

## UIRR's Combined Transport Roadmap 2050

*Inspired by the 2011 EC Transport White Paper*

UIRR welcomed<sup>1</sup> the European Commission's 2011 Transport White Paper (2011 TWP), as it properly identified the most critical aspects that led European freight transport onto the unsustainable path it threads on today that is characterised by:

- Wasteful use of energy resources (exacerbated by congestion),
- Excessive reliance on fossil fuels,
- Very high greenhouse gas<sup>2</sup> (GHG) emissions (resulting in accelerated climate change),
- Poor safety record of road transport (resulting in millions of road accidents, causing tens of thousands of deaths and hundreds of thousands of serious personal injuries coupled with material losses estimated in the billion euro range), and
- Unacceptable disturbance to living conditions in the form of noise and air pollution, as well as landscape and biodiversity destruction (commonly expressed as externalities).

Alongside several other measures, the 2011 TWP defines an obvious means to correcting the above detailed deficiencies of inland freight transport: **the shifting of 30% of longer distance (300km or more) road tonne-kilometres by 2030 and 50% by 2050 to more sustainable modes, primarily electric rail.**

In this paper UIRR offers a list of measures which ensure that these goals are met:

**Part I. Enhancing the quality of rail freight services:** more transparency, more competition, new concepts to enable a more efficient traffic management, reinforced European-level resources to aid the structural transition of the sector

**Part II. Extension of infrastructure capacities:** uniform loading gauge profile (P400 or UIC GC), train length (750m) and axle load (22,5t) throughout rail freight corridors, measurement of the existing loading gauge on critical lines, intensive capacity extension through ERTMS and removal of bottlenecks, construction of dedicated freight tracks, urban bypasses and encouragement of the building of new (open-access) terminal capacities

**Part III. A level intermodal playing-field:** introduction of mandatory distance based infrastructure access charging with an infrastructure scarcity element, internalisation of externalities through an overriding reform of transport taxation, maintain the ban on cross-border circulation of megatrucks

**Part IV. Catalysing the continued dynamic development of Combined Transport:** maintain 44t gross vehicle weight and existing driving ban exceptions for trucks performing CT positioning legs and exempt them from certain internalisation surcharges, mandate the CT accessibility of industrial and commercial sites not connected to the rail network, restructure the Marco Polo programme, provide guidance to the efficient channelling of state-aid, and encourage the proliferation of craneable semi-trailers.

<sup>1</sup> <http://uirr.com/en/media-centre/press-releases-and-position-papers/2011/mediacentre/416-welcoming-the-transport-white-paper.html>

<sup>2</sup> Carbon dioxide (CO<sub>2</sub>), nitrous oxides (NO<sub>x</sub>) and ozone (O<sub>3</sub>)

## **Part I: Enhance the quality of rail freight services**

Combined Transport heavily relies on quality rail freight services, where the term 'quality' is defined as a mixture of **reliability**, consistent **average speed**, homogeneous **loading gauge** together with maximum allowed **train length** and **axle weight**, as well as transparent and consistently applied **traffic management rules** to determine the right of way. Achieving these aims requires different types of measures for rail infrastructure managers, functioning as a natural monopoly, and rail traction service providers, who operate under competitive (open market) conditions.

