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HUPAC solutions for intermodal logistics www.hupac.ch December 2007

Expensive mountain route

In 2006, 25 million tonnes of goods passed the Swiss Alps on the railway, 17 million of which via combined transport. The bulk of the goods is transported over the Gotthard route, which celebrated its 125-year anniversary this year. At the Alptransit Conference in Locarno, Hupac director Bernhard Kunz spoke about the demands and perspectives of combined transport through Switzerland.

Bernhard Kunz
Director of the Hupac Group

The church of Wassen enwrapped in red immediately caught the attention of the rail passengers during the festivities for the Gotthard anniversary. Sometimes the red splash of colour appeared from the left, sometimes from the right, first from one side of the banks of the Reuss and then from the other. Near Wassen, the Gotthard route overcomes a height difference of three hundred metres using loop tunnels and steep ramps – in terms of railway technology, a master piece, in operational terms, a laborious and costly affair.

The trains climb up for 650 metres to the Gotthard tunnel and then brake on the other side over a downward gradient of 850 metres. "The fact that this route, with its 125-year infrastructure, is still efficient and has growth potential even today borders on a wonder", emphasises Hupac director Bernhard Kunz at the International Alptransit Conference for the 125th Gotthard anniversary in Locarno in mid October.

But the Gotthard route has its price. The heavy goods trains only get over the mountain using helper engines. In Erstfeld in the north and in Bellinzona in the south, depending on the train weight and length, one or two additional locomotives need to be harnessed. The multiple traction boosts the railway costs. "Until the opening of the Gotthard base tunnel in at least ten years time, this will remain unchanged", Kunz explained. In the future the flat rail route will handle trains up to 25% heavier using one locomotive less. This will increase productivity and provide leeway for cheaper rail prices.

Until then, transalpine combined transport is dependent on operating subsidies provided by the Swiss government. These subsidies are used to reduce the high rail costs to a market tolerable level, thus making combined transport able to compete with the road. "It is not at all true, that combined transport generally requires subsidies", Kunz clarified.

"In non-transalpine transport, for example between Eastern Europe and Belgium, Hupac has operated independent transportation for years and achieves high growth rates."

In the discussions about the new Freight Transportation Law 2011-2018, the level of subsidies is a central issue. In order to achieve the shift objective of reducing transalpine road transit to 650,000 truck shipments per year, subsidies in the amount of CHF 2 billion are needed according to Hupac. "That is 12% less than today", Kunz explained. "However, in reality the subsidy amount per shifted shipment is reduced considerably more, as the subsidies per shipment diminish automatically due to the annual quantity increases of up to 20%". Hupac balances the gap between the decreasing operational contributions and the escalating rail costs through productivity increases. However, the mountain routes set tight boundaries for these efforts.

Kunz assessed the market opening in rail haulage positively, which is proceeding particularly quickly on the Gotthard corridor and is having a positive effect with higher productivity and flexibility. However, he believes that the technical system limits need to urgently be overcome, since these limits cause huge costs and slow the liberalisation process. The lack of terminal infrastructures also causes him concern. "A sensitive factor which has a direct effect on the market chances of combined transport", Kunz warned. With a lead-time of five to ten years for the construction of new terminals there is already an acute need for action today. "We are confident to find solutions for terminals east of Milan in cooperation with the Lombardy Region and RFI in the foreseeable future. The situation is serious in a number of Central and North European markets".

editorial

A hot autumn

A wave of strikes of this magnitude had never been seen before in rail freight transport. Several times during the autumn, engine drivers of the state railways held strikes: in Germany, in France and in Italy.

Nevertheless, we are confident. The strikes are the visible emblem of a change in the world of rail: the state railways are accepting the challenge of the market opening up – a not easy process which demands courage, determination and clear-sightedness.

Hupac has been able to limit the negative effects of the strikes. Through close cooperation with different private railway companies, we have found solutions to get our trains to their destinations despite the strikes. Although 20% of trains via France and 5% of trains via Germany had to be cancelled, our customers value our efforts.

Once again our strategy of using the chances of the market opening has been proven successful. As long ago as a decade, we began to build up alternatives, thus distributing the risks. Today we are able, and be it even through emergency solutions, to keep our transportation going in crisis situations and through the waves of strikes over these months.

