



VIABLE WAGONLOAD PRODUCTION SCHEMES

Separating Train Movements and Shunting

Last-mile Operation Method with Bimodal Vehicles Offers Potential for Cost Savings

Last-mile operations are one of the main cost drivers in SWL transport. Thus, in order to increase the overall service efficiency and competitiveness, this part of the transport chain has to be optimised. Different possibilities to reduce SWL production costs through improved last-mile services have been examined by ViWaS partners.

One approach evaluated by Fret SNCF with the support of NEWOPE-RA is the development of a new operation method based on the idea of separating train movements and shunting actions. For this purpose, bimodal vehicles are expected to enable shunting operations independently from the line locomotive with a much higher efficiency. After a positive cost-benefit evaluation,

a trial in real-life conditions has to prove the capabilities and advantages of bimodal shunting engines.

In February 2015, ViWaS partner Fret SNCF received a bimodal shunting tractor for a field test in Saint Priest near Lyon. The RR2444 of the Belgian manufac-

turer MOL is equipped with trailing wheels for use in rail mode and rubber tyres that ensure traction during both road and rail operation. Two to three minutes are needed to set the tractor on rail, the rail exit time is significantly lower at about 20 to 25 seconds.

In order to examine possible benefits through the deployment of a bimodal shunting tractor, the vehicle

will be constantly compared with the SNCF class Y8000 shunting locomotive. The comparison is performed with regard to functionality, ergonomics, security, maintenance, availability, and environmental factors.

In general, the MOL RR2444 receives mainly positive

feedbacks from the operators. Though an easy and intuitive handling in terms of controls, drivers emphasise the vehicle's operational handiness, flexibility and precision. In contrast to the Y8000 locomotive, better ergonomics, advanced technologies and security levels as well as a better general performance have been determined. Consequently, the bimodal capabilities increase the vehicle's flexibility and efficiency allowing the realisation of completely new solutions in shunting. Negative feedback was given concerning the narrow interior space, slight transmission judder and the main brake pipe pressure that affects precise handling at times.

Performed measurements revealed advantages of the bimodal tractor over the Y8000. Firstly, the brake pipe fill-in time is approximately 20 percent lower. Secondly, the fuel consumption undercuts the conventional locomotive by about 35 percent.

Fuel consumption: **-35%**

Better Ergonomics



Arrival of the MOL RR2444 rail-road tractor at Saint Priest terminal.

Source: Fret SNCF

The Making of...



ViWaS Film Shooting in Switzerland Shows Modular Wagon Technologies in Practical Use

Modular wagon technologies to increase flexibility and utilisation rates of wagons are ranked among the key achievements of the ViWaS project. In order to show the functioning of these new technologies in real-life scenarios with all capabilities, a project film has been shot on 14 and 16 April in Zurich, Rothenburg and Gossau (Switzerland).

FEATURED TECHNOLOGIES

The film focuses on three ViWaS innovations that shall fa-

cilitate improved loading and unloading procedures and offer new transport options:

- the Flex Freight Car (by Wascosa),
- the Timber Cassette 2.0 (by Wascosa), and
- the Container Loading Adapter (by SBB Cargo).

Higher wagon utilisation rates are assured by the Flex Freight Car.

The wagon features a flat drivable floor and can be equipped with different superstructures to suit

for manifold transport needs.

The Timber Cassette 2.0 features foldable stanchions that enable stacking either at the terminal site or on a container wagon. Thereby, less empty runs are guaranteed.

Designed for the implementation needs of the Swiss Split 2 production scheme, the Container Loading Adapter has been designed to minimise height differences between wagon and ramps in sidings and enables fast-loading by forklift. >>

↓ Top view from the final film: A drone enabled variable aerial shots from different heights and angles.



← Great setting: Swiss mountain scenery in the background.

DYNAMIC DIPICTION

The ViWaS partners have chosen GSP from Zurich, Switzerland as the responsible production company. For the first time in GSP history, the young team worked on a film featuring rail-related topics. Different filming techniques enabled dynamic perspectives. A camera crane as well as a drone for aerial filming has been deployed during the shooting. Experienced with dynamic movies for customers such as Red Bull or Porsche, GSP created a vibrant film that pictures the essential technological ViWaS innovations.

