VIWAS

Viable Waggonload production Schemes

**Funding:** European (7th RTD Framework Programme)

**Duration:** Sep 2012 - Nov 2015

**Status:** Complete with results

**Total project cost:** €4,105,228

**EU contribution:** €2,892,748

Call for proposal: FP7-SST-2012-RTD-1
Cordis RCN: 105453

**Background & policy context:**

Single wagonload (SWL) transport is still a major component in numerous European state transport systems and in the logistics of different economic sectors such as steel, the chemical industry and automotive. However, changing framework conditions and increasingly demanding market requirements have led to dramatic market losses and even to complete shutdowns of SWL business in some countries. As this business segment has been evaluated as important for specific transport modes in a European co-modal transport system and also in the future, significant improvements are needed.

**Objectives:**

The success of SWL depends mainly on two issues:

1. A viable SWL system is highly dependent on the critical mass. Thereby all options have to be considered to secure a high utilisation of the trains operated on the trunk lines, including a combined production with intermodal loads.

2. Only comprehensive and complementary measures are able to sustainably improve and preserve the European SWL systems in accordance with increasingly demanding market requirements.

**Methodology:**

The ViWaS project will follow a comprehensive approach, aiming at the development of:

- Market driven business models and production systems
- Security of the critical mass needed for SWL operations
- New ways for Last mile infrastructure design and organisation
- Raising cost efficiency
- Adapted SWL technologies
- Improving flexibility and equipment utilisation
- Advanced SWL management procedures using ICT
- Raising quality, reliability, and cost efficiency.

The applicability of these solutions and their effects will be proved on the basis of pilot business cases (by demonstrations). In doing so, important findings will be gained for a European wide implementation of the developed solutions.

The ViWaS consortium includes railway operators (SBB Cargo, Fret SNCF, Bentheimer Eisenbahn), technology partners (Eureka, Wascosa) and consulting/ scientific partners (ETH Zurich, TU Berlin, HaCon, New Opera).
**Parent Programmes:**  
FP7-TRANSPORT - Transport (Including Aeronautics) - Horizontal activities for implementation of the transport programme (TPT)

**Institute type:** Public institution  
**Institute name:** The European Commission  
**Funding type:** Public (EU)

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**Lead Organisation:**

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<th>Organisation Name</th>
<th>Address</th>
<th>EU Contribution</th>
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<tbody>
<tr>
<td>Hacon Ingenieurgesellschaft GmbH</td>
<td>Lister Strasse 15, 30163 HANNOVER, Germany</td>
<td>€807,144</td>
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**Partner Organisations:**

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<tr>
<th>Organisation Name</th>
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<td>Wascosa Ag</td>
<td>Werftestrasse 4, 6005 Luzern, Switzerland</td>
<td>€259,850</td>
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<td>SnCF Mobilites</td>
<td>9 RUE JEAN-PHILIPPE RAMEAU, 93200 ST DENIS, France</td>
<td>€101,695</td>
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<tr>
<td>Schweizerische Bundesbahnen SBB Cargo AG</td>
<td>Centralbahnstrasse 4, 4065 Basel, Switzerland</td>
<td>€426,297</td>
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<tr>
<td>Eureka Navigation Solutions AG</td>
<td>Bremer Strasse 11, 80807 Munchen, Germany</td>
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<tr>
<td>Consorzio Ib Innovation</td>
<td>Palazzina Doganale Snc Interporto 40010 Bentivoglio Italy</td>
<td>€94,831</td>
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<tr>
<td>Technische Universitat Berlin</td>
<td>STRASSE DES 17 JUNI 135 10623 Berlin Germany</td>
<td>€161,482</td>
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<td>Bentheimer Eisenbahn Ag</td>
<td>Otto Hahn Strasse 1 48529 Osnabruck Germany</td>
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<td>Eidgenoessische Technische Hochschule Zuerich</td>
<td>Raemistrasse 101 8092 ZURICH Switzerland</td>
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<tr>
<td>New Opera Aisbl</td>
<td>RUE MONTOYER 31 1000 BRUXELLES Belgium</td>
<td>€236,008</td>
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Technologies:
- Rail vehicle design
- New carrier wagon design for different container types
- Single wagon monitoring telematics

Development phase: Research/Invention
**Key Results:**

**Improved single wagonload competitiveness**

Single wagons and wagon groups are still a vital part of the rail freight transport system. Market shares of which however have declined in recent years due to high production costs and low quality standards.

A consortium of 10 European companies and research institutions, from the areas of rail transport and logistics, was formed, creating the project [http://www.viwas.eu/](http://www.viwas.eu/) (VIWAS) (Viable wagonload production schemes). Researchers focused on presenting innovative and practical solutions for a sustainable wagonload transport. The VIWAS consortium comprised several railway operators, infrastructure providers and consulting/scientific partners.

The EU-funded researchers demonstrated the applicability and the effects of the solutions developed, with field tests and pilot operations in business case studies. VIWAS achieved a few innovative breakthroughs.

First, it improved last-mile operations integrating hybrid locomotives and bimodal shunting engines, ultimately resulting in reduced costs. A new production method for last-mile delivery aims at separating train movements and sidings shunting processes by deploying bimodal road-rail tractors. Hybrid locomotives are crucial in securing access to regional distribution rail networks and further environmental improvements. Researchers also developed modular wagon technologies, intended for flexible and efficient use of resources. Specifically, three components were developed reaching the prototype status: the Flex Freight Car and the Timber Cassette 2.0 from Wascosa as well as the Container Loading Adapter from SBB Cargo.

The newly invented smart wagon telematics enable an improved cargo tracking at reduced costs. Finally, a new simulation tool for planning and optimising single wagonload (SWL) networks was developed. The simulation tool serves rail freight networks to facilitate the optimisation of SWL production schemes. It is based on the open source software MatSIM and models the routing of freight wagons according to the routes within the real SWL network.

The project has both direct and indirect impacts. The direct impacts are visible through higher cost efficiency, stabilization of the transport volumes and gains in specific market fields. VIWAS improvements pave the way for a sustainable recovery and stabilization of the generated transport volumes. Indirect effects, such as a positive environmental impact, increased safety and a significant impact on European wagonload services will be visible in the long run. Watch the [http://www.youtube.com/watch?v=lwHFTAlbekw](http://www.youtube.com/watch?v=lwHFTAlbekw) (project’s video) here.

Documents:
- Final Report Summary - VIWAS (Viable Wagonload production Schemes)
- STRIA Roadmaps: Network and traffic management systems, Other
- Transport mode: Rail transport
- Transport sectors: Freight transport
- Transport policies: Decarbonisation, Societal/Economic issues
- Geo-spatial type: Other