Ensuring the functionality of our network is a strategic task for us. With extensive investment, we are increasing the stability and reliability of our services. Because we want to protect our most important asset, i.e. the trust of our customers, who hand their shipments over to us day after day.

Alessandro Valenti
Business Manager Shuttle Net of Hupac Intermodal

News

Shuttle Net: new products

With about one hundred trains per day, the Hupac Shuttle Net is one of the largest networks for combined transport. In autumn this year, Hupac introduced a number of new trains.

Duisburg hub
Central location in the Ruhr district, good connections from/to Rotterdam – these properties make the Duisburg terminal an important hub in the Hupac Shuttle Net. In September, a new shuttle train Duisburg ⇆ Buna/Schwarzheide began. With it, Hupac created the first intermodal connection between the industrial regions in East Germany and the Ruhr district and Rotterdam. The Duisburg hub is gaining interest also for Swiss imports/exports: since November, a daily shuttle train runs between Duisburg and Wiler.

Rotterdam ⇆ Frankfurt
In September 2007 Hupac introduced a new daily shuttle train between Rotterdam Botlek/RSC and Frankfurt/Main. In Frankfurt there are ongoing connections to Busto and to the whole intermodal network of Italy.

France/Spain network
Since September, a new connection between Antwerp and Hendaye exists in the up-and-coming economic area in Southwest France on the border to Spain. With three departures per week, Hupac is thus expanding the supply between Benelux and South France/Spain, that already has a connection Antwerp ⇆ Perpignan. By the end of 2007, another connection Basel ⇆ Perpignan will follow.

Gateway to Italy
In November, a daily connection between Piacenza and Busto via Oleggio started. It allows to connect Zeebrugge to the Italian network via Busto, and Piacenza to the international network centered at Busto. In September, Hupac increased the supply between the Busto Arsizio hub and the regions of Emilia-Romagna/Lazio.

For more information and timetables go to **www.hupac.ch**

Combined transport protects the climate

The transportation of a shipment in combined transport between Cologne and Milan reduces CO_2 emissions by 67% in comparison with road transportation. This conclusion was reached by a study by UIRR about CO_2 reduction of combined transport on selected routes in Europe on the basis of concrete operating data. On average, the combined transport chain reduces CO_2 emissions by 55%. The balance is especially favourable on the corridor between Cologne and Milan. Transportation companies which use the Hupac Shuttle Cologne ⇆ Busto, save the environment about 1,000 kg of climate-damaging carbon dioxide per road shipment. The savings are predominantly due to the following factors:

- **Energy mix** The country-specific type of energy production (hydropower, nuclear, fossil) has a strong impact on the result. Combined transport through Switzerland has lower carbon dioxide emissions due to the huge proportion of hydropower used to produce the railway's energy (100 %).
- **Energy consumption** The most important parameter is the ratio of cargo load to overall weight. Long, heavy, fully loaded trains use the required energy particularly efficiently. Other factors, which have a positive effect, are low inclines in routes, central terminal locations and low shunting requirements.

Taking into account the high number of shipments, which are transported every year on the "race tracks" of combined transport, Hupac and its customers are making a considerable contribution to climate protection.

You will find the study at **www.hupac.ch→Hupac Group→ Environment**

Growth despite tight resources?

At the Hupac Customer Conventions, the focus lay on resource bottlenecks in transportation.

Customer Convention 07

Whether road, rail or water – the transport sector has to battle with considerably resource bottlenecks as a result of the rapid market growth. In the rail sector, too, supply and demand are currently diverging, with partially negative consequences for the quality and flexibility of services.

At the annual Customer Conventions, which took place in October and November in Rotterdam, Antwerp, Busto Arsizio, Copenhagen, Cologne and Singen, the current problems of combined transport also came up. As a reason for the resource bottlenecks, the Hupac managers named the long lead-times for acquisition of rail resources: more than twelve

months for rail wagons, one and a half years for locomotives, up to two years for the training of engine drivers. Consequently, resources which were ordered due to the increased demand in 2006, will in many cases only be available in the coming year.

