

Editorial



The power of perception

"Fusée sur terre" [rocket on earth] is how one journalist enthused at the spectacle of the TGV roaring past him during the record-breaking test earlier this month. One does not have to be a technical savvy to be impressed by the engineering feat that flashed on TV screens, and mobile phones, across the world.

At 575 km/h, it beat its own record set in 1990 and came within a whisker of beating the record set by maglev in 2003. Whether 'Mach 0.5' would ever be enjoyed in revenue service is immaterial. The installed propulsion power of the 5-car test train was 20 MW, over double that of an everyday 10-car TGV. The supply voltage was boosted to 31 kV, from the standard 25 kV. The wheels were extra large, the rails had a special coating, and so on. But this does not matter. Although the technical data gathered during such a historic event are undoubtedly valuable, the biggest achievement is the massive boost to the public perception of the railway industry worldwide. And this is no mean feat considering the tendency in the media to steer the public perception of railways into negative territory.

Looking back at the mid-90s, around the UK privatisation period, some readers will remember the 'order drought' that lasted 1000+ days without a single order for rolling stock in the UK. The passenger numbers had been on continuous decline since the 1950s. The industry and the public's perception of it were at a low ebb.

*Fortunately, from that trough, the passenger numbers and freight traffic on the national railway have seen a sharp recovery and are now at record levels. Similarly, in 2006, the London Underground carried 1 billion passengers for the first time in its 144-year history. Admittedly, there have been setbacks, such as Hatfield, duly exploited by sensational media headlines but the fundamentals, from the number of significant train accidents per million train-km, have been heading steadily in the right direction. Add to that the increasing public concern about the environment and road congestion, and the railways are onto a winner. Of course, as a rail engineer, I've always thought as much. But what really matters is whether Joe Public is convinced. Well, happily, it looks like he is. My proof? A recent TV advert by Virgin Trains enticing viewers with "76 % less CO2 emissions than car or plane". A few years ago, such a bold claim would have meant nothing to the average punter, let alone convinced him to leave the car at home. Today, the public perception has been won. For enabling this transformation, I take my hat off and say to the engineers - and to the media for once - **thank you and bravo!***

Dr. Ziad S Mouneimne
Managing Director
ENOTRAC UK Limited

News

ENOTRAC is best service provider 2006!

ENOTRAC were delighted to accept the **2006 award for Best Service Provider** from SBB/CFF/FFS, the Swiss federal railway operator and infrastructure owner. We see this award as a confirmation of the **quality of our work** and our drive to achieve **top performance every day**.

"Good suppliers are the key to success" declared Paul Blumenthal, Head of passenger division at SBB/CFF/FFS.

The ceremony, which took place in Geneva (Switzerland) on 10th November 2006, was attended by more than 130 international railway representatives.



Left to right: P. Blumenthal, H. Voegeli, and A. Wegmüller

During the ceremony, various topics were debated. Participants gave their views on possible business strategies to achieve higher levels of quality, lower prices and shorter delivery times across the supply chain.

As the event's highlight, Paul Blumenthal, SBB/CFF/FFS Head of the passenger division, presented three awards for various categories. ENOTRAC received the prize for 'Best Service Provider 2006'. Heinz Voegeli and Andreas Wegmüller were present to accept the award on behalf of ENOTRAC.

New team member



Mike Krocak has joined the ENOTRAC team in April 2007. He has recently completed his PhD at Warsaw University of Technology, where he studied **energy and power demand of public transport vehicles**, as well as the simulation of complex railway networks.

Mike is fluent in English, Polish, German and Russian. He is also a sport enthusiast, practicing mountain trekking and swimming on a regular basis.

ENOTRAC at Railtex 07

In February 2007, ENOTRAC was present at **Railtex 07**, the UK's premier rail industry event. For the first time, the event was held at the ExCel London Exhibition Centre.



We would like to **thank all of you who came to visit our stands**. We hope you found the Railtex 07 event as interesting and stimulating as we did.

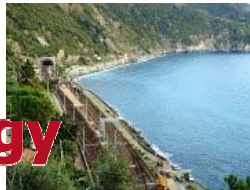
Railenergy EU project

ENOTRAC is one of the 27 partners currently working on **Railenergy**, an integrated project co-funded by the European Commission. The full name of the project is "Innovative Integrated Energy Efficiency Solutions for Railway Rolling Stock, Rail Infrastructure and Train Operation."

The overall budget of Railenergy project amounts to **€14.7M**. Partners include major system integrators, railway operators, infrastructure managers, component suppliers, universities and consultancies.



Railenergy



<http://www.railenergy.org>

The project started in 2006 and has a planned duration of **4 years**. The main objective of Railenergy is to address energy efficiency of the integrated railway system and to investigate and validate solutions ranging from the introduction of **innovative traction technologies, components and layouts** to the development of rolling stock, operation and infrastructure management strategies.

RSSB research project on energy efficiency

On behalf of **RSSB** and in collaboration with Interfleet Technology and Roger Kemp of Lancaster University, ENOTRAC is undertaking an extensive review of the **use of energy for traction on the UK national rail network**. The review includes: identification of where the energy goes from well to wheel, and cost/benefit analysis of possible efficiency improvement measures.

Approximately 50 opportunities, which could offer potential CO₂ and/or cost savings were identified, amongst which, the most promising are: (1) **Reducing power used by stabled electric trains**; (2) **Optimising train capacity** by matching train size to passenger load; (3) **Improving driving style** (this could result in energy savings of between 5% and 10%); (4) **Reducing the heating and cooling load** through better insulation and changes to thermostat set points.

ENOTRAC used its state-of-the-art multi-train FABEL simulator to quantify possible savings for various scenarios.

Tech corner

Intelligent vehicle refurbishing

In the 80s, Swiss operator SBB was looking for a new application for the Swiss Express cars (EW-III) that were about ten years old at the time. Some of the vehicles were **converted into driving trailers** to be combined with existing AD cars to form shuttle trains. **42 electrical wires** were required for the remote control of type Re 420 locomotives in push-pull operation transmitting messages and commands between the driving trailer and the locomotive.

The then newly developed time-division multiplex push-pull train control (ZWS) from **BBC** was installed to avoid the complex and expensive task of installing a 42-core cables. As a result, **the 25-core cable present in all EW-IIIs could continue to be used for controlling Re 420 from a driving trailer**.

The MAS-Traffic PLC family from **Selectron** was used for implementing a new remote control system with equivalent functions. As well as the actual function of a programmable logic controller (PLC) for carrying out all local data processing tasks, the system also offers components for implementing a train bus. This train bus system named **CAN Powerline** has already been used successfully in comparable applications. **System legacy** was particularly important as train operator, BLS, insisted on no changes to be made on the existing EW-III control cables.



ENOTRAC was selected as partner for the electrical engineering work. We have been working in this area for many years and possess the **requisite knowledge and experience**. As well as basic engineering design, ENOTRAC undertook the **programming of the new PLC unit**. The conversion work was jointly overseen by the engineering department of BLS and ENOTRAC.



Above: The driver's compartment of the driving trailer Bt 997 (photo: BLS)

Left: Equipment cabinet with train bus electronics in the ABS car. 1- CAN Powerline train bus coupler; 2- Selectron computer with diagnostic display; 3- Train bus electronics input-output modules; 4- Current amplification contactors; 5- Current amplification relays; 6- "ZBE fault" indicator (photo: BLS).

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