Better Together

10 European transport infrastructure cross-border projects to build a connected continent
Better Together

10 European transport infrastructure cross-border projects to build a connected continent

Europe’s strength lies in collaboration across national borders. By pooling resources from individual countries together the EU is able to achieve bigger and better results – to the benefit of all.

For many years, the EU Trans-European Transport Network (TEN-T) Programme has been supporting infrastructure projects which went beyond national frontiers to improve freight and citizen mobility across the Union.

Better Together showcases ten cross-border projects involving at least two EU countries, either completed or in progress. They have been selected among hundreds of similar TEN-T projects financed by the EU for their outstanding achievements in building a faster, safer and greener European transport network.

This publication will take you on a journey through Europe, from an underwater tunnel linking Denmark with Germany to a project to develop port cooperation between Helsinki and Tallinn. We will travel together through the world’s longest rail tunnel (page 5) linking Italy and Austria, sail on a ship powered by green fuel (page 4) and explore the benefits of driving your electric vehicle across many borders without running out of battery (page 4).

Fasten your seatbelt now, prepare to turn the page over and remember: when we do things together, we do them better!
Project 1

LNG: the shipping fuel of the future
Motorways of the Sea

Cross-border project description

The project, which contributes to the realisation of the Motorways of the Sea concept, assessed the feasibility of deploying Liquefied Natural Gas (LNG) filling station infrastructure in the Baltic Sea, the North Sea and the English Channel through a study and a pilot action. LNG is rapidly emerging as a more environmentally friendly fuel for the maritime sector and its uptake is encouraged by the European Union. The European market for LNG for maritime transport is presently limited and infrastructure to cater for its small-scale supply is almost non-existent.

The study part of project created a strategic decision paper to develop the framework conditions for the use of LNG for ship propulsion. It also validated the pilot action, which consisted of equipping two newly built vessels with an LNG propulsion system to demonstrate that LNG is a viable option from the shipping and LNG supply chain points of view.

Benefits of the project

The pilot action has been followed by an extensive measurement programme to confirm the environmental benefits of switching to the new fuel.

LNG, in fact, contains no sulphur and emits 90% less NOx (a generic term for the mono-nitrogen oxides NO and NO2 – nitric oxide and nitrogen dioxide) than traditional fuels and CO2 can be reduced by up to 25%. The emission reports showed a reduction of NOx of 93.6% for the first vessel and 84.8% for the second one.

The lessons learnt from the project have also a wider benefit for other geographical areas within the EU, as they demonstrate that LNG is a viable alternative fuel for large vessels. This will play an important role in further implementation of LNG propulsion systems in similar vessels throughout Europe, both on short international routes as well as for domestic traffic.
Cross-border project description

The Brenner Base Tunnel (BBT) is a cross-border rail tunnel between Austria and Italy and the main element of the new Brenner railway from Munich to Verona. The project lies on the Scandinavian-Mediterranean TEN-T Corridor, which stretches north to south from Norway, Sweden and Finland all the way to Italy and Malta.

It involves the construction of two 8.1 metre wide parallel rail tunnels running 40 to 70 metres apart from one another, as well as a third narrower service tunnel located between the two main ones.

The tunnel runs from Franzensfeste/Fortezza (in Italy) to Innsbruck (in Austria) where it links with the existing 9 km underground railway bypass to Tulfes. The combined length of the tunnel and bypass is of 64 km, making it the longest underground railway section in the world.

The tunnel is scheduled to be completed and operational by 2025.

Benefits of the project

The alpine Brenner Pass, at the border between Austria and Italy, is one of the most important transport connections between northern and southern Europe, located almost in the middle of the Scandinavian-Mediterranean TEN-T Corridor.

The road connection through the pass is infamous for its frequent traffic jams which increase travel times and generate considerable amounts of pollution in the region. Likewise the rail connection is limited to a top speed of 70 km/h due to the steepness of the existing tracks.

The cross-border tunnel, which is envisaged mainly for the transport of heavy goods across the Alps, will remove a major bottleneck in an environmentally sensitive area, shifting heavy traffic from road to a high-quality rail service, allowing trains to cross the Alps much faster. Once completed, the BBT will slash travelling times from Innsbruck to Bolzano from 2 hours to 50 minutes.
Cross-border project description

The Seine-Scheldt canal project, which forms part of the North Sea-Mediterranean TEN-T Corridor, is designed to connect the Seine and Scheldt river basins, and, to a broader extent, the entire Rhine-Scheldt delta and the Rhine basin (itself part of the Rhine-Danube TEN-T corridor).

The project will involve creating a 106 km long canal in France, starting just north of Compiègne and finishing at the Dunkerque-Scheldt canal. The canal will connect the Seine and Scheldt rivers and facilitate the transport of goods through inland waterways.