"Nevertheless, we were able to achieve a 15% growth together with our customers this year by September", emphasised Hupac director Bernhard Kunz. Also, the quality as measured by the punctuality of the trains slightly improved in the first half of 2007 in comparison with the previous year's period. In total, 73% of the Shuttle Net trains operated on time against 71% of the previous year. "We use every opportunity to improve the load factor of the trains and the running performance of our wagons", Kunz explained. "And despite tight resources, we introduced new connections in cooperation with our rail partners – that is our contribution to the growing transport market".

News

Hupac Group recertified

The management system of the Hupac Group was subject to an extensive inspection by the Bureau Veritas in October. After a successfully completed audit, Bureau Veritas congratulated the company on the outstanding integration of ISO norms into its complex operating procedures. The Hupac Group was consequently recertified for another three years. With the certification in accordance with ISO 9001 and ISO 140001 and the inspection by external experts, Hupac proves that it recognises the demands of its customers and partners as well as those of the environment and fulfils them with constant quality.

Civil defence exercise in Busto Terminal

On a quiet Saturday morning, an accident occurs between two trucks at the Busto Arsizio terminal. A possibly poisonous liquid streams from a leak in one of the tankers, fire breaks out and there are two injured, one of whom is lying unconscious in the driver's cabin.

Luckily, this is not the chronicle of a transport tragedy; rather, a simulated exercise by the Busto Arsizio local authorities, including fire brigade, police, Red Cross and civil defence. The objective is to check the operative coordination options of the rescue forces and civil defence in case of emergency. "We made our plant available on the request of the municipality", says Sergio Crespi, general director of Hupac SpA.

The exercise was carried out successfully, all services worked correctly. The local government and the mobilised forces were satisfied. "It went well", says Sergio Crespi, "Our emergency aids were able to intervene efficiently and in good time. The coordination with the rescue teams was outstanding".

In 1998, Hupac had taken part with the Lombardy Region and the civil defence in the "Malpensa 98" exercise. In the past years, combined exercises by the fire brigade and local authorities have also taken place in the terminals of Singen and Aarau and in the Luino railway station. "We welcome exercises of this kind", emphasises Onorato Zanini, the safety responsible of the Hupac Group. "They provide the necessary opportunity to test the reliability of our services in case of emergency. We must be prepared for any situation".

The local rescue teams test emergency operations.

Two years of the Busto-Gallarate Terminal

With 250,000 m² area and 12 gantry cranes, the Busto Arsizio-Gallarate terminal is one of the largest and most modern transhipment centres in Europe. Two years after activating the terminal extention, Hupac strikes a balance.

A challenge in technology and environment protection

Giorgio Pennacchi

The terminal has fulfilled operational expectations. The site is divided into two structured and equal zones for safety and reliability reasons, including the railway platforms, routes and footpaths. The infrastructures are functional and easily accessible, which enables safe continuous operation even in the case of a breakdown. Control and electronic remote surveillance of the railway traffic, the electric gantry cranes and all facilities of the transhipment centre increase productivity and facilitate management.

Giorgio Pennacchi Director of Engineering for the Hupac Group

The selected crane type with its light structure has one of the most innovative technologies on the market. Examples are the high operating speed and the power recovery during braking and lowering the loads. Other advantages are the interface with the Goal information system, which allows the transmission of the loading units' position coordinates, as well as the crane's online operational diagnostics.

Today, the Busto Arsizio-Gallarate terminal is one of the most advanced transhipment centres in Europe and one of the first that was built taking into account environment protection and social responsibility in line with the criteria for sustainability. All the obligations of the authorities with regards to environment pollution were fulfilled:

- Surveillance of the noise climate before and after commissioning
- Periodic inspections with ecological indicators for the evaluation of eco-systematic modifications in the system itself and in the immediate proximity
- Half-yearly analyses of chemical components in the groundwater

In addition, numerous mitigation, compensation and urbanisation measures were taken during the realisation of the terminal. In light of the upheavals of one part of the land, Hupac committed itself to improving the existing environmental situation. The uniqueness of the terminal can be traced back to an intelligent connection between technology and environmental consciousness. One example of this is the biotopes in the terminal; natural areas of water which offer a suitable living space and nutrition for wild birds and animals.

In October 2007, the twelfth crane was put into operation, further improving customer service. In January 2008, the renovation of the historical part of the Busto Arsizio-Gallarate terminal will be tackled. At the same time, the check-in area will be redesigned so that vehicles can reach the terminal from the road more quickly and fluidly.

