a few years.

The declaring countries are listed in the top row, and the partner countries in the left column. Source for both tables are Estimations from the comprehensive Eurostat Comext database 2001.

As can be seen, some 757 potential export corridors and some 813 potential import corridors are found.

The following country-country corridors with potential for continental intermodal transports have been assessed:

POTENTIAL CORRIDORS FOR INTERMODAL TRANSPORTS IN EUROPE - EXPORT																											
EXPORT	Corridors	AT	BE	BG	CZ	DE	DK	EE	ES	FI	FR	GR	HU	IE	IT	LT	LU	LV	NL	PL	PT	RO	SE	SK	SL	UK	
AL	0																										
AT	23		1		2	13					1		1		3				1					1			
BA	0																										
BE	58					13			1	2	18				3		1		14				2			3	
BG	0																										
BH	0																										
CH	16	2				8					4				3												
CZ	12	1				6														2				3			
DE	161	13	20		9		4		6	7	23	2	3		17		2		20	12	2	1	8	3	1	8	
DK	9					5													1				3				
EE	0																										
ES	50		3			9				2	17				7				2		4		1			3	
FI	4					2																	3				
FR	116	2	26			25			12	2					16		12		8	2	1		3			7	
GR	5					1									3												
HR	2																									2	
HU	5	1				3									1												
IE	8																									8	
IT	74	6	6	2	1	16			5	1	15	1	1						3	2		2	3	1	4	3	
LI	0																										
LT	0																										
LU	6		2			2					2																
LV	0																										
MD	0																										
MK	0																										
NL	72	1	16			34			2	2	6				2					1			3			4	
NO	6					2																	4				
PL	14				3	7					1				2									2			
PT	13					2			7		2				1				1								
RO	1														1												
RU	5					3				2																	
SE	16		1			5	3			2	1							1	1							2	
SK	4				3	1																					
SL	2	1													1												
TR	5					2									2								1				
UA	0																										
UK	70	1	8			15	1		4	4	12			2	7				6	1	1		6				
YU	0																										
TOTAL	757	28	84	2	18	174	8	0	37	25	103	3	5	2	70	0	16	1	59	19	8	4	36	10	7	38	

POTENTIAL CORRIDORS FOR INTERMODAL TRANSPORTS IN EUROPE - IMPORT																										
IMPORT	Corridors	AT	BE	BG	CZ	DE	DK	EE	ES	FI	FR	GR	HU	IE	IT	LT	LU	LV	NL	PL	PT	RO	SE	SK	SL	UK
AL	0																									
AT	24				1	11					2		1		7					1						1
BA	0																									
BE	80	1				17	1		3		25	2			6		3		11				1			10
BG	2														2											
BH	0																									
CH	13	1				6					4				2											
CZ	15	2				9														3				2		
DE	202	16	15		7		6		10	2	28	30	3		19		2		29	8	2		5	1		20
DK	5					3																	2			
EE	1									1																
ES	35		1			5					11	1			5				1		6					4
FI	25		2			7	1		2		2				2				2				3			5
FR	106	1	20			20	1		17			5			15		2		4	2	2		1			15
GR	1					1																				
HR	3																								3	
HU	6	2				3									1											
IE	7						3																			4
IT	77	3	3			14	14		7		15	5							2	2	1	1			1	9
LI	0																									
LT	10					2	1												2				3			2
LT	0																									
LU	4					1					2															
LV	1																						1			
MD	0																									
MK	1																				1					
NL	70	1	22			18	3		3		9	1			4						1		2			7
PL	17				2	12					1				1											1
PT	8					1			4		2															1
RO	2														2											
RU	9					3				2					3											1
SE	32		2			7	4		1	2	3				3				3							7
SK	10	1			3	3									1						2					
SL	2					1									1											
TR	7					2						1			2											1
UA	2														2											
UK	37		4			6			3		6	2		5	3				5				2			
YU	0																									
TOTAL	813	28	69	0	13	151	35	0	49	7	111	48	4	5	82	0	7	0	59	17	11	1	21	4	4	88

2. Overseas transports

The total overseas trade with Europe in 2001 - based on information from the EU-Member States and the EU accession countries - was 378 million tonnes exported from Europe and 1.012 million tonnes imported to Europe, or all in all 1.390 million tonnes. There is a very large imbalance as the imported volumes are very much larger than the exported volumes, and this certainly puts a very large pressure on the logistic systems.

IN MILLION TONNES	TOTAL EXPORT	% OF TOTAL
AFRICA	58	15%
ASIA	129	34%
AUSTRALIA & NEW ZEALAND	3	1%
CENTRAL AMERICA & WEST IND.	10	3%
NORTH AMERICA	161	43%
OCEANIA & POLAR REGIONS	4	1%
SOUTH AMERICA	13	4%
TOTAL OVERSEAS EXPORT:	379	100%
IN MILLION TONNES	TOTAL IMPORT	% OF TOTAL
AFRICA	286	28%
ASIA	319	32%
AUSTRALIA & NEW ZEALAND	56	6%
CENTRAL AMERICA & WEST IND.	21	2%
NORTH AMERICA	103	10%
OCEANIA & POLAR REGIONS	57	6%
SOUTH AMERICA	170	17%
TOTAL OVERSEA IMPORT:	1.012	100%
IN MILLION TONNES	OVERSEAS TRADE	% OF TOTAL
AFRICA	345	25%
ASIA	448	32%
AUSTRALIA & NEW ZEALAND	59	4%
CENTRAL AMERICA & WEST IND.	30	2%
NORTH AMERICA	264	19%
OCEANIA & POLAR REGIONS	61	4%
SOUTH AMERICA	183	13%
TOTAL EUROPEAN OVERSEAS TRADE:	1.390	100%

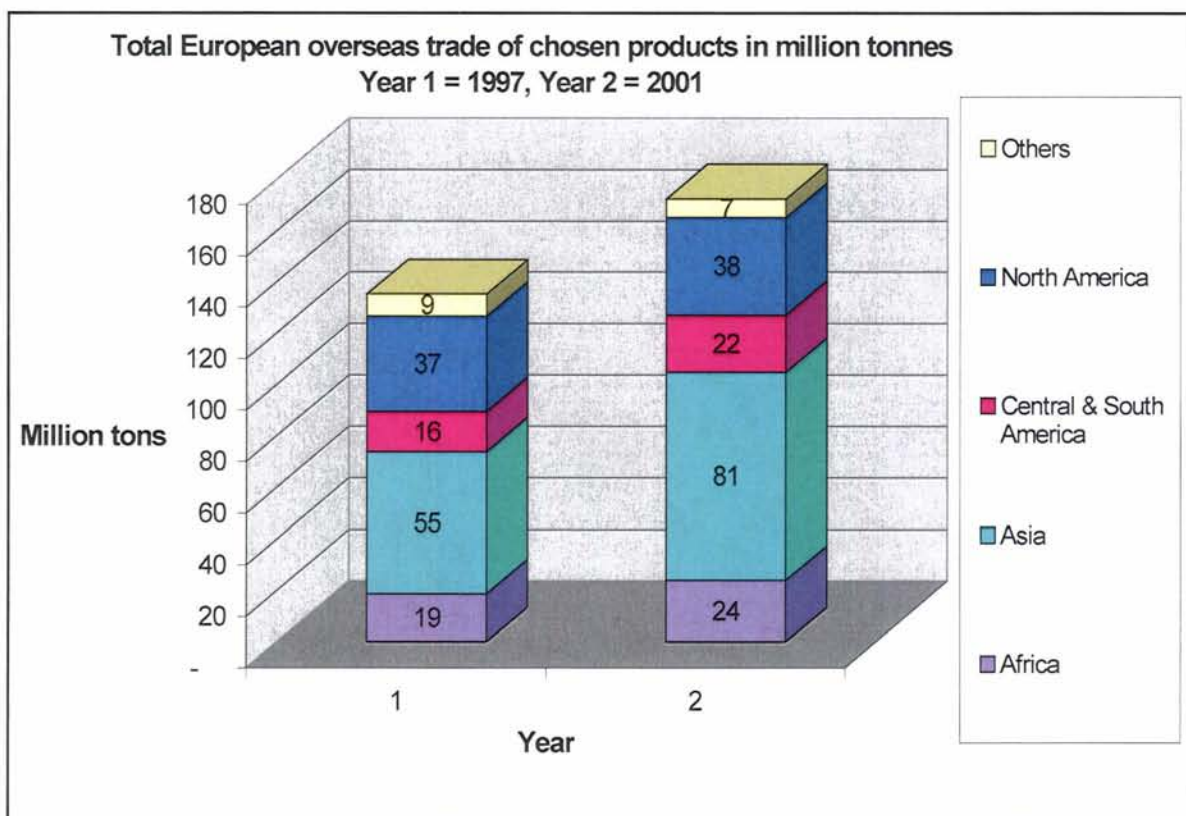
Source: Calculations from Eurostat Comext database 2001

The total European overseas trade suitable for European intermodal traffic is estimated to be 172 million tonnes in 2001 or about 12% of the total overseas trade. In the previous report 2000, the potential overseas European trade in 1997 was estimated to 135 million tons. Hereof some 41% was trade with Asia, some 14% was trade with Africa, some 28% was trade with North America, 12% was trade with Central and South America, and 6% was trade with others.

In 2001 the split on the different world regions has changed somewhat. Asia has increased from 41 to 47% of the total overseas trade, and North America has decreased from 28 to 22%. Hereby it

can be seen that the trade with Asia is in a blooming growth, whereas the trade with North America has had its peak. This development is expected to continue in the coming years, as the European production is moved further and further east.

Year 1 = 1997 and Year 2 = 2001



Source: Estimations from Eurostat, Comext database in 1997 and 2001

In order to define the main European transport relations that also can be seen as present or potential intermodal routes, the transported volumes have been analysed further. A detailed Eurostat database statistics on a country-country level for the total European trade (based on information from the EU-Member States and the EU-Accession countries but excluding the trade between the EFTA and some of the Central and Eastern European countries) has been consulted and calculated upon.

Also here the assumption has been made, that the total trade balance in a given country-country relation has to consist of more than 500.000 tons cargo suitable for intermodal traffic per year (corresponding to some 500 single loads per week) before the trade relation has enough substance for at least one viable intermodal route, it can be concluded that it in theory should be possible to establish some 297 intermodal routes in Europe based on the overseas European trade alone.

POTENTIAL CORRIDORS FOR INTERMODAL TRANSPORTS IN EUROPE - IMPORT OVERSEAS																										
Import to:	Corridors	AT	BE	BG	CZ	DE	DK	EE	ES	FI	FR	GR	HU	IE	IT	LT	LJ	LV	NL	PL	PT	RO	SE	SK	SL	UK
From region:																										
Africa	14		1			2			2		2				3				2							2
Asia	82		7	0	0	11	1	0	8		6	2	0		10	0		0	11	0	1	0	1	0	0	24
Australia & New Zealand	0																									
Central America & West India	5					1														2				2		
North America	28		4			5			2		3				5					4						6
Oceania & Polar regions	0																									
South America	18		3			3			2		3				3					2						2
TOTAL	148	0	15	0	0	22	1	0	14	0	14	2	0	0	21	0	0	0	18	2	1	0	1	2	0	35

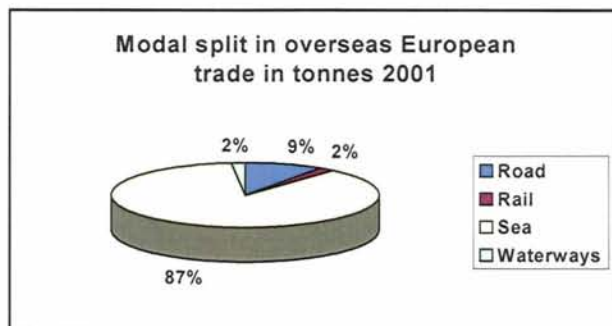
Source: Estimations from Eurostat, Comext database 2001

POTENTIAL CORRIDORS FOR INTERMODAL TRANSPORTS IN EUROPE - EXPORT OVERSEAS																										
Export from:	Corridors	AT	BE	BG	CZ	DE	DK	EE	ES	FI	FR	GR	HU	IE	IT	LT	LJ	LV	NL	PL	PT	RO	SE	SK	SL	UK
To region:																										
Africa	29		3			4			4		7				6				2			2				2
Asia	64		2	7		16			3	3	8				9				7			4				6
Australia & New Zealand	0																									
Central America & West India	6					2			1		1				2											
North America	40		1	2		11			2	3	5				6				4			2				4
Oceania & Polar regions	1					1																				
South America	10		1			2			1		2				2							2				
TOTAL	149	3	13	0	0	36	0	0	12	5	22	0	0	0	24	0	0	0	13	0	0	4	6	0	0	12

Source: Estimations from Eurostat, Comext database 2001

Of course the information above only gives a very rough picture and an indication of the most important transport flows in Europe, and it can on this basis not be ruled out, that other European relations may also have large potential for border crossing intermodal routes. Further the above picture does not take collecting and distribution zones crossing national borders into consideration.

As there is no available statistic, which on an overall level presents the intermodal transports share of the total European trade, the today's split per mode of transport in the overseas traffic can be illustrated as follows:



Source: Estimations from Eurostat, Comext database 2001

Development in Overseas transports

The overseas market contains transports to and from all non-European Continents, resulting in a large cargo flow in all main European ports. The total intermodal potential for overseas import and export volumes with Europe is estimated to 172 million tonnes.

Looking at the overseas transports, one also has to consider the large volumes moving between ports, due to the fact, that the ocean-going ships do not have calls in every country for the final destination or origin of the container, and some of these volumes are reloaded onto feeder ships and other ships - this is part of the short sea traffic. Large volumes are reloaded in the ports onto barges, trucks or trains and this is called Hinterland traffic.

Already in the Annual report from the Port of Rotterdam for 1999 it is said, that the port with the best hinterland connections to and from the European market will have a head start in the competition with other ports. Therefore the European ports work closely with other modes of transport to build up the hinterland network – on road, rail and inland waterways, and several new Hinterland connections have seen the day of light through cooperation across the virtual as well as country borders.

According to Eurostat, the Hinterland traffic of containers with the EU ports had the following split per mode of transport in 1996:

EU Port Hinterland Container Traffic in 1996						
Country	Port Container Traffic in 1.000 TEU	Port Hinterland traffic in 1.000 TEU	of which, in %:			
			Road	Rail	Inland	Waterways
UK	5,304	4,549	84%	16%		0%
NL	5,078	3,682	49%	15%		36%
DE	4,641	2,754	64%	34%		2%
IT	3,731	3,027	89%	11%		0%
ES	3,281	1,673	92%	8%		0%
BE	3,207	2,539	59%	20%		21%
FR	1,840	1,403	76%	23%		1%
GR	814	682	98%	2%		0%
SE	758	647	54%	46%		0%
FI	649	567	83%	17%		0%
IRL	761	746	89%	11%		0%
PT	512	452	93%	7%		0%
DK	492	396	89%	11%		0%
	31,068	23,117	78%	17%		5%

Source: Eurostat – Sea EU Port Hinterland Container Traffic (MDS Transmodal)

It has not been possible to find any official EU Port Hinterland Container traffic statistics from a later date than in 1996. It can be concluded, that of the total 31 million TEU in the EU ports in 1996, ¼ came from other ports within Europe and almost ¾ were moved in Hinterland traffic, before or after the sea journey. Hereof road again dominates, due to the fact, that the largest volumes come from the regions close to the port involved, where rail and inland waterways cannot compete. But there are short distance intermodal shuttles, for example between the ports of Antwerpen and Rotterdam, both on rail and on inland waterways.

The above modal split in Hinterland traffic calculated on the 2001 total container throughput in the 50 largest EU container ports of 43 million TEU, would mean:

- ◆ Road – 25 million TEU
- ◆ Rail – 5,4 million TEU
- ◆ Inland Waterways – 1,6 million TEU
- ◆ Other European ports – 11 million TEU

As a control of the above figures, the Rotterdam Maasvlakte terminal had the following modal split in the container traffic from the terminal in 2001; road 47%, rail 42,5% and inland waterways 10,5%. Here a large change has taken place as regards to the rail transports, as in the previous report, the figures for Maasvlakte in 1999 where road 49%, rail 16% and inland waterways 35%. This means that rail has taken over market shares from road but certainly to a large amount from inland waterway.

We have also detected some changes in the last years to the above. The Port of Antwerp is the third largest container port in Europe, and although there are other large container ports in Belgium, the following modal split in the port container traffic shows a quite different result:

Modal split container traffic year 2000 (in %)				Split 1998
Port of Antwerp	Unloadings	Loadings	Total	
Hinterland traffic:				
Road	54%	53%	54%	61%
Barge	27%	26%	27%	25%
Rail	8%	10%	9%	7%
Total Hinterland traffic:	89%	89%	89%	93%
Transshipment between ships:	11%	11%	11%	7%
Total traffic:	100%	100%	100%	100%
Total container traffic in 2000:			TEU	Split 1998
Port of Antwerp			4,082,334	
Hinterland traffic - Split according to above modal split:				
Road		60%	2,184,049	66% 2,453,000
Barge		30%	1,081,819	27% 1,011,000
Rail		10%	367,410	7% 262,000
Total Hinterland traffic in 2000:		100%	3,633,277	100% 3,726,000
Total container traffic in 2001:			TEU	
Port of Antwerp			4,218,176	
Estimated Hinterland traffic - according to above modal split for 2000:				
Road		60%	2,256,724	
Barge		30%	1,117,817	
Rail		10%	379,636	
Total estimated Hinterland traffic in 2001:		100%	3,754,177	

Source: Antwerp Port Authority/Antwerp Port Federation – SEA and estimates

From the above it can be seen that the transshipment between ships in the Port of Antwerp has increased from 302.000 TEU in 1998 to some 367.000 TEU in 2000, or from 7% to 11% of the total container throughput.

The Hinterland traffic accounts for 89% of the total container throughput, and since the previous report, the rail Hinterland traffic has increased its share on Antwerp. In 1998 the rail Hinterland share was 7% or 262.000 TEU and for 2000 it was 10% or 367.410 TEU, an increase of 40%. It is not known whether it has been possible to increase the share further in 2001.

Also the inland waterways have increased its share of the Hinterland transport with some 70.000 TEU, or +7%. The road traffic is on return with a decrease of almost 270.000 TEU or –11% - a real success for the more environmentally aware transport modes.

The Port of Hamburg is (according to the port itself) the largest rail container-handling centre in Europe. For some 20 years container trains have been put together at the container terminals in and around Hamburg. In the domestic battle between carriers for long-distance traffic to and from Hamburg, the rail has a market share of over 70%. There are several intermodal operators involved in the rail container business; Transfracht International, DB Cargo, Eurogate Intermodal, BoxXpress, Hansa-Hungaria Container Express - HHCE, Intercontainer-Interfrigo – ICF, Metrans and Polzug.

They carry goods by rail to and from Hamburg's hinterland. With departure and arrival times determined on a daily basis and rail timetables carefully coordinated, prompt and reliable deliveries are ensured. Not only containers but also project shipments, tubes, fruit (in reefer wagons), liquid cargoes (in tank wagons), ores, coal, grain, sugar and much more that are shipped by rail to and from the Port of Hamburg's European hinterland.

	1991	1997	1998	1999	2000	2001
Containers (TEUs)	609.800	717.200	677.600	678.000	780.000	841.000
Increase in %		17,6%	-5,5%	0,1%	15,0%	7,8%
1991 = Index 100	100	118	111	111	128	138
Volume of traffic (million t.)	23,2	23,8	22,6	22,3	24,2	26,7
Incoming and outgoing wagons	1.219.900	1.080.100	1.030.900	970.000	1.000.000	1.057.200

Source: Port of Hamburg website

841.000 TEU on rail to and from the port in 2001 is 18% of the total container throughput in the port of Hamburg in 2001. But as it is said to be some 70% of the long-distance traffic to and from Hamburg, the market share must be assessed being extraordinary good! And still, having this large market share, the rail transports have increased with 38% since 1991.

The total container transports in the ports in 2001 was 43 million TEU, an increase of 3% compared with the year 2000. Year 2000 was a very good year for the container transports, as the total 41,6 million TEU was an increase of 10% compared with 1999. The previous report in 2000 showed the 50 largest container ports in 1999 with 37,9 million TEU. Since then the annual increase has been 3,4 – 9,7%, whereas the years in the mid-90ies showed annual increases of 9,1 – 14,4%.

The 50 largest container ports in Europe, with their total throughput of containers, are presented on the following page:

50 largest container ports in Europe										
No in 2001	Port	1998	%	1999	%	2000	%	2001	%	Index 100 = 1998
1	Rotterdam	6,010,502	9%	6,343,020	6%	6,274,556	-1%	6,095,502	-3%	101%
2	Hamburg	3,546,940	6%	3,738,307	5%	4,248,247	14%	4,688,669	10%	132%
3	Antwerpen	3,265,750	10%	3,614,246	11%	4,082,334	13%	4,218,176	3%	129%
4	Bremen/Bremerhaven	1,811,014	6%	2,201,210	22%	2,751,793	25%	2,915,169	6%	161%
5	Felixstowe	2,523,639	12%	2,696,659	7%	2,793,217	4%	2,650,000	-5%	105%
6	Gioia Tauro	2,125,640	47%	2,253,401	6%	2,652,701	18%	2,488,332	-6%	117%
7	Algeceiras	1,825,614	19%	1,832,557	0%	2,009,122	10%	2,151,770	7%	118%
8	Genova	1,265,593	7%	1,233,817	-3%	1,500,632	22%	1,526,526	2%	121%
9	Le Havre	1,319,278	11%	1,378,379	4%	1,486,108	8%	1,523,493	3%	115%
10	Valencia	1,005,797	21%	1,170,191	16%	1,308,010	12%	1,505,566	15%	150%
11	Barcelona	1,095,113	13%	1,234,987	13%	1,363,695	10%	1,411,054	3%	129%
12	Piraeus	933,096	36%	964,902	3%	1,161,099	20%	1,165,797	0%	125%
13	Marsaxlokk	1,071,669	62%	1,044,972	-2%	1,033,052	-1%	1,165,070	13%	109%
14	Southampton	846,057	-5%	921,242	9%	1,061,000	15%	1,164,000	10%	138%
15	La Spezia	731,882	19%	843,233	15%	909,962	8%	975,000	7%	133%
16	Zeebrugge	776,357	20%	850,164	10%	965,345	14%	875,926	-9%	113%
17	Marseilles	660,232	6%	663,984	1%	722,445	9%	742,020	3%	112%
18	Göteborg	519,642	2%	624,179	20%	684,981	10%	698,000	2%	134%
19	Livorno	535,490	7%	457,842	-15%	501,339	10%	531,804	6%	99%
20	Thamesport	503,345	27%	553,680	10%	504,000	-9%	513,000	2%	102%
21	London/Tilbury	478,364	9%	514,989	8%	478,128	-7%	481,502	1%	101%
22	St. Petersburg	159,713	-32%	203,779	28%	289,000	42%	480,659	66%	301%
23	Helsinki	345,879	-12%	321,499	-7%	376,340	17%	438,200	16%	127%
24	Aarhus	330,000	31%	367,000	11%	404,000	10%	409,000	1%	124%
25	Venezia	206,389	-3%	199,803	-3%	208,502	4%	242,000	16%	117%
26	Gdynia	213,366	20%	190,608	-11%	188,272	-1%	217,000	15%	102%
27	Kotka	161,913	-16%	134,028	-17%	192,102	43%	201,000	5%	124%
28	Trieste	174,080	-15%	189,311	9%	206,134	9%	200,623	-3%	115%
29	Taranto	0	0%	0		0		198,000		#DIV/0!
30	Oslo	181,626	-1%	177,191	-2%	138,556	-22%	140,060	1%	77%
31	Copenhagen-Malmö	0	0%	130,000		130,000	0%	130,000	0%	#DIV/0!
32	Hamina	114,366	13%	92,958	-19%	96,345	4%	93,851	-3%	82%
33	Rauma	74,465	37%	92,154	24%	90,451	-2%	83,655	-8%	112%
34	Tallinn	55,471	2%	65,535	18%	76,692	17%	78,072	2%	141%
35	Koper	72,826	9%	78,200	7%	86,000	10%	0		0%
36	Riga	129,580	-2%	89,235	-31%	84,818	-5%	73,900	-13%	57%
37	Lübeck	91,135	-18%	64,838	-29%	82,330	27%	72,000	-13%	79%
38	Helsingborg	121,100	-5%	68,746	-43%	81,375	18%	0		0%
39	Mäntyluoto	42,396	13%	58,762	39%	64,237	9%	68,000	6%	160%
40	Noworossiysk	0	0%	0		0		60,000		#DIV/0!
41	Emden	35,696	139%	73,879	107%	56,850	-23%	56,583	0%	159%
42	Klaipeda	32,328	-12%	28,668	-11%	39,955	39%	51,135	28%	158%
43	Amsterdam	35,175	-31%	46,222	31%	52,829	14%	47,801	-10%	136%
44	Stockholm	28,742	-7%	30,668	7%	34,200	12%	35,063	3%	122%
45	Wilhelmshaven	9,857	30%	25,410	158%	29,165	15%	34,610	19%	351%
46	Cuxhaven	20,487	-4%	20,577	0%	24,243	18%	26,657	10%	130%
47	Gdansk	2,738	17%	4,627	69%	18,037	290%	24,435	35%	892%
48	Kiel	21,858	-15%	19,313	-12%	18,183	-6%	22,430	23%	103%
49	Szczecin	7,949	81%	12,420	56%	21,865	76%	19,960	-9%	251%
50	Turku	15,480	-11%	16,280	5%	17,939	10%	18,000	0%	116%
		35,535,629	12%	37,937,672	7%	41,600,186	10%	43,009,070	3%	121%

Source: Port of Hamburg

When looking at the development of the throughput in the 50 largest European ports, it can be seen that some large container ports have started the operation within the last 10 years. One very interesting example is the Italian port Gioia Tauro that started in 1995 with 16.192 TEU and until 2001 increased the volumes with 15268% to 2.488.332 TEU in 2001 or an average annual increase of 2.545%!

Another noteworthy container port is Marsaxlokk on Malta that has taken over a large part of the container volumes also for the European mainland. From 259.232 TEU in 1992 to 1.165.070 TEU in 2001, is an increase of more than 400% in 10 years or an average annual increase of 40%.

But also other ports can show large increases in the container volume. Italian Genova has increased 452% from 337.624 TEU to 1.526.526 TEU. Spanish Valencia has increase 406% from 370.846 TEU in 1992 to 1.505.566 TEU in 2001. Also Russian St. Petersburg has had a tremendous growth of 653% in 10 years, from 73.600 TEU in 1992 to 480.659 TEU in 2001.

All in all the container throughput in the 50 largest European ports have increased from some 19 million TEU in 1992 to more than 43 million in 2001 or with 222%. With an average annual increase of more than 20% the container traffic has certainly proven as basis for the overseas transports.

Although the latest tendencies for the shipping market seem to be more of stagnation instead of the steep trend upwards, the shipping business is confident that the intermodal volumes will continue to increase. When looking into the economy of the shipping companies, the latest years have been tough in sense of the actual income per TEU, as the rates for overseas containers have been going down for a long period. The shipping business now seems to have put a stop to this downward trend, and the container rates are again higher.