### **Proposed measures:**

- More transparency, more reporting, more monitoring
  - Releasing the forces of competition in railway operations by the elimination of "privileged relationships"
  - Improved enforcement of European rules and meaningful additional resources on a European level
  - Elimination of historic bilateral traction agreements between incumbents (cross-border relations)
  - Definition of European train path categories and their hierarchy (to enhance traffic management on mixed lines)
- **Much more transparency** is needed to better understand the actual quality performance: accurate reporting of the punctuality of trains on departure and upon arrival, recording of scheduled and actual average speed of CT trains, etc. Systematic quality monitoring should be made possible by rail freight clients, such as CT operators and their representative organisations like UIRR, while the European Commission (through a European Rail Regulatory Agency) should also intensify its rail freight quality monitoring activities.
  - **Elimination of privileged relationships between operators and infrastructure managers** is needed to release the forces of competition in railway operational services. Moreover, the functions, responsibilities and processes of rail infrastructure managers should be homogenised across Europe in the spirit of creating a truly Single European Rail Area, which will make it easier for cross-border operators to reduce the resources they must devote to dealing with infrastructure managers today. The rapid and consistent implementation of the Regulation concerning a European Rail Network for Competitive Freight (913/2010/EC) could further contribute to achieving these goals. Additional steps would be needed to achieve the necessary harmonisation along these designated corridors (i.e. single invoicing, joint traffic management, unified General Terms and Conditions).
  - **Improved enforcement of existing European legislation** – such as for instance the cross acceptance of rolling stock and locomotive drivers' licenses – remain an essential component to enhancing the quality of rail freight services. Imposing European rules into national law is many times insufficient in itself to transform decade-long national practice.
  - **Historic bilateral traction agreements between incumbent railways should be eliminated** – especially in light of the dominant position of incumbents in owning European traction capacities – to enable uninterrupted progression of border-crossing trains (i.e. crossing of borders by freight trains without the need to change locomotive and/or driver).
  - **European train path categories and their hierarchy**<sup>3</sup> should be established to create the basis for transparent traffic management on mixed use lines<sup>4</sup>. This way the right of way can be guaranteed in a fair, discrimination-free manner to ensure quality train paths for premium rail freight services.
  - **Meaningful additional resources should be added on a European level** to aid the transposition of European rules and monitor the transition to a daily operation in their spirit. A Single European Rail Area requires an extensive set of common rules that are consistently applied. The quantity of human resources in charge of this mission on the European level does not enable the reaching of this goal; creation of a European Rail Regulatory Agency could materially aid the reaching of these aims.

<sup>3</sup> Several Member States have national rules aiding rail traffic management, however these are not harmonized. UIRR proposed the definition of Europe-wide standard train path categories and a hierarchy thereto in its 2010 Position Paper on issues of rail infrastructure (see here: <http://uirr.com/en/media-centre/press-releases-and-position-papers/2010/mediacentre/287-position-paper-on-issues-of-rail-infrastructure.html>)

<sup>4</sup> Railway lines used by passenger and freight trains side-by-side.

## Part II: Ensuring the availability of adequate capacities

Several sections of the European rail infrastructure network operates at the peak of its capacity – predominantly due to growing passenger services and the more frequent services required by the periodic timetable, but also attributable to increasingly successful rail freight transport. Several measures can be taken that would – especially in combination – result in the creation of the presently inadequate infrastructure capacities.