Furthermore, canal and river improvements in Belgium (like the construction of two new locks on the Lys river in Flanders and removing old dams and constructing new ones at Kain and Hérinnes in Wallonia) will also be undertaken to improve inland waterway navigation conditions.

Benefits of the project

The Seine and Scheldt basins run through two of Europe’s most important industrial regions, yet at present there is still no continuous navigable waterway for large container and push-towing ships between them.

The project will ultimately lead to this direct link being established and allow unimpeded navigation between the Seine and the Scheldt rivers. Eliminating bottlenecks in this network of rivers and canals will help alleviate the serious road congestion which affects the region, encouraging modal shift for freight and leading to improved safety on the road network. The project will also help to open a new inland waterway freight corridor between Le Havre, Paris, Dunkerque, Antwerp, Liège and Rotterdam/Amsterdam.

Once completed, the project will allow the concentration on the entire corridor of freight in push-tows carrying up to 4,400 tonnes of cargo. At the same time it will provide high-capacity access to the northern seaports and to a catchment market of more than 60 million people.
Cross-border project description

This project is driven by the emerging need to foster decarbonisation and promote alternative fuels for road transport in the European Union. It includes studies aimed at identifying the preferences and needs of consumers in terms of electric recharging. Additionally 115 high power recharging points will be deployed in Austria, Croatia, Germany, Slovakia, and Slovenia to create a network with country-wide coverage in Austria, Slovenia and Slovakia and connections from this network to Munich and Zagreb.

In the short term the project will focus on the roll-out of technologies ready for mass market deployment (high power recharging for battery and plug-in hybrid electric vehicles) and additionally carry out studies examining the preparation required for the implementation of complementary solutions that will be ready in the mid-term (hydrogen refuelling for fuel cell electric vehicles).

Benefits of the project

Europe needs to adapt road infrastructure to meet consumers’ e-mobility requirements as the number of cleaner and more efficient vehicles, including electric ones, is increasing. One priority is to enable efficient long distance driving on an interoperable network, which should in turn lead to increased usage of electric vehicles.

One of the main limitations thus far to the market penetration of electric vehicles has been the lack of adequate charging infrastructure and the lengthy charging times of vehicle batteries. The TEN-T supported project brings electric road mobility closer to reality by analysing and testing the roll-out of fast charging infrastructure across Member States. The conclusions of the project on the viability of setting up a trans-national network of fast charging stations represent a key milestone which will affect policymaking both at national as well as at European level.
**Cross-border project description**

The Fehmarn Belt Fixed Link project is a dual rail/road connection between Germany and Denmark lying on the Scandinavian-Mediterranean TEN-T Corridor, a key north-south route connecting the Nordic countries to the rest of Europe.

The link will provide a direct rail and road connection across the 18 km wide Fehmarn strait in the Baltic sea between northern Germany and Lolland, and onwards to the Danish island of Zealand and Copenhagen.

Although originally conceived as a bridge, it was announced in 2011 that an immersed tunnel would be the optimum technical solution. The immersed concrete tunnel will house two road tubes and two rail ones, with six combined road lanes (four for traffic and two for emergency) and two rail tracks. The rail tubes will allow the transit of trains travelling at speeds of up to 200 km/h.

The Fehmarn Belt tunnel is set to become the world’s longest combined car and rail tunnel, three times longer than the Transbay Tube Tunnel in San Francisco, currently the world’s longest immersed tunnel.

**Benefits of the project**

Presently, the Fehmarn Belt crossing is only serviced via a ferry connection, which takes around 45 minutes (plus any waiting time). The fixed link closes a gap between the Scandinavian and European rail and road networks by allowing trains and road vehicles to avoid the 160 km longer detour via the Great Belt when travelling from Copenhagen to Hamburg.

The Fehmarn Belt Fixed Link will reduce the journey time from about four and a half to merely three hours, allowing transit times across the strait of seven minutes for passenger trains and ten minutes for road vehicles.

Once fully operational in 2025, the Fixed Link is expected to see a daily traffic of around 40 passenger and 78 freight trains plus over 11,000 road vehicles. It will strengthen the transport links between the Øresund region in Denmark/Sweden and Hamburg in Germany, allowing a new greater and more competitive region – the Fehmarnbelt region – to emerge. It will also become a key transport node boosting the north-south mobility for freight and passengers along a key TEN-T Corridor, impacting regions as far north as Finland and as far south as southern Italy and Malta.
Cross-border project description

This project aimed to promote the implementation of a European Corridor Concept for Freight as stipulated in European Regulation 913/2010. This Regulation requests EU Member States to establish international market-oriented Rail Freight Corridors (RFCs) to strengthen cooperation, find the right balance between freight and passenger traffic and promote intermodality. Overall, nine RFCs have been established.

