LOGISTIK KOMPETENZ ZENTRUM
PRIEN AM CHIEMSEE

Alpine Space
Interreg III B

Alpine Freight Railway (AlpFRail): Solutions for the displacement from road to rail by developing a transnational network

Regionalverband Donau Iller

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

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Executive summary:

The globalization of the economic markets has started an increase of global transport flows of freight. This transport causes CO_2, PM_{10} and NO_x emissions - emissions that should be urgently reduced as we all know from the actual debate about climate change.
Focusing the view on the alpine space one can notice an increase of freight traffic of 3,8 % per year in the period from 1994-2004 (CAFT-data, Survey on Cross Alpine Freight Transport 2004). Reasons for this growth are the European monetary union, the market liberalization and the eastern enlargement of the EU. The increase will hold on in the following years as through the development of the Mediterranean ports, more and more goods are travelling via the "southern" ports across the Alps to Central and Northern Europe. Coming from the Middle or Far East more and more ships are going the about 5 days shorter way via the southern ports than making a long way round Gibraltar to the northern port range.
Unfortunately most of the freight traffic across the Alps is still transported on road. In the year 2004 the modal split was 67,3% road to 32,7% rail.
This causes enormous problems such as traffic congestions, overload of the existing infrastructure, environmental and noise pollutions in the alpine area. Economical, social and ecological damages are the consequences. Moreover in the very sensitive alpine area the impacts of the climate change are stronger than in other regions and the reduction of emissions is absolutely essential to avoid natural hazards.

Figure 1 Transport in the Alps

Shifting freight traffic from road to rail is one step to contribute to the reduction of CO_2 emissions.
This was aim of the European project “Alpine Freight Railway” (AlpFRail) (www.alpfrail.com) which was funded by the European Interreg IIIB Alpine Space programme. It was demonstrated that solutions can be found in short term by developing a transnational network which is coordinated by a central project management.
In AlpFRail 17 partners from Austria, France, Germany and Italy cooperated under the lead-management of the Logistik-Kompetenz-Zentrum (LKZ) in Prien am Chiemsee, Germany.
Among them were the German Association for Housing, Urban and Spatial development, the Regional Association Donau-Iller, the DB Netz AG, the Austrian Federal Ministry of Transport, Innovation and Technology, the Regional Authorities of Salzburg, Kärnten, Vorarlberg, the Region of Rhônes-Alpes, the Italian Federal Ministry of Environment and Territory, the Region of Veneto, the Autonomous Region of Friuli Venezia Giulia, the Veneto Union Chamber of Commerce, the Provinces of Brescia, Mantova, Alessandria and the Venice Port Authority.
The LKZ as a private company with public shareholders had in its function as lead partner the big advantage that it could coordinate neutrally different national and regional governments and sectoral policies.
Building up a social partner-network was the first and a necessary step for transnational cooperation. Only in a second step the technical network and exchange could be established.
These steps become clear if one is regarding the Alpine space as a space that consists of several national and regional entities and borders.

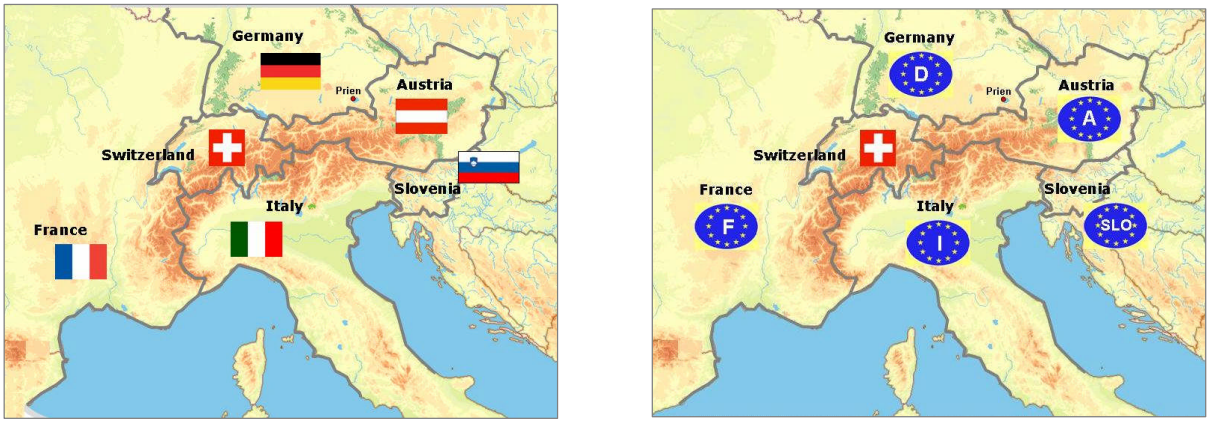

Figure 2 From many regional and national spaces to a transnational European space