### Proposed measures:

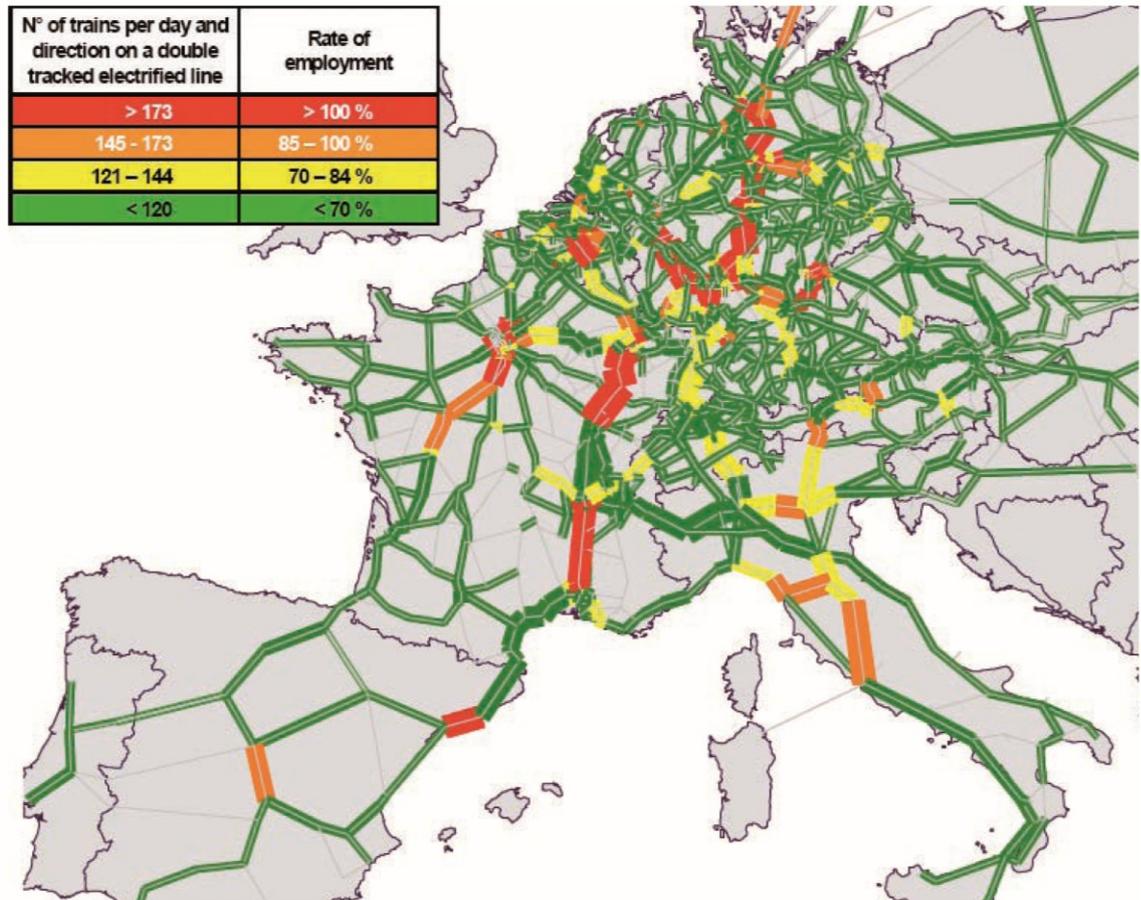
- Establishment of uniform loading gauge (P400 or UIC GC), as well as homogeneous train length (750m) and axle weight (22,5t)
- Provide financial support to measure the loading gauge profile of rail freight corridors and require their inclusion into European rail infrastructure register managed by ERA
- Intensive capacity extension through implementation of a single train control system throughout Europe and by the elimination of bottlenecks – preferably with TEN-T funding assistance.
- Extensive capacity extension by the construction of bypass routes circumventing major urban areas, the building of dedicated freight tracks along key corridors, and the encouragement of transshipment terminal capacity extension

- **Uniform loading gauge:** major European rail freight corridors presently offer an inconsistent loading gauge profile, which should first be brought to a homogeneous level (ideally to UIC Level "GC"). Equally importantly the network statements and the infrastructure register of the European Rail Agency should reflect the actual loading gauge of each line (which may require measuring in case of several lines). Secondly, the loading gauge of those lines of the single European rail should be upgraded, where the necessary gauge to transport semi-trailers in standard pocket wagons is not available. The European Commission should consider offering the resources needed to facilitate the measurement of the actual loading gauge profile<sup>5</sup> of these network elements as Member States and infrastructure managers reject the requests of CT Operators for these measurements on the grounds of lack of funding. On several occasions, when measurements were carried out, a larger loading gauge was 'found' as compared to the official designation of the Infrastructure Manager.
- **Standardisation of train parameters:** firstly a homogeneous train length (of 750m) and maximum allowed axle weight (22,5t) would be needed along every corridor. For example, due to train length limitations to 550/570m and in some cases to 450m in Italy, 750m long freight trains departing from Northwest Europe running along the Rotterdam-Genoa Corridor must be broken into two when reaching the Italian border to conclude the final leg of their journey using two train paths and two locomotives. Alternatively, a 33% productivity loss is suffered on the northern segment of the corridor if using a 550m long train on its entire length. Secondly, both parameters of length and axle weight should be gradually increased to 1000m or more and 25t respectively along the most heavily used freight corridors. Both aims require careful coordination of necessary upgrades by Corridor Managing Entities and then a harmonised and coherent implementation.
- **Intensive capacity extension:** the accelerated transition to a uniform European train control system – ideally the new, interoperable version of ERTMS respecting the revised change-control mechanism and supervision of ERA to prevent the emergence of incompatible national variations – is desirable, as it will enable greater train density through reduced intervals between trains. (Levying of any ERTMS surcharge should be limited to those lines which employ the upgraded and truly interoperable ERTMS version 2.3.0.) Sidings should be extended and parallel tracks established where needed to eliminate bottlenecks – if needed using TEN-T funding that should be made available to such endeavours, and not only to gigantic projects – to enable the smoothening of traffic flows.
- **Extensive capacity enhancement:** bypass routes around cities should be developed; and the construction of *dedicated freight tracks* along key corridors (four-track operation) – with TEN-T funding support – should also be considered. The extension of intermodal terminals and the construction of new (open access terminals) should be encouraged since road-rail transshipment capacity shortages have been identified by the UIC DIOMIS Study<sup>6</sup> as the most serious obstacle to the development for Combined Transport already in the medium-term.