Container throughput of the European Ports											
Container throughput in 1.000 TEU											
Port	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	Index 100 = 1992
1 Rotterdam	4.123	4.161	4.539	4.787	4.971	5.495	6.011	6.343	6.275	6.096	148%
2 Hamburg	2.268	2.486	2.726	2.890	3.054	3.337	3.547	3.738	4.248	4.689	207%
3 Antwerpen	1.836	1.876	2.208	2.329	2.654	2.969	3.266	3.614	4.082	4.218	230%
4 Bremen/Bremerhaven	1.315	1.358	1.503	1.518	1.543	1.705	1.811	2.201	2.752	2.915	222%
5 Felixstowe	1.543	1.639	1.747	1.924	2.065	2.251	2.524	2.697	2.793	2.650	172%
6 Gioia Tauro	0	0	0	16	575	1.448	2.126	2.253	2.653	2.488	
7 Algeceiras	780	807	1.004	1.155	1.307	1.538	1.826	1.833	2.009	2.152	276%
8 Genova	338	342	512	615	826	1.180	1.266	1.234	1.501	1.527	452%
9 Le Havre	746	895	873	970	1.020	1.185	1.319	1.378	1.486	1.523	204%
10 Valencia	371	385	467	672	708	832	1.006	1.170	1.308	1.506	406%
Total 1 - 10 (2001):	13.319	13.949	15.578	16.876	18.724	21.940	24.700	26.462	29.107	29.763	223%
Total 1 - 50 (2001):	19.345	20.619	22.911	24.985	27.635	31.625	35.536	37.938	41.600	43.009	222%
Hereof 1 - 10:	69%	68%	68%	68%	68%	69%	70%	70%	70%	69%	

Source: Port of Hamburg

As can be seen from the above, the 10 largest European container ports account for 69% of the total throughput of the 50 largest European container ports.

In the following table, the volumes in year 1992 are set as being index 100, to see the development within the last 10 years, reaching an increase of the container volume of 122% in 10 years, or an average of 12,2% per year. (In the previous report the period covered was 1990-1999 with an increase of 119%).

Container throughput of the European Ports												
Container throughput in 1.000 TEU - Index 100 = 1992												
No	Port	Country	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
1	Rotterdam	NL	100	101	110	116	121	133	146	154	152	148
2	Hamburg	DE	100	110	120	127	135	147	156	165	187	207
3	Antwerpen	BE	100	102	120	127	145	162	178	197	222	230
4	Bremen/Bremerhaven	DE	100	103	114	115	117	130	138	167	209	222
5	Felixstowe	UK	100	106	113	125	134	146	164	175	181	172
6	Gioia Tauro	IT	Started in 1995									
7	Algeceiras	ES	100	103	129	148	167	197	234	235	257	276
8	Genova	IT	100	101	152	182	245	349	375	365	444	452
9	Le Havre	FR	100	120	117	130	137	159	177	185	199	204
10	Valencia	ES	100	104	126	181	191	224	271	316	353	406
Total 1 - 10 (2001):			100	105	117	127	141	165	185	199	219	223
Total 1 - 50 (2001):			100	107	118	129	143	163	184	196	215	222

Source: Port of Hamburg

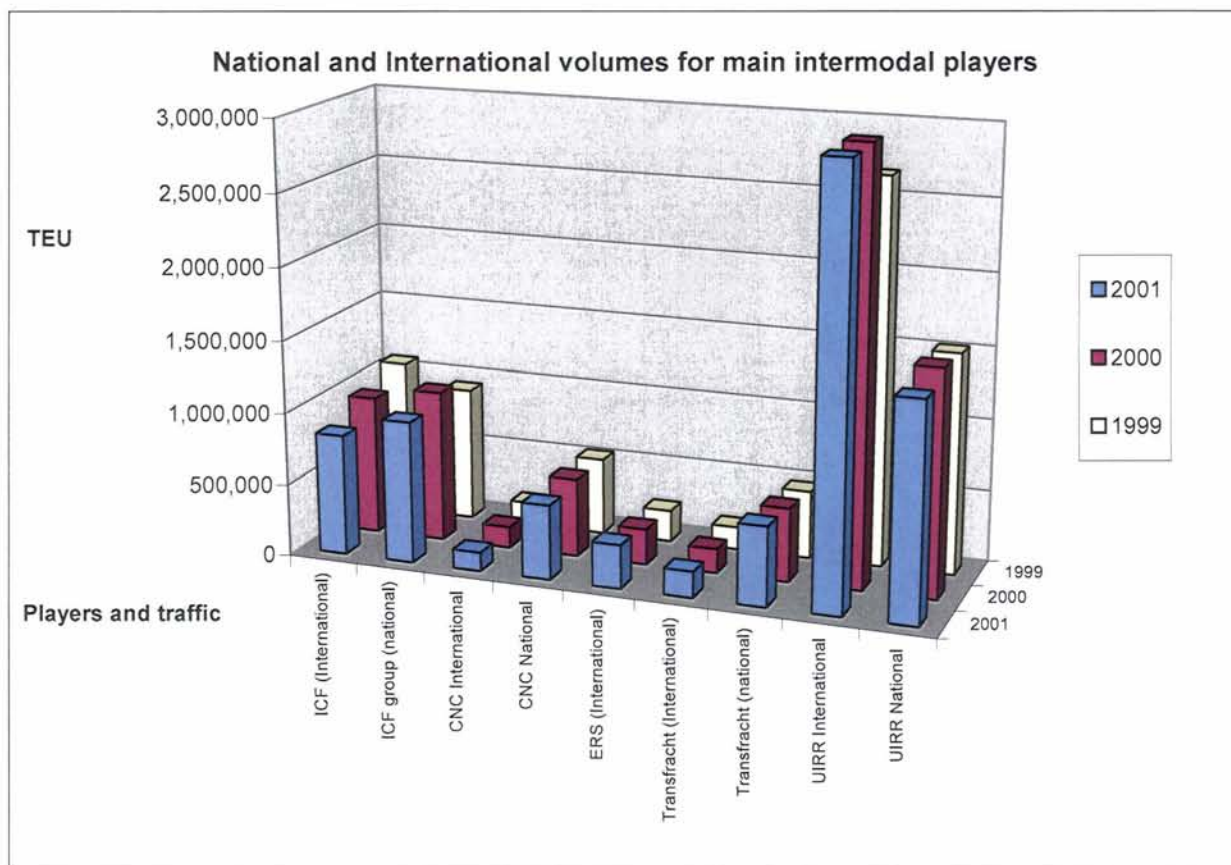
In order to illustrate the importance of intermodal traffic in the overseas traffic, the largest European container port – Rotterdam – is given as an example. Rotterdam accounts for 14,2% of the total container throughput in the 50 largest European container ports with 6,1 million TEU, or some 62,2 million metric tonnes (gross weight). This indicates an average weight of 10,2 tonnes per TEU. After 35 years of constant growth in the container volumes, Rotterdam in 2001 had a small decrease of the container volumes of 0,2 million TEU.

The containers account for close to 20% of the total goods throughput in the Port of Rotterdam in 2001 of 314,7 million tonnes, which was a reduction of 3,4% compared with the top year 2000.

3. International and national road-rail transports

A statistic of intermodal transport is normally not subject to official statistics. Various governmental and non-governmental authorities collect data and partly publish them, but it is almost impossible to set this puzzle together to a meaningful picture.

Further many of the intermodal players are not willing to give detailed information about their traffic. However the following picture of the overall intermodal volumes noted for the largest intermodal players can be presented as below, whereas ICF, CNC and UIRR have split up their traffic in international and national volumes, and for the other players a split is assumed.



Sources: UIRR, ICF, ERS, Transfracht and estimates

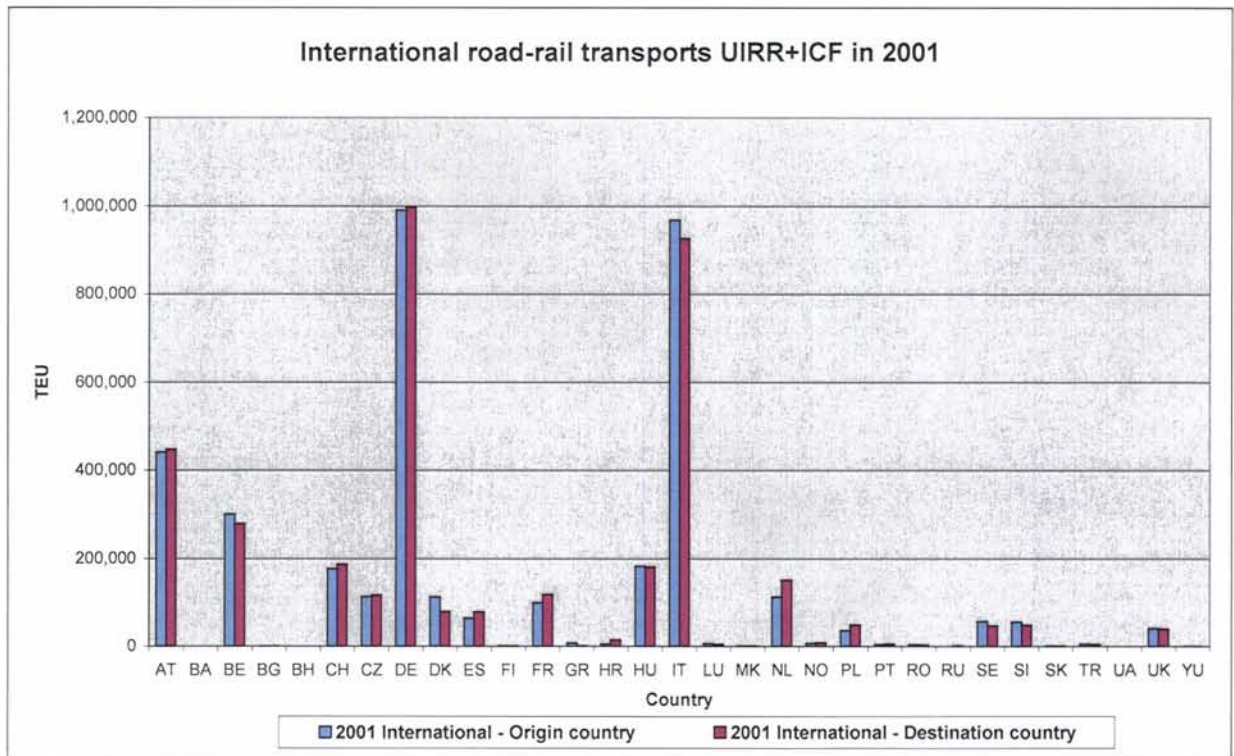
When only looking at these players, which are handling the large majority of the European rail intermodal volumes, the total volumes showed a decrease of -2,4% in 2001 to 7.968.439 TEU. However, parts of the volumes might have been taken over by other intermodal players not mentioned here, as no statistics are available. In year 2000 a total of 8.163.851 TEU was achieved, which was an increase of 5,6% compared with 1999.

The development of the different players is also notable:

- The ICF-group including national subsidiaries and joint ventures achieved 2 million TEU in 1999, but only 1,8 million TEU in 2001 – a decrease of –9,5% over 2 years. Hereof the mother company ICF accounted for 1,1 million TEU in 1999 and only 0,8 million TEU in 2001, a decrease of –22%. Other intermodal players now carry the main part of the lost volumes.
- CNC with a total of 650.881 TEU has had a decrease of volumes of –5,6% in the 2 year period.
- The new intermodal player ERS active since 1994 had an increase of 39% for the 2-year period to 306.000 TEU, which was an increase of 22% compared with the 2000 figure.
- Transfracht had an increase of 17,8% over the 2-year period to 740.000 TEU in 2001, compared with 685.000 TEU in 2000 (+8%).
- UIRR volumes increase with 6,4% from 1999 to 2001 to a total of 4.454.877 TEU in 2001, 4.524.263 TEU in 2000 and 4.188.340 TEU in 1999. For UIRR the national volumes have decreased during the latest years, whereas the international volumes have increased heavily (+11% in the 2-year period.)

The best official attempt on a meaningful picture of the statistics split up per country is a part of a ECMT – Report on the current state of combined transport in Europe – 1998, where a detailed study on a country – country level has been carried through. This statistics was part of the previous report in 2000, and is also presented for comparisons in the annex III – International road-rail combined transport 2001 - UIRR/ICF.

For an update on the road-rail intermodal volumes a new statistics on UIRR and ICF has been elaborated for the year 2001. Further details can be found in the annex III - International road-rail combined transport 2001 - UIRR/ICF.



The volume of the two largest players - UIRR and ICF – for 2001 in international road-rail transport were 3,8 million TEU. In 2001 the EU and EFTA countries account for 3,4 million TEU. The total European international road-rail combined transport in 1996 was assessed to have a level of 3,5 million TEU, whereof the traffic between EU and the EFTA countries stands for 3 million TEU.

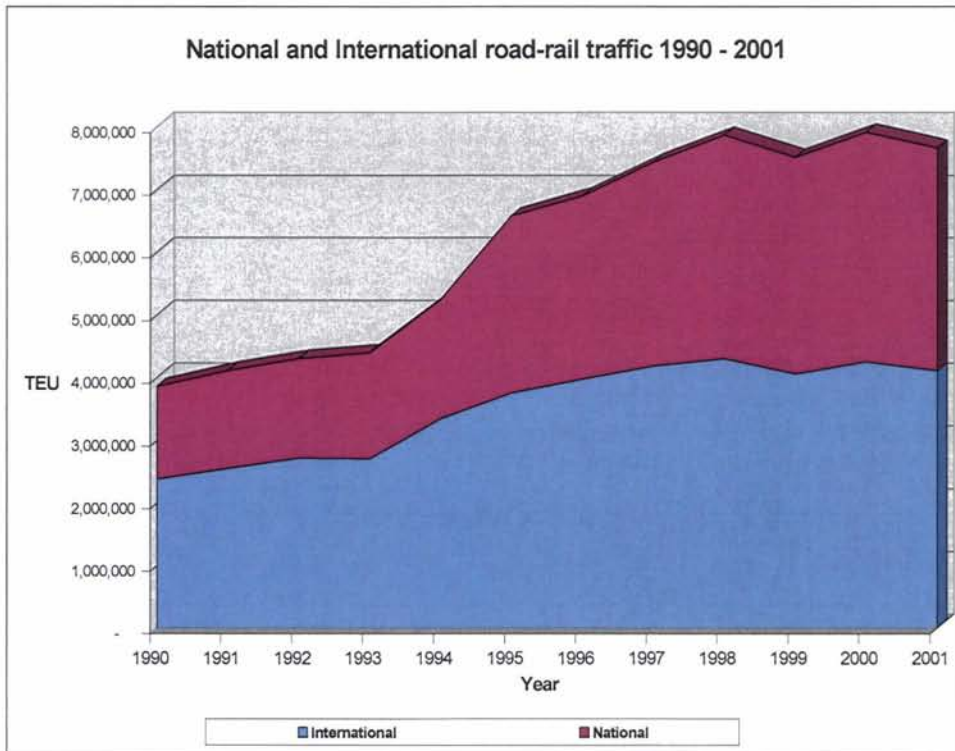
The largest countries within international combined road-rail transport are clearly Germany with an annual volume of some 2 million TEU in 2001 *in and out* (1,75 million TEU in 1996) and Italy with an annual volume of some 1,8 million TEU in 2001 *in and out* (1,6 million TEU in 1996). An up comer is Austria with 0,9 million TEU in 2001 *in and out* (0,8 million TEU in 1996).

Development in International and national road-rail transports

In order to present a picture of the development within this segment, the largest and most important pan-European intermodal logistic companies have been asked about their development in traffic over the last 10 years.

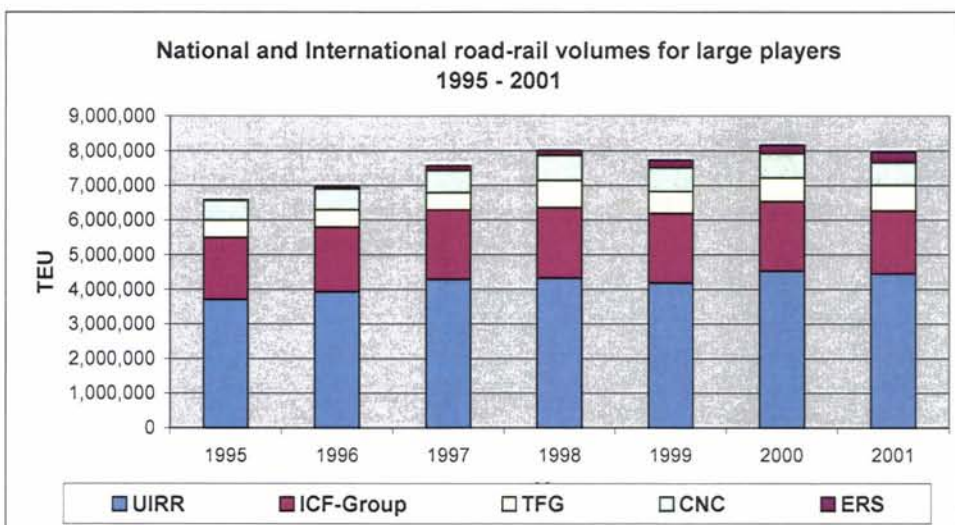
The total development of those companies shows that the traffic has doubled over a 10 years period, whereof the national traffic has had the largest increase, with an annual average growth of some 22% and the international traffic has had an annual average increase of some 16%.

However, it is important to recognise, that the growth seems to have totally stagnated in the last 5 years.



Source: UIRR/ICF/CNC/TFG/ERS and estimates

In order to illustrate the development of national and international road-rail volumes for the large players analysed the following picture has been made:



Source: UIRR/ICF/CNC/TFG/ERS and estimates

4. International and national road-waterway transports

The inland waterways are more in focus as the European Commission, the European Council, the European Parliament and the Member States with the focus on sustainable development also are promoting the development of the European inland waterways, beside railway transport and short sea shipping.

There are no official statistics on the intermodal traffic on the inland waterways that concerns all the European waterways. However, the Association for a Fluid Traffic, Multimode – AFTM in Paris has recently made an update of its 2000 paper on the development of the Inland waterway container traffic. This update is not yet published, but has been made available to us for this report.

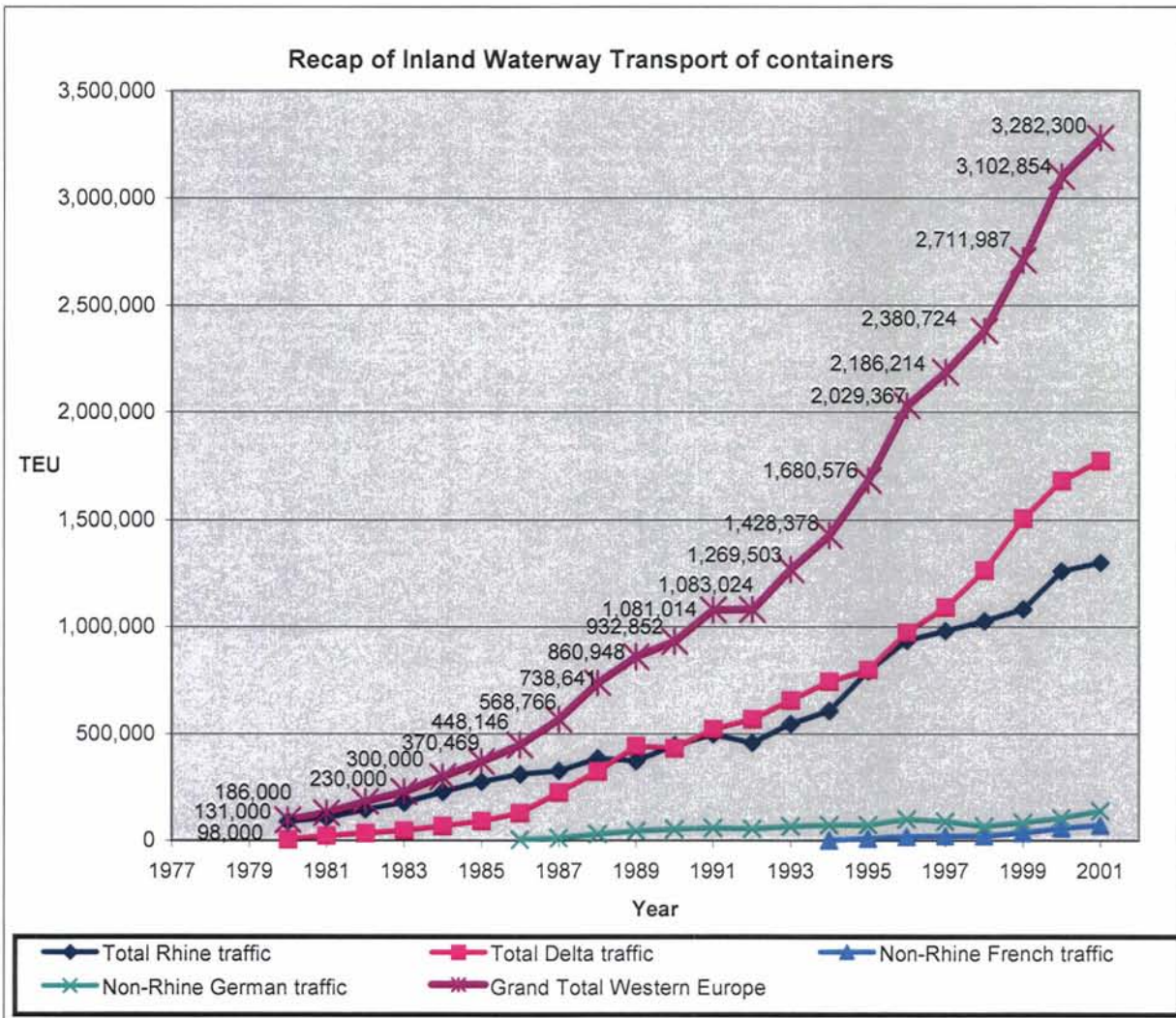
When looking at the statistics presented, the growth rate is certainly worth being mentioned. Looking at the latest 10 year period, the West-European inland waterways have had an increase of the container volume of 204% all in all since 1991, from 1,1 million TEU to 3,3 million TEU. Hereof the total Delta traffic accounts for an increase of 366% in the concerned period.

Recap of West-European Inland Waterway traffic of containers										
Year	Total Rhine traffic		Total Delta traffic		Non-Rhine French traffic		Non-Rhine German traffic		Grand Total Western Europe	
1980	90.000		8.000						98.000	
1981	106.000	18%	25.000	213%					131.000	34%
1982	148.000	40%	38.000	52%					186.000	42%
1983	180.000	22%	50.000	32%					230.000	24%
1984	230.000	28%	70.000	40%					300.000	30%
1985	276.969	20%	93.500	34%					370.469	23%
1986	311.146	12%	132.000	41%			5.000		448.146	21%
1987	327.766	5%	229.000	73%			12.000	140%	568.766	27%
1988	383.641	17%	325.000	42%			30.000	150%	738.641	30%
1989	372.275	-3%	444.000	37%			44.673	49%	860.948	17%
1990	446.296	20%	433.000	-2%			53.556	20%	932.852	8%
1991	498.227	12%	523.000	21%			59.787	12%	1.081.014	16%
1992	458.057	-8%	570.000	9%			54.967	-8%	1.083.024	0%
1993	546.431	19%	657.500	15%			65.572	19%	1.269.503	17%
1994	607.748	11%	746.000	13%	1.700		72.930	11%	1.428.378	13%
1995	795.454	31%	802.000	8%	10.122	495%	73.000	0%	1.680.576	18%
1996	936.634	18%	975.000	22%	17.733	75%	100.000	37%	2.029.367	21%
1997	982.891	5%	1.093.000	12%	21.323	20%	89.000	-11%	2.186.214	8%
1998	1.028.283	5%	1.265.000	16%	21.441	1%	66.000	-26%	2.380.724	9%
1999	1.084.359	5%	1.507.000	19%	36.628	71%	84.000	27%	2.711.987	14%
2000	1.260.081	16%	1.679.500	11%	58.273	59%	105.000	25%	3.102.854	14%
2001	1.300.992	3%	1.771.000	5%	71.308	22%	139.000	32%	3.282.300	6%
Year	Total Rhine traffic		Total Delta traffic		Non-Rhine French traffic		Non-Rhine German traffic		Grand Total Western Europe	
1991-2001	161%		239%				132%		204%	
1996-2001	39%		82%		302%		39%		62%	

Source: AFTM, Association for a Fluid Traffic, Multimode 2002

As can be seen the Inland Waterway Transport - IWT container traffic crossed the 1 million mark in 1991, the 2 million mark in 1996, and the 3 million mark in the year 2000.

The corresponding curve is even more striking, and demonstrate the ability of IWT to adjust to the new economy, especially since this growth took place during the recession of the 1990's.



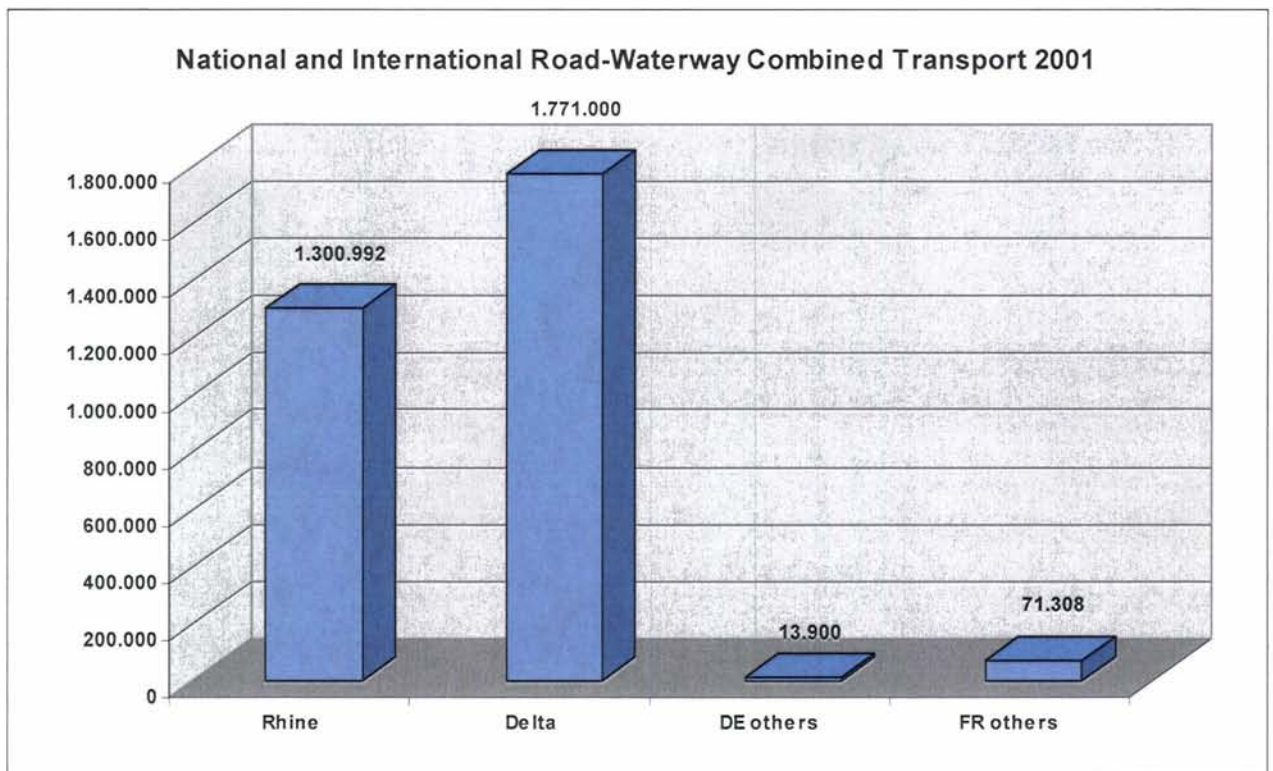
Source: AFTM, Association for a Fluid Traffic, Multimode 2002

The corresponding ton-km traffic is less easily obtainable. The average haul on the Rhine is known, and shall be estimated for other flows:

- French non-Rhine traffic can be calculated at 230 km.
- German non-Rhine traffic should be some 150 km.
- Delta traffic can be calculated at 119 km.
- Then, the average haul of a «NST 99» tonne on the Rhine was some 528 km in 2000.

