



FREIGHT

■ CREAM SPREADS EUROPEAN MEGA-CORRIDOR

WITHIN THE 6TH FRAMEWORK PROGRAMME OF THE EUROPEAN COMMISSION, THE PRIORITY OF SOLUTIONS FOR SUSTAINABLE SURFACE TRANSPORT IS CLEARLY DEFINED. THE CREAM[1] PROJECT – CUSTOMER-DRIVEN RAIL-FREIGHT SERVICES ON A EUROPEAN MEGA-CORRIDOR BASED ON ADVANCED BUSINESS AND OPERATING MODELS – IS ONE OF THE KEY INITIATIVES IN THIS FIELD AND AIMS TO MEET DEMAND BY DEVELOPING NEW CONCEPTS FOR TRANS-EUROPEAN RAIL FREIGHT SERVICES.

INITIATED by some of the key players and stakeholders on the corridor in question, the three-year project, which began in 2007, tackles a substantial bundle of topics impacting the overall competitiveness of rail with benefits for all actors, whether project partners or not. The corridor and main activities were chosen using the analysis and action plan adopted as part of TREND[2] and based on experience gained from BRAVO[3]. Both of these projects were also funded by the European Commission within the 6th Framework Programme. In addition to other schemes providing dedicated solutions for certain services, CREAM is working on both specific business cases and new services for attracting additional volumes for rail transport, plus the general framework conditions and overall improvements for all rail services on the corridor. By involving the former national incumbent railways, which are still responsible for the highest share of rail services in their countries,

transferral of the developed solutions to a high share of other rail services is possible. This article includes a brief summary of the overall project as well as some of the current highlights, which describe the first steps towards achieving the final goals.

CREAM TEAM

Coordinated by German software provider HaCon, CREAM is tasked with a number of technological and operational activities. These were established by the consortium members and associated partners active in the corridor, i.e. infrastructure managers, railway undertakings, intermodal operators or customers (see table below).

Thanks to the unique composition of the CREAM team, with its mix of transport providers and experts along the entire corridor, the solutions developed stand a strong chance of being successfully implemented.

Coordinator	HaCon Ingenieurgesellschaft mbH, Germany. Dr.-Ing. Marian Gaidzik
Project management	HaCon / KombiConsult
Overall project manager	Dipl.-Ing. Lars Deiterding (HaCon)
Railway undertakings, port & ferry operators, infrastructure providers	BDZ, CFR Marfa, Lokomotion, MAV Cargo, OSE, KeyRail, RCA AG, Railion Deutschland AG, RTC, TCDD, SZ, MZ, CD, ZSSK Cargo, GySEV, ZS
Intermodal operators, freight integrators, customers	ICA, Kombiverkehr, DB Schenker Intermodal, TRW, EKOL, Balnak, Ökombi, OZV, Adria Kombi
Technology provider	Eureka (Knorr-Bremse), HaCon
Consultants, research, associations	HaCon, KombiConsult, NTUA, OTB TU Delft, UIC
Duration	January 2007 - December 2009



GOALS

The project aims to improve the overall operating conditions for rail freight services on the defined corridor. It is also developing business cases to be integrated into an innovative, corridor-related freight service concept, e.g. with respect to:

- Modern, rail-based supply chains
- Quality management
- Interoperability and border crossing
- Tracking & tracing of shipments and customer information
- Rail logistics for temperature-controlled cargos
- Solutions for sensitive plate glass transport by rail
- New technology for transporting unaccompanied semi-trailers in intermodal transport

THE CORRIDOR

Running from the Netherlands and Belgium on one side, and Turkey and Greece on the other, the selected corridor is 3,150km long and comprises various TEN-T corridors. It integrates new accession states as well as candidate countries; the latter seen as fast growing economies with tremendous rail freight potential. At the same time, this route is one of the most challenging in Europe due to its associated technical and administrative context.