<sup>5</sup> The cost of measuring (confirming) the loading gauge profile of a kilometer of line is estimated to be less than €100

<sup>6</sup> <http://www.uic.org/diomis/spip.php?article8>

Important corridors of combined transport requiring for additional enlargement investments beyond ongoing and planned projects: 2015



Source: DIOMIS Study<sup>7</sup>

### **Part III: Creation of a level intermodal playing field**

The market price of any competitive product can only be considered correct if it is allowed to reflect every cost incurred during its production process. The prices of transporting freight are determined by the presently dominant mode: road haulage. Consequently the regulatory framework for several price components of freight transport, including charging for the use of the publicly owned transport infrastructure must be aligned with the **user pays principle**; and the internalisation of the extensive range of externalities of transport should also be permitted in line with the **polluter pays principle**. A sustainable modal balance can only emerge, as well as meaningful investment and innovation in transport can only be expected, if correct **market-pricing** along these lines is enabled by the legislator.

#### **Proposed measures:**

- Introduce mandatory distance-based (electronic) road tolling and employ the value pricing principle in setting road tolls in a way similar to track access charges for train operators
- Reform the European excise tax regime and include internalisation measures for oil dependency
- Reform the third-party (compulsory) insurance system to internalise accident-related external costs
- Reform various taxes and fees levied on transport to purely reflect the costs related to the provision of the mandatory service (i.e. registration, traffic-worthiness testing, licence issuance, etc.)
- Maintain the ban on cross-border circulation of megatrucks

- **Distance based (user-pays) infrastructure access charging with an infrastructure-scarcity component:** the presently effective European track access charging regime for rail has been designed in this way, whereas electronic road toll collection using the value pricing principle<sup>7</sup> is yet to be introduced in the road sector. An explicit list of costs to be covered by the road toll should be included in the law (road constructions, maintenance, operations, land rent, traffic management, enforcement, accident assistance, etc.) alongside internalisation components for accident-related congestion, noise emissions, vibrations, landscape and biodiversity destruction should be defined in law.
- **The excise tax on fossil fuels:** should be reformed and valorised largely in line with the EC proposal of 13 April 2011<sup>8</sup> to reflect GHG emissions (extended beyond CO<sub>2</sub> to include to NO<sub>x</sub> and ozone), as well as the costs incurred by society in relation to our excessive oil dependency.
- **Reform third party insurance system in Europe:** introduce a mandatory component (internalisation charge) to include coverage of accident-related damages which is presently underwritten by (national) social security<sup>9</sup>.
- **Various taxes and fees related to transport:** administrative fees, registration taxes, etc. charged by governments for compulsory services to transport undertakings (for the issuance of licenses, registration, traffic-worthiness testing etc.) should be set at the level of costs incurred (these taxes and fees should not be used to generate net revenues for public budgets). The diversity of these taxes and fees today from member state to member state may distort competition.
- **Continue the ban of cross-border circulation of megatrucks:** HGVs that are longer than the presently permitted 18,75m and heavier than 40t were found to cause a significant modal-back-shift of up to 22% per route in a study prepared by Kessel & Partner and the Fraunhofer Institute in 2011<sup>10</sup>.

#### Part IV: Catalysing the proliferation of road-rail Combined Transport

Road-rail Combined Transport, having proved as the optimal system of forwarding single loads over long(er) distances, should be logically designated as beneficial to society and subsequently desirable. For the period until the presently imperfect and unbalanced regulatory environment is corrected Combined Transport deserves positive discrimination to ensure that it develops consistently along its maximum growth potential.

