



## About managing risk

What to do, when something suddenly no longer works? The closure of the Gotthard motorway in June 2006 revealed a divided transport market. On one side were companies already set up for rail transport. On the other side were hauliers entirely dependent on roads. While the former shifted their in-house modal split in favour of rail during the closure of the Gotthard motorway, the latter had no alternative to the traffic jams. Hupac's unaccompanied intermodal transport had sufficient capacity available. Anyone who had suitable equipment could switch over to rail without any problems. There was less on offer on the Rolling Highway at the Gotthard. Only a limited amount of rolling stock is available. Space on night trains was in strong demand, and was therefore rapidly allocated, while there was limited demand for the additional daytime trains. The moral of the story? A mountain stretch is, and always will be, a risk. That applies to all modes of transport. To keep going despite infrastructure bottlenecks, you have to weigh the risks and split them between road and rail.

I hope you will enjoy reading this issue of Moving.

**Irmtraut Tonndorf**  
Communication Manager

# Railway liberalisation is bearing fruit

The Swiss Hupac Ltd – European market leader in combined transport through Switzerland – is making successful use of the liberalisation of the railways. On the occasion of the General Meeting on 12.5.2006 in Lugano, Board Chairman Hans-Jörg Bertschi named competition in railway freight transport through Switzerland as the main reason for Hupac's traffic growth.

Last year Hupac shifted 520,000 road consignments to the railways. This represents an increase of 15.9% compared to the previous year. The strong growth has contributed to a break in the trend: Since 2000 the number of lorries involved in transalpine transport has fallen (-14%), while combined transport on the railways has been increasing in volume (+50%). Political means of controlling transport such as the Swiss Heavy Vehicles Fee (LSVA) and the 40 tons limit are reasons for this. These led to a better utilisation of HGVs and reduced the number of empty trips. The direct payment of government operating subsidies to the operators rather than the railways also stimulated the market and promoted competition between the combined transport operators. The decisive factor in Hupac's success last year was, however, the improved framework conditions in the liberalised railway market. "The alpine transit through Switzerland is a uniquely functioning railway market in Europe", Board Chairman Hans-



Jörg Bertschi explained. "Five railway companies from three countries provide traction services on the transalpine routes through Switzerland. No single railway company is dominant. For Hupac this provides the best conditions for competitive market services." Bertschi called for government involvement in order to resist the attempts by national railway companies to remonopolise. "An

active regulatory authority is to be created following Railway Reform 2, which will drive the opening up of the market. The EU too must make every effort to ensure that liberalisation can progress without hindrance." Financial support for combined transalpine transport is, from Hupac's point of view, essential until the opening of the NEAT Gotthard Tunnel. "The heavy freight trains require three

locomotives for the Gotthard stretch. The operating subsidies from the government make up for increased production costs and make rail transport capable of competing with road transport. We expect to be able to operate while fully covering our costs in alpine transport once the flat rail route through the NEAT Gotthard Tunnel has been put into operation. This is already the case on other European routes."

## Hupac's place in the market

### Leading in combined transport through Switzerland

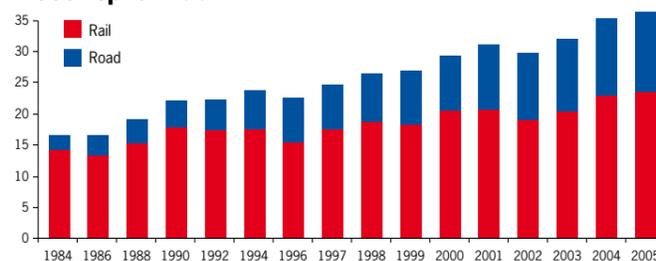
In 2005 Hupac dispatched on average 82 trains per day, with a total of 519,160 consignments by rail (+15.9%). Traffic in the main business, Shuttle Net (UCT), increased by 17.2% and reached a volume of 495,659 consignments. Of that, 374,993 (+13.3%) went through the Alps, 120,666 (+31.2%) went on non-transalpine stretches, primarily from harbours in the West into the European heartland. The only decline was in the Rolling High-

way service through the Gotthard tunnel which recorded a drop of 6.6% with 23,501 loaded trucks. The current year, 2006, is showing strong growth in transalpine traffic, not least thanks to the additional handling capacity at the expanded terminal at Busto Arsizio-Gallarate. Hupac's main market strength is transalpine intermodal traffic through Switzerland. This is strongly influenced by Switzerland's transport policy, whose objective is to shift freight traffic from road