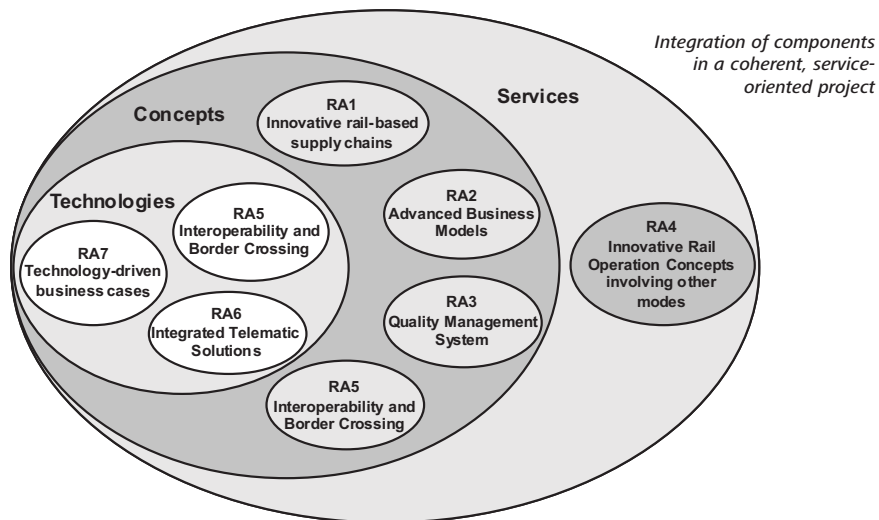
RESEARCH TO DEMONSTRATION – CURRENT STATUS

CREAM is now entering its third year. According to its schedule, most of the research activities are in their final phase and partners have started implementing the measures developed over the past 24 months.

ACTIVITY HIGHLIGHTS

New and extended intermodal services

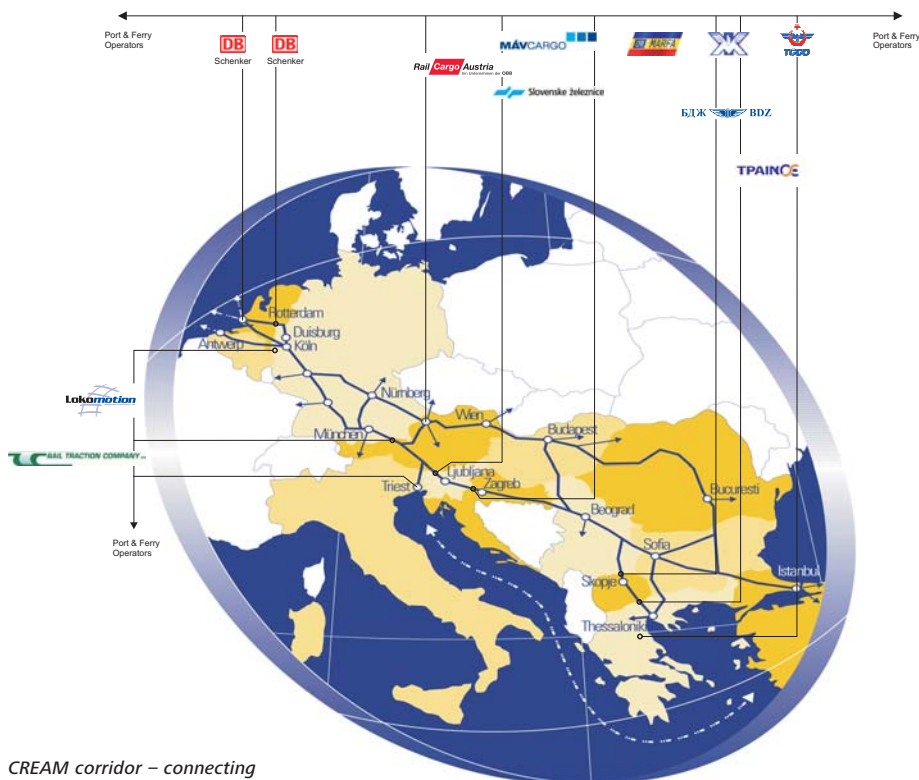
Several new international rail services have been established by the consortium members and their commercial partners. Additionally, other existing services have been extended or improved. These new offers are helping thread together the “string-of-pearls” concept for a corridor-wide network of high quality, intermodal services. This refers particularly to the southeastern section.