The challenge in management and operation

Francesco Crivelli and Sergio Crespi

Two years after the Gallarate terminal opened as an expansion to the existing Busto Arsizio transhipment centre, Hupac SpA and its employees is able to say with pride that they have risen to the challenge of operating the largest terminal in Europe.

At the opening, the Swiss transport minister Moritz Leuenberger called the new site "the largest European terminal on the south of the Alps … the navel of the world". The other members of the authorities that were present also made reference to the significance of the terminal for the economy in Alto Milanese. Today, Hupac SpA employs 235 people, of which 228 are used in the Busto Arsizio-Gallarate terminal services. In the coming years, further growth is anticipated. The terminal also generates another 15,000 workplaces in the supply industry.

The terminal is one of the biggest and most efficient transhipment centres with the best customer focus. A huge satisfaction for the company, which has been able to increase the number of train pairs each day from 8 (1989) to today's 25. After the commissioning of the new terminal, Hupac was confronted with a number of problems, including the introduction and optimal use of a new technology, the integration and training of staff, the intense increase of traffic to be dealt with. Therefore, the following measures were taken:

- Improvement of bottlenecks (check-in, operations office, access siding)
- 24-hour operation with new rota planning
- Introduction of a coordination system in order to accelerate the delivery and pick-up of loading units

Hupac SpA represented by Davide Muzio, Maurizio Tronchi, Francesco Crivelli and Sergio Crespi (from left to right)

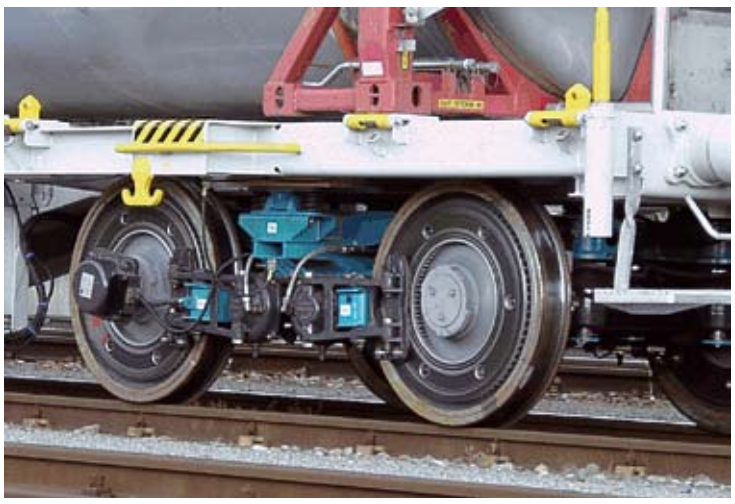
- Technical improvement of the facilities
- Initiatives to improve the relationship between drivers and terminal staff

Today, the Busto Arsizio terminal moves between 35,000 and 40,000 loading units per month. This is equivalent to a growth of 13% against the previous year. Despite the heavy increase, the average unloading time has dropped: from 37 minutes in 2005 to 33 minutes in 2007. This result is of huge significance for both the customers and the productivity of the site. In addition, punctuality of the trains improved significantly: 85% of the trains departed on-time, that means with a delay of less than 60 minutes; in the previous year this was 77%.

Leila bogies: waiting for the market breakthrough

There could be an end to railway noise. The technology exists and is almost ready for mass production. However, the market breakthrough would have to be accelerated by a political decision. Opinions from the Noise Symposium in Olten on 28th August.

Leila, light and low-noise: this is the name of the freight wagon bogie developed by the Josef Meyer AG in Rheinfelden in cooperation with the Technical University of Berlin. Professor Hecht explained the properties of "his" invention: "The Leila bogie has normal dimensions, but instead of brake pads, it has disc brakes, and thanks to its radial adjustability by means of a cross-anchor system, it takes curves with a lot less friction. It is suitable for higher velocities (up to 140 km/h), which facilitates the flow of traffic on heavily used routes. In contrast to a train with old brake pads, one which uses brakes with plastic pads causes 9 decibels less noise. A Leila train generates another 18 decibels less noise".