to rail. Two out of every 3 tons of transalpine traffic are sent through Switzerland by rail. In Austria and France the situation is the reverse – rail is continuing to lose market share to road traffic. In recent years, the strong growth in road traffic has slowed to a stop. In 2005, the number of lorries in Alpine transit fell by 4% to 1,204,000. In contrast, intermodal traffic volumes have been growing strongly for years. Its share of transalpine traffic exceeds that of truck loads and pure road traffic. The transport policy target of reducing road consignments to 650,000 truckloads is not likely to be achieved by the originally set point in time, and it will be possible only if financial support of the modal shift policy will continue.

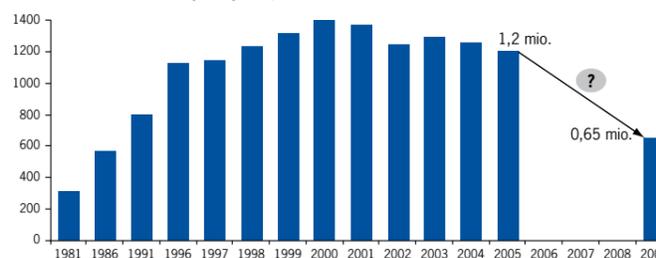
### Modal split in mio. t

Source: Federal Office of Transport



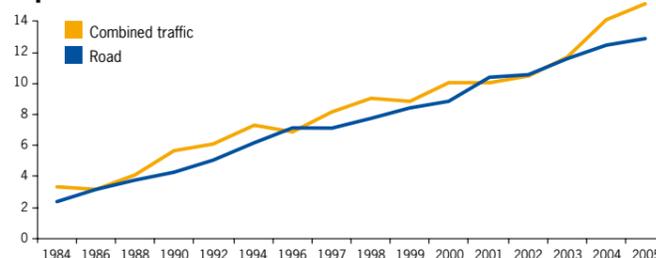
Modal split road/rail in Alpine transit through Switzerland: 65% of goods are transported by rail, 35% by road.

### Modal shift Truck journeys x 1,000



The modal shift target of Switzerland's transport policy: 650,000 truck journeys through the Swiss Alps by 2009.

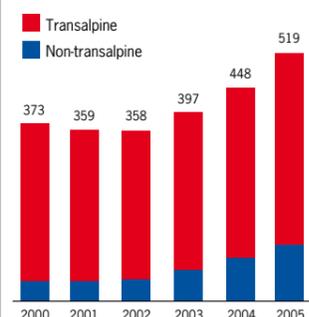
### Alpine transit in mio. t



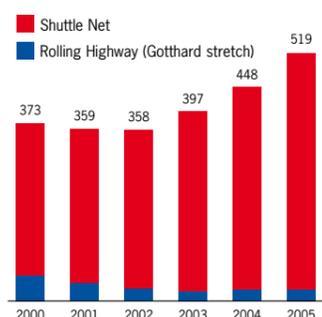
Transport options for Alpine transit through Switzerland. Combined transport transfers a greater tonnage than road.

### Traffic development of Hupac

Road consignments x 1000



Hupac traffic trends with double-digit growth rates. Its main market strength is transalpine traffic.



Hupac traffic trends by business sectors. 95% of the volume consists of unaccompanied intermodal traffic, 5% of the Rolling Highway.

# Train monitoring with e-train

Hupac has introduced a new satellite-based positioning system for real time train monitoring. The system, named e-train, stands out with respect to similar existing systems in Europe for its characteristics of proactivity and automaticity, all to the benefit of productivity and customer service.



The system is based on innovative hardware components with GPS/GSM technology. A proactive information system matches the effective running data of every individual train with the selected timetable. "We receive high value qualitative information in real time without

card to communicate position and the latest-generation battery to provide energy to the two cards. The system is enclosed in a box that can be easily mounted on any wagon for combined transport. The satellite unit is in continuous communication with a train-positioning signals management software, which represents trains graphically on territorial maps adapted to the characteristics of the Hupac network.

"But the absolutely most innovative element of e-train is the concept of controlling the train progression", explains Aldo Croci, Hupac IT director. "The few satellite tracking systems existing in Europe are based on the satellite unit emitting its position at predetermined time frames. An enormous volume of information with little value is being created since it is all disjointed from the train timetable, which instead is the item that most concerns the customer", explains Croci. "E-train instead is based on the concept of proactivity and automaticity: the system signals possible variations in the timetable with respect to the timetable foreseen for each train, allowing Hupac personnel to determine the timely progression of traffic and to provide information to the customer in case of delay."