One example is the Bosphorus Europe Express (BEEEX) from Munich via Ljubljana to Halkali, which has been successfully developed and implemented by CREAM. The new BEEEX is also one of the selected services used to demonstrate other improvement measures on the corridor (e.g. Tracking and Tracing, Border Crossings). It has also been selected within another project in order to shorten the

transit time from Ljubljana to Halkali to 25 hours. This challenging attempt will be backed by involved CREAM partners to show that such “Express trains”, at least from a technical point of view, are no pipe dream if enough political pressure is placed on stakeholders and authorities.

In addition to developing new intermodal services, existing rail freight services have also





THE CREAM SOLUTION AIMS AT SHARING KNOWLEDGE OF BEST PRACTICES, SO THAT THE PARTIES MAY BENEFIT FROM THE POSITIVE EXPERIENCES AND DEVELOPMENTS OF SOME OF THE WESTERN PARTNERS, AS PART OF THEIR OPTIMISATION PROCESS OVER THE PAST FEW YEARS ”



been extended and improved by various, CREAM related measures, e.g. HCS1, Copper Anode Train and T-REX.

Positive start to new multimodal transport service between Turkey and Germany

Key rail routes between Western and South-East Europe on the corridors IV (via Romania) and X (via Serbia) have been developed as part of CREAM. Also in October 2008, an alternative multimodal transport solution – linking Turkey and Germany and integrating rail, short-sea and road transport modes – was developed and implemented. This service is now successfully operating and proves, once again, that CREAM focuses on implementing concepts and solutions already within its project lifetime. The main driving forces behind this innovative service are CREAM partners Ekol Logistics – one of Turkey’s largest forwarding companies – and Kombiverkehr – Europe’s leading intermodal, road-rail transport operator.

Ekol is responsible for the whole logistics chain via the following means:

- Pre-/on-carriage by trucks
- Short-sea connection << Istanbul–Trieste w >>
- New shuttle train << Trieste–Mannheim w >>

The strengths of the short-sea and rail connections are predictability of transport times and improved efficiency, since trailers are transported on these stretches without drivers and trucks; the main benefit of pre- and on-carriage by truck is high flexibility.

Kombiverkehr is in charge of providing a high quality rail link between Mannheim and Trieste. This service schedule is coordinated with the ferry times of the short-sea connection between Trieste and Turkish ports. The operation plan allows trailers to be transported (by rail) at times when trucks are generally not allowed

on German motorways (driving ban at week-ends). During the introduction phase, one train pair per week will be offered. However in the future, frequency should gradually grow to six departures per week, in each direction.

Long distance interoperable traction

One of the greatest advantages of interoperability is accelerated transport and improved service reliability due to less traction changes. This reduces the problems caused by lack of resources and complicated country-to-country coordination of loco rostering and dispatching in South-East Europe. As a result, the project partners assessed the possibilities of reorganising traction schemes and interoperable traction entered into operation for two pilot services in December 2008:

- “Hellenic Container Shuttle (HCS)” Mannheim – Inoi via Ebenfurth is now operated on the whole section between Mannheim and Kelebia with an ÖBB class 1116; this section is approximately 1,300km long and comprises a network of four infrastructure managers
- “T-Rex” Genk–Oradea delivers interoperable traction between Aachen and Püspökladány, using either an ÖBB class 1116 or a MAV class 1047 over a distance of about 1,500km, via a network run by three infrastructure managers

New or extended bilateral co-operation for improving border crossings

The second major challenge for reducing the overall transport time of rail services in South-East Europe is to optimise border procedures and related stopping times.