This means that 64 wagons fitted with Leila bogies do not make more noise than a single rail carriage fitted with the old pad brakes. These are dream values, which would directly affect the quality of life of millions of people living near the tracks. During test and measurement runs with a Hupac wagon in summer 2006, the properties of the revolutionary bogie were checked and subsequently optimised. Leila's series maturity should be attained in autumn 2008, explained Josef-Meyer CEO Dominik Suter. The new device will only be successful "if railway companies and freight wagon owners are able and willing to pay more than double for these technically state of the art bogies".

This is precisely where the crux of the matter lies, explained Hupac representative Erasmo Simoncelli. As all other operators in combined transport, Hupac follows with its price policy the market, that means the competition with the road and other combined transport operators. The additional costs for noise reduction must be bolstered if Leila is to make a breakthrough on the market. "As long as cheaper but, unfortunately, more noise-intensive bogies rattle through Europe, this bogie is on the back foot. Politics are also called upon here", explained Simoncelli. The reduction of noise emissions of rail transport is an important issue of environmental protection; the government awards a small discount for trains with wagons fitted with plastic-soled brake pads, but the development in this direction is too slow. "The moment has come to impose similar requirements as in road traffic", Simoncelli emphasises, "those who pollute the environment more, in this case with noise, should pay more, particularly in transalpine transport. In air traffic, the landing charges are also noise-determined".

The reduction of noise in rail transport is of strategic political significance in order to increase the acceptance of rail freight transport among the affected population, seconded the SP national councillor Susanne Leutenegger Oberholzer, who has supported the consequent enforcement of noise protection for years. "We need a railway pricing system which also takes noise levels into account with a bonus-penalty system in the pricing for freight trains", so the councillor's demand. "Anyone who rolls louder should pay more. This creates an incentive to retrofit the old freight wagons".

Hupac representative Erasmo Simoncelli sees another reason for the redesign of the railway pricing system in connection with Leila. "The Leila bogie reduces the rolling friction, and therefore, the track wear-and-tear. This invalidates the argument by infrastructure operators of having to demand higher rail prices for freight transport than for passenger transport. With Leila, we could demand equal or even cheaper route prices than for passenger transport".

Rolling stock show for the Gotthard anniversary

125 years of Gotthard, 40 years of Hupac – with a rolling stock show at the public event in Biasca the two jubilarians celebrated jointly.

Hundreds of rail fans marvelled at the latest Hupac rail wagons at the public event on 8th and 9th September in Biasca. Even non-insiders could take a close look at a combined transport freight train. Hupac rolling stock coordinator Fabio Contrafatto had lots of questions to answer. "Unbelievable how much interest for freight transportation there is among the population", the technician marvelled.


T5 pocket wagon


Mega II


60-foot container wagon


T4.2 flat wagon

The crowd puller was the shiny silver **ES 64 U2 engine,** a second generation four-axis electric two-system locomotive of the EuroSprinter family. The locomotive is equipped for Switzerland and Germany in terms of its traction and safety technology. Hupac has three of these locomotives; they are used by private railway companies.

The latest freight carriage model was the **T4.2 flat wagon**. It facilitates the transportation of (P) 386 statute semitrailers with an interior height of 2.77 meters. The decisive gain of 7 centimetres was achieved by lowering the longitudinal support in the area of the container gripper edge. "With this wagon, another segment of road freight haulage can access combined transport", explained Contrafatto.

The T4.2 flat wagon is 1.5 tonnes lighter than the previous model. "The reduction in tare is an important requirement in the development of our cars", Contrafatto further explained. "The new, ultra-light railway wagons contribute to using the tight rail resources efficiently and to optimising the availability and planning of rolling stock".

The **60-foot container wagon,** introduced in 2005, also weighs 2.6 tonnes less than a conventional carrying wagon. As a result, up to four additional loading units per train can be transported with the same total train weight. As with all new Hupac wagons, the 60-foot container wagon is equipped with low-noise synthetic brake pads. Thus Hupac fulfils the specifications of the Swiss transport policy to reduce noise in rail transportation.

The low-laying double wagon **Mega II**, an almost 37-metre long railway carriage introduced in 2003, was also shown. It is used on all Hupac Shuttle Net routes. It facilitates the transportation of standard and mega-trailers with an available interior height between 2.55 and 3.0 metres depending on the route profile. Through the low-laying loading space, C 70-400 statute jumbo swap containers can be transported to North Italy and high cube containers to South Italy on the Gotthard route.