In fact, as each train departs, Goal, the central software system, sends the appropriate timetable to the satellite unit together with the control points, including the theoretical arrival and departure schedules. Throughout the journey, the satellite unit checks the train movement and sends the information regarding the real transit at every point of the travel plan, including any changes in the schedule.

This information is automatically integrated into the Goal system. Hupac team members obtain in real-time the global view of train progression, saving time and costs in requesting this information from railway companies. Furthermore, alarm systems in case of trains running with substantial delays and automatic notification to the parties concerned are foreseen.

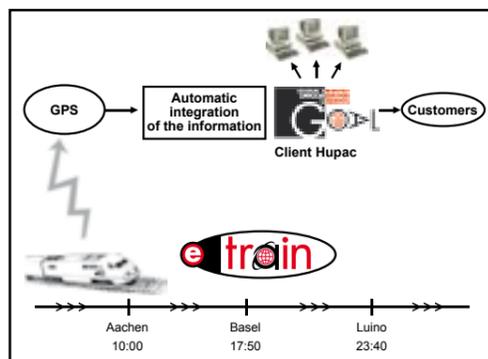
The project was implemented by Hupac in collaboration with Fela Management, a Swiss company leader in Europe in the production of satellite positioning systems, and with ICM, a company which specialises in the consultancy for satellite tracking systems. Having passed all operational tests, e-train became the day-to-day tool for controlling Hupac trains at the start of 2006.



**The task force behind e-train.** From left: Andreas Mager, Leonardo Fogu, Aldo Croci (Hupac Chiasso), Jörg Bebie (ICM Wädenswil) and Hans-Peter Wepfer (FELA Management Diessenhofen)

having to make costly enquiries with the various rail companies", explains Hupac director Bernhard Kunz. "E-train automates manual processes and frees resources, to the benefit of our customers." A hardware component, the satellite unit, is installed on each train. It is composed of a GPS satellite reception card, a GSM telephone

## Everything under control



**Satellite-supported train monitoring system.** Train positions and timetable variations are automatically integrated into the Goal train operating system.



**E-train provides a visual representation of a train's status at predefined checkpoints.** Green means "on time", yellow means "up to 60 minutes late", red means "more than three hours late".

## Questions & Answers

**How far has Hupac got with implementing the new system?**

By the middle of June, 35% of Hupac trains had been fitted with e-train, by the end of 2006 we expect 80% coverage, by the middle of 2007 the implementation will be complete.



**Aldo Croci**  
Hupac Group Director of Information Technology

**How will e-train be integrated with the existing Cesar information system? What differences are there between the two systems?**

Cesar provides customers with information about numerous combi operators in areas like "Timetables", "Bookings" and "Tracking & Tracing". In "Tracking

**What advantages does this give to customers?**

With e-train, Hupac knows what is going on at all times. The system gives us independence from the varied systems of our rail partners. We have all trains constantly under control, and can react immediately to any traffic irregularities. The terminals and railways also benefit from rapid, precise information.

& Tracing" Cesar is limited to the status messages "booked", "delivered", "departed", "arrived" and "collected". E-train closes the gap between "departed" and "arrived" with precise, detailed information. This however is only available for Hupac's own trains. It would be interesting if other operators also adopted the system.

## News

### Rail to the rescue

After the closure of the Gotthard motorway in June 2006, Hupac quickly increased the capacity of intermodal traffic by agreement with the railways as well as their partners Cemmat (Italy) and Kombiverkehr (Germany). Up to 40 additional trains per day were made available via Gotthard, Lötschberg/Simplon, Brenner and Modane. This increased the capacity of combined

transport by up to 1,000 truck consignments per day on the North-South axis.

Transport and logistics companies made active use of the increased capacity on offer. Many extra trains ran in unaccompanied combined transport as well as on the Rolling Highway. In total, traffic levels increased during the closure by about 25% compared to the year before.

### New management team

Change of the guard at the Italian subsidiary of the Hupac Group: since June 2006 a new management team is at the helm at Hupac SpA. The company is now led by Sergio Crespi, 40 years old, who takes on the role of managing director. Francesco Crivelli, 57 years old, the former managing director for the last 10 years, joins the Board of Directors and has been appointed Delegate of the Board of Directors.