Considering the alpine space as a transnational, European space was new, not only for the partner-network but also for “practicing” combined traffic.
The historically grown national view of the “railway systems” of the different countries in the alpine bow is still present and is abolished very slowly. Examples are different infrastructures, various electricity systems, different regulations and forms of organisation.
To overcome the national borders and to establish a European thinking was the success of AlpFRail’s approach “Thinking in European systems and networks”.

The approach was based on following technical work packages (WP):

WP 5 Freight Flow System – Economic view

The aim of this WP was to get a database showing the existing freight flows in the whole alpine space and the loading of the existing infrastructure. The example below shows the different level of loading of roads in the alpine space. Looking at the yellow, red and purple colours one can recognize clearly that the capacity of the majority of roads is exhausted.

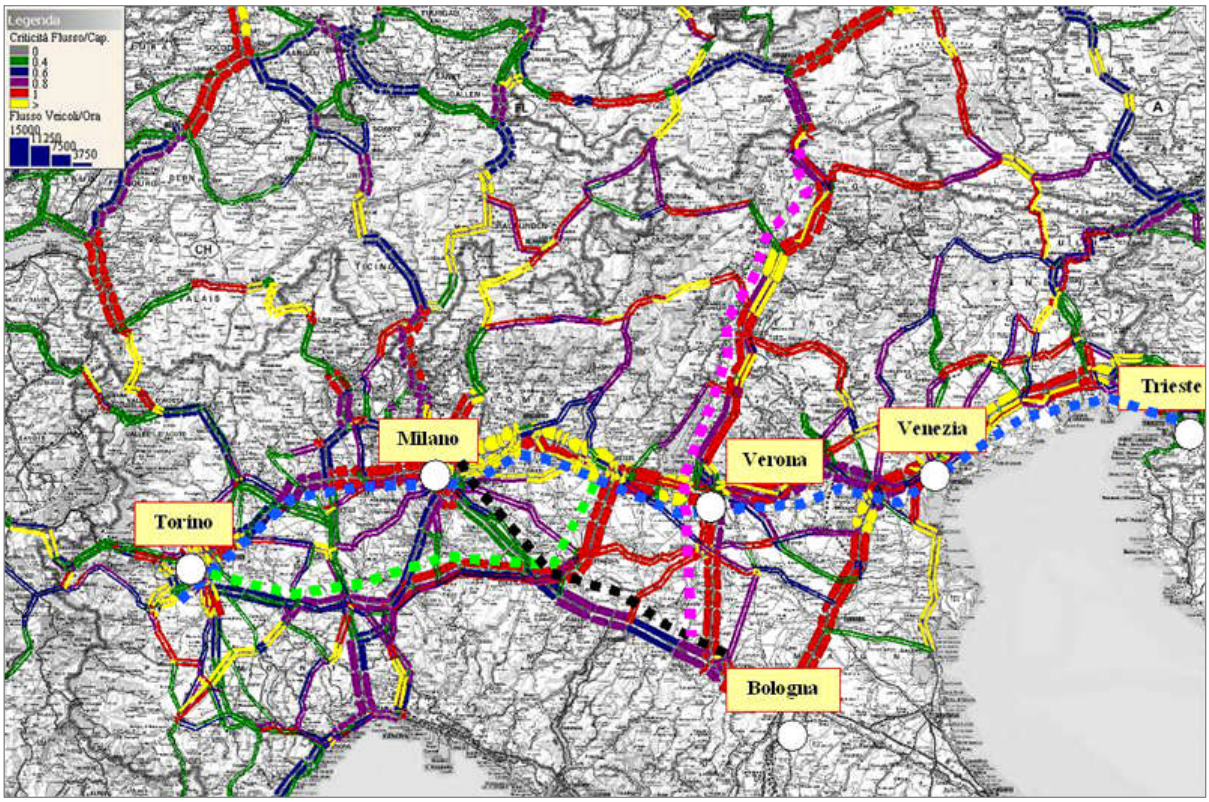

Figure 3 Road network in the Alpine space

WP 6 and WP 9 Freight flow system- technical view and SWOT analysis

In WP 6 the technical and organisational details of the railway network and the terminal infrastructure of the railway were analysed and bottlenecks identified. This information was integrated in WP 9 in a geographical information system (GIS). Below one can see a map of the GIS showing the complete rail network in the whole alpine space. Different systems of electricity and number of tracks are illustrated in different colours. The red dots symbolize the terminals.
One can recognize that comparing the northern side of the Alps with the southern side, fewer possibilities exist to load the freight from road to rail.