As part of the research on this topic, 20 railway border crossings on the CREAM corridor were analysed, focusing on the legal and technical framework. Categories were established, taking into account the crossing

procedures necessary, in order to compare the borders with different characteristics. The following questions were studied in depth (as well as the resulting implications):

- Are the technical and/or commercial trust agreements in place?
- Are the operational standards on both sides of the borders harmonised?
- Are customs checks or border police controls necessary?
- Are trains processed at one common or two separate border stations?

Besides investigating the basic procedures at the respective borders, project partners’ trains were analysed with regard to their time consumption. In general findings revealed that often the procedures lack coordination between the parties from the different countries and that there is a low level of cooperation. As expected, quite the opposite is the case if the level of cooperation between railway undertakings is high; in this case crossing the border is much faster. The CREAM solution aims at sharing knowledge of best practices, so that the parties may benefit from the positive experiences and developments of some of the Western partners, as part of their optimisation process over the past few years.

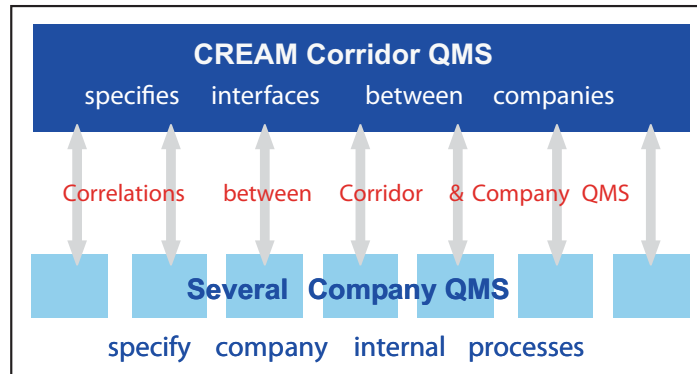
To boost the level of cooperation and optimise the interfaces between interacting parties at rail borders, CREAM has already started holding bilateral meetings at the borders with members of the railway undertakings, infrastructure managers, authorities and customers. The aim here is to improve procedures that will be applied in the upcoming demonstration phase. The latter will involve a first step for selected pilot trains, with the short term plan to extend the solutions to all services.

Quality Management System

To further increase the reliability and competitiveness of rail freight transport, the operator CREAM partners are developing a corridor-wide Quality Management System (QMS) for their services.

Whereas most partner companies have set up a company QMS to manage their internal processes, the CREAM QMS is mainly based on harmonised procedures and clearly defined responsibilities for improving interfaces between partners. Consistent implementation of this QMS will create a win-win situation for all partners, with following major benefits:

- Better quality, especially punctuality and reliability
- Optimised use of resources and therewith efficient services



All information on the CREAM QMS is described in a Quality Manual comprising a general section – containing common descriptions and definitions valid for all services – and individual chapters for each rail service included. This provides practical guidelines for operational procedures between partners.

GPS application for tracking & tracing freight, and a joint monitoring platform

Today more and more customers expect logistics service providers to deliver tracking and tracing information. For international freight trains operating on West European networks, the main sources of real-time information on train positions are the infra-



Hellenic Container Shuttle (HCS)

structure managers' train control systems. For trains travelling towards South-East Europe such information is often not available. So the key transport actors in this area have

chosen GPS as the most suitable additional source for train or freight monitoring.

Work package leader for this CREAM activity, Eureka Navigation Solution (successor of Knorr-Bremse in this business field) is one of the main suppliers of GPS-devices for the rail-freight business. Based on its experience, the company used the project work to develop a new prototype. The resulting device, presented as the NavMaster-CREAM Generation, includes the following improvements to previous models:

- Baseboard with new, powerful GSM module and antenna, high-capacity power supply and improved shock sensors
- Mounting holder for easy installation and anti-theft protection

For the first pre-commercial tests of the new devices within the related demonstration activity, the devices were installed on two trainsets on the Hellenic Container Shuttle

(March 2008) and on two trainsets on the BEEEX (November 2008).