The tentative figure is 935 million TEU-km, corresponding to some 9 billion ton-km, or 8% of global Western European traffic. This starts to be a very noticeable figure, and the CCNR - Commission Centrale pour la Navigation du Rhin, in its 2000 report mentions that containers on the Rhine represent as much tonnes, and more ton-km, as chemical products, and are not too far behind ores and coal in ton-km. Therefore the motto "Inland waterway transport = Bulk" is thus once more at fault.

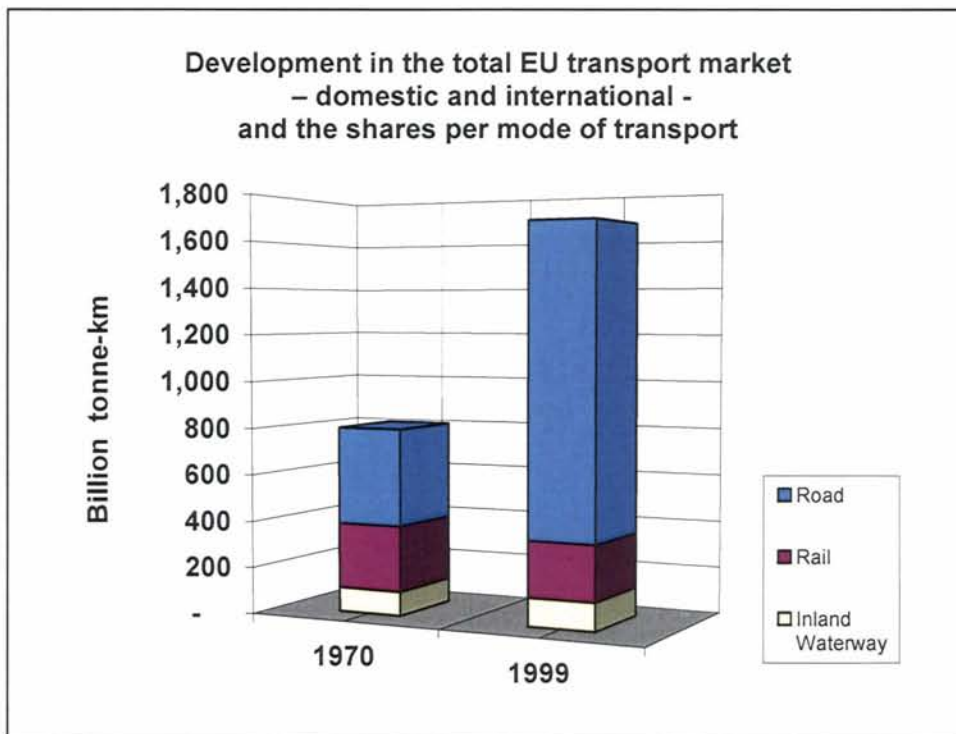
The Inland waterway transports are becoming an increasingly important intermodal transport mode. Already some 5% of European inland waterway traffic is carried in containers, some 33 million tonnes (in average, 1 TEU equates 10 tonnes). This leads to some 5 to 6 billion ton-km generated by containers on European waterways.



Source: AFTM – Association for a Fluid Mode, Multimodal

Competitive power

The most important and successful transport sector in Europe is without doubt the well-developed and flexible road sector. Although a lot of initiatives in the last 12 years have been taken to increase the competitiveness of intermodal transport, rail and inland waterway it can be concluded, that it until today has not been possible to break the trend of a rapid increase in the road sector. The only way this situation can be changed is to develop competitive intermodal routes.



Sources: Eurostat – Performance 1970-99 (ECMT, UIC, national statistics)

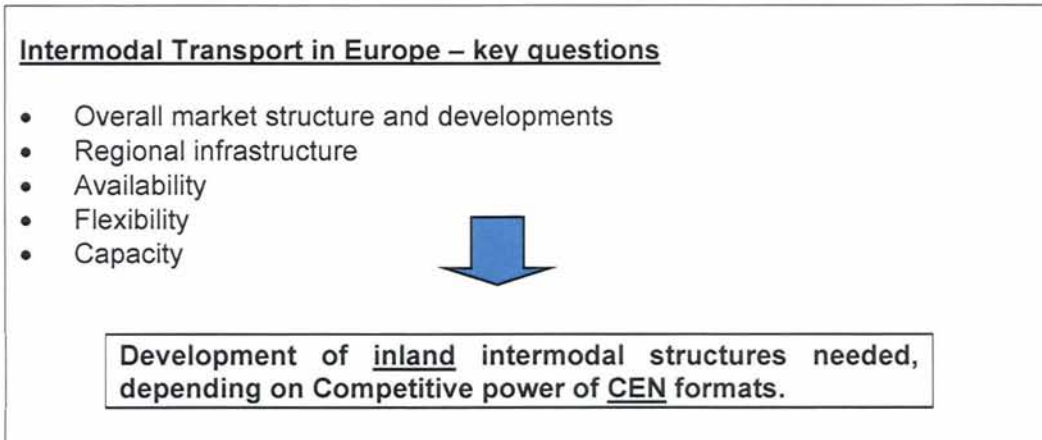
Although it seems simple to identify potential intermodal routes in Europe, the history shows, that the development and establishment of new intermodal routes in praxis is made in a slower pace than the general development in the trade and also in the transport market. Hence the reason lays mainly in a schism of physical and organizational structures and frameworks, which draw in different directions.

On one side an intermodal transport is usually first considered to be competitive over 400-500 km due to physical structural problems (handling etc.), and on the other side the organizational complexity increases considerably with the distance, which again increases the costs and hereby reduce the competitiveness.

In order to evaluate the present market situation, and the competitiveness of the European intermodal products in general, a SWOT-analysis, enlarging the Strengths and Weaknesses as well as the Opportunities and Treats, is presented below.

<p>Strengths (internal situation)</p> <ul style="list-style-type: none"> • Utilising large free capacity on rail- and water-networks • Low energy consumption, low energy costs, low emissions • Large volumes can be transported with limited personal resources • High cost-efficiency potentials when streamlining shuttles/concentrated flows • More efficient border-crossing set-up's are established • Well established structures in the supply chain (but poor flexibility) • Advanced technology 	<p>Weaknesses (internal situation)</p> <ul style="list-style-type: none"> • Partly inefficient working methods • Large and complex production & networks • Separated ISO-CEN systems (sea vs road) • Inadequate border crossing set-up • Inadequate terminal facilities, -structures, -ownership • Bureaucratic organisations by the railways • Too many levels and too many actors in the supply chain • Inflexible product planning • Costs still too high, lack of finances • Lack of innovation and development • Complicated and expensive technology • Lack of customer orientated actions • Too many national rules and regulations • Lack of internationalisation (alliances)
<p>Opportunities (external situation)</p> <ul style="list-style-type: none"> • EU political focus and goodwill • Environmentally friendly and safe products • Congested road network • A closing gap ISO-CEN • Large market potential • Market interest from major players • Ongoing process of revitalisation and deregulation of the European rail market • General growing market 	<p>Threats (external situation)</p> <ul style="list-style-type: none"> • Bad image • Fast product development in the road industry • New technology in the road industry • Reduced local political focus and goodwill • General economical stagnation or recession • General tiredness and lack of interest from the market

Although the above may indicate, that there are many weaknesses and threats to intermodal transports in Europe, there are many positive examples of new and competitive routes, where the commercial speed is much higher than the average, where the service quality, price and product is competitive towards the road sector competition.



Source: Jernbaneverket

With starting point in a market analysis for the Nordic Freight Freeways - ScanWays+ made by ScanRail Consult, Denmark in August 1998, where some 100 potential railway users in a questionnaire were asked a large number of questions - identifying the success criteria for sustainable rail freight operation, reflections about the competitive power of intermodal traffic are given.

Among other things, the participating companies were asked to distribute points on a number of defined transport quality parameters. The most important parameters identified were:

1. Transport price
2. Transport time
3. Flexibility
4. Precision

In order to give a general indication of a competitive break-even for intermodal traffic towards road traffic an analysis of these two parameters has been carried through giving the following result:

1. Transport price

The average cost for a long distance truckload varies on the level between 0,90-1,30 EUR per km, giving a total transport price for a route of 1.000 km between 900-2.000 EUR door-door, depending on return transports and positioning. In order to compare the identified market price level with the general and average rail products of today, the following calculation model can be set-up.

Collecting and distribution (truck)	300
Handling	100
Rail traction or sea transport	300
Intermodal equipment	100
Administration & profit by supplier(s)	200
 Total price by a intermodal solution	 1.000

Based on the above it can be concluded, that intermodal traffic in general is difficult to organise cheaper than truck traffic. As a general rule the competitiveness of intermodal traffic is direct proportional with the distance of the total transport route. For very specialized, large and even flows the additional services can be slimmed down, and thereby making the rail more competitive. Examples are both short and long distance rail shuttles. Thus intermodal traffic is in general first competitive by route lengths above 400-500 km door-door, this however only if the cost-generating organizational problems are solved successfully.

However issues as environment, safety and congested road network are foreseen to result in higher costs to the road sector through road pricing in an attempt to introduce "fair pricing" in the transport sector in general, which is expected to increase the competitive power of intermodal traffic in the future.

Since the above conclusions about the price level of intermodal transports compared with truck traffic, various initiatives as for example the German "Maut" system has been decided upon.

2. Transport time

The average transport time for truckloads for a route of 1.000 km is 24 hours door-door in a North - South corridor. In an East - West corridor the average transport time for truckloads is in the best-case 36 hours door-door.

By an intermodal transport the pre- and on-carriage as well terminal procedures are very time consuming. Thus in order to comply with the identified average market transport time by truck, the today's railway products, which in general has an average speed of 30-40 km per hour, has to be improved to 60-80 km per hour in the future. If this can be achieved it is assessed that intermodal transports will be competitive towards the trucks, especially in the future, where it is expected, that the trucks will face longer transport times, due to increasing congestion on the European road network.

After the above conclusions proven examples of fast intermodal trains are ARE (Arctic Rail Express) between Narvik and Oslo and south Sweden, IKEA Rail between South Sweden and Duisburg, Fast Freight Train service Express between Amsterdam and Milano and the Kombiverkehr shuttle between München and Verona, and others where the average speed is above 60 km/h.

3. Flexibility

As the largest competitor to intermodal traffic is the very flexible road sector, providers of intermodal products must be aware that the largest challenge is to create flexible products, although the main parts of the intermodal transport chain consist of relatively inflexible modes of transport as rail and inland waterway.

The tendency is that the development is positive and a dynamic product development is created through competition.

4. Transport precision

The service level in each of the different modes of transport is composed in an intermodal transport chain. As it is well-known that the weakest part of a chain is dimensioning of the total chain, the parameter precision within all the modes involved in the intermodal transport chain are of large importance for the transport users.

Precision is in an intermodal transport chain even more important, since there are so many parts in the transport chain that are depending on the agreed performance within each of the modes of transport in the specific transport chain. The haulier is waiting at the intermodal terminal for the barge or train to arrive, and any delays on the route will disturb the work in the intermodal terminal, as well as for the haulier on the final leg to the destination. With the Just-In-Time logistic systems, which have gain large markets in Europe, the flexibility and precision are very important parameters.

In general the learning is that new private railway companies and intermodal operators have an obviously better precision than the traditional, estimated to some 80 – 90% punctuality, which can be compared with for example the average punctuality in Alp-crossing intermodal transports with Italy at the level of 40 – 50% punctuality.

General comments:

Intermodal transport is still assessed being the only alternative to the successful road transport. Thus relieving the pressure on the congested European road network, in an environmentally friendly way, the intermodal products are being accepted on the market, but not only the price and transport time has to be competitive. Also quality parameters as flexibility and reliability have to match the products offered by road transport.

The intermodal transports have very complex transport chain structure, with too many supply elements and different suppliers involved. Here a tendency of cutting “middlemen” is found, whereby the total intermodal products can be made more competitive.

In order to improve the competitiveness of intermodal transports further, two important elements has to be changed in the future: The total number of actors involved in the transport chain has to be reduced, and the border-crossing operation has to be more efficient than today overall. There are several examples of well-functioning intermodal transport chains developed during the last years, and the success is also a fact from the one-hand responsibility of the “owner” of the service.

The intermodal terminals have to be changed to fit into the future intermodal logistic chains, with shuttle train systems, concentration on hub-systems for optimum use of terminals, equipment etc. The intermodal operators build up own networks of their preferences as regards to terminals, and this will lead to larger competition between different terminals in the future.

Concerning competitiveness of intermodal transport it can be concluded, that intermodal transport has to compete on the conditions of the successful road transport. With all parameters matching the road transport - transport price and time, but also quality parameters, as flexibility and reliability should be on the same level as for road transport.

It is also to be noted that although the intermodal transports are to win traffic from the road sector, the road sector will still survive as the very strong and necessary sector for the European transport system. In most intermodal transport chains there is still a short leg of road transport. One should of course also be certain that also the road sector will develop in the coming years, whereby the road transports are kept attractive. Here the intermodal transport sector must follow, or take the lead, in order to keep the large growth also for the future.

Technical standards for intermodal equipment

A single official European standard for intermodal equipment does not exist. The presently existing intermodal equipment has mainly been developed based on existing and already proven technology from the road vehicle industry, the shipping container industry and the conventional railway industry.

The national regulatory aspects connected to the maximum weights and dimensions allowed in road transport together with the loading profiles of the national railway networks also have influenced the development of the present intermodal equipment, and will also do so in the future.

In the following two tables showing the permissible maximum measures for weight, height and width on different equipment can be found.

As it can be seen from the tables below, the maximum weights and dimensions allowed in road transport differ widely between the European countries. Thus the EU-Commission has taken various initiatives to harmonise the limits on a minimum level allowing articulated lorries being 18,75 meter long, 2,55 meter wide and weighing 40 tons for international road traffic and/or combined transport. For thermo equipment special rules apply.

On the 10th of July 1998, the EU-Commission in the Communication COM (98) 414 final proposed amendment of the Directive 96/53 for the allowance of a maximum weight of 44 tonnes instead of 40 tonnes, for vehicles making a journey as part of an intermodal operation. The European Parliament has rejected the proposal, but the discussion around encouraging the use of combined transport instead of road transport will go on.

Thus the limitation on the road would give a firm framework for future technical developments.

Notes and comments to Permissible weights in Europe (tonnes):

1. 26t is only allowed if the drive axle is equipped with air suspension; otherwise the weight limit is 25t
2. 38t: generally for transport of goods by road. This weight limit is increased by 5% for vehicles registered within the EU (i.e. 40t for transport of goods by road in general). The limit value indicated for vehicles registered in a EU State is also valid for vehicles registered in countries, which have a transport agreement with the EU and where full reciprocity is granted
3. 11.5t for certain road sections described in Annex 5 of the Transit Agreement between EU and Bulgaria
4. National / international
5. Road train: 5 axles = 44 t ; 6 axles = 53 t ; 7 axles = 60 t ; articulated vehicle : 5 axles = 42 t ; 6 axles = 44 t
6. Articulated vehicle: weight depends on rear axle spacing (> 8m : 48 t)
7. Lorry 4 axles: 32t
8. Axle load for the main network (BK 10) ; weight depends on total wheelbase
9. Road train 5 axles and articulated vehicles 5 axles carrying ISO container 40 ft = 44t
10. 3 axles with ISO container 40 ft = 44t
11. Weight of road trains: depends on total wheel base, 60 t on primary roads (BK1), 51,4 t on secondary roads (BK2)
12. 26t when the drive axle is equipped with double tyres and magnetic suspension or equivalent, or when each drive axle is equipped with double tyres and maximum weight of each drive axle does not exceed 9,5t
13. For 6 axles (3+3) or > 44 t road trains and articulated vehicles with an engine conforming to EURO2 standards

Permissible weights in Europe (in tonnes)							
Country	Weight per bearing axle	Weight per drive axle	Lorry 2 axles	Lorry 3 axles	Road Train 4 axles	Road Train 5 axles and +	Articulated Vehicle 5 axles and +
Albania							
Austria	10	11.5	18	25 (1)	36	38 (2)	38 (2)
Azerbaijan	10		18	25	36	38	38
Belarus							
Belgium	10	12	19	26	39	44	44
Bosnia-Herzegovina							
Bulgaria	10	10 / 11.5 (3)	16	26	36	40	40
Croatia	10						
Czech Republic	10	11.5	18	25 / 26	36	42	42
Denmark (4)	10	10 / 11.5	18 / 19	24 / 26	38	44 / 40	40 / 48
Estonia	10	11.5	18	26	36	40	40
Finland (5)	10	11.5	18	26	38	60	48
France	13	13	19	26	38	40	40
FYR Macedonia							
Georgia	10	-	18	38			
Germany	10	11.5	18	26	36	40	40
Greece	10	11.5	18	26	36	40	40
Hungary	10	11	20	24	36	40	40
Ireland	10	10.5	17	26	35	40	40 (6)
Iceland	10	11.5	18	26	37	40	44
Italy	12	12	18	26	40	44	44
Latvia	10	11.5	18	25	36	40	40
Liechtenstein	10	11.5	18	26	36	40	40
Lithuania	10	11.5	18	26	36	40	40
Luxembourg (7)	10	12	19	26	-	44	44
Moldova	10	10	16	24	36	40	40
Netherlands	10	11.5	21.5	33	40	50	50
Norway (8)	10	11.5	-	26	-	50	47
Poland	10	11.5	19.5	29.5	37	40	40
Portugal	10	12	19	26	38	40 (10)	40 (10)
Romania	11		18	24	34	40	40
Russia	10		18	25	36	38	38
Slovak Republic	10	11.5	18	26	40	40	40
Slovenia	10	11.5	18	25		40	40
Spain (10)	10	11.5	18	26	36	40	40
Sweden (11)	10	11.5	18	26	-	60	60
Switzerland	10	11.5	18	25 (12)	34	34	34
Turkey	10	11.5	18	25	36	40	40
Ukraine							
United Kingdom (13)	10	11.5	18	26	36	40	40
Yugoslavia							

Notes and comments – see previous page

Source: ECMT, 05/06/2002

Permissible maximum dimensions in Europe					
Country	Height	Width	Length		
			Lorry or Trailer	Road Train	Articulated Vehicle
Albania					
Austria	4 m	2,55 m (2)	12 m	18,75 m	16,50 m
Azerbaijan	4 m	2,55 m	12 m	20 m	20 m
Belarus					
Belgium	4 m (1)	2,55 m (2)	12 m	18,75 m	16,50 m
Bosnia-Herzegovina					
Bulgaria	4 m	2,50 m	12 m	18,75 m	16,50 m
Croatia	4 m	2,60 m	12 m	18,75 m	16,50 m
Czech Republic	4 m	2,55 m	12 m	18,35 m	16,50 m
Denmark	4 m	2,55 m (2)	12 m	18,75 m	16,50 m
Estonia	4 m	2,55 m	12 m	18,75 m	16,50 m
Finland	4,20 m	2,55 m (2)	12,50 m	25,25 m	16,50 m
France	not defined	2,55 m (2)	12 m	18,75 m	16,50 m
FYR Macedonia					
Georgia	4 m	2,50 m	12 m	20 m	20 m
Germany	4 m	2,55 m (2)	12 m	18,75 m	16,50 m
Greece	4 m	2,55 m (2)	12 m	18,75 m	16,50 m
Hungary	4 m	2,50 m	12 m	18,75 m	16,50 m
Iceland	4,20 m	2,50 m	12 m	22 m (9)	18 m
Ireland	4 m	2,55 m (2)	12 m	18,35 m	16,50 m
Italy	4 m (5)	2,55 m (2)	12 m	18,75 m	16,50 m
Latvia	4 m	2,50 m	12 m	18,75 m	16,50 m
Liechtenstein	4 m	2,55 m	12 m	18,75 m	16,50 m
Lithuania	4 m	2,50 m	12 m	18,75 m	16,50 m
Luxembourg	4 m	2,55 m (2)	12 m	18,75 m	16,50 m
Moldova	4 m	2,50 m	12 m	18,75 m	16,50 m
Netherlands	4 m	2,55 m (2)	12 m	18,75 m	16,50 m
Norway	not defined	2,55 m	12 m (6)	18,75 m	16,50 m (7)
Poland	4 m	2,55 m	12 m	18,75 m	16,50 m
Portugal	4 m	2,55 m (2)	12 m	18,75 m	16,50 m
Romania	4 m	2,50 m	12 m	18,35 m	16,50 m
Russia	4 m	2,50 m	12 m	20 m	20 m
Slovak	4 m	2,55 m	12 m	18,75 m	16,50 m
Slovenia	4 m		12 m	18,75 m	16,50 m
Spain	4 m	2,55 m (2) (3)	12 m	18,75 m (4)	16,50 m
Sweden		2,60 m	12 m	24 m	24 m
Switzerland	4 m	2,55 m (8)	12 m	18,75 m	16,50 m
Turkey	4 m	2,55 m	12 m	18,75 m	16,50 m
Ukraine					
United Kingdom	not mandatory	2,55 m (2)	12 m	18,75 m	16,50 m
Yugoslavia					

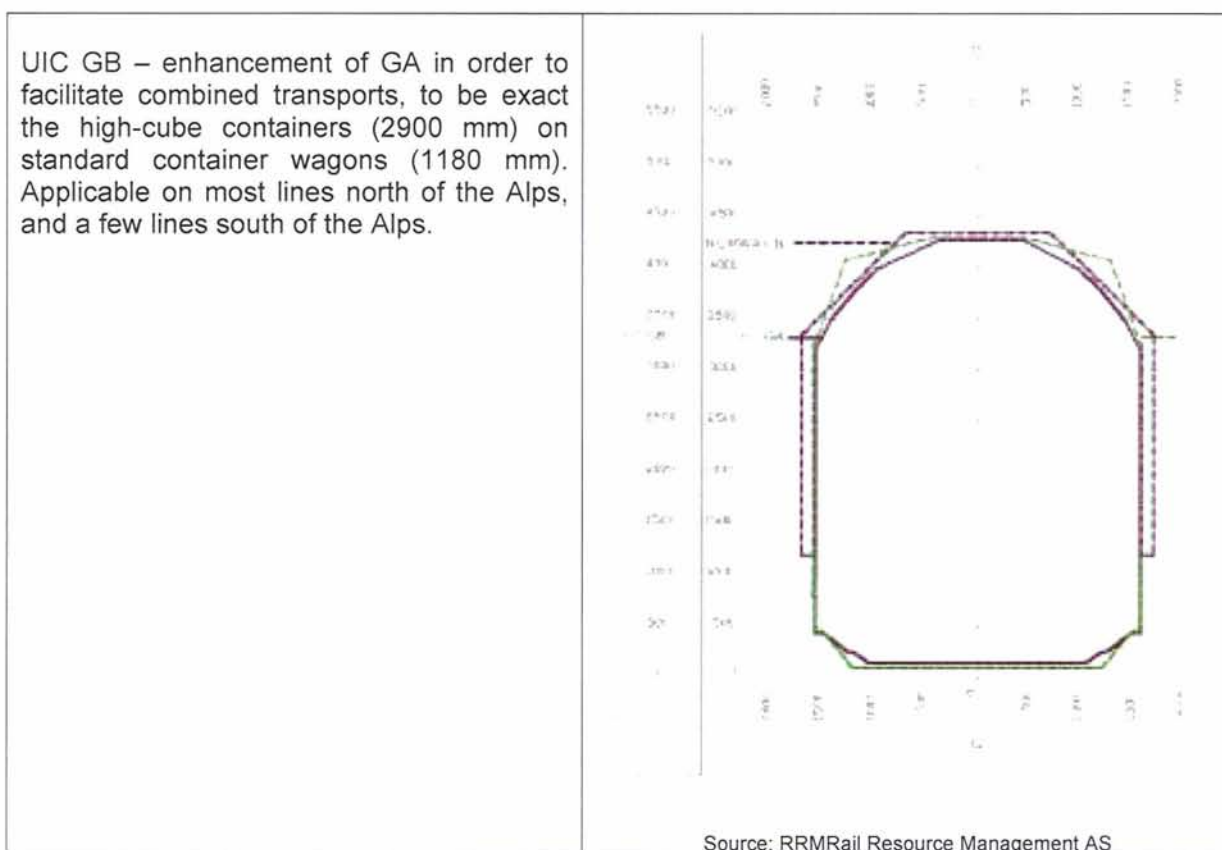
1. Height margin = + 1%
2. Refrigerated vehicles = 2,60 m
3. Vehicles equipped with permanent superstructure = 2,60 m
4. Transport of vehicles = 18,75 m unloaded; 20,55 loaded
5. Transport of vehicles = 4,20 m; Transport of containers or livestock = 4,30 m
6. Lorries or trailers registered before 17 Sept. 1997 = 12,40 m. Regulation valid until 1 January 2007
7. Articulated vehicles registered before 17 Sept. 1997 = 17 m. Regulation valid until 1 January 2007
8. 2,60m for vehicles with fixed or mobile superstructure adapted to refrigerated transport and with side-wall depth, including insulation, of 45 mm at least
9. 25,25 m in special cases: when deemed economical compared with usual transport; conditions regarding time of year and weekdays; only on certain roads

Source: CEMT, 30-09-02

The limitations on the European rail network

The loading profiles on the railway network also differ widely between the European countries. For obvious reasons, all intermodal equipment must fall within the maximum dimensions allowed at each specific link.

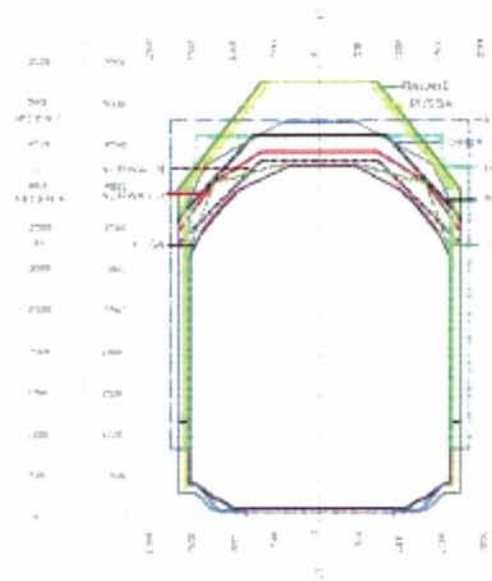
The closest to a European standard gauge is the UIC GB profile which has the below mentioned dimensions.