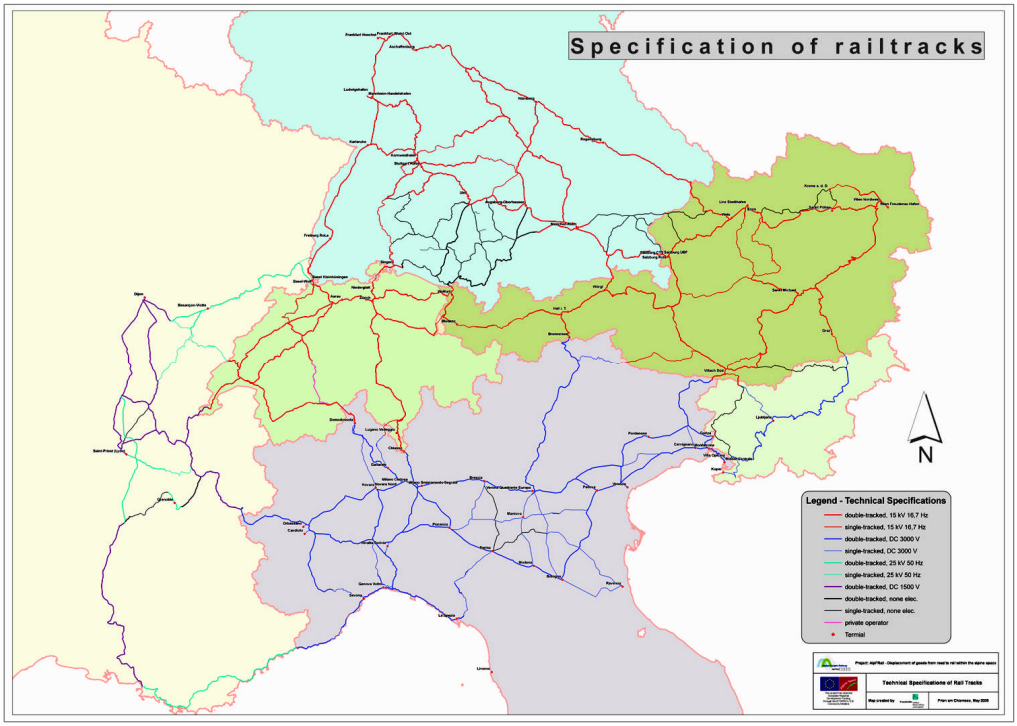

Figure 4 Rail network in the Alpine Space

WP 7: Elaboration of an international freight flow concept

Basing on the results of WP 5 and WP 6 a catalogue of measures was elaborated which were evaluated by a multicriteria analysis. Out of it a best scenario for the definition of pilot projects was developed. Basing on the best scenario a new freight flow concept was elaborated for the province of Brescia exemplary for the whole alpine space. The figure below shows the catalogue of measures.

Figure 5 Catalogue of measures

WP 8: Modelization, functional organization and environmental impact evaluation

WP8 activities aimed at tracking the positive effects in the alpine space of an improved modal split traffic in terms on one side of system productivity and, on the other, of negative environmental impacts reduction. With Torino-Lyon, Gotthard-Lötschberg, Brenner and Tauern-Semmering four main corridors have been in focus. Several scenarios by applying measurements of WP 7 have been developed and its environmental effects been evaluated.
The figure shows the reduction of road traffic emissions for the different scenarios. One very positive result is that appreciable results in terms of reduction of the polluting emissions (emissions reduction until -20%) also with interventions that do not imply an increasing of investments on the transalpine railway, beginning from the optimization of the functions of the intermodal centres are possible.