#### Proposed measures:

- Maintain existing exemptions for gross vehicle weight (allowing 44t in case of CT only) and special rules for periods of driving bans
- Introduce temporary relief from certain road internalisation surcharges
- Mandate an obligation for industrial or commercial sites which generate freight traffic beyond a certain level and not directly connected to the rail network to develop and secure capacity at a nearby transshipment terminal
- Restructure the Marco Polo programme to guaranty competition-neutrality, and introduce new action to aid modal-shift related investments of consignors and logistics companies
- Development of multimodal IT solutions to connect the intermodal stakeholders
- Ensure that EU and MS development aid goes to the most productive CT techniques
- Encourage that newly acquired semi-trailers are made craneable

<sup>7</sup> Value pricing: a variable infrastructure access pricing strategy, which regulates demand and thus makes it possible to manage congestion without increasing the capacity of public infrastructure like roads. <http://www.vtpi.org/tdm/tdm35.htm> [http://en.wikipedia.org/wiki/Congestion\\_pricing](http://en.wikipedia.org/wiki/Congestion_pricing)

<sup>8</sup> [http://ec.europa.eu/taxation\\_customs/taxation/excise\\_duties/energy\\_products/legislation/index\\_en.htm](http://ec.europa.eu/taxation_customs/taxation/excise_duties/energy_products/legislation/index_en.htm)

<sup>9</sup> e.g. the Accident Tax (§11) defined in Act 103/2011 of the Hungarian Parliament ([http://net.jogtar.hu/jr/gen/hjegy\\_doc.cgi?docid=A1100103.TV](http://net.jogtar.hu/jr/gen/hjegy_doc.cgi?docid=A1100103.TV)) which imposes a 30% surcharge on compulsory third party insurance to recover road accident related costs incurred by social security – effectively internalizing this externality of road transport

<sup>10</sup> <http://uirr.com/en/media-centre/leaflet-and-studies/mediacentre/480-study-on-the-effects-of-the-introduction-of-lhvs-on-combined-transport.html>

- **Maintain 44t gross vehicle weight exemption:** trucks carrying loading units over relatively short distances, as part of a CT transport-chain, need to be allowed to weigh up to 44 tonnes to enable the forwarding of every type of intermodal loading unit. Definition of the “nearest suitable terminal” in the Directive<sup>11</sup> should be affirmed as the present wording allows too much room for free interpretation.
  - **Maintain week-end and holiday driving-ban exclusions:** trucks performing final-mile connections to and from transshipment terminals on weekends and holidays were granted a partial exclusion from driving bans imposed on trucks in general in 1992; this remains a valued competitive feature of CT transport-chains.
  - **Allow temporary relief from certain road internalisation surcharges:** modal-shift to Combined Transport results in such substantial advantages (70% CO<sub>2</sub> savings, 35% greater energy efficiency, 25-times safer than pure road transport resulting in less road congestion and considerably fewer accidents) that it appears logical and symbolic to temporarily exclude trucks performing CT positioning legs from internalisation surcharges to encourage an accelerated shift.
  - **Access to Combined Transport:** those plants/sites/logistics facilities that generate (freight) traffic beyond a certain level, and which can not be connected directly to the rail network should be allowed to satisfy this obligation through contributing to the development of (open access) transshipment terminal capacity within their relatively close vicinity.
  - **Reform the primary tool of the European Union for catalysing modal shift, the Marco Polo programme:**
    - (i) restructure the Marco Polo rules to guaranty competition-neutrality by preventing the introduction of such subsidised “new services” that cannibalise existing ones, and
    - (ii) accelerate the transition from classic road-only transport technologies to the use of Intermodal Loading Units (such as swap-bodies, containers and craneable semi-trailers) enabling access to Combined Transport for every European consignor and logistics company.
- Example: an Austrian state aid programme<sup>12</sup>

*“(9) Investments by transport businesses (special arrangements for combined and intermodal transport) that contribute to switching transport from road to rail or waterway. The application of new technologies and the implementation of research and development findings in the field of transport logistics shall also be taken into account.*