Thus the railway profile also in some extent limit the framework for future technical developments.

Please find some different railway profiles in Europe described in the following.

Sweden C – new standard specially designed for industrial transports, both wagonloads and special containers. Also combined short sea.



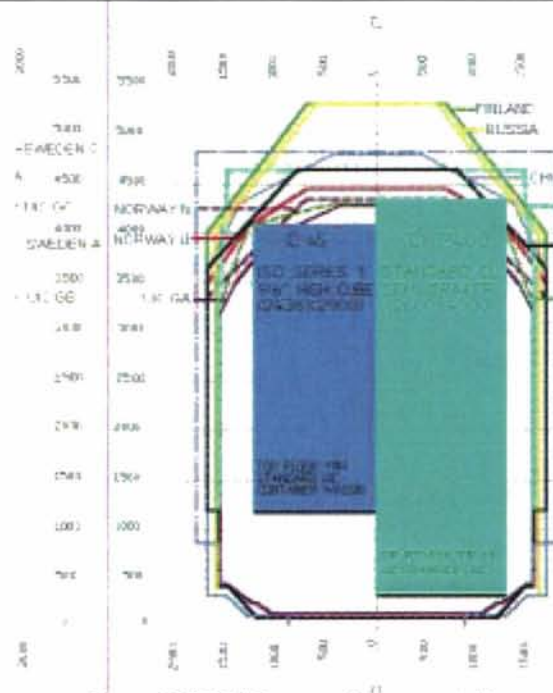
Source: RRRail Resource Management AS

Loading gauges - examples of combined transport

UIC combined transports codes C/P.
 2-digit max. 2500 mm wide.
 3-digit max 2600 mm wide.

Standards:

- Sweden C/P410 (whole network)
- Denmark C/P410 (major lines)
- Germany C/P410 (major lines)
- Norway C/P407, all lines except
 - Narvik line P400 (P407++ from 2003)
 - Bergen line (P407 from 2003)
- Finland C/P400 (could be 420?)



Source: RRRail Resource Management AS

In 1998 a new method of calculating the dimensions for intermodal units was introduced, due to the fact that the units were getting wider, and the railway gauge could also handle the larger units on the main lines of the intermodal rail network. However, this is not valid for example for France and Italy.

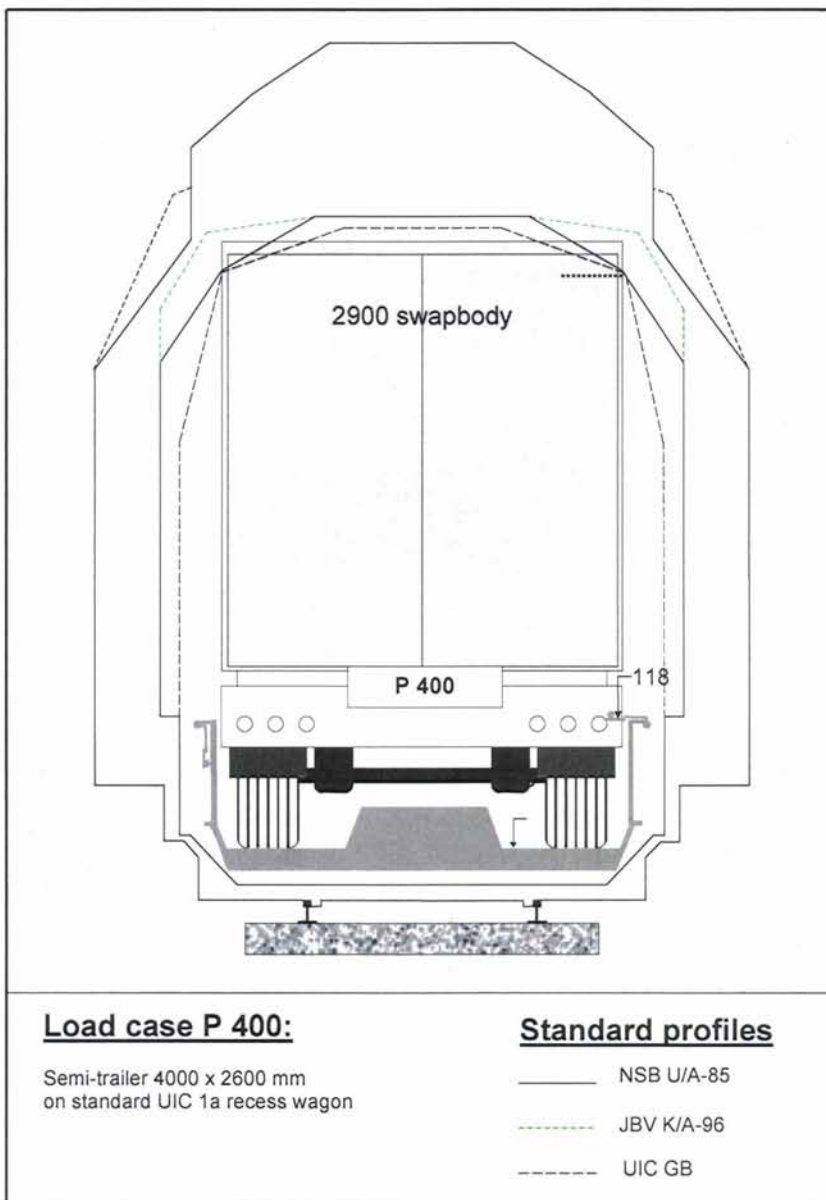
In Central and Eastern Europe, Scandinavia and Germany the profile on large parts of the main intermodal network has the profile of P/C 400 and P/C 70. The calculation of the dimensions for intermodal equipment can be seen in the following table:

Codification of swap bodies and trailers from the 01.07.98											
Valid for all units (swap bodies and trailers) without slanting corners											
UTI		swaps + Trailer	swaps	Trailer	Frigo-swaps / Trailer	UTI		swaps + Trailer	swaps	Trailer	Frigo-swaps / Trailer
Corner height		Width				Corner height		Width			
swaps (mm)	Trailer (mm)	2500 mm	2550 mm	2550 mm	2600 mm	swaps (mm)	Trailer (mm)	2500 mm	2550 mm	2550 mm	2600 mm
2.450	3.300	P/C 00	C 00	P 322	P/C 330	2.810	3.660	P/C 36	C 36	P 358	P/C 366
2.460	3.310	P/C 01	C 01	P 323	P/C 331	2.820	3.670	P/C 37	C 37	P 359	P/C 367
2.470	3.320	P/C 02	C 02	P 324	P/C 332	2.830	3.680	P/C 38	C 38	P 360	P/C 368
2.480	3.330	P/C 03	C 03	P 325	P/C 333	2.840	3.690	P/C 39	C 39	P 361	P/C 369
2.490	3.340	P/C 04	C 04	P 326	P/C 334	2.850	3.700	P/C 40	C 40	P 362	P/C 370
2.500	3.350	P/C 05	C 05	P 327	P/C 335	2.860	3.710	P/C 41	C 41	P 363	P/C 371
2.510	3.360	P/C 06	C 06	P 328	P/C 336	2.870	3.720	P/C 42	C 42	P 364	P/C 372
2.520	3.370	P/C 07	C 07	P 329	P/C 337	2.880	3.730	P/C 43	C 43	P 373	P/C 373
2.530	3.380	P/C 08	C 08	P 330	P/C 338	2.890	3.740	P/C 44	C 44	P 374	P/C 374
2.540	3.390	P/C 09	C 09	P 331	P/C 339	2.900	3.750	P/C 45	C 45	P 375	P/C 375
2.550	3.400	P/C 10	C 10	P 332	P/C 340	2.910	3.760	P/C 46	C 46	P 376	P/C 376
2.560	3.410	P/C 11	C 11	P 333	P/C 341	2.920	3.770	P/C 47	C 47	P 377	P/C 377
2.570	3.420	P/C 12	C 12	P 334	P/C 342	2.930	3.780	P/C 48	C 48	P 378	P/C 378
2.580	3.430	P/C 13	C 13	P 335	P/C 343	2.940	3.790	P/C 49	C 49	P 379	P/C 379
2.590	3.440	P/C 14	C 14	P 336	P/C 344	2.950	3.800	P/C 50	C 50	P 380	P/C 380
2.600	3.450	P/C 15	C 15	P 337	P/C 345	2.960	3.810	P/C 51	C 51	P 381	P/C 381
2.610	3.460	P/C 16	C 16	P 338	P/C 346	2.970	3.820	P/C 52	C 52	P 382	P/C 382
2.620	3.470	P/C 17	C 17	P 339	P/C 347	2.980	3.830	P/C 53	C 53	P 383	P/C 383
2.630	3.480	P/C 18	C 18	P 340	P/C 348	2.990	3.840	P/C 54	C 54	P 384	P/C 384
2.640	3.490	P/C 19	C 19	P 341	P/C 349	3.000	3.850	P/C 55	C 55	P 385	P/C 385
2.650	3.500	P/C 20	C 20	P 342	P/C 350	3.010	3.860	P/C 56	C 56	P 386	P/C 386
2.660	3.510	P/C 21	C 21	P 343	P/C 351	3.020	3.870	P/C 57	C 57	P 387	P/C 387
2.670	3.520	P/C 22	C 22	P 344	P/C 352	3.030	3.880	P/C 58	C 58	P 388	P/C 388
2.680	3.530	P/C 23	C 23	P 345	P/C 353	3.040	3.890	P/C 59	C 59	P 389	P/C 389
2.690	3.540	P/C 24	C 24	P 346	P/C 354	3.050	3.900	P/C 60	C 60	P 390	P/C 390
2.700	3.550	P/C 25	C 25	P 347	P/C 355	3.060	3.910	P/C 61	C 61	P 391	P/C 391
2.710	3.560	P/C 26	C 26	P 348	P/C 356	3.070	3.920	P/C 62	C 62	P 392	P/C 392
2.720	3.570	P/C 27	C 27	P 349	P/C 357	3.080	3.930	P/C 63	C 63	P 393	P/C 393
2.730	3.580	P/C 28	C 28	P 350	P/C 358	3.090	3.940	P/C 64	C 64	P 394	P/C 394
2.740	3.590	P/C 29	C 29	P 351	P/C 359	3.100	3.950	P/C 65	C 65	P 395	P/C 395
2.750	3.600	P/C 30	C 30	P 352	P/C 360	3.110	3.960	P/C 66	C 66	P 396	P/C 396
2.760	3.610	P/C 31	C 31	P 353	P/C 361	3.120	3.970	P/C 67	C 67	P 397	P/C 397
2.770	3.620	P/C 32	C 32	P 354	P/C 362	3.130	3.980	P/C 68	C 68	P 398	P/C 398
2.780	3.630	P/C 33	C 33	P 355	P/C 363	3.140	3.990	P/C 69	C 69	P 399	P/C 399
2.790	3.640	P/C 34	C 34	P 356	P/C 364	3.150	4.000	P/C 70	C 70	P 400	P/C 400

Source: Intercontainer, Produced by ICF - GST/KG - Analogue to DB list

As an example of different loading profiles see the figure below. A P400 semi-trailer loaded on a rolling highway rail wagon (the largest grey box), whereby the different gauges also are described. The figure also shows a swap body with a height of 2,9 metres on a standard intermodal rail wagon, for comparison (the smaller grey box). P400 is a new standard for semi-trailers in intermodal service, meaning a total height of 4,00 metres and a width between 2,55 – 2,60 metres. The Standard profiles from the Norwegian Railway NSB and from the Norwegian Infrastructure Manager Jernbaneverket are here shown, together with the UIC GB profile. Please note that the P400 profile is possible on the largest part of the Norwegian intermodal network.

Source: Jernbaneverket



European standards for intermodal equipment

Taking the above given framework on both the European road and rail network into consideration the following standards for intermodal equipment has materialised during the last 10-15 years.

Containers		
Type	Size (l-w-h) in meter	Comments
The normal standard (20' and 40')	L=6,10 / 12,19 W=2,50 H=2,44-2,59-2,90 (8', 8'6, 9'6)	8'6 or 2,59 m. height is the standard, but high cube – 9'6 is also very common.
The specialised standard (20' and 40' pallet wide)	L=6,10 / 12,19 W=2,50 H=2,44-2,59-2,90 (8', 8'6, 9'6)	Pallet wide containers give 20-27% more pallets.
The new standard (45')	L=13,72 W=2,50 H=2,44-2,59-2,90 (8', 8'6, 9'6)	New standard with round corners is expected to come in the future.

The normal standard containers are the maritime containers, with the standard height being 8'6. The pallet wide containers are winning more and more terrain on the Continent, especially in short-sea-shipping, and thus giving 20 – 27% more pallets than the normal maritime containers. The new standard 45' with the normal box corners has a too large turning radius, according to the latest EU-regulations, and has dispensation with EU until 2006. The new 45' standard therefore has round corners, giving an acceptable turning radius.

The standardisation of containers is made according to ISO, International Organization for Standardization in Geneva, aiming at facilitating international exchange of goods.

Swap bodies		
Type	Size (l-w-h) in meter	Comments
The old standard (7,15)	L=7,15 W=2,50 – 2,55 H=2,50-2,93 – max 47,2 m3	This type with tilt is the oldest and most used in Europe.
The specialised standard (7,45)	L=7,45 W=2,50 – 2,55 H=2,50-2,93– max 49,3 m3	This type was in a period seen as the new standard – is used in dedicated traffics.
The new standard (7,82)	L=7,82 W=2,50 – 2,55 H=2,50-2,93– max 51,9 m3	This type is expected to be the future most common standard in Europe.
The new standard (13,60)	L=13,60 W=2,50 – 2,55 H=2,50-2,90– max 96 m3	This type is expected to replace some of the traditional trailer traffics.

To the swap bodies, the material, tilt, steel or plywood, and the collection of door types and openings vary a lot. From the traditional tilt swap body, with tarpaulin sides, to the new stackable steel swap bodies, with roller-shutter doors, folding doors, 1 curtain-side or drop-side, the technical development has specialised in customer-designated equipment within the latest years, thus giving

customers within a broad spectra of branches their own favourite equipment type, suitable for their specific needs.

The codification of the swap bodies is used to declare the dimensions for the use on the railway. With the height of 2,45 m. as base, the swap body is for instance codified with a C45, which means that the height is 2,90 m. The different railway lines also have the same codification for the maximum allowed dimensions according to the railway profile of the specific line.

Semi-trailers		
Type	Size (l-w-h) in meter	Comments
The old standard (12,30 – 12,60)	L=12,30-12,60 W=2,50 – 2,55 H=3,30 – 3,80	This type with tilt is the oldest and most used in Europe.
The specialised standard (13,50)	L=13,50 W=2,50 – 2,55 H=3,80 – 4,00	This type was in a period seen as the new standard – is still used in some traffic.
The new standard (13,60)	L=13,60 W=2,50 – 2,55 H=3,80 – 4,10	This type with profile P70–P80 = 4,00–4,10 m. height, is expected to be the future trailer type.

As with swap bodies the trailers are codified for their dimensions, using a P before the number. As a base, the height of 3,30 m. is set, and for instance a P70 trailer is 4,00 m. high.

In the latest years, the road combinations with a total length of 25,25 m. has been allowed for instance in Sweden. This gives new combination of equipment, for the full utilisation of the vehicles.

Rail wagons		
Type	Size (l-w-h) in meter	Comments
The old standard (2 and 4 axles)	L=12,50 – 18,50 W=2,9 – 3,0 H=1,0 - 1,2	These types are the oldest and most used in Europe.
The specialised standard ("Taschenwagen")	Load length=14,50 W=2,9 – 3,0 H=1,0 - 1,2	Developed to bring trailers on the railway – exist in limited number / traffic.
The new standard (Short-couple)	L=29,59 - 33,48 W=2,9 – 3,0 H=1,0 - 1,2	This type gives the optimum utilisation of the possible train length.

The intermodal railway wagons have to be RIV approved in order to run in international traffic in Europe.

The intermodal rail wagon industry in Europe definitely needs technical innovation. Especially the weight and length of the traditional rail wagons has to be reduced in order to increase the payload.

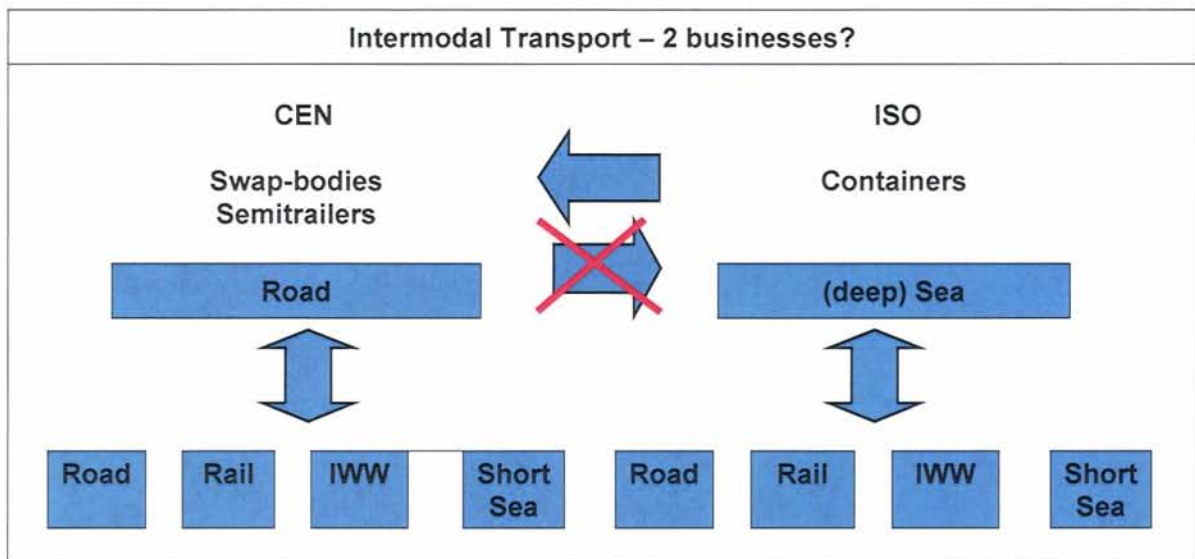
Traditional problem areas with the present techniques

Intermodal traffic has due to various reasons not become the expected success. One of the reasons for this situation is the lack of development and innovation within the field of intermodal equipment.

The equipment presently being used is fundamentally based on techniques developed to other transport modes. I.e. containers to maritime traffic, swap-bodies and semi-trailers to road traffic and rail wagons to conventional bulk cargo.

The ISO-norms for containers is a worldwide standard, which is use for maritime containers. The ISO-containers fit into containerships and can easily be stacked, but they are not adapted to the EUR-pallet system used within Europe, giving a bad utilisation grade of the containers, when using the EUR-pallets.

To utilise the loads with EUR-pallets best possible, the continental containers and swap bodies have been developed, which also are fitted best possible to the lengths of road vehicle applicable within Europe. These units do not fit into the container cassettes of the large container ships, and they are also not as good by stapling in terminals and ports. Since there are many different lengths used, this also makes them difficult to staple in terminals.



There are however several initiatives and research projects ongoing in order to get closer to a European standard for intermodal equipment.

In April 2002 the EU-Commission issued a Consultation Paper for the “**Harmonisation and Standardisation of Intermodal Loading Units**” to which interested parties had the possibility to give their views.

The EU-Commission envisages a framework directive to harmonise certain Intermodal Loading Units used in Europe. The European Intermodal Loading Units (EILU) should:

- Be compatible with the three modes of transport (road, rail and inland waterways) and wherever possible Short Sea Shipping.
- Be stackable for both storage and during transportation when loaded.
- Have an interior width to accommodate two standard pallets (2 x 1,2 m plus a margin for handling)
- Respect the maximum dimensions allowed in road transport (Directive 96/53)
- Be capable of being handled by the same handling equipment as ISO containers.

The EU-Commission had deadline for receipt of comments on the Consultation Paper already in mid-May 2002, wherefore the next step on this way towards standardised Intermodal Loading Units is expected within shortly.

Strategies, trends and expectations

The present chapter aims at presenting general European policies and strategies, together with a thorough elaboration of relevant expectations and trends in the market development.

Intentions until today

The EU is the most important international policy maker in Europe, created to develop a single European market. In order to present a picture of the latest development within European intermodal transport policy the main features in the specific relevant transport political measures are outlined on the following pages.

The transport sector is of considerable importance, both to the EU as a whole and to the individual citizen. It ensures that the products produced in the single market reaches the consumers. Transport is thus a definite example to what the abstract concept “the single market” means.

Without efficient transport networks, two of the founding principles, free movement for goods and people, would not be able to function. With EEC transport policies legislation has consequently been introduced, which liberalises the most important modes of transport – i.e. railway, air, sea transport and transport by the inland waterways, which created new open market conditions in the transport sector.

At the same time the transport sector in itself is one of the most important business sectors in the EU, as it accounts for nearly 7% of the gross national product (GNP) and directly employs app. 6 million people in the 15 Member States.

Already the authors to the Treaty of Rome – the constitution of the EEC – acknowledged the importance of an integrated transport structure. They made a mutual transport policy one of the main objectives of the EEC. But it only progressed slowly until 1985, where the preparations for the single market began.

Since then all modes of transport have been forced to stretch or even demolish the national restrictions towards companies from other Member States. The result has been that a more open European market with less bureaucracy and fewer subscriptions has been established.

The Commission has thus made an effort to carry out the most important guidelines, as defined in the action programme 1995-2000 on the development of the mutual transport policy (improvement of the quality, improvement of the single market, development of the external dimension), and at the same time a debate has commenced on topics, which have not yet received the attention, due to them.

The Commission has particularly often underlined – both in briefing documents and in proposals to legislative acts – that a suitable development of the transport activities in the EU implies a new definition on the roles of the different modes of transport and also an initiative to make these activities more efficient.

EU-Transport policy

The objective with the EEC transport policy in the 90's, described in the White Paper with the title – **“The common future development of transport policy – An extensive community strategy for sustainable mobility”**, which was published by the Commission by the end of 1992, is to ensure:

- Integration of transport modes so that they will establish integrated systems, where the different modes of transport, when it is appropriate, are combined on the same journey.
- Integration of the national transport networks, so a coherent European network is established.

According to the then prognoses, the amount of traffic should rise with app. 30% until year 2000. Without a regulation of the costs and the other specific measures, which can recreate the balance between the capacities of the different modes of transports, the traffic problems, which will inevitably occur, will undermine the single market.

An important objective was the development of combined and intermodal transport. The specific modes of transport had to develop and improve in order to mutually better connect. Combined transport should especially be used on important sections, which already are reaching the saturation point or where there are environmental problems.

At the present time, the combined road and railway transport stood for 4% of the total freight transport. Since then this percentage has decreased, due to general stagnation in the European intermodal market.

The main idea in the EEC transport policy is thus, to use energy efficient modes of transport, which do not pollute, on as much of the route as possible. In this way a coherent intermodal policy can develop, where the most suitable mode of transport or a combination of road, railway and seaways are employed, and where costs, efficiency and environmental and safety measures are taken into account.

Towards fair and efficient pricing

In a Green Paper with the title **“Towards fair and efficient pricing in transport – policy options for internalising the external costs of transport in the European Union”** the Commission published in 1996 a discussion paper with the sub-title “Political possibilities to internalise the external costs of transport within the EU”.

With this Green Paper the Commission states its views, that a correct pricing, with consideration to a correct underlying cost allocation between the different modes of transport, is a condition for a sustainable development of the whole of the European transport sector.

The extensive accumulation of traffic and from this, consequences for the environment and number of accidents are pointed at as being the main impediments to the requested economic development in Europe. Thus an extensive political reaction to this unsustainable situation is requested.

The following specific proposals are set up:

- Responsible investments in infrastructure to remove bottlenecks
- Linkage of the modes of transport in an intermodal system
- Establishment of a Trans European transport Network
- Promotion of environmentally friendly modes of transport
- Increased research & development activities in efficient and safe technologies

The Green Paper attempts to make it visible that certain cost in relation to environmental problems, accidents and accumulation of traffic only partly or not at all, is covered by the specific modes of traffic. Thus certain users of transport pay too much, others too little. This situation seems both unfair and inefficient.

E.g. it is estimated that the road congestion yearly costs app. 2% of the EU GDP. Accidents alone accounts further 1,5%, air pollution and noise minimum 0,6%. In total these factors annually amount to app. 250 billion ECU and more than 90% of these costs can be related to the road sector.

The Green Paper also states, that the road tax far from covers these costs and points at methods to how the pricing systems for transport can be made more fair and the possibilities for using these systems to influence the conduct of transport. Thus the objective is to reduce the accumulation of traffic, the number of accidents and the strain on the environment.

A larger transparency and linkage is requested so that the users in future will be impacted directly by the society related costs through their choice of transport system.

With consideration to the accumulation of the problems, the Commission suggested specific short-term possibilities to commence the requested development:

- Adjustment of the present community legislation on road charges for heavy commercial vehicles reaching a fair and efficient pricing.
- Electronic data processing of the kilometre charges based on the damages of the infrastructure and eventually other parameters (heavy commercial vehicles).
- Toll in dense traffic and/or sensitive areas.
- Differentiated fuel charges, which reflect the differences in the fuel quality (e.g. environmental qualities).
- Differentiated motor charges regarding the environment and noise characteristics, possibly to be linked with the electronic data processing of the kilometre charges.
- Differentiated landing charges (air transport) and track charges (railway).
- Procurement of information on the safety output of vehicles and modes of transports.

The Commission also made estimation over the total external costs for, among other things, the road and railway sectors in Europe (EU15 and also CH and NO in 1991), which follow:

Effect (in 1.000 million ECU/year)	Freight on road	Freight on rail
Traffic accidents	21	0,2
Noise	12	1,2
Air-pollution and climate	23	0,5
Total	56	1,8

Source: INFRAS/IWW (1995)

Effect (in ECU/ton-km.)	Freight on road	Freight on rail
Traffic accidents	22,2	0,9
Noise	12,7	4,7
Air-pollution and climate	23,6	1,8
Total	58,4	7,3

Source: INFRAS/IWW (1995)

A fair and efficient pricing within the European transport sectors will presumably result in a European competitiveness strengthening. The costs mentioned above, which in large today is carried by the European national economy, will be reduced.

The attempts for a fair and efficient pricing also is in line with the attempts to carry out the single market in the transport area, and also the development towards intermodal transport systems in Europe.

Equally it is in a European framework necessary to co-ordinate and formulates standards for vehicles, minimum charges on fuel etc. in order to i.e. take into account the border-crossing results of e.g. the ozone layer and acidifying.

As mentioned earlier, the Commission wished with this Green Paper to establish a debate on how the above considerations can be converted into practice. Thus the debate is started, and there are many views on different levels to the suggested European political initiative presented above.

Intermodality and intermodal freight transport

In a Communication with the title "**Intermodality and intermodal freight transport in the European Union**" - from May 1997, The EU Commission explains its strategies and actions for an enhanced efficiency of an integrated European transport system.