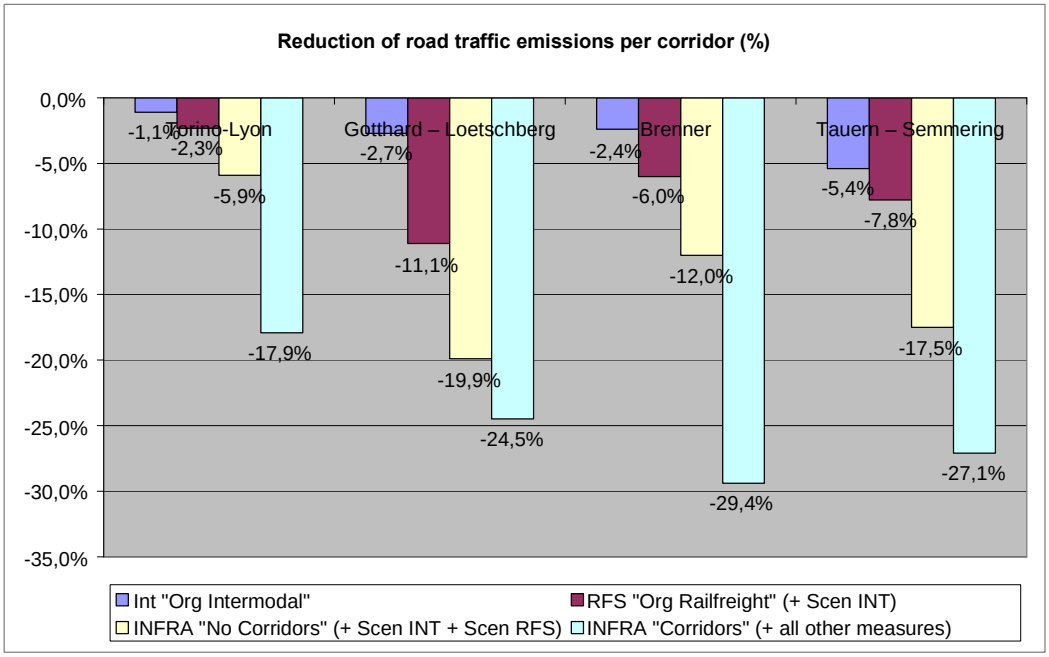

Figure 6 Scenarios of reduction of road traffic emissions

WP 10: Prototype of an information and quality management system

In WP 10 a prototype of an information and quality systems has been developed and two example routes for a trimodal transport chain (rail, road, ship) be elaborated.
The Figure shows different possibilities for the route Freising-Shanghai via the ports of the Mediterranean Sea of which the customer can select.

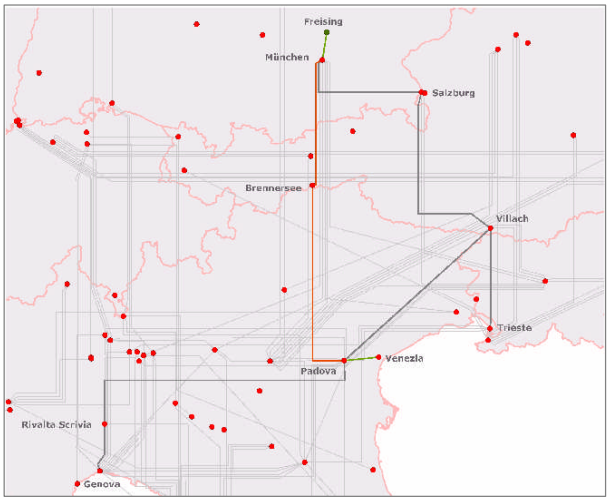

Figure 7 Possible connections from Freising to Shanghai

WP 11: Organisational model for the railway network and pilot evaluation

Within this WP, concepts for concrete train products have been elaborated. Aim was to create concepts that are agreed by politicians and economy, that are technically and organisationally realizable and that have sustainable effects.