*(10) Investments that are eligible for funding under the ERP Transport Programme are destined exclusively for combined or intermodal freight transport. Appropriate use of the funding is compulsory and verifiable.”*
- **Development of multimodal IT solutions:** Information exchange between every participant of multimodal transport-chains, through connecting their informatics systems, is essential to encourage the collaboration of modes. TAF TSI should require that those rail freight customers who organise complete trains under their own commercial responsibility have direct connection to the most accurate source of the information: rail infrastructure managers. The ITS<sup>13</sup> initiatives should be defined to link infrastructure managers, freight railways, CT operators, transshipment terminals, ports with road hauliers and the systems used by logistics service providers and consignors, to streamline and simultaneously catalyse their collaboration.
  - **Ensure that EU development aid flows to the most productive CT techniques:** UIRR commissioned a study that was completed, and its results announced on 28 November 2012, which analysed the various – competing – CT techniques<sup>14</sup>. The study found that the vertical transshipment technique (or conventional unaccompanied combined transport) offers the lowest total-system-costs, hence technologically it is the most productive method for facilitating the shipment of for instance semi-trailers. Financial aid for the development of Combined Transport, either from the European Union or by Member State governments, should in principle always be channelled to the technique that offers the lowest system-costs per consignment under the particular circumstances.

<sup>11</sup> 1992/106/EC

<sup>12</sup> [http://ec.europa.eu/competition/state\\_aid/cases/242139/242139\\_1372118\\_153\\_2.pdf](http://ec.europa.eu/competition/state_aid/cases/242139/242139_1372118_153_2.pdf) and [http://www.transport-research.info/web/programmes/programme\\_details.cfm?ID=2221](http://www.transport-research.info/web/programmes/programme_details.cfm?ID=2221)

<sup>13</sup> Based on Directive 2010/40/EU, the Intelligent Transportation System initiative aims to accelerate the development and deployment of advanced system solutions based on existing information and communication technologies in the field of transport, including infrastructure, vehicles and users, and in traffic management and mobility management, as well as for interfaces with other modes of transport. See [http://ec.europa.eu/transport/themes/its/index\\_en.htm](http://ec.europa.eu/transport/themes/its/index_en.htm)

<sup>14</sup> <http://uirr.com/en/media-centre/press-releases-and-position-papers/2012/mediacentre/558-evaluation-of-competing-ct-techniques.html>

- **Encourage that newly acquired semi-trailers are made craneable:** considering that craneable semi-trailers are instantly suitable to be forwarded by rail, and recognising that this is a practical method of opening the mind of routing managers to the possibility of efficiently inserting rail forwarding into longer distance road transport-chains, the European Commission and Member States should consider the introductions of various regulatory and state aid schemes to encourage that newly acquired semi-trailers are made craneable.

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Supplementary information

**1. THE USE OF INTERMODAL LOADING UNITS IS THE KEY TO MULTIMODALITY**

The 21<sup>st</sup> Century economy – whether it is manufacturing or commerce – increasingly **depends on the movement of small(er) units of cargo**, determined by the truck- or wagonload. When ‘truckload’ or ‘wagonload’ is mentioned it immediately implies the (single) mode of transport to be used for the carrying of the cargo, whereas an intermodal loading unit<sup>15</sup> (ILU) holding the same cargo can potentially be forwarded by a mix of transport modes optimally chosen to the specific transport assignment.



The use of ILUs is a prerequisite of multimodality and the key to efficient and sustainable freight transport that is based on the cooperation of every mode of transport.