An efficient transport system is an absolutely necessary condition for the competitiveness of the EU. With the predicted growth in international trade, the possible extension of the Union to Central and Eastern European Countries and enhanced trade with the Mediterranean, the importance of transport will be even more apparent.

Since 1970, the European freight transport has increased with app. 70% and the annual growth for the next 10 years is expected to be app. 5%.

Unless the transport sector will become better to use the free capacity in other means of transport, it must be expected that the road sector will continue to increase its present market share of app. 72% (from app. 50% in 1970). The market share of the railway sector has decreased from 32% in 1970 to 15% in 1995.

To obtain socio-economic and environmental sustainability, an efficient and balanced exploitation of existing capacity in an integrated European transport system has become a key challenge. The Commission thus encourages a change from the traditional methods with the use of separated modes of transport to system methods.

The spreading and introduction of intermodality is a political tool, which makes it possible to enter system methods in the transport sector. The objective is to develop a framework for an optimal integration of different transport methods, where an efficient and cost conscious use of the transport system is made possible in unproblematic, customer orientated door to door services, in competition between different railway undertakings.

The following obstacles, which make it difficult for a carry-through of intermodal transport, have been identified:

- A lack of connected networks of methods and connections
- A lack of technical interoperability between and within methods
- Variable regulations and standards for transport means
- Data-interchange and procedures
- Conflicting performance, service and quality levels
- Different levels of reliability and lack of information

Thus the intermodal transports, door to door, as a result, can be marked as under-developed.

Implementation of efficient European intermodal transport systems implies a co-ordinated development of transport policies on a European, national and regional level.

The following four key strategies will speed up the development of intermodal transports with consideration to the overall mutual transport policy:

- A European strategy for infrastructure: Trans European transport Networks and junctions
- A single transport market: harmonisation of regulations and competition rules
- Identification and elimination of obstacles for intermodality and associated friction costs
- Implementation of the information society in the transport sector

As intermodal transports are more data intensive than more traditional transports, the role of the information society is of vital importance. The usage of information and communication technologies is the key to efficient and customer orientated transport services. Open and flexible information and decision support systems will alter the way, in which transports are organised and will thus extend the present and establish new future markets.

The Commission will take the necessary initiatives, where regulations and legislature are concerned. Furthermore the Commission will point out areas depending on co-ordination on a European level.

Key actions towards intermodality:

Integrated infrastructure and transport modes:

- Intensifying the intermodal design of the Trans European transport Network
- Extend design and functions of intermodal transfer points
- Harmonising of standards for transport modes

Interoperable and interconnected operations:

- Integration of "Freight Freeways" in an intermodal context
- Development of mutual calculation and price principles
- Harmonise competition rules and state subvention systems on intermodal basis

Means independent services and regulations:

- Harmonising and standardisation of procedures and electronic data process
- Intermodal responsibility
- Research and exhibitions
- Benchmarking
- Intermodal statistics

Together with other politics proposed by the Commission, the above mentioned actions to promotion of intermodality will contribute to eliminate the present barrier for the development of intermodal door to door transports, and thus promote a greater usage of environmentally friendly transport measures with free capacity.

By improving the potential for road and sea traffic, the intermodality will rectify the congested road transport network. Performance progress for the railway sector, full internalisation of external costs and promotion of intermodality are factors in an overall strategy for sustainable mobility in Europe.

Combined transport - COM (98) 414

In 1997, the Commission presented a report on the application of directive 92/106/EEC, COM (97) 372, which can be summarised as follows:

- The number of units carried in 1994 was 7.640.000 TEU, showing a growth of almost 60% between 1990 and 1994. Although in tonne-km, this represents only about 5% of total road transport, but equals about 23% of rail freight transport.
 - On some routes, e.g. crossing the Alps, the share of combined transport is much higher than average.
 - While growth in volume has been registered, reliability and price are not yet always competitive with road transport.
-

- The scope of the measures taken until now for combined transport is limited and the practical impact of these measures is small.
- Member States and professional bodies have made suggestions to improve this situation, some of which can appropriately be included in a revision of directive 92/106.

The 10th of July 1998 the Commission presented a proposal for a Directive, amending the Directive 92/106/EEC “on the establishment of common rules for certain types of combined transport of goods between Member States”, as well as amending the Directive 96/53/EC “laying down for certain road vehicles circulating within the Community the maximum authorised dimensions in national and international traffic and the maximum authorised weights in international traffic”.

The measures designated to promote combined transport vary, and are not applied in all Member States. Restrictive measures on other modes, especially on road transport, are not appropriate, since road transport also has a high percentage of short distance traffic, where combined transport generally is unattractive.

The above shows that improved measures for combined transport are necessary, to increase the market share. The general aim of the improvements is the increased use of combined transport as an alternative to the ever-expanding role for road transport.

The competitiveness can be improved in several ways, where the Commission proposes:

- Extension of the tax rebates from vehicle tax to each combined transport operation.
- Lifting of weekend and similar driving restrictions for initial and final road haulage that is part of combined transport.
- Amendment of Directive 96/53/EC to allow a maximum total weight of at least 44 tonnes in all Member States of the EU for the road haulage part of a combined transport operation.

The Commission presented this Proposal to the Transport Ministerial Council Meeting in October 1998, and it has been discussed since. The Parliament approved the Commission's proposal subject to certain amendments on 12th of February 1999, for instance on the maximum weight. An amended proposal is awaited.

Strategies and intentions for the future

Intermodality is a major part of the Commissions White Paper: “**European Transport Policy for 2010: Time to decide**” that was presented on 12 September 2001, and contributes to the objective of shifting the balance between modes.

The aim of the Commissions policy on Intermodal Freight Transport is to support the efficient «door to door» movement of goods, using two or more modes of transport, in an integrated transport chain. Each mode of transport has its own advantages e.g. potential capacity, high levels of safety, flexibility, low energy consumption, low environmental impact; intermodal transport allows each mode to play its role in building transport chains which overall are more efficient, cost effective and sustainable.

Road haulage is set to grow by 50% between 1998 and 2010. The Commission' policy, through an integrated package of measure, aims to limit the increase to 38%. Actions will hence focus on supporting alternatives to road transport particularly for the "long haul" section of journeys. This not only reduces congestion but also improves road safety and is good for the environment.

Short-term priorities are for technical harmonisation (particularly containers and swap bodies), research into promising technologies and the new Community support programme "Marco Polo".

The measures proposed in the White Paper "European Transport Policy for 2010: Time to decide" may be summarised in the concerned actions:

1. Shifting the balance between modes of transport

1.1. Improving quality in the road sector

- Harmonise inspections and penalties by the end of 2001 in order to:
 - Promote efficient, uniform interpretation, implementation and monitoring of existing road transport legislation;
 - Establish the liability of employers for certain offences committed by their drivers;
 - Harmonise the conditions for immobilising vehicles;
 - Increase the number of checks which Member States are required to carry out (currently on 1 % of days actually worked) on compliance with driving times and drivers' rest periods.
- Keep the road transport profession attractive by promoting the necessary skills and ensuring satisfactory working conditions.
- Harmonise the minimum clauses in contracts governing transport activity in order to allow tariffs to be revised should costs increase (e.g. a fuel price rise).

1.2. Revitalising the railways

- Gradually open up the railway market in Europe. By the end of 2001 the Commission will submit a second package of measures for the rail sector with a view to:
 - Opening up the national freight markets to cabotage;

- Ensuring a high-level safety for the railway network based on rules and regulations established independently and a clear definition of the responsibilities of each player involved;
- Updating the interoperability directives for all components of the high-speed and conventional railway networks;
- Gradual opening-up of international passenger transport;
- Promoting measures to safeguard the quality of rail services and users' rights. In particular, a directive will be proposed to lay down the terms of compensation in the event of delays or failure to meet service obligations. Other measures relating to the development of service quality indicators, terms of contract, transparency of information for passengers and out-of-court dispute resolution mechanisms will also be proposed.
- Step up rail safety by proposing a directive and setting up a Community structure for railway interoperability and safety.
- Support the creation of new infrastructure, and in particular rail freight freeways.
- Enter into dialogue with the rail industries in the context of a voluntary agreement to reduce adverse environmental impact.

1.4. Adapting the maritime and inland waterway transport system

- Develop the infrastructure needed to build veritable 'motorways of the seas'.
- Simplify the regulatory framework for maritime and inland waterway transport by encouraging in particular the creation of one-stop offices for administrative and customs formalities and by linking up all the players in the logistics chain.
- Propose a regulatory framework for safety controls for passengers embarking on ships offering European cruises in order to combat the risk of attacks, along the lines of what is done in air transport.
- Tighten up the maritime safety rules in cooperation with the International Maritime Organisation and the International Labour Organisation, in particular:
 - By incorporating the minimum social rules to be observed in ship inspections, and
 - By developing a genuine European maritime traffic management system.
- Encourage the reflagging of the greatest possible number of ships to Community registers, based on the best practices developed in social and fiscal matters, by proposing in 2002 measures on tonnage based taxation and the revision of the guidelines on State aid to maritime transport.
- Improve the situation of inland waterway transport through:
 - The current standardisation of technical requirements for the entire Community waterway network by 2002;
 - Greater harmonisation of boat masters' certificates throughout the Community's inland waterway network, including the Rhine. The Commission will present a proposal on this subject in 2002;
 - Harmonisation of conditions in respect of rest periods, crewmembers, crew composition and navigation time of inland waterway vessels. The Commission will present a proposal on this subject in 2002.

1.5. Linking up the modes of transport

- Establish by 2003 a new programme to promote alternative solutions to road transport (Marco Polo), which could have a budget of some EUR 30 million per year in help launch commercial projects.
- Propose by 2003 a new Community framework for the development of the profession of freight integrator and the standardisation of transport units and freight loading techniques.

2. Eliminating bottlenecks

- In 2001 revise the trans-European network guidelines in order to eliminate bottlenecks by encouraging corridors with priority for freight, a rapid passenger network and traffic management plans for major roads, and adding to the 'Essen' list such projects as, by way of illustration:
 - A high-capacity railway route through the Pyrenees for freight;
 - East European high-speed train/combined transport Paris–Stuttgart–Vienna;
 - The Fehmarn bridge/tunnel between Germany and Denmark;
 - The Galileo satellite navigation project;
 - Improvement of the navigability of the Danube between Straubing and Vilshofen;
 - The Verona–Naples rail link, including the Bologna–Milan branch;
 - The interoperability of the Iberian high-speed rail network.
- In 2001 increase to 20 % the maximum funding under the trans-European network budget for the main bottlenecks, including those still remaining on the Union's frontiers with the accession candidate countries, and then introduce conditionality rules.
- In 2004 present a more extensive revision of the trans-European network aimed in particular at integrating the networks of the accession candidate countries, introducing the concept of 'motorways of the seas', developing airport capacities and improving territorial cohesion on the continental scale.
- Establish a Community framework for allocating revenue from charges on competing routes to the construction of new infrastructure, especially rail infrastructure.
- Harmonise minimum safety standards for road and rail tunnels belonging to the trans-European transport network.

3. Placing users at the heart of transport policy

3.1. Unsafe roads

- Set a target for the EU of reducing by half the number of people killed on European roads by 2010.
- By 2005 harmonise the rules governing checks and penalties in international commercial transport on the trans-European road network, particularly with regard to speeding and drink-driving.
- Draw up a list of 'black spots' on trans-European routes where there are particularly significant hazards and harmonise their signposting.
- Require coach manufacturers to fit seat belts on all seats of the vehicles they produce. A directive to this end will be proposed in 2003.

- Tackle dangerous driving and exchange good practices with a view to encouraging responsible driving through training and education schemes aimed in particular at young drivers.
- Continue efforts to combat the scourge of drink-driving and find solutions to the issue of the use of drugs and medicines.
- Develop a methodology at European level to encourage independent technical investigations, e.g. by setting up a committee of independent experts within the Commission.

3.2. The facts behind the costs to the user

- In 2002 propose a framework directive setting out the principles and structure of an infrastructure-charging system and a common methodology for setting charging levels, offset by the removal of existing taxes, and allowing cross-financing.
- Make the tax system more consistent by proposing uniform taxation for commercial road transport fuel by 2003 to round off the internal market.
- In 2002 propose a directive guaranteeing the interoperability of means of payment on the trans-European road network.

3.3. Rights and obligations of users

- By 2004, and as far as possible, extend the Community measures protecting passengers' rights to include other modes of transport, and in particular the railways, maritime transport and, as far as possible, urban transport services. This concerns in particular service quality and the development of quality indicators, contract conditions, transparency of information to passengers and extra judicial dispute settlement mechanisms.
- Propose an adjustment of procedures for notifying State aid, particularly in cases relating to compensation for public service obligations on links to the Community's outlying regions and small islands.
- Clarify the general principles, which should govern services of general economic interest in the field of transport in order to provide users with a service of quality, in keeping with the Commission communication on services of general interest in Europe.

4. Managing the effects of transport globalisation

- Link the future Member States to the EU's trans-European network by means of infrastructure of quality with a view to maintaining the modal share of rail transport at 35 % in the candidate countries in 2010 by mobilising private-sector finance.
- Make provision in the Community's future financial perspective for adequate public funding of infrastructure in the new member countries.
- Develop the administrative capacities of the candidate countries, notably by training inspectors and administrative staff responsible for enforcing transport legislation.
- Full membership for the European Community in the main international organisations, in particular the International Civil Aviation Organisation, the International Maritime Organisation, the Rhine Navigation Commission, the Danube Commission and Eurocontrol.
- By 2008 develop for the EU a satellite navigation system with global cover, over which it will have control and which will meet its accuracy, reliability and security requirements (Galileo).

On 4 February 2002 the EU-Commission presented the **“Proposal for a Regulation of the European Parliament and of the Council on the granting of community financial assistance to improve the environmental performance of the freight transport system” COM/2002/0054 final.**

The purpose of the proposal is to grant Community financial assistance to improve the environmental performance of the freight transport system.

The proposal features in the Commission work programme for 2001 under the reference 2001/175. The Marco Polo programme was announced in the Commission White Paper also published in 2001 (see previous pages). Taking into account the positive experiences with the Pilot Actions for Combined Transport - PACT programme, the Community should dispose of a practical and market-oriented instrument, which supports its fight against congestion in the road freight sector and its ambitious goals to improve the environmental performance of the transport system as a whole. The proposal intends to set up such an instrument, to be known as the Marco Polo programme.

Therefore, the proposed Regulation establishes a single financing instrument for actions reducing road congestion and improving the environmental performance of the transport system for the period 1 January 2003 to 31 December 2010. The EU-Commission propose that the financial framework for the implementation of Marco Polo programme for the period 1 January 2003 to 31 December 2007 shall be EUR 115 million.

The Marco Polo programme shall contribute to maintaining the modal repartition on freight transport at its 1998 levels. To achieve this objective, it shall support actions in reducing environmental impacts from freight transport. By the end of the programme, a traffic shift of the expected yearly aggregate increase of international road freight traffic, measured in tonne-kilometres, to short sea shipping, rail and inland waterways should be achieved. More specifically, as a benchmark, it sets the ambitious objective to maintain the traffic share between the various transport modes for the year 2010 at its 1998 level. The Marco Polo programme is one of the measures to achieve this objective in the international freight transport sector.

The Marco Polo programme proposes three different types of intervention, which complement each other. Modal shift actions should lead to immediate and substantial traffic shift from road to the other less congested modes. These actions will have a high short-term effect on traffic shift.

Three main orientations are foreseen:

- 1) Start-up support for new non-road freight transport services, which should be viable in the mid-term ("modal shift actions");
- 2) Support for launching freight services or facilities of strategic European interest ("catalyst actions");
- 3) Stimulating co-operative behaviour in the freight logistics market ("common learning actions").

The proposed Regulation is applicable to modal shift actions:

- Involving the territory of at least two Member States;
 - Involving the territory of at least one Member State and the territory of a third country.
-

The expected results of the Marco Polo programme are a yearly aggregate shift of 12 billion tonne-kilometre freight from international road transport to short sea, rail and inland waterway.

The proposal also sets out an analysis of the results of the PACT Programme for the period 1997-2001. The document shows, in tabular form, for each project (92 in total), the details of the project manager, its objectives, a brief evaluation as well as its budget (commitments and payments).

The situation on 30 September 2001 was as follows:

- Total commitments (including pre-commitment 2001): EUR 29.986.029.
- Total payments for the PACT projects launched since 1997: EUR 15.066.822.
- Total payments for the PACT programme 1997-2001 (including the projects started before 1996 in the framework of the first programme): EUR 22.403.000.

On 25 September 2002 the European Parliament within the Co-decision procedure for EU legislative proposals adopted a resolution by its rapporteur Philip Charles Bradbourne (EPP-ED, United Kingdom) on the freight transport system. The European Parliament put increased emphasis on enhancing intermodality and reducing congestion in freight transport by road. Actions under the Marco Polo programme should not lead to a shift of freight flows between short sea shipping, rail or inland waterways, unless the share of freight transport by road in the transport chain is substantially reduced.

The Commission must present an assessment report on the Marco Polo programme by 31 December 2005. This report should, in particular, consider the possibility of topping up appropriations for the programme and the need to make funding available so as to eliminate infrastructure bottlenecks, notably in the context of projects already benefiting from the programme.

The European Parliament went on to amend the amounts allocated for actions:

- The minimum subsidy threshold per modal shift is EUR 0,5 million, instead of EUR 1 million.
- A new paragraph is introduced stating that the minimum subsidy threshold for actions which contribute to reducing road transport by expanding existing short sea shipping, rail or inland waterway transport activities shall be EUR 250.000 - the minimum subsidy threshold per catalyst action is changed to EUR 1,5 million from EUR 3 million.
- The minimum subsidy threshold per common learning action is now EUR 250.000 rather than EUR 500.000.

The financial framework is unchanged, but the European Parliament stipulated that funding beyond 2006 would be subject to the approval of the budgetary authority. At the end of the mid-term review of the programme a report will be submitted to the budgetary authority on the take-up and implementation of the programme and resources. If 35% of the resources have not been committed, the equivalent outstanding amount will be placed in the performance reserve. At the end of the programme period, any uncommitted resources will be subject to a budgetary decision to determine the appropriate action to be taken.

On 3 October 2002 the EU Transport Ministerial Council examined the draft regulation establishing the "Marco Polo programme", a financial instrument aimed at encouraging the shift in freight from road transport to other modes of transport less harmful for the environment, such as short-sea shipping, rail and inland waterways. The discussion focussed on the overall budget of the programme and minimum subsidy thresholds for the various categories of action. Given the absence of an agreement on the programme's budget, the Council requested the Permanent Representatives Committee (PERECOR) to continue examining the proposal so that it can take a position at a forthcoming meeting.

The size of the projects to be financed by Marco Polo programme was the main obstacle to reach an agreement. Whilst the EU-Commission defended European size projects between 500.000 and 3.000.000 EUR, some countries, together with the European Parliament, have asked for smaller projects. There was also a discussion on the whole budget of the programme, which the EU-Commission and the European Parliament have evaluated at 115 million EUR, but some countries would like to see reduced to only 60 million EUR.

A principal decision was taken at the EU-Ministerial Council on 5 December 2002 in Brussels, for a budget of 75 million EUR for four years.

The final text for a common position on the Marco Polo Programme is expected on the Transport Ministerial Council within the first part of 2003, in order to make the financing for proposals in 2003 possible.

ECMT - Consolidated Resolution No 2002/2 on Combined Transport [CM(2002)3/FINAL]

The Council of Ministers, meeting in Bucharest, on 29 and 30 May 2002, having regard to Resolutions No. 59, No. 65 and No. 67 and reports CEMT/CM(91)25, CEMT/CM(94)13/FINAL, CEMT/CM(95)12, CEMT/CM(96)16, CEMT/CM(98)15/FINAL and CEMT/CM(2000)3/FINAL and their recommendations on actions for promoting combined transport. Considering it useful to gather together the essentials of the decisions taken on the subject into a clear and concise reference text, though without replacing the most recent detailed reports [CEMT/CM(95)12, CEMT/CM(98)15/FINAL, CEMT/CM(2000)3/FINAL]. Noting that other Resolutions adopted by ECMT Ministers, including Resolution 2000/3 on Charges and Taxes in Transport [CEMT/CM(2000)13/FINAL] and the draft Resolution on the development of European Railways [CEMT/CM(2002)2] have a direct effect on the development of combined transport. Convinced that combined transport must play a significant role as an alternative to road haulage in future transport systems in order to meet the environmental and economic requirements for sustainable transport systems. Noting the problems that still occur in the field of combined transport, in particular:

- the present failure in setting up and charging for true costs, which distorts competition in favour of road transport at the expense of combined transport, which can be a more environment-friendly transport mode since it includes rail, inland waterways and/or short sea shipping;
- the need to develop not only combined transport by rail and road, but also by inland waterways and short sea shipping, as well as the relevant interfaces (terminals and ports) between those modes,

- problems with terminal facilities and equipment, inter-operability between and within transport modes (including the dimensions of intermodal transport units), overall journey times and punctuality, administrative formalities and rules (including border crossing operations) all of which affect quality of service;
- the general lack of competitiveness of combined transport, both in terms of quality and of costs/prices;

Recalls that the terms "intermodal", "multimodal" and "combined" are defined in the framework of a terminology related to combined transport adopted by the Council of Ministers of the ECMT in 1992, in perfect agreement with the European Union and the UN/ECE, and which was updated by the three Organisations in 2001.

ECMT Underlines:

- That the development of combined transport is not only an important objective of transport policy in many of the Member Countries in its own right, but can contribute to sustainable transport policy;
- That the increase in goods traffic, in particular on roads, in recent years and the growth rates which are forecast may lead to bottlenecks on the principal international and national roads in many countries, and that such bottlenecks already exist on certain links;
- That the competitiveness of combined transport must be improved, both in terms of quality and cost/price;

ECMT Recommends:

That National and International Bodies:

- reinforce, both at national and international levels, co-ordination of the interaction between environmental, land use and transport policies;
- improve the framework for sound development and promotion of combined transport;

With regard to costs and prices

- set up fair competition conditions between the various modes of transport (in particular through internalisation of external costs) as well as to ensure transparency of the conditions of competition between each mode;
- encourage the development of cheaper and more efficient interfaces between modes;

With regard to networks

- implement and ensure compliance with the standards adopted at international level (e.g. the AGTC Agreement* - European Agreement on Important International Combined Transport Lines and Related Installations - 1991 UN/ECE - and its Protocol on Combined Transport on Inland Waterways) on the itineraries agreed;
- ensure that regional plans integrate terminal facilities for combined transport into the planning of commercial freight traffic activities and logistics centres, including cases where neighbouring countries are involved, and in that respect make possible investment subsidies for terminals, whilst respecting rules on State aids and competition;
- concentrate financial efforts in order to eliminate bottlenecks;
- allocate public resources directly or indirectly to infrastructure to improve access to terminals and improve terminal facilities for the handling, storage and processing of Intermodal Transport Units (ITUs), whilst respecting rules on State aids and competition;

With regard to interoperability

- improve the compatibility of the different networks;
- ensure, as far as possible, that obstacles to international combined transport due to shortcomings in infrastructure, transshipment facilities or rolling stock are eliminated by appropriate measures, where net benefits to society can be expected;
- ensure stability in maximum road vehicle dimension limits within the legal framework drawn up by the European Union (Directive 96/53/EC), in order to establish a commonly-agreed basis for standards for combined transport units;
- accelerate improvements in better compatibility between railway information systems and signalling systems to obtain smoother traffic flows, as covered in the draft Resolution on the development of European Railways (CEMT/CM(2002)2);
- support the development of stackable ITUs, suitable for short sea shipping and inland waterway transport;
- promote the use of effective and interoperable electronic information systems to enable exchange of data between transport operators in different Member countries and automatic issuing and processing of transport and accompanying documents, and to provide efficient information to cargo owners, dispatchers and other participants during the transport process;

With regard to financial measures, whilst respecting rules on State aids and competition

- facilitate, through financial and/or fiscal support, initial purchases of transport equipment such as rolling stock or ITUs;
- grant, under present circumstances (as long as transport taxes and charges are not designed to internalise external costs) and with respect to competition rules, financial assistance for certain operational costs or for the initial phase of new combined transport services;
- provide support for measures designed to improve the efficiency and quality of combined transport services;
- grant, wherever possible, part or total exemption from taxes, tolls and fees relating to the use of road infrastructure by vehicles engaged in combined transport operations, especially for initial and terminal hauls;
- attract private capital, which in any case is needed to develop combined transport;

With regard to regulatory measures and controls

- consider the possibility of granting exemptions from certain restrictions and traffic bans usually applied to international road haulage;
- liberalise, at least on the basis of reciprocity, initial and terminal road hauls in international combined transport;
- maintain higher weight limits for the road vehicles used for the transport of ITUs during initial and terminal hauls;
- support all efforts made with a view to reducing, standardising and simplifying the documents used in combined transport;
- make provisions for carrying out customs and border control operations (including veterinary and phyto-sanitary controls) at loading and unloading points, as far as possible, in order to accelerate combined transport operations, achieve shorter delivery times and make combined transport schedules more reliable;

- enforce more rigorously existing road haulage regulations, particularly the regulations on driving and rest times, speed limits and vehicle weights and dimensions and to this end strengthen their control and impose appropriate penalties, so as to ensure greater safety in road traffic and fair competition both within and between modes;

With regard to operations

- take steps to ensure that all modes concerned -- rail, inland waterways, short sea shipping -- are put on an equal footing in the market for combined transport, by favouring in the first place a better co-operation between networks and by developing at the same time further market opening, with competition between the different operators;
- take steps to improve combined transport quality by securing access to railway networks, as covered in the draft Resolution on the development of European Railways CEMT/CM(2002)2;
- continue the policy of liberalising access to European fluvio-maritime transport networks under non-discriminatory terms and to harmonise and simplify the legal regulations and administrative procedures for this type of transport;

With regard to the monitoring of the market

- take measures to ensure that coherent and reliable statistical data is available;
- carry out on a regular basis, and as precisely as possible, an inventory of bottlenecks that could hinder the development of combined transport;
- encourage the development of short sea shipping information offices, as already set up in some European countries, regions and ports;
- more generally, promote the creation of united information centres for combined transport, ensuring equal access to information in all Member countries;

With regard to innovation

- avoid losing sight of the special requirements and possibilities of combined transport in the course of work to reduce obstacles to international transport and make use of progress in information technology;
- encourage operational research concerning all components of the transport chain, whether it be in connection with ITUs, interfaces or information systems;
- keep in mind the necessity for rolling stock dimensions to remain compatible both with infrastructure and ITUs, whatever innovation is pursued;

That all operators involved in the combined transport chain:

- co-operate more closely, whilst respecting competition rules, in order to provide a reliable, efficient and flexible service, through, for instance, the use of the most efficient technologies and work together to identify and open up new markets;
- use combined transport more intensively for the transport of certain types of dangerous goods, and without prejudice to the intrinsic qualities of the railways and waterways in this area;
- make efforts to achieve a level of prices for combined transport operations that is as competitive as possible with road haulage services and ensure that methods of cost calculation are as transparent as possible;
- consider the possibility of increasing terminal capacities by offering longer opening hours and more efficient services, particularly with regard to transshipment operations;
- establish, whenever possible and compatible with economic efficiency and technical requirements, international pools of wagons;

- take into account that the best way to offer a competitive and attractive combined transport service is to operate block trains between terminals;
- make use of effective and interoperable electronic information systems to provide clients information from real-time monitoring of combined transport movements;

Requests, as far these Recommendations are concerned, that the ECMT Committee of Deputies continues to monitor the development of this transport sector and reports, at regular intervals, on the implementation of these Recommendations.