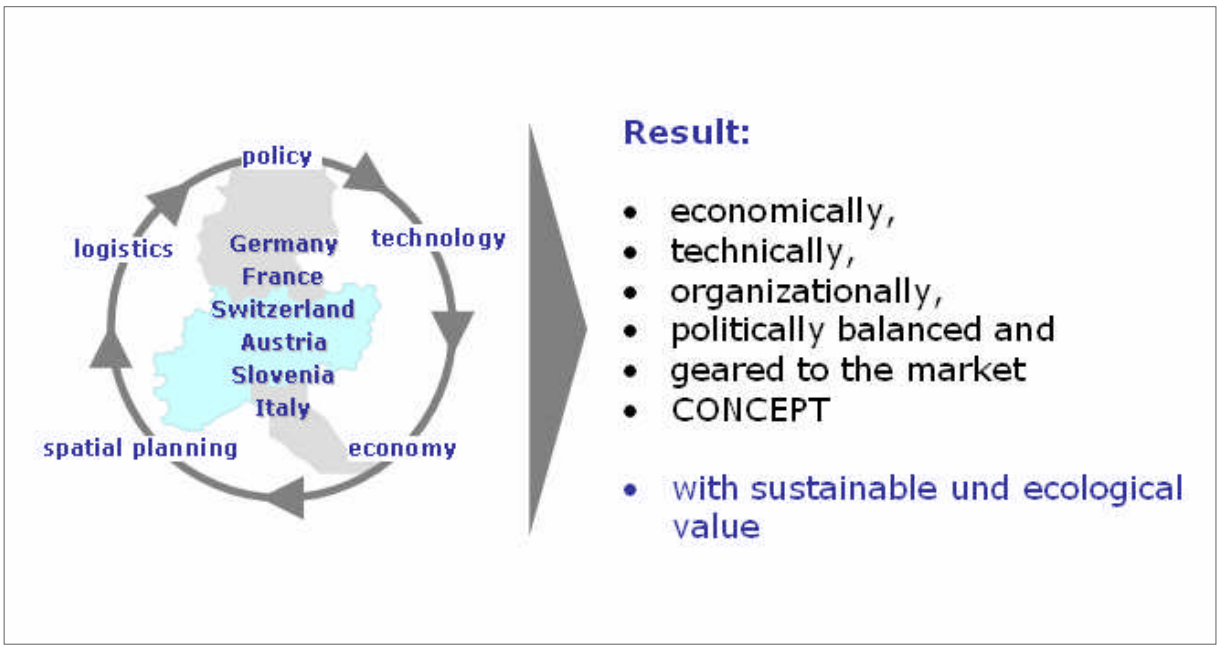

Figure 8 Concepts that are agreed by the different interest groups

Therefore the knowledge of the regions has been integrated into the development of the concepts and a close coordination between regional targets and European demands has been followed.

One example is the Tauern-Axis in Austria. In close cooperation with the Austrian Federal Ministry of Transport, Innovation and Technology, the Regional authorities of Salzburg and Kärnten and other stakeholders capacities for 9 additional trains in each direction per day were elaborated (”Aktionsplan Tauernbahn”). The offer was accepted by the market and within one year 4 trains in each direction per day started, which corresponds to a modal shift of approximately 40,000 trucks per year.
Other concrete products for freight traffic on rail that were developed in the project are the following:

- Adriazug, whole train for container traffic between Trieste-Munich (www.adriazug.com),

- TrailerTrain, Ro-Ro-bridge between Trieste and Nuremberg (www.trailertrain.com),

- Treno Manu, whole train for container traffic between Mantova and Nuremberg (www.trainmanu.com),

- Donillo, unaccompanied combined traffic-shuttle between Ulm and Melzo (www.alpfrail.com) and

- a whole train for container between Brescia and Singen.

By implementing these concepts in total more than 50.000 trucks p.a. could be shifted from road to rail which brings social, economic and ecological benefits.

Conclusion

The project is a best practice example how big and sustainable results can be achieved through effects of lever with relatively small subsidies of regional funds. An optimal handling of traffic is an important precondition for economic growth and long dated securing of jobs also in peripheral regions.
An experience of AlpFRail is that the building up of a partner-network that is conform to the project targets is one of the most important elements of transnational cooperation.
In AlpFRail the partner-network was limited to the alpine space due to the guidelines of the Interreg IIIB Alpine Space programme. But, by analysing the freight transports over the Alps it was found out that more than 50 % is transit traffic that is generated outside the alpine space. For “danger prevention” of the Alps it is essential to have partners in the network integrated that are generators of transit traffic. For example it is necessary to have train concepts ready for the container growth at the Mediterranean ports before the containers are travelling on the road via the Alps. Further one should have in focus the long-running distances beyond the alpine space as these distances are the main interesting for railway companies and operators. These results of AlpFRail shall be followed up in a new project.

AlpFRail Follow up

The network will be enlarged to a network from sea to sea, from the Mediterranean to the Northern port range. The main growth in the following years is expected in container transport. Hence an integration of the originators of container traffic, of the ports, is essential to shift the traffic in the alpine space.
A holistic approach will be persecuted by considering the European inland and container transports to and from the seaports.
Work packages of this project will be defined according to the behaviour of the traffic in pilot trains for transit traffic, traffic within the alpine bow and traffic to sea ports.
A further important work package will be the cooperation with other European projects within the European network to gain and use synergies.

The overall aim will also remain in the follow-up-project of AlpFRail: From a European and from a regional point of view, traffic has to go the most sustainable way by using all modes of transport within coordinated systems and networks.

For more information see:
www.lkzprien.de
www.alpfrail.com

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