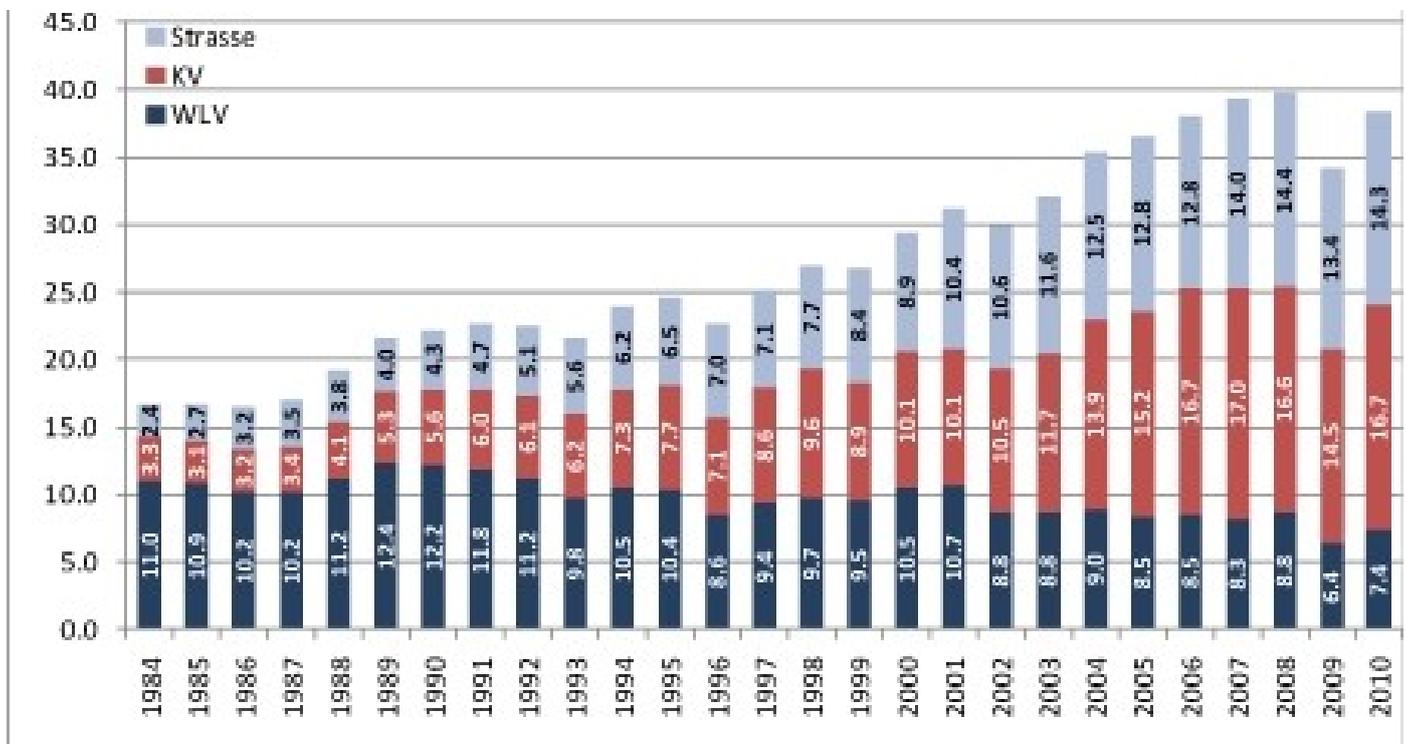
<sup>15</sup> Containers, swap-bodies and semi-trailers

## 2. COMBINED TRANSPORT CAN DO THE JOB

**Road-rail Combined Transport<sup>16</sup>** (CT) is the system of transport, which brings the concept of *multimodality* to success by effectively combining the flexibility of road transport on short distances and in urban environments with the environmental sustainability, energy efficiency, safety and reliability offered by railway technology over longer distances. The superior efficiency of CT's (train)load consolidation technique, meaning the efficient transfer of ILUs from a truck to a train at an intermodal transshipment terminal, is best reflected in the graph to the right, which shows the share of CT, wagonload and road transport within Trans-Alpine (long-distance) traffic through Switzerland: the two rail freight production systems of Combined Transport (43,5%) and wagonload (19,3%) collectively **made up nearly 63% of traffic**, while the market share of road haulage was 37% (see graph below).

### Transalpine traffic through Switzerland 1984 – 2010

(million tons) road and rail (broken down into Combined Transport and wagonload traffic)



Source: Swiss Government Report titled Bericht über die Verkehrsverlagerung vom Dezember 2011

The Swiss example proves that with the right legal framework sustainable modes are capable of assuming well in excess of the "50% plus" market share targeted by the European Union for the long-distance freight transport market.

#### Who is UIRR?

Founded in 1970, the **International Union of Combined Road-Rail Transport Companies** (UIRR) represents the interests of European road-rail Combined Transport Operators. Road-Rail Combined Transport (CT) is a system of freight forwarding which is based upon inserting economically and ecologically sustainable electric rail into long-distance (road) transport-chains through the use of intermodal loading units (ILU).

<sup>16</sup> Two types of road-rail combined transport are differentiated: (i) unaccompanied, when goods packed into containers, swap-bodies or semitrailers are transferred from road vehicles to trains, and (ii) accompanied, or rolling-motorway, services, when complete tractor-trailers road-trains are transported using specialised rail wagons.