Sergio Crespi, a graduate in Political Science, who has been in Hupac for eleven years as the Human Resources manager, will be supported by Maurizio Tronchi and Davide Muzio, both with assignments as



managers. Maurizio Tronchi, aged 54, is the operations manager for the railway company and will follow the railway activity in the intermodal yards. Davide Muzio, aged 36 and a graduate in managerial engineering, is responsible for production and logistics at the terminals.

### Busto Arsizio ⇄ Fiorenzuola/Cassino link

Hupac expands the Shuttle Net system towards Emilia-Romagna and Lazio. In June 2006, a new railway connection between the terminals in Busto Arsizio and Fiorenzuola near Parma has started. "We wanted to satisfy the heavy demand for intermodal services originating in the area south-east of Milan", explains Alberto Grisone, Business Manager Project Development. "The new train connects Emilia-Romagna and northern Tuscany to Hupac's international network". With daily departures in the evening from Busto, the train collects the freight units coming in from Belgium, Germany, Switzerland and Scandinavia following the gateway system, and transports them to Fiorenzuola. The cargo is then available at the terminal the next morning at 8:00.

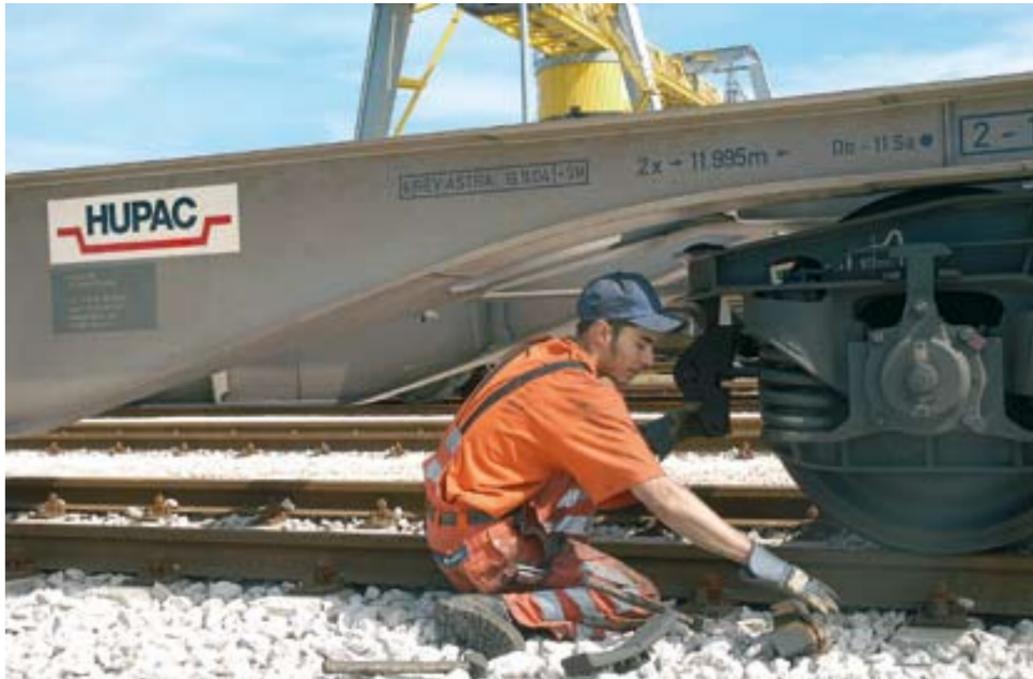


In Fiorenzuola it is also possible to continue the trip to the Cassino terminal, located in Lazio near the border between Campania and Molise. "The gateway link for the railway terminal in Lazio strengthens our direct services towards central-southern Italy", Grisone emphasizes. "Our clients are showing great interests in this new train, which will support the already existing links between Busto and Pomezia."

# Quiet-running wagons

Hupac is systematically adapting its wagon fleet to meet noise abatement requirements. 65% of wagons for UCT and 100% of Rola wagons are fitted with low-noise brakes made with synthetic materials. Hupac is therefore on course to meet the Swiss federal law on noise remediation which envisages the modification of all wagons by the end of 2009. The noise limits set in the international TSI Noise standards, which come into force for all new vehicles from the middle of 2006, were implemented by Hupac several years ago.