On 22 April 2002 ECMT presented a report on “**National Measures to Develop Combined Transport**” [CEMT/CM(2002)5], where the development measures in the following countries were presented:

Germany, Austria, Belgium, Bulgaria, Finland, France, Hungary, Italy, Latvia, Lithuania, Norway, the Netherlands, Poland, the Slovak Republic, the Czech Republic, Romania, the UK, Slovenia, Switzerland and Turkey.

ECMT - Development of Combined Transport in CEEC's

Within the framework of European Conference of Ministers of Transport, there was a Conference on the Development of Combined Transport in the T.E.R. Member Countries in Ljubljana (Slovenia) on the 12th of May 2000. By this occasion a plan for “**Activities and Guidelines on Future Actions for the Development of Combined Transport in CEEC's**” was presented. On the following pages the main points of this plan will be outlined.

The European Conference of Ministers of Transport has been working for many years on joint European policies to improve the global economic conditions for combined transport. The ECMT Committee of Deputies has established a Combined Transport Group that works on specific programmes in this field.

The Group includes the following main issues in its programme of work:

1. Equal conditions of competition between the various modes of transport (true costs): the Working Group on Combined Transport co-operates with the Task Force on Internalisation of Social Costs and will also present its own findings concerning road and combined transport prices on specific links.
2. Situation regarding border controls, especially at the external borders of the European Union. A report was presented to Ministers last year in Warsaw. It included a survey on road, rail and combined transport border crossing facilities.
3. Interpenetrability - achievements and bottlenecks.
4. Report and Conclusions on the development of Short Sea Shipping, follows on the next pages.
5. Overview of existing studies and - possibly - comparison of the most important results.
6. Necessity, practicability and impact of new technologies in combined transport.

The European Conference of Ministers of Transport promotes the development of combined transport for the political reasons that are given in the Declaration on Combined Transport decided on at the Council of Ministers session in Budapest on 29 and 30 May 1996:

“Combined transport is an example for a rational network which combines the benefits of the various transport techniques and can be understood as a candidate for all evaluations or adaptations which help to improve the transport chain. Since combined transport is a means of shifting traffic off the road, it also helps to achieve the aim of sustainable mobility, as already pointed out in the White Paper on Transport issued by the European Union.”

The Council of Ministers sees combined transport as an integrated element of transport policy, which in turn plays an active and important role in the development of Europe.

In 1994, the Council of Ministers has adopted the Annecy Resolution. This Resolution contains general recommendations such as the action to establish true costs in transport. In addition to these recommendations, the Resolution made the following points:

- liberalization of access to initial and terminal road hauls in combined transport,
- the introduction of higher weight limits for road vehicles operating in such terminal hauls,
- the exemption of combined transport from road infrastructure taxes,
- tax incentives for combined transport,
- investment grants for combined transport.

The adoption of this Resolution means that there was a political consensus on such measures. However, one must recognize that, although this political will has been expressed already in 1994 and at the highest level possible, there is still a lot to do to consider these recommendations as fully implemented.

As international trade in Europe grows, transport volume increases as well, and some high volume corridors and trade routes develop. While most large international trade flows tend to concentrate on corridors and gateways, this does not necessarily refer to all trade routes. Some countries exchange their goods with the neighbour country through very many dispersed routes, all of them carrying a small amount of total trade. But in most cases, one can see more concentrated flows.

This concentration of traffic on certain corridors assists combined transport in its special economy. Combined transport creates an additional efficiency by concentrating smaller loads such as truckloads to larger units such as block trains or inland waterway barges. Moving these larger units saves infrastructure use, operating costs, energy consumption and environmental pollution compared to the move of multiple single units. The savings by concentration of loads must at least compensate for the costs of transfer in the terminals to make combined transport cost effective and competitive.

In addition, most European international transport flows cover a greater distance than national ones. This is again advantageous for combined transport. Normally, a transport distance of 300 - 500 km is assumed to be the minimum for combined transport competitiveness. Some European countries have only few – if any - national high volume corridors that cover such distances. So, again international European transport gives the main advantage for combined transport, in this

case the increased distance. However international transport also incurs some flows that are considerable short and do not qualify for a combined transport operation.

The main corridors from West Europe to Eastern Europe that carry today high (or rapidly increasing) volumes of combined transport are the following:

- *Central Europe to East Europe:* Berlin - Warsaw - Moscow. This trade route developed quickly after the new orientation of East European countries to market economy. The trade has been totally dominated by road transport. First combined transport offers have been established recently and are developing rapidly.
- *Central Europe to Southeast Europe:* from West and North Central Europe via Czech Republic, from South Central Europe via Austria and Hungary to Romania, Bulgaria, Turkey, and Greece. This corridor had been until 1990 mainly used Yugoslavia as transit country. When the political unrest started in this area, the traffic flows have been diverted to transit through Hungary and Romania.

A corridor analysis shows that high volumes and market shares of combined transport need three main characteristics:

- Distance more than 400/500 km,
- Large transport volumes rather concentrated on this corridor,
- Considerable barriers to road transport.

These barriers to road transport could be Geographical barriers: surface characteristics not favourable for road transport and not surpassed by civil engineering in road building, Border regimes: considerable border delays for commercial road vehicles, High road usage fees and taxes, Legislation regime not favourable for road transport as excessive limitations of commercial road vehicle operation, excessive limits of road vehicle size and/or weight.

The corridor that connects Greece and Turkey with Central Europe is, on the one hand, a high traffic volume corridor, and, on the other hand, it includes a set of national transit problems that show the possibilities and conditions of successful combined transport in a nutshell because of the transit problems occurring with the political development in Yugoslavia.

The East West European corridor is today not very much developed. But all countries concerned have given great hope to combined transport for the solution of some serious traffic problems that today restrict the transport quality on this corridor seriously. Especially very long border control delay and heavy congestion on transit roads that have been designed and built in an area when such development could not be foreseen create problems in this corridor.

Combined transport has to offer similar quality patterns as road transport to be able to meet the competition of door to door transport by road. This regards such factors as *flexibility, speed and reliability*.

When the East European and the East Central European countries decided to organise their economies under the principles of market economy, the transport markets changed very rapidly. Rail lost considerable in market share, and road transport boomed. This has led to economic and political frictions that are under review today. The roads that serve the increased traffic are highly congested. Road border crossings are used beyond their capacity, and long waiting time is often occurring. On the other hand, rail offers much additional free capacity. Insofar, most of these countries are seriously considering to strengthen the role of combined transport road/rail and to transfer some of the international traffic flows to combined transport.

This is not at all easy and quick to accomplish. Combined transport needs a good and experienced organisation and a high quality, very reliable rail operation. Furthermore, unaccompanied combined transport, the more efficient way to organise this traffic, needs investments in specialised rolling stock, swap bodies and terminals. All this cannot be created over night.

Otherwise, rolling-motorway combined transport is rather easy to organise, needs no high investment in terminals, and practically no investment in adaptation of the rolling stock. Naturally, this type of combined transport has been the forerunner of combined transport in most countries on this axis. But rolling motorway is a considerable costly way to organise combined transport.

Subsidies or road usage fees have either met the difference and tolls must be increased to a level that the additional costs are compensated. This means a rather high level of toll or road usage fees.

ECMT Future Work and Priorities

- From the suggestions for future work by the various Member countries in the frame of our future triennial program of work, it emerges clearly that the Consolidated Resolution adopted in Annecy in 1994 remains highly relevant especially in regard to the implementation of these recommendations. A regular inventory of national measures to promote Combined Transport is therefore a necessary support to follow the implementation of the Annecy and Vienna resolutions. In particular, the ongoing reform of railways in Europe induces changes of a different nature, which even if causing some problems, give also opportunities for a faster development of combined transport. These effects should therefore be studied in the frame of the conclusions to be presented in Prague in May 2000 with a view to overcome the identified obstacles.
- Along the same lines, an inventory of present weaknesses and identified bottlenecks in the combined transport system in Europe would be a valuable aid to identifying priorities for action. This work should be undertaken in co-operation with all ECMT Member countries and other relevant international Bodies (EU, UN/ECE, and OECD).
- The competitive situation of combined transport is important. On the basis of an analysis of costs and prices on specific routes, recommendations could be drawn up on how combined transport can reduce its costs compared to other modes. The work to be undertaken by OECD and also by ECE/UN in this field should address this question in priority. To increase the awareness amongst shippers of the advantages of combined transport, these recommendations should consequently be made available to them.

- Given the present and forecasted traffic increases between Eastern and Western Europe, the Group on Combined Transport could consider to what extent and under what conditions Combined Transport could play a significant role in dealing with these additional traffic flows.

ECMT - Sustainable Development – Recommendations on Short Sea Shipping

A further important manifest by ECMT “**Sustainable Development – Recommendations on Short Sea Shipping**”, was approved by the Council of Ministers on the 30th-31st of May 2000 in Prague. Thus on the following pages this issue will also be outlined.

The conclusion to emerge from the report on “Short sea shipping: an alternative to European inland transport, or a complementary mode?” [CEMT/CM(2000)9], which deals exclusively with freight transport, is that short sea shipping (SSS), must now be regarded not simply as an alternative to road transport, but also, in the context of modal complementarity, as a separate component in its own right of an integrated transport network aimed at optimising the efficiency of logistics. It is important to acknowledge in this respect the global character of the shipping industry as a whole. Although statistics are lacking, it is generally estimated that 30 per cent of intra-European freight is carried by maritime transport and a major part of this by short sea shipping. Short sea shipping is particularly relevant to countries with a coastline on the enclosed seas bordering Europe (in particular, the Baltic Sea, the Black Sea, or indeed the Mediterranean Sea) and is expected to expand with the increasing globalisation of trade.

Certain of the main features of short sea shipping reviewed in the report prompt a number of conclusions, in some cases inescapable, as regards short sea shipping in its own right and as part of the transport chain, more particularly the combined transport chain. The present summary focuses however solely on the role that short sea shipping could play in combined transport.

1. Promoting short sea shipping

By integrating short sea shipping with combined transport, the aim is to include maritime shipping as a type of transport in multimodal traffic flows. It will thus be possible for the combined transport sector to achieve the modal shift from road to alternative environmentally-friendly transport modes — in this case, the waterborne transport chain — on a wider scale.

Ports – as interfaces – are particularly important for the integration of short sea shipping with combined transport modes. For combined transport, ports are major transshipment points at which road, rail and river and sea traffic converge. As such they, and particularly the port transfer terminals they require, should be included in appropriate combined transport promotion programmes, responding to the criteria set up in paragraph 6 below, just as inland transfer terminals are. This is a role that could be played by the SSS information bureau that has already been set up in some European ports.

Land and river access is increasingly a key factor in the competitiveness of seaports. If short sea shipping is to be integrated with combined transport, it is vital that rail and river infrastructure links and where necessary for access to ports, road infrastructure links, be improved.

2. Harmonising terms of competition and progressive market liberalization

While free and non-discriminatory access to Europe's transport markets is vital for the efficient operation of transport networks and logistics services, market liberalisation will not be enough to ensure sustainable mobility, without incentive measures. The first step is to establish a level playing field as soon as possible, particularly as regards social, environmental, technical and fiscal conditions. Given the high costs of transport infrastructure, particularly for rail and inland waterway modes, the longer term would require a more sustained effort to internalise external costs. Since neither a level playing field nor free market access has been achieved at this stage, government policy to develop combined transport in Europe, including short sea shipping, needs to be strengthened.

As market regulators, governments have to ensure that markets are fair. The problem of fair competition can be approached in a number of ways, depending on whether the focus is competition between modes or competition within modes. In both cases, another issue that arises is the harmonization of the terms of competition in the transport sector and its regulation.

3. Infrastructure investment

As regards infrastructure investment planning, the challenge now is to integrate ports more closely into the TEN-T, taking into account their transshipment function (nodes). The European Commission's Communication of 29 June 1999, *The Development of Short Sea Shipping in Europe, Second Two Yearly Progress Report* [COM(99)317], deals with the practical and operational functioning of the infrastructures and superstructures in ports. This Communication therefore makes for a better understanding of the role of governments in infrastructure planning and the respective role of public and private sector operators in financing infrastructure for both seaports and the inland terminals linked to them. To this end, the conditions for private investment in port areas - in handling operations, for example - could usefully be reviewed, without ruling out the possibility of extending the scope of private activity.

4. Optimising logistics chains: developing interoperability between modes and networks

With reference to the development of interconnected and interoperable transport networks and the part that they can play in optimising logistics chains and, more generally, with reference to facilitating intra-European freight flows, central government should ensure that the efficient utilisation of the networks is not hampered by inappropriate regulatory, administrative or technical standards. For instance, the problems posed by customs transit and other administrative formalities (e.g. public health formalities) and the incompatibility of loading units are often mentioned as major obstacles to the development of maritime transport and its integration into transport networks.

From this standpoint, the development of inland waterway transport in general and inland waterway/maritime transport in particular as an integral part of inland port development policy, will necessitate:

- the use of sea-going vessels with suitable characteristics, draught and overhead clearances for this type of navigation;
- technical modifications and open access to inland waterways.

Moreover, in order to ensure the interoperability of the different modes of transport, close attention should be paid to the compatibility of loading units, the priority considerations being compatible internal and palette dimensions, overall dimensions compatible with all modes, and reliability and safety, particularly where maritime transport is concerned. It should be noted that the dimensions of ISO containers are not compatible with Europallet sizes, thus making automated loading operations impossible.

As ports are vital interconnection points the key elements needed to encourage greater use of short sea shipping in Europe can be defined as follows:

- improved port services, to reduce ships' costs and transit times in ports;
- better integration of ports into modal infrastructure networks and connection to intermodal terminals, and;
- streamlined administrative formalities for ships and cargoes passing through ports.

Furthermore, integrating short sea shipping services into an efficient information system (EDI) compatible with the methods used by government administrations (customs, for example) and by other transport operators, would seem to be essential for the efficient operation of an integrated logistics chain.

Despite the improvements foreshadowed, the development of logistics chains which include a short sea shipping leg is encountering major problems: first, except in certain specific regions of Europe, i.e. the Baltic Sea, logistics trends over the last 10 years seem to be running counter to this type of chain; second, for short sea shipping to be more cost-effective than inland modes, freight origin and destination points have to be relatively close to ports.

5. Improving legal rules for inland waterway/maritime transport and adapting administrative structures

Another disadvantage of maritime transport that is often mentioned is its lack of flexibility, compared with road transport mainly because it does not penetrate very far inland in Europe. In this connection, the first priorities should be to ensure permanent free access to inland waterways and to abolish the unfair conditions that seaports still apply to vessels operating inland waterway/maritime transport services.

Given the extensive inland waterway networks in Central and Eastern Europe, short sea shipping and inland waterway transport throughout Europe could become a much more attractive option if they could be integrated and use inland waterways without hindrance.

While it is generally agreed that the role of governments is primarily to facilitate the integration of the transport modes, often they are handicapped by the fact that their functions are organised on a modal basis. Efforts to reorganise administrative structures should focus on improving the documents required in ports and on port procedures, including customs and phytosanitary procedures. One of the achievements of the Maritime Industries Forum was to have encouraged the appointment within national administrations of a "contact point" for short sea shipping. Given the pan-European dimension of short sea shipping, other European countries could also usefully designate "contact points".

6. Support for the modernisation of the sector

Although some short sea shipping traffic is state of the art, modernising the sector in order to integrate it into the European transport and logistics system will entail major investment - and major financial risks -- particularly to modernise fleets and improve port productivity. Given the scale and number of research and development initiatives directly or indirectly related to the short sea shipping sector, the transparency and co-ordination of innovation support measures should be considered essential for the furtherance of the objectives cited in paragraph 1.

Under certain conditions, policy-makers may consider it appropriate to contribute to the investment costs of combined transport development projects which include an SSS component, in which case they would wish to ensure that projects do actually promote a switch from road to sea transport. They would also have to ascertain that a number of other conditions are met, such as:

- *Additionality*: any government contribution should be to finance additional development and should not simply be a substitute for private sector investment that would have been forthcoming in any case.
- *Competitiveness*: the project would have to do more than simply absorb traffic from other short sea shipping movements or other environmentally friendly transport modes.
- *Viability*: the project would have to be financially viable itself in the long term, without further government support.
- *Minimum intervention*: government funding should be limited to the minimum necessary for the project to continue. This ensures that public funds are used efficiently and that financial resources will be available for other projects.

Moreover, transport seems to be one area that shows how our societies are developing towards economies based on the flow of information and on new skills. The development of logistics services calls for such new skills. In order to establish a favourable climate for maritime transport and integrate it more closely into logistics chains, support should be provided for initiatives to train personnel who need to develop their logistics skills and to familiarise them with current best practice. At present, training initiatives are essentially the province of maritime sector co-ordination bodies. They could be particularly useful for the countries of Central and Eastern Europe and the New Independent States, inasmuch as improving skills is a key factor in achieving the balanced development of transport and logistics systems and practices on a Europe-wide scale.

6. Co-ordinating transport policy

Given the geographical coverage of its Member countries, the ECMT could play an important role in developing a coherent, co-ordinated transport policy throughout Europe that still leaves some scope for competitiveness. A dual policy of co-operation and co-ordination now seems more crucial than ever, as the role of government has changed with the changing structure of the market where traditional transport services are increasingly being integrated into complex logistics management services. As the market evolves towards a transport and logistics system, governments will have to adopt or intensify a multimodal approach in framing their transport policies.

Preferably, at least for maritime transport and ports, co-operation and co-ordination efforts should focus on all aspects of transport policy including infrastructure finance, the definition of rules for ensuring a *level playing field* in the transport market, and further efforts towards harmonisation in conjunction with market liberalisation.

At national level, Member countries should also ensure that the policies implemented by other bodies or other sectors (regional or environmental policy, for example) will contribute to the transport policy objectives and vice-versa.

In implementing these policies it is important that support (financial, fiscal or other) granted by governments be co-ordinated in order to further the general policy objectives referred to above and to avoid distortions or discrimination that would be counterproductive, particularly for the development of short sea shipping.

Lastly, the need for a better understanding of markets and, for governments, the need to anticipate how those markets will develop in the future, makes the availability of reliable, consistent statistics and as detailed as possible an inventory of bottlenecks doubly necessary.

Conclusion for JBV – Status on Intermodal transports – measures discussed within EU

- Level playing field between modes - taxes and infrastructure charges (internalisation of external socio-marginal costs)
- TEN – Trans European Networks
- TERFF/TERFN – Trans European Rail Freight Freeways/ Trans European Rail Freight Network
- Harmonisation and standardisation (both technical, operative and legal framework)
- Tax rebates for intermodal equipment
- Lifting of driving restrictions (weekends) for intermodal road legs
- Increase total weight to 44 tons for intermodal road legs
- Support for intermodal terminals and the Marco Polo Programme

Trends in the Market

The “**Short-Term Trends Study**” made by ECMT is one of the latest evaluation of the transport market. The study is based on the development from the year 2000 to 2001. In the following the result of this study is summed up to present a general picture of the trends of the transport market.

1. Short-term trends in long-standing member counties

a) *Economic situation*

For eight of the thirteen long-standing Member countries (AT, BE, FR, DE, LU, NL, NO, CH) for which information are available, the industrial output did not change in 2001. Although small, the increase in output for Finland, Spain and Sweden (1,5-2,0 %) was positive.

This wasn't the case for Ireland. As the only country Ireland experienced a major decline in the industrial activity of -19,9%. Portugal came next with a decrease of -2,6%.

In general the trend reflected the economic situation in the Western world due the bursting of the “new economy” bubble combined with the 11th of September 2001.

b) *Freight transport*

The negative trend in the economic situation is reflected even more clearly in the *Domestic rail freight activity*. In fact, of the fifteen countries for which information is available (AT, BE, DK, FI, FR, DE, IT, LU, NL, NO, PT, ES, SE, CH, UK) Ten countries faced a decrease in the domestic rail freight activity. The decrease was especially drastic in Denmark (-26,8%), but also Norway and Switzerland follow closed by with a decline of -21%. The Netherlands, Italy, Belgium and France had downward going trend of app. -10%.

The strongest growth was reported in The United Kingdom (6%) but also Sweden and Spain had a minor increase (2,3% and 1,1% respectively).

In the *international rail freight sector*, eight out of thirteen countries (BE, FI, FR, DE, LU, NL, PT, SE) showed a decline in the activity. The largest decrease was found in Belgium, France and Luxembourg (-10,3%, -9,4%, and -8,0% respectively). This development indicates the effect of the economic situation mentioned above. A decline of a lesser scale was seen in Sweden, the Netherlands and in Germany (av. -4,5%).

A positive development was found in especially Denmark and Switzerland (12,5% and 9,2% respectively). This equalises a part of the decline in the domestic rail activity for both countries. Norway and Austria also had an increase in the activity but of a smaller scale (4,1% and 2,5%).

The *road freight haulage sector* performance was as negative as the rail freight sector.

For the twelve countries for which information was available in the *domestic haulage other than cabotage* sector five countries had a positive development. The frontrunner was Portugal with an increase of 34,9% followed by Norway and Spain (6,6%). A smaller rise was to be found in France and Germany (3,4 and 1,5%).

The strongest fall in the activity was reported in Belgium (-13%) followed by Sweden, Finland and The Netherlands with an av. decline of -3,4%. The development in Austria, Denmark and the United Kingdom were unchanged compared to 2000.

The gap between the negative and positive development was larger for the *international road freight haulage* sector than for the domestic.

The most intense decrease was reported in Belgium, Denmark, Norway, United Kingdom and Finland (-15,4%, -13,5%, -11,5%, -10,9% and -10,8% respectively). A minor decline of -3,9% was seen in France. There were no changes in the activities for The Netherlands and Sweden compared to 2000.

An increase was found in Spain and Austria (12,6% and 10,3%) closely followed by Portugal and Germany (8,2% and 7,0% respectively).

2. Short-term trends in Central and Eastern European countries and the Baltic countries

a) Economic situation

Industrial output indicators for the year 2001, suggest a substantial economic decline in Eastern Europe and the Baltic countries compared to the activity in the previous year. Of the twelve countries (AL, BH, BG, HR, EE, MK, HU, LV, LT, MAL, PL, RO, SK, SL, YU), which had information available, only two countries reported of a positive development. The most significant increase was seen in Albania (29%) followed by FYR Macedonia in a slightly smaller scale (3,4%).

The most radical decline in the industrial activity was reported by Lithuania (-29,4%) but also Estonia, Romania, the Czech Republic, the Slovak Republic and Latvia had a downturn at an av. of -7,4%. Slovenia had the smallest decrease of only -3,3%.

As a whole the Eastern European and Baltic countries show an even more radical negative trend than the Western countries due to the same causes.

b) Freight transport

The economic situation had a serious negative influence on the *domestic rail freight transport*. Of the thirteen covered by the evaluation (BG, HR, CZ, EE, MK, HU, LV, LT, PL, RO, SK, SL, YU), seven experienced a decline in the activities. FYR Macedonia tops the list with a decrease of 50% followed by Slovenia and Poland (-17% and -13,3%). A slightly lesser decline were reported in Bulgaria (-8,1%) and Czech Republic, Slovak Republic and Estonia with a av. drop of -4,2%. A positive development was seen in Lithuania with an increase in the activity of 33,4%. Romania followed with 19,5% and the Croatia and Latvia (12,6% and 10,5%).

In the *international rail freight sector*, for the same thirteen countries, the development shows the same trend. Romania and Bulgaria had the largest decline followed by Lithuania and FYR Macedonia (-20% and -10,7%). On the other hand a positive development was reported. The frontrunner was Croatia (13,8%) then Latvia, Estonia and Yugoslavia (av. of 6%).

The decline in the rail freight transport sector was not only due to the economic situation but also to the boom in road transport. For instance in the twelve countries for which data is available (BG, HR, CZ, EE, MK, HU, LV, LT, RO, SK, SL, YU), the *domestic road freight haulage* sector had a

positive development in five countries. FYR Macedonia had an increase of 887,6%, which is extraordinary but also Croatia had a high increase of 68,6%. The decline in activities was reported in Yugoslavia and Estonia (-17,6% and -12,6%) but a smaller scale of decrease was seen in Slovak Republic, Malta and Hungary (-5,3%, -1,8% and -2,5%).

International road freight haulage saw an increase in nine (BG, HR, CZ, EE, HU, LV, LT, RO, SK, SL, YU) out of eleven countries. The most massive increase was reported in Croatia (275,8%). Romania, Bulgaria and Estonia also had a high activity. It rose by 79,2%, 41,7% and 35,4% respectively. The rest of the countries had an av. increase of 7,7%. Smaller decreases were seen in Yugoslavia and Hungary with an av. of -5,5%.

In all a better result than the one of the Western European countries.

3. Trends in the CIS

Of the three countries of which data was available, Azerbaijan had a decline in the *domestic rail freight transport* (-38,2%) in 2001 while Moldova had an increase of 43,2%. The same pattern was not seen in the *International rail freight transport* where both countries experienced an increase (av. 26%). The only data to mention for the *domestic road freight transport* are Belarus (5,1%) and Moldova with a decline of -10,3%.

Bibliography

As an important part of the present status report, a systematic market screening has been carried out in order to identify relevant reports and statistics on the subject, elaborated by European institutions, governmental and non-governmental organizations, international associations, major intermodal market players, etc.

On the following pages of this chapter the main part of the collected data and other information has been thoroughly structured and analysed in a detailed bibliography, with the following headlines:

- Title, author, publication information, short description of contents

Important books and documents

Below you find the most important books and documents used for the study, concerning European policies, Intermodal statistics, intermodal operators etc.

Title	Author	Year	Publication information	Short description of contents
IWT Container Transport in Europe	Association for a Fluid Traffic, Multimode	2002 - Autumn	AFTM, Jean Marc Deplaix, Professeur à l'Ecole Supérieure des Transports, 206 Bd Péreire, FR-75017 Paris, aftm@noos.fr	Report compiling intermodal statistics on the European Inland Waterways.
Proposal for a Regulation of the European Parliament and of the Council on the granting of community financial assistance to improve the environmental performance of the freight transport system	European Commission	2002 - 4th February	COM/2002/0054 final	Proposal of the Marco Polo Programme that shall contribute to maintaining the modal repartition on freight transport at its 1998 levels.
Benchmarking Intermodal Freight Transport	ECMT- European Conference of Ministers of Transport	2002	(77 2002 03 1 P) ISBN 92-64-19742-7 – No. 52413 2002	The Intermodal Freight Transport Advisory Group is examining key topics focusing on critical aspects of the role of governments in promoting intermodal transport. Through benchmarking the transport performance in different European countries, the report aims to improve performance by identifying best practices, analysing the reasons for differences in performance and suggesting potential changes that could be introduced by decision makers.
Consolidated Resolution No 2002/2 on Combined Transport	ECMT- European Conference of Ministers of Transport	2002	CM(2002)3/FINAL	Recommendations from ECMT on the development of the intermodal transport sector.
Eurostat database Comext by mode of transport 2001 (and 1997)	Eurostat	2002	Eurostat Data Shop Luxembourg	Customer designated database on external trade with the Member States of the European Union.