After the filming was done, the production team had a total of more than four hours of movie material

to work with, equalling 300+ GB of high-resolution data. Comparing different camera angles and choosing the best scenes led to the final version of the ViWaS film: a five-minute

picture showing the innovative outcomes that benefit future single wagonload transport. After its premiere during Transport Logistic, the film will be available on the project website.



The filming team during preparations for the next drone shot. Sources: HaCon

Optimised Telematics Visualisation

Interface Service Enables User-specific Supply of Telematics Data

As a long-time specialist in rail telematics, ViWaS partner Eureka Navigation Solutions AG is specialised in developing respective hardware components. Various practical deployments of Eureka telematics deliver a great amount of high-quality data including the current location, loading status, movements, speed, direction and mileage.

In the scope of the ViWaS project, the general need for single wagon monitoring and specific requirements for data visualisation to actors has been specified. As a result of the project work the TCCU (Telematics Communication Control Unit) concept has been developed.

The TCCU is an interface service that ensures a direct data supply to railway lead contractors, railway sub-contractors, service depart-

ments and customers. Eureka used the experiences gathered during the ViWaS project to adapt the TCCU tool for the needs of DB Schenker Rail customers. The individual adaptation leads to an optimised visualisation of location and status data of DB Schenker's freight wagon fleet.

Eduardo Silva, development director software at Eureka Navigation Solutions AG, about the project challenges: "We are proud to realise the data visualisation in such a short period of time. The team did a great job considering all necessary workups and adaptations according to the customer's needs and the CI compliance." The realisation of the adaptive TCCU architecture in the scope of ViWaS enabled a fast and uncomplicated individualisation for Eureka's pilot.

PROJECT KEY FACTS

- Budget: 4.2 million €
- EU contribution: 2.9 million €
- Duration: 9/2012 – 11/2015
- Coordination: HaCon Ingenieurgesellschaft mbH
- Consortium: Ten European companies and research institutions from the areas of rail transportation and logistics
- Project goals:
 - capturing new markets for SWL
 - optimising "last-mile" operations
 - improving flexibility and efficiency of equipment usage
 - increasing transport quality and reliability

www.viwas.eu

ViWaS Partners at Transport Logistic

At transport logistic 2015, ViWaS takes the opportunity to present the project achievements to the transport and logistics community. In addition to two designated ViWaS stands, seven project partners are participating in the world's leading logistics fair, too.

VIWAS STANDS

In hall B6 at stand 122, ViWaS coordinator HaCon gives an overview on the developments and field tests conducted within the context of the project. All activities aim at improving single wagonload transport and have a clear focus on last-mile operations and technical innovations.

As part of the "SwissMovers" stand (FGL, stand 804/1), ViWaS partners SBB Cargo and Wascosa present their modular wagon technologies developed within the project. The Timber Cassette 2.0, a new superstructure for log wood transport for Wascosa's Flex Freight® Car, will be presented. This wagon extension is characterised by foldable stanchions. In case the Tim-

ber Cassette is not in use, it can be removed and stacked at the terminal site or on a container wagon, thus improving the overall efficiency by avoiding empty runs. Additionally, SBB Cargo shows the prototype of their Container Loading Adapter. It facilitates container (un)loading in

dition, the latest developments for the Train Planning System TPS and the timetable information system HAFAS will be displayed.

Eureka (B6.125) shows their latest products. Information about telematics innovations realised within ViWaS will be given as well as a thorough overview on the entire aJour® telematics family.

SBB Cargo (FGL.804/1) focuses on the service entry of the Gotthard tunnel. As part of the joint "SwissMovers" presentation, SBB Cargo emphasizes the positive effects on rail logistics through the new tunnel.

Wascosa (704/6 and track 3/3) shows the company's latest rolling stock enabling improve rail-freight efficiency and reduced noise emissions.

Fret SNCF (B5.303/402) provides an overview of the company's various logistics services across Europe.

Bentheimer Eisenbahn (B6.401) displays the company's logistics portfolio as part of a joint stand of VDV, the "Association of German Transport Companies".

Finally, **TU Berlin** (B4.430) presents current R&D activities.



sidings and will be deployed within the "Swiss Split" production system.

PARTNER STANDS

HaCon (B6.129) presents further consulting activities with EU projects such as SPIDER PLUS and showcase IT solutions in freight transport like ITEC (Intermodal Terminal Eco-Efficiency Calculator). In ad-

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