At the end of 2005 Hupac owned 2,300 low-noise rail wagons. This represents about 70% of Hupac's existing fleet of 3,300 wagons. The low-noise wagons are fitted with "whisper brakes". "Ever since 1999 we have been acquiring new wagons with composite brake pads", explains Michael John, rolling stock manager of Hupac. "They consist of a synthetic resin composite. Unlike the old metal brakes made of grey cast iron, the composite pad does not roughen the running surface of the wheels. It remains smooth, and this means the train runs up to 10 decibels quieter." Hupac is now working to refit all wagons currently in use. This is made possible by the financial support of the Federal Office of Transport. The Swiss government's noise remediation programme envisages a definite reduction in the noise exposure from railways



In mid-2006, the internationally valid TSI Noise standard of the UIC (Union Internationale du Chemin de Fer) comes into force across Europe. The "technical specification for interoperability" specifies noise limits for new freight wagons, and wagons to be refurbished. But these limits are not achievable with the traditional cast-iron pads. "With the introduction of TSI Noise, trains all over Europe will be quieter. Hupac started work on changing over from cast-iron pads to composite pads several years ago." Using various technical and operational optimisations, Hupac wants to go on improving the efficiency of the synthetic pad in the future. The goal is to achieve an approximately equal cost level for the synthetic pad, compared to the traditional cast iron pad. Besides the brakes made of synthetic materials, Hupac is taking other steps to reduce noise. All new wagons are fitted with brake suspensions made of synthetic materials instead of steel bushes.

This reduces the noise during braking. As for the bogies, the DRRS technology has proved its worth. Here, replacing coil springs with rubber springs reduces noise. "Development is continuous all the time", says Michael John. "At the moment we are working on a prototype of a combined block and disc brake, from which we expect a longer working life and lower maintenance costs."

## Background

### Noise bonus for protecting the environment

Noise is the biggest environmental problem of the railways. In a referendum in Switzerland in 1997, people voted by a large majority for quieter railways. The government decided on an extensive noise remediation programme. By 2015, noise emission must be significantly reduced.

To promote the use of low-noise rolling stock, the Federal Government is awarding a "noise bonus" on train path prices. Vehicles without grey cast iron brake pads will receive a refund on the Swiss rail network to compensate for the additional costs of acquiring and maintaining brake pads made of synthetics. Noise remediation will also be encouraged on existing freight wagons. Noise should be reduced directly at source, in other words on the rail wagons themselves, by the use of brakes made of synthetic materials. The noise remediation program is limited to wagons owned by Swiss companies, or run by Swiss railway enterprises. Another precondition is that the wagons must be in service for at least 2,000 km a year.

### Low-noise Hupac wagons

|                  | Total | With composite brakes | %   |
|------------------|-------|-----------------------|-----|
| Own UCT wagons   | 2.902 | 1.890                 | 65  |
| Own Rola wagons  | 405   | 405                   | 100 |
| Total own wagons | 3.307 | 2.295                 | 69  |
| Leased wagons    | 712   | 0                     | 0   |
| Total            | 4.019 |                       |     |

Nearly 70% of Hupac wagons are equipped with low-noise synthetic brake pads. About 1000 wagons will be refitted in the coming years.

by 2015. The programme is financed by income from fuel tax. "The most effective way is to prevent noise from being generated at source", adds Michael John. "In general, measures on the vehicle are 8 to 10 times more effective than measures on the infrastructure." Hupac takes a pioneering role in the development and implementation of whisper brakes. The operational trials on Hupac wagons have been running for years. They are being carried out on large wagon series with high running performance in shuttle compositions, and under severe conditions on the demanding transalpine stretches. This provides good conditions for the early detection of weaknesses, and the rapid technical and economical optimisation of the newly developed brake pads. "The know-how gained is also available to other wagon owners and railway enterprises," emphasises Michael John.

## Questions & Answers

### How far has Hupac got with noise remediation of the wagons?

Around 2,300 Hupac wagons are already low-noise, and in the next three years, another 1,000 will be upgraded. Currently we are undertaking a classification of the various wagon types. By the end of 2006, various prototypes will be developed, tested and will be ready to go into production. In 2007 we will start introducing the modifications as part of normal maintenance. Complete remediation will take longer than we might wish, because we must proceed maintenance integrated. Remediation



**Michael John**  
Rolling Stock  
Manager

outside scheduled maintenance is costly, and causes operational problems because the wagons are out of service.