Title	Author	Year	Publication information	Short description of contents
National Measures to Develop Combined Transport	ECMT-European Conference of Ministers of Transport	2002	CEMT/CM(2002)5	National measures for the following countries are presented: Germany, Austria, Belgium, Bulgaria, Finland, France, Hungary, Italy, Latvia, Lithuania, Norway, the Netherlands, Poland, the Slovak Republic, the Czech Republic, Romania, the UK, Slovenia, Switzerland and Turkey.
Permissible maximum dimensions in Europe	ECMT-European Conference of Ministers of Transport	2002	30/09/02	Table with the maximum dimensions on equipment in European countries.
Permissible maximum weights in Europe	ECMT-European Conference of Ministers of Transport	2002	05/06/02	Table with the maximum weight in European countries.
Trends in the Transport Sector 1970 - 2000	ECMT-European Conference of Ministers of Transport	2002	752002091E1 - 79979274	Describes developments in the transport sector in Europe in 2000 and how the situation has changed since 1970 primarily by means of charts.
Trends in the transport sector 1970-2000	ECMT-European Conference of Ministers of Transport	2002	Brochure, (75 2002 09 1 P) ISBN 92-821-1375-2, € 20	Statistical trends in the transport sector for the period 1970-2000.
Annual reports 1998 - 2001	UIRR	1999 - 2002		Annual report of the activities within the UIRR and their members.
Annual reports 1990 - 2001	ICF Intercontainer-Interfrigo s.c.	1991 - 2002		Annual reports of the activities of ICF and its subsidiaries.
European Transport Policy for 2010: Time to decide	European Commission	2001	COM (2001) 370 final, Office for Official Publications of the European Communities, 2001 ISBN 92-894-0341-1	White paper with the aim of the Commissions policy on Intermodal Freight Transport as a vital pillar.

Title	Author	Year	Publication information	Short description of contents
Road Transport and Intermodal Linkages Research Programme Intermodal Freight Transport: Institutional Aspects	ECMT-European Conference of Ministers of Transport	2001	(77 2001 01 1 P) ISBN 92-64-18394-9 – No. 51649 2001	Intermodal policy development is especially important where governments own transport infrastructure (such as ports and terminals) and transport business operations (such as rail freight operators). This project on institutional aspects aimed to compare and assess the impact of different organisational structures on transport planning and intermodal policy development. The key focus was the government sector. This report provides a "toolkit" for setting up intermodal arrangements or evaluating organisational structures on intermodal transport.
Short Sea Shipping in Europe	ECMT-European Conference of Ministers of Transport	2001	(75 2001 05 1 P) ISBN 92-821-1269-1 – No. 51567 2001	"Short sea shipping in Europe: Experience and prospects" – Report by Dr. Stratos Papadimitriou, responsible for urban transport in Athens and also the coordinator of concerted action in short sea shipping for the Commission of the European Union in 1996. And "Short sea shipping and Intermodal Transport" report by professor Dr. Manfred Zachcial, Institute of Transport ISL, Bremen. The two reports were presented to the national delegates of the ECMT Combined Transport Group to introduce economical and policy problems brought about by the development of short sea shipping. Work undertaken in 1997 was based on these reports and led to a report and recommendations adopted by the ECMT Council of Ministers in May 2000.
Short Sea Shipping in Europe	ECMT-European Conference of Ministers of Transport	2001	(75 2001 05 1 P) ISBN 92-821-1269-1 € 19	Development of European Short Sea Shipping.

Title	Author	Year	Publication information	Short description of contents
Terminology on Intermodal Transport	Prepared by the UN-ECE, ECMT and the European Commission	2001	United Nations, Geneva, 2001. French, English, German, Russian free, available on Internet	Terminology
ECMT Activities and Guidelines on Future Actions For the Development of Combined Transport in CEECs	ECMT-European Conference of Ministers of Transport	2000 - 12th May	Speech by Martine-Sophie Fouvez, Principal Administrator of ECMT	The ECMT Committee of Deputies has established a Combined Transport Group that works on specific programmes in this field. The Group includes the main issues in its programme of work
European Intermodal Yearbook 2000 Edition	Cargo Systems, IIR Publications Ltd.	2000	ISSN 1362-5438	Annually updated information on a large number of intermodal actors, operators, terminal operators, equipment suppliers, manufacturers etc.
Short sea shipping: an alternative to European inland transport, or a complementary mode?	ECMT-European Conference of Ministers of Transport	2000	CEMT/CM(2000)9	Certain of the main features of short sea shipping reviewed in the report prompt a number of conclusions, in some cases inescapable, as regards short sea shipping in its own right and as part of the transport chain, more particularly the combined transport chain.
Sustainable development - Recommendations on Short Sea Shipping	ECMT-European Conference of Ministers of Transport	2000	CEMT/CM(2000)3/FINAL	Recommendations on Short Sea Shipping.
EU Transport in figures statistical pocket-book 1999	European Commission Directorate General for Transport / Eurostat	1999	Office for Official Publications of the European Communities, ISBN 92-828-7220-3, 125 pages.	This pocket book provides transport statistics for the period 1970 – 1997. The statistics is based on Eurostat statistics and on data from other international organisations, studies and, where no data was available, estimates.
The Development of Short Sea Shipping in Europe – Second Two Yearly Progress Report	European Commission – Directorate General Transport	1999	COM (99) 317 final of the 29 th of June 1999	Progress report on the development of Short Sea Shipping.
Traffic in numbers 1998 - Verkehr in Zahlen 1998	German Ministry for Transport - Bundesministerium für Verkehr	1999	Deutscher Verkehrs-Verlag ISBN 3-87154-242-3	German transport statistics.

Title	Author	Year	Publication information	Short description of contents
What markets are there for Inland Waterways?	ECMT-European Conference of Ministers of Transport	1999	Report of Round Table 108, Paris, 13-14 November 1997, (75 1999 06 1 P) ISBN 92-821-1246-2 FF 300	Markets for Inland Waterway transports.
Common Transport Policy – Sustainable Mobility: Perspectives for the Future	European Commission – Directorate General Transport	1998	Dec-98	Common Transport Policy of the European Union.
Development of small-scale intermodal freight transportation in a systems context	Dr. Johan Woxenius, Chalmers University of Technology, Göteborg	1998	Report 34, Department of Transportation and Logistics, ISBN: 91-7197-630-2, 244 pages.	Dissertation on intermodal freight giving information on actors, techniques, transport chains, intermodal projects etc.
Glossary for transport statistics	Document prepared by the Intersecretariat Working Group EUROSTAT, ECMT, UN/ECE.	1998	2nd Edition, Paris, 1998 free, available on Internet	This glossary was jointly compiled by ECMT, EUROSTAT and UN/ECE and covers infrastructure, transport equipment, transport enterprises, traffic, transport measurement and energy consumption for inland transport. It provides standard definitions for statistical terms.
Market Analysis ScanWays+ Freight Freeways in the Nordic countries	Nordic Infrastructure Managers	1998	Published 08-09-1998	A study of identification of success criteria for sustainable freight rail operation.
The Ports Of Europe – European Sea Ports Organisations Handbook 1998/1999	ESPO	1998	01/08/1998, Compass Publications Limited, ISSN No. 1462-9075, 212 pages	Information on European ports, operators, organisations etc.
(Combined traffic – report on problems and development possibilities) Kombitrafik - Rapport om problem och utvecklingsmöjligheter	Swedish International Freight Association	1997		Report on the development of combined transports in Sweden and the future possibilities.
Intermodality and intermodal freight transport in the European Union	European Commission – Directorate General Transport	1997	May 1997 – COM (97) 243 final	Conclusions and recommendations on intermodal transport.

Title	Author	Year	Publication information	Short description of contents
Glossary for transport statistics – Intermodal transport	Eurostat, ECMT, UN/ECE	1997	Second edition - 5 pages	The Inter-secretariat Working Group on Transport Statistics of Eurostat, ECMT and UN/ECE prepared this document. The document explains the glossary used in statistics of intermodal transports.
Report on the application of directive 92/106/EEC and the development of combined transports between 1993 and 1995	European Commission – Directorate General Transport	1997	COM (97) 372 final	Progress report on combined transport.
Towards fair and efficient pricing in transport – policy options for internalising the external costs of transport in the European Union	European Commission – Directorate General Transport	1996	Green paper	Political possibilities to internalise the external costs of transport within the EU.
Yearbook of International Organizations	Union of International Associations	1995 / 1996	Printed by Sauer, München	Information on Governmental and Non-Governmental Organizations, their aims, activities etc.
Modelling European combined transport as an industrial system	Johan Woxenius, Chalmers University of Technology, Göteborg	1994	Report 24 Department of Transportation and Logistics, ISSN: 0283-3611, 148+ pages	This thesis is part of a research project on combined transport. Analysis and description of the European combined transport industry.
The common future development of transport policy – An extensive community strategy for sustainable mobility	European Commission – Directorate General Transport	1992		Common Transport Policy.

Internet addresses

The following list includes the main homepages used for information as well as for useful links to information on policies, activities and statistics etc.

Company / Association	www-address: http://www.	Information on:
Bohemiakombi	bohemiakombi.cz/DE	Activities of Bohemiakombi (German version)
CER – Community of European Railways	cer.be	CER activities.
CIA The World Factbook 2002	cia.gov/cia/publications/factbook	Economy overview etc.
CNC Transports	cnc-transports.com	Activities of CNC Transports.
ECMT – European Conference of Ministers of Transport	oecd.org/cm	ECMT activities, reports, statistics etc.
ECMT- European Conference of Ministers of Transport - Documents	http://www1.oecd.org/cem/online/index.htm	Information on relevant documents
ECMT- European Conference of Ministers of Transport - Statistics	http://www1.oecd.org/cem/stat/index.htm	Information on statistics for Europe, Trends in Transport etc.
EIA – European Intermodal Association	eia-ngo.com	EIA, its members, intermodal statistics, intermodal policies etc.
Energy and Transport in Figures - Eurostat	http://europa.eu.int/comm/energy_transport/etif/index.html	Information on general European statistics and specific transport statistics, mainly for the EU-countries, but also for EFTA and CEEC countries, including the Accession countries. The website is now continuously updated, but the information in the report is based on the available data in October and November 2002.
ERS – European Rail Shuttle	ersrail.com	Activities of ERS.
EU-Commission Directorate General Energy and Transport - Inland Waterway Observatory	http://europa.eu.int/comm/transport/iw/en/site_map_en.htm	Information on intermodal issues on EU-level

Company / Association	www-address: http://www.	Information on:
EU-Commission Directorate General Energy and Transport - Intermodal Transport and logistics department	http://europa.eu.int/comm/transport/themes/land/english/lt_28_en.html	Information on short sea shipping issues on EU-level
EU-Commission Directorate General Energy and Transport - Short Sea Shipping department	http://europa.eu.int/comm/transport/themes/maritime/english/ss/index_sss.html	Information on inland waterway issues on EU-level
Eurogate	eurogate.de	Activities of port terminal operator Eurogate.
European Commission – DG Transport and Energy	europa.eu.int/comm/dgs/energy_transport	Policies and activities within the European Union.
European ports (Different)	europort.com	Different European ports.
European Shortsea Network	shortsea.info/front/frameset.asp	Everything around European Short sea shipping.
Eurostat	europa.eu.int/eurostat	Statistics – trade – transport – GDP etc.
Hupac Intermodal	hupac.ch	Hupac activities.
ICF Intercontainer – Interfrigo s.c.	icfonline.com	ICF activities, subsidiaries etc.
InterFerryBoats	interferryboats.be	The activities of InterFerryBoats.
International Road Transport Union - IRU	iru.org	Road and intermodal info, statistics etc.
Kombiverkehr	kombiverkehr.de	Kombiverkehr activities.
Norfolkline	norfolkline.com	Activities of Norfolkline.
Novatrans	novatrans.fr	Activities of Novatrans.
OECD - Organisation for Economic Co-operation and Development	oecd.org/EN/home/0,,EN-home-0-nodirectorate-no-no-no-0,FF.html	Economy, trade, transport, statistics, publications etc.
Ökombi	oekombi.at	Activities of Ökombi and its subsidiaries.
Port of Hamburg	hafen-hamburg.de	Activities in the Port of Hamburg, as well as statistics of European ports.

Company / Association	www-address: http://www.	Information on:
Port of Rotterdam	portofrotterdam.com	The activities of the Port of Rotterdam, statistics etc.
Rail Cargo Austria (ÖBB)	railcargo.at	Rail cargo movements in Austria, intermodal and rail statistics.
RailCombi	railcombi.sj.se	Activities of RailCombi.
Studiengesellschaft für den kombinierten Verkehr e.V.	http://home3.ecore.net/sgkv/english/index.html	The research association for intermodal transport presents research information etc.
The Donau Transport Development Company	via-donau.org/deutsch/index.html	Transports on the Danube river
Transfesa	transfesa.es	Transfesa activities.
Transfracht International	railion.de/tfg/index.shtml	Transfracht activities.
UIC – International Union of Railways	uic.asso.fr	Railway statistics etc.
UIRR	uirr.com	UIRR activities, statistics etc.

TERMINOLOGY ON COMBINED TRANSPORT

Prepared by the Economic Commission for Europe (UN/ECE), the European Conference of Ministers of Transport (ECMT) and the European Commission (EC) New York and Geneva, 2001.

NOTE

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TERMINOLOGY ON COMBINED TRANSPORT

This document lists the principal terms used in combined transport or related to it. All the definitions referring specifically to the geographical framework of Europe may be applied to other regions of the world. They are intended for the work of the three intergovernmental organizations that have created this compilation: the European Union (EU), the European Conference of Ministers of Transport (ECMT) and the Economic Commission for Europe of the United Nations (UN/ECE).

The purpose of this glossary is to determine the meaning of the terms in current use, and to make them more easily understandable to the increasing number of people who use them, politicians, technical personnel or operators of the various modes of transport concerned. These definitions are not applicable in their strictest sense to the legal and statistical fields, where relevant reference documents already exist.

Thus, the translation of the most widely used terms in combined transport into the four working languages currently used in the three above-mentioned organizations is intended to harmonize gradually this terminology. In due course this should lead to the adoption of regulatory and statistical glossaries, at both national and intergovernmental levels.

I. GENERAL TERMS

1.0 MULTIMODAL TRANSPORT:

Carriage of goods by two or more modes of transport.

1.1 INTERMODAL TRANSPORT:

The movement of goods in one and the same loading unit or road vehicle, which uses successively two or more modes of transport without handling the goods themselves in changing modes.

*By extension, the term **intermodality** has been used to describe a system of transport whereby two or more modes of transport are used to transport the same loading unit or truck in an integrated manner, without loading or unloading, in a [door to door] transport chain (European Commission Communication COM (97) 243 Final used the term intermodality to describe a system of transport where at least two different modes of transport are used in an integrated way to complete a door to door transport chain).*

1.2 COMBINED TRANSPORT:

Intermodal transport where the major part of the European journey is by rail, inland waterways or sea and any initial and/or final legs carried out by road are as short as possible.

1.3 ROAD-RAIL TRANSPORT:

Combined transport by rail and road.

*In English, the term **piggyback** does not refer to combined transport in general but specifically to the transport by rail of road semi-trailers.*

1.4 ROLLING ROAD:

Transport of complete road vehicles, using roll-on roll-off techniques, on trains comprising low-floor wagons throughout.

1.5 ACCOMPANIED COMBINED TRANSPORT:

Transport of a complete road vehicle, accompanied by the driver, using another mode of transport (for example ferry or train).

1.6 UNACCOMPANIED COMBINED TRANSPORT:

Transport of a road vehicle or an intermodal transport unit (ITU, see 4.1), not accompanied by the driver, using another mode of transport (for example a ferry or a train).

1.7 ROLL-ON-ROLL-OFF (RO-RO):

Loading and unloading of a road vehicle, a wagon or an ITU on or off a ship on its own wheels or wheels attached to it for that purpose. In the case of rolling road, only road vehicles are driven on and off a train.

1.8 LIFT-ON-LIFT-OFF (LO-LO):

Loading and unloading of intermodal transport units (ITU, see 4.1) using lifting equipment.

1.9 FEEDER SERVICE:

Short sea shipping service that connects at least two ports in order for the freight (generally containers) to be consolidated or redistributed to or from a deep-sea service in one of these ports.

By extension, this concept may be used for inland transport services.

1.10 LOGISTICS:

The process of designing and managing the supply chain in the wider sense. *The chain can extend from the delivery of supplies for manufacturing, through the management of materials at the plant, delivery to warehouses and distribution centres, sorting, handling, packaging and final distribution to point of consumption.*

1.11 SHORT SEA SHIPPING:

Movement of cargo by sea between ports situated in Europe as well as between ports in Europe and ports situated in non-European countries having a coastline on the enclosed seas bordering Europe.

1.12 CONSIGNMENT:

Freight sent under a single contract of carriage.

In combined transport, this term may be used for statistical purposes, to measure loading units or road vehicles.

*The grouping together of several consignments into a full load is called **consolidation** or **groupage**.*

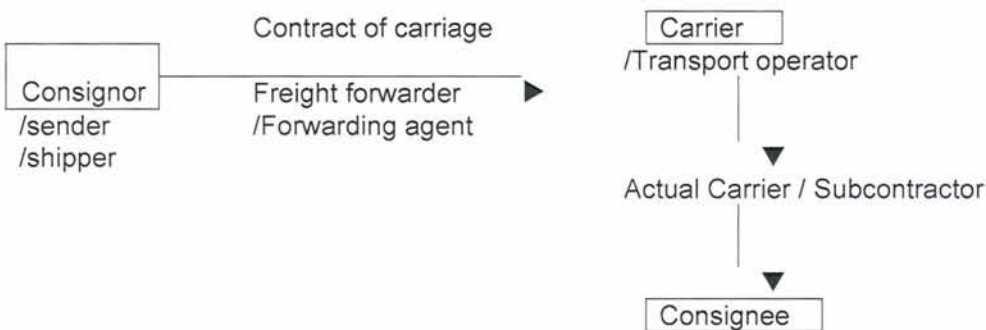
1.13 TRANSSHIPMENT:

Moving ITUs from one means of transport to another.

1.14 LIMIT OF LIABILITY:

The maximum sum of money payable by a carrier to a shipper for any damage or loss to the cargo for which the carrier is liable under the contract of carriage. The amount of the limitation is determined by agreement or by law.

II. COMBINED TRANSPORT ACTORS



xxxxx = These are the only terms employed in an international contract of transport, i.e. any other member of the transport chain is referred to, in the contract, as one of these.

-----▶ = Contract of Carriage.

In the following definitions, a person means either a physical or legal person or a company.

2.0 SHIPPER/CONSIGNOR/SENDER:

A person or company who puts goods in the care of others (forwarding agent/freight forwarder, carrier/transport operator) to be delivered to a consignee.

2.1 FORWARDING AGENT/FREIGHT FORWARDER:

Intermediary who arranges for the carriage of goods and/or associated services on behalf of a shipper.

2.2 CONSIGNEE:

Person entitled to take delivery of the goods.

2.3 TRANSPORT OPERATOR/ CARRIER:

The person responsible for the carriage of goods, either directly or using a third party.

2.4 ACTUAL CARRIER/SUBCONTRACTOR:

A third party who performs the carriage completely or partly.

2.5 PRINCIPAL:

A person for whom another acts as an agent.

2.6 MULTIMODAL TRANSPORT OPERATOR (MTO):

Any person who concludes a multimodal transport contract and assumes the whole responsibility for the performance thereof as a carrier or a transport operator.

III. TRANSPORT UNITS**3.0 ARTICULATED VEHICLE:**

A motor vehicle coupled to a semi-trailer.

3.1 ROAD TRAIN:

A motor vehicle coupled to a trailer (sometimes referred to in English as drawbar trailer combination).

3.2 TRAILER:

A non-powered vehicle for the carriage of goods, intended to be coupled to a motor vehicle, excluding semi-trailers.

3.3 SEMI-TRAILER:

A non-powered vehicle for the carriage of goods, intended to be coupled to a motor vehicle in such a way that a substantial part of its weight and of its load is borne by the motor vehicle. Semi-trailers may have to be specially adapted for use in combined transport.

3.4 POCKET WAGON:

A rail wagon with a recessed pocket to accept the axle/wheel assembly of a semi trailer.

3.5 "BASKET" WAGON:

A rail wagon with a demountable sub frame, fitted with devices for vertical handling, to allow the loading and unloading of semi-trailers or road vehicles.

3.6 “SPINE” WAGON:

A rail wagon with a central chassis designed to carry a semi-trailer.

3.7 LOW FLOOR WAGON:

A rail wagon with a low loading platform built to carry, inter alias, ITUs (see 4.1).

3.8 ROLLING-ROAD WAGON:

A rail wagon with low floor throughout which, when coupled together, form a rolling road (cf. 1.4 and 1.7).

3.9 DOUBLE STACK WAGON:

A rail wagon designed for the transport of containers stacked on top of each other.

3.10 BIMODAL SEMI-TRAILER (RAIL-ROAD):

A road semi-trailer that can be converted into a rail wagon by the addition of rail bogies.

3.11 PANAMAX:

Ship with dimensions that allow it to pass through the Panama canal: maximum length 295 m, maximum beam overall 32.25 m, maximum draught 13.50 m.

3.12 OVERPANAMAX/POST PANAMAX:

Ship with at least one dimension greater than Panamax.

IV. LOADING UNITS**4.1 INTERMODAL TRANSPORT UNIT (ITU):**

Containers, swap bodies and semi-trailers suitable for intermodal transport.

4.2 CONTAINER:

Generic term for a box to carry freight, strong enough for repeated use, usually stackable and fitted with devices for transfer between modes.

4.3 LAND CONTAINER:

Container complying with International Railway Union (UIC) specifications, for use in rail-road combined transport.

4.4 MARITIME CONTAINER:

A container strong enough to be stacked in a cellular ship and to be top lifted.

Most maritime containers are ISO containers, i.e. they confirm to all relevant International Organization for Standardization (ISO) standards.

4.5 AIR CONTAINER:

Container conforming to standards laid down for air transportation.

4.6 HIGH CUBE CONTAINER:

Container of standard ISO length and width but with a height of 9'6" (2.9 m).

These high containers have now been included in a revised ISO standard.

4.7 SUPER HIGH CUBE CONTAINER:

Container exceeding ISO dimensions. These dimensions vary and may include, for example, lengths of 45' (13.72 m), 48' (14.64 m), or 53' (16.10 m).

4.8 TEU:

Twenty-foot Equivalent Unit. A standard unit based on an ISO container of 20 feet length (6.10 m), used as a statistical measure of traffic flows or capacities.

One standard 40' ISO Series 1 container equals 2 TEUs.

4.9 SWAP BODY:

A freight-carrying unit optimised to road vehicle dimensions and fitted with handling devices for transfer between modes, usually road/rail.

Originally, such units were not capable of being stacked when full or top-lifted. But many units can now be stacked and top-lifted and the main feature distinguishing them from containers is that they are optimised to vehicle dimensions. Such units would need a UIC approval to be used on rail. Some swap bodies are equipped with folding legs on which the unit stands when not on the vehicle.

4.10 STACKING:

Storage or carriage of ITUs on top of each other.

4.11 STUFFING/STRIPPING:

Loading and unloading of cargo into or from an ITU.

4.12 CORNER FITTING:

Fixed points usually located at the top and bottom corners of a container into which twist locks or other devices engage to enable the container to be lifted, stacked, secured.

These fittings are increasingly used on swap bodies, although not on the corners but at points which are compatible with 20 or 40 feet container corner fittings.

4.13 TWISTLOCK:

Standard mechanism on handling equipment which engages and locks into the corner fittings of ITU; also used on ships and vehicles to fix ITUs.

4.14 TARE:

Weight of ITU or vehicle without cargo.

V. THE UNIT LOAD**5.0 UNIT LOAD:**

Palletised load or pre-packed unit with a footprint conforming to pallet dimensions and suitable for loading into an ITU.

5.1 PALLET:

A raised platform normally made of wood, facilitating the handling of goods. Pallets are of standard dimensions. The most used in Europe are 1000 mm x 1200 mm (ISO) and 800 mm x 1200 mm (CEN).

5.2 "BIG BAG":

A removable internal liner, strong enough to be lifted and to carry bulk cargoes of different types.

VI. INFRASTRUCTURE AND EQUIPMENT

6.0 TERMINAL:

A place equipped for the transshipment and storage of ITUs.

6.1 LOGISTIC CENTRE:

Geographical grouping of independent companies and bodies that are dealing with freight transport (for example, freight forwarders, shippers, transport operators, customs) and with accompanying services (for example, storage, maintenance and repair), including at least a terminal.

In English, also called “Freight village”. In Italian, also called “Interporto”.

6.2 HUB:

Central point for the collection, sorting, transshipment and distribution of goods for a particular area.

This concept comes from a term used in air transport for passengers as well as freight. It describes collection and distribution through a single point (“Hub and Spoke” concept).

6.3 FREEPORT:

Zone where goods can be manufactured and/or stored without payment of their relevant duties and taxes.

6.4 DRY PORT:

Inland terminal that is directly linked to a maritime port.

6.5 RAIL LOADING GAUGE:

The profile through which a rail vehicle and its loads (wagons - ITUs) must pass, taking into account tunnels and trackside obstacles.

There are 4 basic gauges recognised by UIC: international gauge, A, B and C gauge. These gauges are indicated for individual lines.

In principle, the smallest loading gauge may not be exceeded throughout the transport journey. Restrictions regarding the width and height of the load in curves have to be taken into account.

Combined transport consignments often exceed loading gauges A and B. Another gauge of particular significance for combined transport is the B+ Gauge. There are also many other gauge codes (P/C/S/...) recognised.

6.6 TRACK GAUGE:

The distance between the internal sides of rails on a railway line. It is generally 1.435 m.

Other gauges are generally used in some European countries: for instance, 1.676 m in Spain and Portugal, 1.524 m in the Russian Federation.

6.7 LOADING TRACK:

Track on which ITUs are transhipped.

6.8 PRIVATE SIDING:

Direct rail connection to a company.

6.9 CRANE:

Conventional lifting crane where the load is suspended by cable via a jib.

The handling of ITUs requires the cable to be connected to the ITUs' corners.

6.10 GANTRY CRANE:

An overhead crane comprising a horizontal gantry mounted on legs, which are either fixed, run in fixed tracks or on rubber tyres with relatively limited manoeuvre. The load can be moved horizontally, vertically and sideways.

Such cranes normally straddle a road/rail and/or ship/shore interchange.

6.11 STRADDLE CARRIER:

A rubber-tyred overhead lifting vehicle for moving or stacking containers on a level reinforced surface.

6.12 REACH STACKER:

Tractor vehicle with front equipment for lifting, stacking or moving ITUs.

6.13 FORK LIFT TRUCK:

Vehicle equipped with power-driven horizontal forks, which allow it to lift, move or stack pallets, containers or swap bodies. The latter two are usually empty.