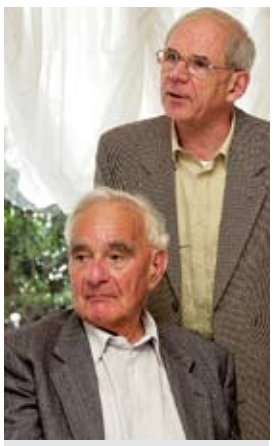
Versatility and flexibility are the central properties of the new **T5 pocket wagon.** This is suitable for the transportation of mega-trailers and conventional semi-trailers with an interior height between 2.55 and 3.0 meters. By turning down the locking plates, the pocket wagon transforms into a container wagon for heavy-weight containers up to a maximum loading weight of 68.5 tonnes. "The T5 thus increases the flexibility of the train compositions and improves the availability for the widest range of loading units", Contrafatto emphasises. The technical innovations include the new generation three-step height-adjustable support bracket. It enables the securing of the semi-trailer's king pin without wheel rugs within the pocket. A crash element protects the king pin from impacts during rail shunting.

For more information on Hupac rolling stock go to **www.hupac.ch→Hupac Group→ Rolling Stock**

"Do you still remember?"

The pioneers of Hupac celebrated the 40-year anniversary with a festive lunch in Lugano.

"Do you still remember?" was one of the most overheard remarks at the festive anniversary lunch "I pionieri della Hupac" on 30th May at Hotel De la Paix in Lugano. Everyone came to the anniversary. The remaining members of the founding generation were warmly welcomed by director Bernhard Kunz. **Hans Bertschi** was there, snow-white, vivid as ever, who did not give up his idea of combined transport after the first refusal by SBB bosses and spoke to the state's railways again after a change in the management. Triumphantly, he shows the black-and-white photograph with the first trailer shipment convoy in Swiss transport history.


Hans Bertschi, Theo Allemann


Giampietro Arrigoni


Hans Staub


Dr. Luciano Camponovo


Theo Stucki


Samuel Ruggli


Cuno Amiet

Dr. Luciano Camponovo also came, commercial director of SBB after Franz Hegner, patron of those first hours. Painful gaps appeared at this remembrance lunch, **Pietro Ris**, general director of Danzas and one of the founders, died a few months ago, also co-founders **Franz Hegner**, **Sandro Bernasconi** and **Ueli Maeder** are no longer with us.

SBB man **Samuel Ruggli**, born in 1946 and therefore the youngest at the table, responsible for the commercial side, sums it up: "Sportsmanship and vigour characterised the collaboration of Hupac with SBB!" With bated pride, the pioneers look back on that which they have created. **Hans Staub**, one of the men of the first hour, who worked in the field of operations, remembers how Federal Councillor Ritschard asked him: "This trailer shipment transportation... do you believe it has a future". Ritschard always asked this question, remembers Staub, "I had the feeling that he comprehended the potential of combined transport early on". **Theo Stucki,** responsible for technology in a leading position at the SBB, tells of problems of standardising the profiles of the tunnels and other railway infrastructures throughout Europe so that combined transport was even possible. "With our own profile measurement wagon, we measured the profiles using expanded rods. If not one rod broke, we knew the profile was enough". The adjustment of the profiles cost the SBB 50 million, an insider knows, no small potatoes and a strong commitment to combined transport. **Cuno Amiet**, former operations boss at SBB says, "I still remember how we created timetables with ruler and ink... unbelievable in the current computer era".

New wagon types were also debated in an international commission, in which the representative of a foreign railway seriously stated, as Theo Stucki remembers, that the truck manufacturers should design the trailers to fit the existing sizes of the railway carriages. However, Hupac implemented a service culture, and the technicians from SBB have developed more and more new generations of wagons in cooperation with Hupac in order to meet the diverse customer demands. **Giampietro Arrigoni**, who learned the job from scratch at the SBB in cooperation with Hupac, has many stories to tell.

There was complete agreement that **Theo Allemann**, director of Hupac until 2003, played an important part in the expansion of the business with his optimistic, forwards-looking disposition. Allemann was modest, "we were only able to achieve this as a team".

Werner Catrina

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