### What does TSI Noise involve?

For newly-built wagons, the same conditions will apply in future to all as regards keeping within noise limits. The "Technical

Specification for Interoperability" defines mandatory standards for rail vehicles, in order to have uniform conditions for cross-border railway traffic. TSI Noise means uniform preconditions in the environmentally sensitive area of noise protection.

### Does the noise bonus granted by the Swiss Federal Government cover the extra costs of using noise-reducing composite pads?

Hupac trains run mostly on long international routes. Only a small part of the routes are on the Swiss railway network, and therefore entitled to a contribution. There is also the enormous load on the brakes on transalpine routes. The heavy goods trains have to overcome a height difference of 1,000 metres on each trip. That reduces the service life of the brakes. The noise bonus granted is not sufficient to cover the additional costs.



**Bernhard Kunz**  
Director of the  
Hupac Group

### What could an alternative approach look like?

Firstly, ways must be found to reduce the costs of the composite pad. This question is being put to the manufacturers across Europe. We expect that the introduction of the TSI Noise standard will spur the market. Secondly, we should

consider whether the EU might introduce differential train path pricing in favour of low-noise rolling stock. Our trains are already running across Europe on quiet pads. Everyone benefits from that.

# Swiss contribution to the future of Europe's railways

**"Freight trains should be able to travel as freely across Europe as lorries without changes to locomotives and engine drivers and organisational breaks in the system at international borders."**

Europe's transport market is going through a time of upheaval. Globalisation and Europe's eastern expansion are leading to an increase in the flow of transport to the newly acceded economies. Transit countries such as Germany and Switzer-

land are affected by this. The flow of goods through the Swiss Alps has increased by 50%, in the last ten years - at 4% the annual growth rates were twice as high as had been predicted. The high mobility of goods is putting pressure on the transport infrastructure. For long distances the railway, above all as combined transport, is the sensible option for coping with the future growth in transit flow for both economic and environmental reasons. The legitimate hopes rest on the opening up of the railway market. In future, freight trains should be able to travel as freely across Europe as lorries without changes to locomotives and engine drivers and organisational breaks in the system at international borders.



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## Pioneering role for Switzerland in the liberalization of the railway market

The competition between various railways which use a common infrastructure improves productivity and leads to more innovative offers which make the railways considerably more attractive than the road. Since 2005 the North-South freight corridor Netherland-Germany-Switzerland-Italy has been the first main thoroughfare in Europe in which a genuine rail market has developed. On this axis there are now five railway companies with integrated traction competing with each other without one single company gaining a dominant position. The other European railway markets are either still cut off (to or through France) or just at an embryonic stage, a stage where former holders of the state monopoly have between 80-90% of the market share with smaller fellow competitors sharing the rest. The dominant player usually also controls the infrastructure and the electricity supply, thereby controlling 40% of the production costs of the small

fellows competitors. Competition on the North-South corridor through Switzerland is already showing positive results after a short period. There is nowhere in Europe where rail freight transport is growing as quickly and combined transport is winning back market shares from the roads for the first time in the last fifty years with its double digit growth rates. The reliability and lower costs of integrated traction are making a contribution to this. It is hoped that this success will radiate positively onto the opening up of the market in the whole of

Europe and stimulate policies to strongly push this forward.

## SBB Cargo - Number two in Europe

The fact that competition is now the rule on the North-South corridor Netherland-Italy is first and foremost down to Swiss companies. SBB Cargo should be named first of all in this context. The internationalisation of its products through the building up of subsidiary companies in Germany and Italy has made it the first state railway company to make integrated traction possible in transalpine traffic. For the former transit company SBB Cargo this was a question of survival - with integrated traction soon there will be no need of "transit railway companies" any longer. As the leading independent intermodal operator in Europe, Hupac has also made a considerable contribution to the opening up of the market. The company has driven the opening up of the market with the first tender of a package of over 15,000 block trains per year on this axis in conjunction with high quality requirements and the preference for integrated traction. Both the Swiss companies SBB Cargo and Hupac are in a good position thanks to their pioneering role. SBB Cargo is today among Europe's leading rail freight companies. Along with absolute size, dynamism is decisive if success is to be attained in the opening market. By combining these two criteria, SBB Cargo has clearly attained the position of number two in the European railway market, behind German freight company Railion, an important railway partner of Hupac. In terms of turnover, SBB Cargo is actually number four but the second and third placed French and Polish freight railways hardly have any experience in open markets. The offensive strategy has put SBB Cargo right at the front. Custom-

ers value this because they need an alternative. That is the most important prerequisite for success. The wind of change is blowing in the open market, something that a state company is unaccustomed to. The tight margins only allow a low tolerance of errors and profitable growth is a prerequisite for survival. For sustained success a broader degree of future support of SBB Cargo as a Swiss company could be sensible.