These operations can only be performed on the front row of stack.

6.14 RO-RO RAMP:

A flat or inclined ramp, usually adjustable, which enables road vehicles to be driven onto or off a ship or a rail wagon.

6.15 SPREADER:

Adjustable fitting on lifting equipment designed to connect with the upper corner fittings of an ITU. Many spreaders have in addition grappler arms that engage the bottom side rails of an ITU.

Glossary for intermodal transport statistics – ECMT/UN/Eurostat

This document is prepared by the Inter-secretariat Working Group on Transport Statistics - EUROSTAT, ECMT, UN/ECE, Second edition, 1997.

1. Introduction

Intermodal transport

Movement of goods, (in one and the same loading unit or a vehicle), by successive modes of transport without handling of the goods themselves when changing modes.

Vehicle can be a road or rail vehicle or a vessel. The return movement of empty containers/swap bodies and empty goods road vehicles/trailers are not themselves part of intermodal transport since no goods are being moved. Such movements are associated with intermodal transport and it is desirable that data on empty movements be collected together with data on intermodal transport.

Multimodal Transport

**European Conference of Ministers of Transport (ECMT) defines multimodal transport as the "carriage of goods by at least two different modes of transport". Intermodal transport is therefore a particular type of multimodal transport.*

**United Nations Convention on International Multimodal Transport of Goods defines international multimodal transport as "the carriage of goods by at least two different modes of transport on the basis of a multimodal transport contract from a place in one country at which the goods are taken in charge by the multimodal transport operator to a place designated for delivery in a different country;"*

Combined Transport

**UN/ECE used the term combined transport as being identical to the definition for intermodal transport described above, but recently has taken account of the ECMT- definition for combined transport given below.*

**According to the rules of application of the ECE/FAL Recommendation No.19 "Code for Modes of Transport" the definition is: "Combined transport: Combination of means of transport where one (passive) transport means is carried by another (active) means which provides traction and consumes energy";*

**For transport policy purposes the ECMT restricts the term combined transport to cover: "Intermodal transport where the major part of the European journey is by rail, inland waterways or sea and any initial and/or final leg carried out by road are as short as possible".*

(Active mode)/(Passive mode) transport

Transport of goods using two modes of transport in combination, where one (passive) transport means is carried on another (active) transport means, which provides traction and consumes energy (rail/road transport, sea/road transport, sea/rail transport...).

Piggyback transport is the synonym for rail/road transport.

Active mode/Road accompanied transport

Transport of a complete goods road motor vehicle, accompanied by the driver, by another mode of transport (for example by sea or rail).

Active mode/Road unaccompanied transport

Transport of goods road motor vehicles or trailers, not accompanied by the driver, by another mode of transport (for example by sea or rail).

Transport of containers or swap bodies (by active mode)

Carriage of containers or swap bodies by an active mode of transport.

2. Equipment**Loading unit**

Container, swap body.

"Flats", which are used in maritime transport, should be considered to be a special type of container and are therefore included here.

Intermodal transport unit (ITU)

Container, swap body or semi-trailer/goods road motor vehicle suitable for intermodal transport.

Container

Special box to carry freight, strengthened and stackable and allowing horizontal or vertical transfers. The technical definition of the container is: "Article of transport equipment which is:

- a) of a permanent character and accordingly strong enough to be suitable for repeated use;
- b) specially designed to facilitate the carriage of goods, by one or more mode of transport, without intermediate reloading;
- c) fitted with devices permitting its ready handling, particularly its transfer from one mode of transport to another;
- d) so designed as to be easy to fill and empty;
- e) stackable; and,
- f) having an internal volume of 1 m³ or more."

Swap bodies are excluded. Although without internal volume, and therefore not satisfying criterion (f) above, flats used in maritime transport should be considered to be a special type of container and therefore are included here.

Sizes of containers

The main sizes of containers are:

- a) 20 Foot ISO container (length of 20 feet and width of 8 feet);
- b) 40 Foot ISO container (length of 40 feet and width of 8 feet);
- c) Super high cube container (Oversize container); and
- d) Air container (Container conforming to standards laid down for air transportation).

Containers sizes classified under a) to c) are referred to as large containers.

Types of containers

The main types of containers, as defined by ISO Standards Handbook on Freight Containers are:

1. General purpose containers;
2. Specific purpose containers.
 - closed ventilated container;
 - open top container;
 - platform based container open sided;
 - platform based container open sided with complete superstructure;
 - platform based container open sided with incomplete superstructure and fixed ends;
 - platform based container open sided with incomplete superstructure and folding ends;
 - platform (container);
3. Specific cargo containers;
 - thermal container;
 - insulated container;
 - refrigerated container - (expendable refrigerant);
 - mechanically refrigerated container;
 - heated container;
 - refrigerated and heated container;
 - tank container;
 - dry bulk container;
 - named cargo container (such as automobile, livestock and others); and,
 - air mode container.

TEU (Twenty-foot Equivalent Unit)

Standard unit for counting containers of various capacities and for describing the capacities of container ships or terminals. One 20 Foot ISO container equals 1 TEU.

One 40 Foot ISO container equals two TEU.

Swap body

Carrying unit strong enough for repeated use, but not enough to be top-lifted or stackable when loaded, designed for intermodal transport of which one leg is road.

Flat

A loadable platform having no superstructure whatever but having the same length and width as the base of a container and equipped with top and bottom corner fittings.

This is an alternative term used for certain types of specific purpose containers - namely platform containers and platform-based containers with incomplete structures.

Pallet

Raised platform, intended to facilitate the lifting and stacking of goods.

Pallets are usually made of wood, and of standard dimensions: 1000mm X 1200mm (ISO) and 800mm X 1200mm (CEN).

Wagon for intermodal transport

Wagon specially built or equipped for the transport of intermodal transport units (ITUs) or other goods road vehicles.

Ro-Ro unit

Wheeled equipment for carrying goods, such as a lorry, trailer or semi-trailer, which can be driven or towed onto a vessel or train.

Port or vessels' trailers are included in this definition.

International road-rail combined transports 2001 – UIRR/ICF

As there is no information available on the intermodal volumes split-up per country-country relation, in the following a method to find out the main volumes has been elaborated.

The basis for the calculations is made in the country-country relation volumes available from the UIRR – International Union of Combined Road - Rail Transport Companies for international transports in 2001, which concerns the UIRR-members international volumes.

Other intermodal players, as Intercontainer-Interfrigo (ICF) s.c. and many others have not been willing to hand over information on the transport volumes on country-country level, wherefore it has been difficult to create a correct picture.

In order to get a more thorough picture the following method has been used:

A new report (2002) on intermodal transports from OECD – “Benchmarking Intermodal Freight Transport” however included information on the country-country relation volumes for ICF in 1999 as well. These detailed volumes have been used as base for the further estimations and compared with the known volumes for ICF in 2001, whereby the same split-up on each country-country relation has been used for 2001 as the known in 1999.

In the following a table with the transported number of units based on TEU (twenty-foot equivalent units) with the country of origin listed vertically on the left side and the country of destination listed horizontally on the top can be found.

The second table is made in order to conclude on the total intermodal road-rail volumes for UIRR and ICF on each specific country.

TEU		Country of destination																SUB-TOTAL
2001		AT	BA	BE	BG	BH	CH	CZ	DE	DK	ES	FI	FR	GR	HR	HU	IT	
C o u n t r y o f o r i g i n	AT		0	1,283	18	0	1,343	2,042	247,340	0	35	8	2,853	155	78	125,262	18,131	398,549
	BA	0		16	0	0	0	0	2	0	2	0	0	0	0	0	0	19
	BE	2,038	0	2	24	0	25,262	160	1,635	1,321	15,729	0	20,141	92	217	325	211,330	278,278
	BG	51	2	11		0	5	5	335	0	0	0	0	50	0	27	5	492
	BH	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0
	CH	1,298	0	25,631	6	0	67	64	65,571	1,946	461	418	4,974	23	0	124	44,550	145,131
	CZ	1,841	0	208	0	0	19		97,523	2	170	0	38	54	18	440	1,672	101,984
	DE	250,897	25	2,017	151	0	86,257	101,521	1,580	12,861	52,893	65	3,743	242	215	33,886	421,092	967,447
	DK	5	0	710	0	0	5,222	0	16,058	12,858	64	0	276	0	0	0	44,030	79,223
	ES	7	0	11,991	0	0	567	152	46,575	426	11	0	2,515	0	0	0	1,852	64,096
	FI	13	0	0	0	0	526	0	134	1	2		79	0	0	0	7	762
	FR	2,626	0	16,374	0	0	3,836	40	3,403	579	1,396	78	3,516	0	2	116	60,729	92,693
	GR	68	0	93	2	0	109	22	422	0	0	0	0		0	54	0	770
	HR	52	0	31	0	0	0	32	0	0	0	0	0	0		330	784	1,229
	HU	129,108	0	106	230	0	23	655	28,696	25	0	0	109	120	11,919	83	1,394	172,470
	IT	12,945	10	199,756	78	0	34,683	709	438,881	48,362	1,934	35	74,281	2	273	1,646	4	813,599
	LU	0	0	1,976	0	0	0	0	0	0	637	0	11	0	0	0	1,165	3,789
	MK	27	0	4	0	0	0	0	616	0	0	0	0	61	0	7	0	715
	NL	10,638	2	16	55	0	21,201	1	2,581	513	1,203	0	818	57	78	1,624	64,511	103,297
	NO	12	0	0	0	0	950	12	3,012	33	0	228	11	0	0	0	581	4,839
PL	238	0	93	0	0	20	10,094	22,337	1	509	0	25	1	0	18	1,857	35,193	
PT	0	0	16	0	0	3	0	134	0	3,595	0	12	0	0	0	99	3,859	
RO	837	0	286	4	0	12	2	1,333	35	1	0	143	9	0	502	223	3,386	
RU	0	0	39	0	0	0	0	129	0	0	0	0	0	0	0	2	169	
SE	6	0	17,487	0	0	6,595	2	15,149	327	207	41	242	0	0	0	14,190	54,246	
SI	31,633	16	867	26	5	32	1,471	2,290	16	0	0	9	0	1,980	15,066	1,664	55,076	
SK	512	0	0	0	0	8	17	191	47	0	0	9	24	14	123	70	1,015	
TR	2,365	2	37	2	0	18	0	1,815	0	5	0	12	7	0	954	1	5,216	
UA	0	0	2	0	0	0	0	3	0	0	0	1	0	0	0	2	9	
UK	0	0	0	0	0	353	0	53	0	85	0	4,375	0	0	53	35,668	40,588	
YU	3	0	5	0	0	0	0	58	0	0	0	0	2	0	46	0	113	
	Total	447,222	55	279,056	596	5	187,110	116,999	997,857	79,352	78,938	873	118,194	901	14,795	180,687	925,610	3,428,250

TEU		Country of destination															TOTAL	
2001	SUB-TOTAL	LU	MK	NL	NO	PL	PT	RO	RU	SE	SI	SK	TR	UA	UK	YU		
C o u n t r y o f o r i g i n	AT	398,549	0	112	9,343	12	302	0	659	12	6	29,122	308	2,434	2	0	2	440,862
	BA	19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	19
	BE	278,278	2,070	9	81	0	745	63	310	109	17,601	852	1	83	2	0	4	300,206
	BG	492	0	2	12	0	0	1	0	0	0	0	0	0	0	0	0	506
	BH	0	0	0	0	0	0	0	0	0	0	7	0	0	0	0	0	7
	CH	145,131	0	0	26,488	794	29	0	12	15	3,582	3	0	2	2	313	0	176,371
	CZ	101,984	0	0	9	12	9,889	0	2	0	2	1,488	48	0	0	0	0	113,435
	DE	967,447	0	0	2,638	3,284	6,037	163	2	0	9,372	1,888	0	0	0	28	0	990,858
	DK	79,223	4	208	698	744	20,569	95	910	673	7,901	54	123	1,691	8	47	40	112,986
	ES	64,096	127	3	43	0	19	0	0	6	0	0	8	0	0	67	0	64,369
	FI	762	9	0	0	212	0	0	0	0	48	0	79	0	0	0	0	1,110
	FR	92,693	0	0	461	16	209	10	0	71	85	0	0	98	5	5,642	0	99,288
	GR	770	0	0	1,083	82	500	4,675	1	15	262	0	0	0	0	99	0	7,488
	HR	1,229	0	0	10	0	0	0	0	12	0	4,188	0	0	0	0	0	5,439
	HU	172,470	0	443	2,393	0	66	0	375	0	0	6,498	384	25	0	0	38	182,692
	IT	813,599	792	2	105,697	677	4,173	11	202	583	6,168	3,328	12	2	5	32,603	0	967,856
	LU	3,789		0	1,374	0	0	92	0	0	21	0	0	0	0	503	0	5,779
	MK	715	0	3	43	0	0	0	0	2	0	0	0	0	0	0	0	763
	NL	103,297	1,408	94		2	6,335	3	566	103	16	361	1	238	7	0	16	112,446
	NO	4,839	0	0	0		65	0	0	0	1,698	0	30	0	0	0	0	6,631
PL	35,193	0	24	338	71		0	2	0	37	48	25	3	0	2	0	35,743	
PT	3,859	27	0	5	0	0		0	0	0	0	0	0	0	0	0	3,891	
RO	3,386	10	0	439	0	1	0	2	0	0	0	2	11	0	0	0	3,850	
RU	169	0	1	18	0	1	0	0		0	0	0	0	0	0	0	189	
SE	54,246	2	0	44	2,120	48	6	2	9		0	9	0	0	0	0	56,486	
SI	55,076	0	25	109	3	83	0	48	0	0		37	0	0	0	212	55,594	
SK	1,015	0	0	5	31	0	0	0	0	2	53		0	0	0	0	1,105	
TR	5,216	0	0	80	0	2	0	3	0	0	0	33		0	0	0	5,335	
UA	9	0	0	3	0	0	0	0	0	0	0	0		0	0	0	12	
UK	40,588	224	0	1	0	0	0	0	0	0	0	0	0	0		0	40,812	
YU	113	0	3	2	0	0	0	0	0	0	131	0	0	0	0	0	249	
Total	3,428,250	4,671	929	151,416	8,059	49,073	5,119	3,096	1,608	46,802	48,021	1,100	4,586	30	39,303	311	3,792,375	

TEU 2001	Country of destination																SUB-TOTAL	
	AT	BA	BE	BG	BH	CH	CZ	DE	DK	ES	FI	FR	GR	HR	HU	IT		
C o u n t r y o f o r i g i n	AT	0	3,321	69	0	2,640	3,883	498,237	5	42	21	5,480	224	130	254,369	31,076	799,498	
	BA		16	2	0	0	0	26	0	2	0	0	0	0	0	10	55	
	BE		2	35	0	50,893	369	3,652	2,031	27,720	0	36,515	185	249	431	411,086	533,166	
	BG				0	12	5	487	0	0	0	0	53	0	257	82	895	
	BH					0	0	0	0	0	0	0	0	0	0	0	0	
	CH						67	83	151,828	7,168	1,027	944	8,810	131	0	148	79,233	249,438
	CZ								199,044	2	322	0	78	76	50	1,095	2,381	203,046
	DE								1,580	28,919	99,469	199	7,146	664	215	62,583	859,973	1,060,749
	DK									12,858	490	1	854	0	0	25	92,393	106,621
	ES										11	2	3,910	0	0	0	3,787	7,710
	FI												157	0	0	0	42	199
	FR												3,516	0	2	225	135,010	138,753
	GR													0	175	2	176	
	HR														12,249	1,056	13,305	
	HU														83	3,040	3,123	
	IT															4	4	
	LU																	0
	MK																	0
	NL																	0
	NO																	0
PL																	0	
PT																	0	
RO																	0	
RU																	0	
SE																	0	
SI																	0	
SK																	0	
TR																	0	
UA																	0	
UK																	0	
YU																	0	
Total	0	0	3,338	106	0	53,611	4,339	854,854	50,983	129,083	1,166	66,466	1,333	646	331,640	1,619,174	3,116,739	

TEU		Country of destination															Total	
2001	SUB-TOTAL	LU	MK	NL	NO	PL	PT	RO	RU	SE	SI	SK	TR	UA	UK	YU		
C o u n t r y o f o r i g i n	AT	799,498	0	139	19,981	25	540	0	1,496	12	12	60,755	819	4,799	2	0	5	888,084
	BA	55	0	0	2	0	0	0	0	0	0	16	0	2	0	0	0	74
	BE	533,166	4,046	13	97	0	838	79	596	148	35,088	1,719	1	120	4	0	9	575,924
	BG	895	0	2	67	0	0	1	4	0	0	26	0	2	0	0	0	996
	BH	0	0	0	0	0	0	0	0	0	0	12	0	0	0	0	0	12
	CH	249,438	0	0	47,689	1,743	49	3	24	15	10,177	35	8	20	2	666	0	309,869
	CZ	203,046	0	0	10	23	19,983	0	4	0	4	2,960	65	0	0	0	0	226,095
	DE	1,060,749	0	616	5,219	6,296	28,374	297	1,335	129	24,521	4,178	191	1,815	3	81	58	1,133,861
	DK	106,621	4	208	1,211	776	20,569	95	945	673	8,228	70	170	1,691	8	47	40	141,355
	ES	7,710	763	3	1,246	0	529	3,595	1	6	207	0	8	5	0	152	0	14,224
	FI	199	9	0	0	440	0	0	0	0	89	0	79	0	0	0	0	816
	FR	138,753	11	0	1,278	26	234	23	143	71	327	9	9	109	5	10,017	0	151,016
	GR	176	0	61	1,140	82	501	4,675	10	15	262	0	24	7	0	99	2	7,055
	HR	13,305	0	0	88	0	0	0	0	12	0	6,168	14	0	0	0	0	19,587
	HU	3,123	0	450	4,018	0	85	0	877	0	0	21,564	508	978	0	53	84	31,739
	IT	4	1,957	2	170,208	1,258	6,030	109	425	585	20,358	4,992	82	2	8	68,271	0	274,292
	LU	0	0	0	2,782	0	0	119	10	0	23	0	0	0	0	727	0	3,660
	MK	0	0	3	137	0	24	0	0	2	0	25	0	0	0	0	3	195
	NL	0	0	0	0	2	6,672	9	1,005	120	61	471	5	318	10	1	17	8,691
	NO	0	0	0	0	0	137	0	0	0	3,817	3	61	0	0	0	0	4,018
PL	0	0	0	0	0	0	0	2	1	85	132	25	5	0	2	0	252	
PT	0	0	0	0	0	0	0	0	0	6	0	0	0	0	0	0	6	
RO	0	0	0	0	0	0	0	2	0	2	48	2	14	0	0	0	68	
RU	0	0	0	0	0	0	0	0	0	9	0	0	0	0	0	0	9	
SE	0	0	0	0	0	0	0	0	0	0	0	11	0	0	0	0	11	
SI	0	0	0	0	0	0	0	0	0	0	0	90	0	0	0	343	433	
SK	0	0	0	0	0	0	0	0	0	0	0	0	33	0	0	0	33	
TR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
UA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
UK	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
YU	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Total	3,116,739	6,790	1,497	255,172	10,672	84,564	9,004	6,878	1,788	103,277	103,182	2,172	9,922	42	80,115	560	3,792,375	

European international road-rail transports on country-country level 1996

For comparisons, please find the total European international road-rail transports split-up per country-country relations according actual figures in 1996, from a study made by ECTM – the European Council of Ministers of Transport within OECD. These tables were included in the previous report. Comparisons to the UIRR/ICF figures are also made in the following.

International Road-Rail Combined Transport 1996																	
EU-15 + NO + CH																	
To / From	AT	BE	CH	DE	DK	ES	FI	FR	GR	IT	LU	NL	NO	PT	SE	UK	TOTAL
AT		27,000	6,000	467,000	2,000	100	1,000	8,000	300	34,000	40,000	200	0	300	1,000		586,900
BE			60,000	37,000	1,000	19,000	0	52,000	1,000	306,000	200	58,000	100	0	49,000	0	583,300
CH				136,000	6,000	1,000	1,000	12,000	100	81,000	100	24,000	500	0	7,000	1,000	269,700
DE					68,000	137,000	3,000	3,000	2,000	657,000	0	9,000	6,000	200	39,000	1,000	925,200
DK						100	0	2,000	0	69,000	1,000	0	0	0	2,000		74,100
ES							0	8,000	16,000	0	5,000	0	37,300	1,000	45,400		112,700
FI								1,000	1,000	0	100	0	0	0	200		2,300
FR									0	127,000	0	22,000	100	100	1,000	26,000	176,200
GR										0	200	0	0	0	0	0	200
IT											3,000	127,000	4,000	200	48,000		182,200
LU												0	0	0	0	0	0
NL													0	0	100		100
NO															10,000		10,000
PT															0		0
SE																	0
UK										0	77,000	1,000	0				78,000
TOTAL	0	27,000	66,000	640,000	77,000	157,200	5,000	86,000	3,400	1,368,000	4,300	286,200	11,000	37,800	157,600	74,400	3,000,900

Source: ECMT report and estimates

Comparison with present elaborated figures for 2001:

TEU 2001	AT	BE	CH	DE	DK	ES	FI	FR	GR	IT	LU	NL	NO	PT	SE	UK	Total	Diff to 1996	
AT		3,321	2,640	498,237	5	42	21	5,480	224	31,076	0	19,981	25	0	12	0	561,065	-4.4%	
BE			2	50,893	3,652	2,031	27,720	0	36,515	185	411,086	4,046	97	0	79	35,088	0	571,393	-2.0%
CH				67	151,828	7,168	1,027	944	8,810	131	79,233	0	47,689	1,743	3	10,177	666	309,486	14.8%
DE					1,580	28,919	99,469	199	7,146	664	859,973	0	5,219	6,296	297	24,521	81	1,034,365	11.8%
DK						490	1	854	0	92,393	4	1,211	776	95	8,228	47	116,956	57.8%	
ES							11	2	3,910	0	3,787	763	1,246	0	3,595	207	152	13,673	-87.9%
FI								157	0	42	9	0	440	0	89	0	737	-68.0%	
FR									3,516	0	135,010	11	1,278	26	23	327	10,017	150,208	-14.8%
GR										2	0	1,140	82	4,675	262	99	6,261	3030.4%	
IT											4	1,957	170,208	1,258	109	20,358	68,271	282,165	43.9%
LU												2,782	0	119	23	727	3,650	#DIV/0!	
NL													2	9	61	1	71	-28.6%	
NO														0	3,817	0	3,817	-81.8%	
PT															6	0	6	#DIV/0!	
SE																0	0	#DIV/0!	
UK																	0	-100.0%	
Total	0	3,323	53,600	655,297	50,982	128,759	1,166	66,388	1,204	1,612,605	6,790	250,850	10,649	9,003	103,177	80,061	3,033,853	1.1%	

Source: UIRR, ECMT report and estimates

Although the split-up on the different country-country relations does not seem to be on the same level, the total figures show that the UIRR/ICF statistics account for a very large part of the international road-rail combined volumes.

International Road-Rail Combined Transport 1996															
To/from	AT	BE	BG	CH	CZ	DE	DK	ES	FI	FR	UK	GR	HR	HU	Sub-Total 1
AT		27,000	400	6,000	26,000 incl. SK	467,000	2,000	100	1,000	8,000	1,000	300	9,000 incl. SI	198,000	745,800
BE			200	60,000	1,000	37,000	1,000	19,000	0	52,000	0	1,000	2,000 0,2 incl. SL?	200	173,400
BG				0	0	1,000				100		200		1,000	2,300
CH					400	136,000	6,000	1,000	1,000	12,000	1,000	100		1,000	158,500
CZ						41,000		100	1,000	1,000	0	200	100	3,000 incl. SK	46,400
DE							68,000	137,000	3,000	3,000	1,000	2,000		54,000	268,000
DK								100	0	2,000		0		0	2,100
ES									0	8,000	45,400				53,400
FI										1,000				0	1,000
FR											26,000	0	0	400	26,400
UK												0			0
GR														1,000	1,000
HR														20,000 incl. SI	20,000
TOTAL	0	27,000	600	66,000	27,400	682,000	77,000	157,300	6,000	87,100	74,400	3,800	11,100	278,600	1,498,300

International Road-Rail Combined Transport 1996																
To/from	IT	LU	NL	NO	PL	PT	RO	RUS	SE	SI	SK	TR	UA	YU	Sub-Total2	TOTAL
AT	34,000		40,000	200	1,000	0	1,000	300	300	9 incl. HR see CZ		3,000	0	0	79,800	826,600
BE	306,000	200	58,000	100	2,000	0	1,000	400	49,000	2/0,2 incl. HR		0	100	0	416,800	690,200
BG	421		0	0	0	0	0	0	100						521	2,821
CH	81,000	100	24,000	500	0	0	0	0	7,000	0	0				112,600	271,100
CZ	4,000 incl. SK		0	0	2,000	0	200		0	100	300	100			6,700	63,100
DE	657,000	0	9,000	6,000	45,000	200	6,000	3,000	39,000	31,000 incl. HR		0	100	0	796,300	1,064,300
DK	69,000		1,000	0	0	0	0	0	2,000	300 incl. HR	0				72,300	74,400
ES	16,000	0	5,000	0	100	37,300		0	1,000	0					59,400	112,800
FI	1,000		0	100					200		100				1,400	2,400
FR	127,000	0	22,000	100	1,000	100	100	1,000	1,000	0	0		0		152,300	178,700
UK	77,000	1,000	0	0	0	0	0	0							78,000	78,000
GR	0		200	0	0	0	0	0	0	0	0	0			200	1,200
HR	3,000		100	0	0					200	100				3,400	23,400
HU	11,000	0	5,000	0	1,000		4,000		100	20,000 incl. HR	1,000	2,000		200	44,300	44,300
IT		3,000	127,000	4,000	10,000	200	300	1,000	48,000	6,000	2,000	200	0	0	201,700	201,700
LU			0										0		0	0
NL					7,000	0	1,000	1,000	100	1,000 incl. HR	100	300	0	0	10,500	10,500
NO					0	0	0	0	10,000	0	0				10,000	10,000
PL									100	0	0				100	100
PT									0	0	0				0	0
RO									0	0	0				0	0
RUS									0	0	0				0	0
SE									0	0	100	0			100	100
SI											300	100		0	400	400
SK												100			100	100
TR															0	0
UA															0	0
YU															0	0
TOTAL	1,386,421	4,300	291,300	11,000	69,100	37,800	13,600	6,700	157,900	58,600	4,000	5,800	200	200	2,046,921	3,646,221

Source: ECMT Report and estimates

When comparing the figures from all international road-rail intermodal transports in Europe in 1996 with the figures estimated for 2001 for UIRR and ICF, the level seems to be on the same level, wherefore it can be concluded that UIRR and ICF account for the large majority of this traffic.

It is not possible to compare the increases of volumes correctly, as the figures do not match exactly. The UIRR/ICF figures for 2001 totals 3.792.375 TEU, which is an increase of 7% compared with the figures of all international road-rail intermodal transports in 1996 totalling 3.545.221 TEU.

To this it can be noted that several other intermodal players have had increases in their intermodal transports during the latest years. The figures from other operators are however not available.