The project decided to use the Combined Transport Group's (CREAM partner the UIC) international "Use-IT" system for processing the information. To meet special CREAM requirements, this system will be further developed to process not only information from infrastructure managers, but also gathered GPS data. In addition to the pure status information on the position and delay of the trains, "Use-IT" will be also enhanced by providing data on the Estimated Time of Arrival (ETA) of the train at its final destination.

Initiatives for terminal developments in South-East Europe

With regards the importance of adequate intermodal terminals for the future develop-

ment of intermodal services in common, and the “string-of-pearls” concept in particular, existing terminals on the corridor have been investigated. Especially in the southeastern part, the terminals have to cope with significant bottlenecks. Based on requirements for improved quality in general and the implementation of additional services in the near future, specialised CREAM partners analysed a selection of these terminals. The results have been published in short reports and will be used to help respective companies and authorities introduce adequate, short term solutions.

Demonstration of special trailers for temperature controlled cargo

Aimed at developing road-competitive intermodal services, designed for goods carried under temperature control, CREAM studied the respective technical requirements and working procedures, then developed a coherent solution. The main challenges were to ensure the energy supply, temperature control and monitoring during the rail journey and at breaking points. Having investigated the appropriate intermodal equipment, including craneable thermal semi-trailers, swap bodies and Euro pallet-wide domestic containers, innovative, piggyback semi-trailers were procured for the first demonstrator. These are equipped with a self-sustained, diesel supply generator and integrated GPS/GSM module, and are used for the intermodal transport of packaged pharmaceuticals and chemicals from manufacturing plants to warehouses. The first intermodal service of this type on the corridor was introduced in April 2008. So far no failures have occurred and the innovative solution has generated wide interest from other logistic service providers.

New service for non-craneable semi-trailers, using ISU* handling technology

To attract the ever-increasing volume of non-craneable semi-trailers for intermodal transport solutions, CREAM has used findings from previous studies and transferred the basic solutions from BRAVO to its particular scenario. Whereas in BRAVO the ISU technology confirmed its functional capability from a technical standpoint, CREAM focuses on its implementation. This includes improving the

system components and wagons, as well as selecting the appropriate terminals. Furthermore the corridor infrastructure has been examined with regards the loading gauge, based on the differing requirements of equipment techniques.

Work is progressing well and most of the technical and administrative hurdles, e.g. loading profile certification for all infrastructure managers, have been overcome. The train path is included in the schedule for 2009 with the first service already slated for March.

Final development phase for plate glass semitrailers specialised for intermodal services

To capture the plate glass market from road to conventional intermodal transport, CREAM has analysed the necessary framework conditions. One basic need is to adapt the semi-trailers available for plate glass transport and retrofit them for combined rail road. Based on a concept developed by the German forwarder Offergeld, a prototype semi-trailer will be designed, prototyped, built and demonstrated on selected intermodal trains along the corridor.

DRIVING FREIGHT FORWARD

CREAM and its various initiatives support the development of rail freight with dedicated technological and organisational solutions on the one hand, and general improvement measures such as improved border processes on the other. As an international and multi-disciplinary project it also has a significant impact on knowledge transfer between different rail companies, as well as supporting the growing rail market in Europe. For 2009, the partners are keen to continue achieving good results in the technology- and organisation-driven work packages ■

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senior consultant & head of freight
HaCon Ingenieurges

**Innovative Semitrailer Loading Concept*

All illustrations ©CREAM

[1] www.cream-project.eu

[2] TREND – Towards new Rail freight quality and concepts in the European Network in respect to market Demand – www.trend-project.com

[3] BRAVO – Brenner Rail freight Action strategy aimed at achieving a sustainable increase of intermodal transport VOLUME by enhancing quality, efficiency and system technologies – www.bravo-project.com