**Hupac calls for further opening of the market**  
In 2005 Hupac's growth of 15.9%

enabled it to break the barrier of half a million consignments for the first time. The extension of the Busto-Arsizio-Gallarate transshipment terminal close to Milan will also make two digit growth possible in forthcoming years. The general political conditions will, however, be a decisive factor. The path to the opening of the market in rail freight transport must progress consistently. A regulator independent from railway companies and government must help the competition to break through. The train path prices for freight transport must also be reduced. Switzerland is the only country in which a heavy freight train pays higher tariffs than a people carrying express train although it has a lower network priority. Until the Gotthard-Neat link is completed, means of funding for combined transport will remain necessary. These are to be gradually reduced - with increased shifting volumes they will continue to fall. The aim is to function without any state support once the flat rail link comes into operation in 2017 and reformed route pricing is in place as the greater expense caused by the mountain stretch will be reduced.

## Political wishlist

**The success of combined transport strongly depends on the framework conditions. Overview of Hupac's expectations regarding transport policies.**

### ► Build up the infrastructure

Thanks to NEAT, an ultra-modern railway infrastructure is being set up in the heart of Europe. The enormous investments will only pay off once the entire system achieves a qualitative leap forward. The expansion of the connecting lines in Switzerland, Germany and Italy are vital for this, along with the commissioning of sufficient terminal capacity.

### ► Driving forward the opening of the rail market

With Railway Reform 2, an active regulatory body should be created which will drive forward the opening of the market, comparable to Comcom in the Telecommunications sector.

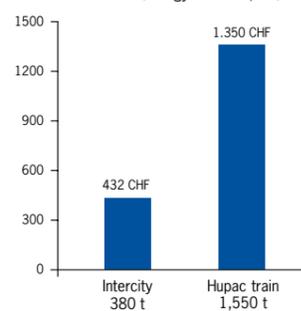
### ► Pricing reform

The train path pricing system must be corrected - it is not fair that a Hupac train is taxed three times as heavily as an Intercity train.

### ► Incentivation of combined transport in 2011-2017

The Swiss Act for modal shift in freight transport, expected during 2006, should ensure financial support for transit modal shift from 2011 until NEAT comes into operation. The subsidies must remain at present levels. The principle of degressive support should be retained - it forces all partners in the transport chain to increase productivity.

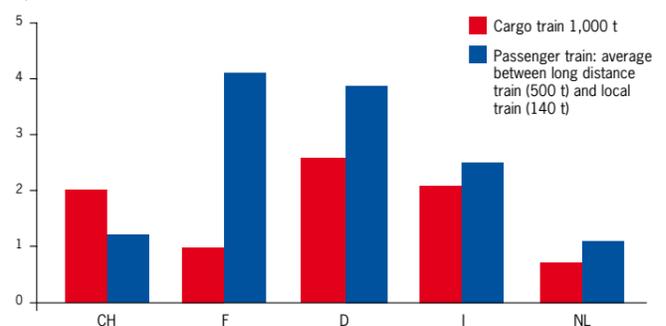
Basic utilization fee (energy excluded, DB)



### Prices on the Basel-Chiasso stretch

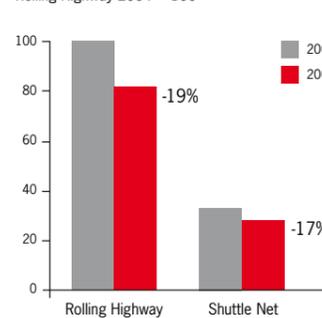
A Hupac freight train has to pay three times as much as a passenger train and has no priority.

€/ train-kilometer 2004



**Expensive train path:** In Switzerland, train path costs for freight transport are higher than for passenger traffic.

Per consignment-km in Switzerland, indexed; Rolling Highway 2004 = 100



### Financial support for Shuttle Net and the Rolling Highway in 2004/2005

The Rolling Highway needs three times the funding needed for unaccompanied combined transport. Between 2001 and 2005 contributions for combined transport fell by 30%

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