RailNetEurope (RNE), a non-profit association set up by a majority of European rail stakeholders to enable fast and easy access to European rail, served as platform for the implementation of the project, using methods, tools and procedures it developed.

As part of the project, RNE undertook a number of actions to develop the concept of a European Corridor for Freight in the rail sector, notably by ensuring proper overall management of the corridor, by harmonising time-tabling processes for international train path requests and by ensuring adequate support to all operations along the identified corridors.

Benefits of the project

Establishing the nine cross-border rail freight corridors, each with its own individual structure and management, has resulted in many improvements for rail traffic across the EU.

The coordinated approach created a "one-stop-shop" for each rail corridor, allowing for better coordination and a single point of contact for all queries. The single structure is able to coordinate infrastructure works between national railway managers to ensure sufficient capacity is preserved at peak demand times. It can also ensure better traffic management, allowing for an optimal distribution of freight and passenger convoys.

The result is increased efficiencies in cross-border services for rail freight transport, with a positive fall-on effect on rail passenger transport too. Furthermore, the establishment of the corridors boosted the attractiveness of the rail sector for international freight transport, shifting demand away from roads.
Cross-border project description

The project, called CROCODILE, aims to set up and operate an infrastructure that will be used to exchange information on road traffic flows between all involved public authorities and private partners.

The CROCODILE project focuses on two main aspects: the collection of information and its exchange between the participating organisations. In order to do this, the project will build the necessary infrastructure to obtain data from road traffic usage, focussing in particular on road safety and heavy goods vehicles parkings. The data collected will be used to offer real time information to road users, who will be able to access it at fixed locations on the road network or from mobile applications.

This information on weather conditions, traffic, route advice, availability of truck parking, and so on will always be available along the entire corridor.

Benefits of the project

The new data collection infrastructure will allow better cross-border coordination of Intelligent Transport Systems (ITS) strategies, allowing for better analysis of traffic flows and improved responses to safety emergencies. It will also allow for improved planning for professional freight transport companies, which will be able to use the parking area information to ensure optimal transit times for their vehicles.

Traveller information services will be harmonised along the corridor. The project is also expected to foster the implementation of additional cross-border ITS applications for travellers, improve the efficiency of traffic flows and reduce congestion.
Project 8

Building a fast east-west rail connection
Mediterranean Corridor

Cross-border project description

The project involves the construction of an 80 km section of railway between France and Italy, the centrepiece of which will be a 57.1 km base tunnel dug through the Alps. It is part of the broader Lyon to Turin rail link, running along the TEN-T Mediterranean Corridor.

The project involves carrying out technical design and environmental studies. Three descending shafts in France assessed the geological conditions of part of the mountains through which the base tunnel will pass. The La Maddalena (in Italy) and Saint Martin-la-Porte (in France) galleries are also providing similar geological investigation on other sections of the future alignment.

The project also combines the construction of certain rail infrastructure, like the new railway station in the Italian town of Susa. Works to prepare the construction sites in both France and Italy for the future base tunnel are also underway as part of the project.

Benefits of the project

Completion of the tunnel will allow the Mediterranean Corridor to become a major railway axis from south-western to central and eastern Europe.

The new railway link will considerably shorten travel times for high speed passenger rail traffic. The Lyon to Turin journey time will be cut from the current 4 hours to less than 2 and the Paris to Milan one will go from 7 hours to around 4. It will also provide an environmentally friendly response to the steadily increasing demand for freight transport through the Alps.

Currently, in fact, rail traffic in the region is limited due to an unusually low maximum allowable train height and very steep gradients (26-30‰) in some sections, which discourage its use. The new connection will enable fast trains to transit, fostering modal shift to rail from less efficient and environmentally friendly modes of transport.

MEMBER STATES INVOLVED
Italy, France

IMPLEMENTATION SCHEDULE

| January 2007 | December 2015 |

BUDGET
Project cost covered by the EU financing decision: €890,476,300
EU contribution: €400,973,075

ADDITIONAL INFORMATION

Beneficiaries
Republic of Italy: wwwinfrastrutturetrasporti.it

Implementing body
Tunnel Euralpin Lyon Turin SAS: www.telt-sas.com
Project 9

Upgrading the maritime link between Helsinki and Tallinn
North Sea-Baltic Corridor

Cross-border project description

The aim of the project is to upgrade the Helsinki West Harbour and the Tallinn Old City Harbour to improve connections between the two European capitals and contribute to the realisation of the Motorways of the Sea concept.

The TWIN-PORT project involves upgrading the transport links of the two participating ports and their hinterland, linking the Scandinavian-Mediterranean TEN-T Corridor in Finland with the North Sea-Baltic one in Tallinn.

The project will support significant infrastructure improvements in the Helsinki West Harbour, including better access and the extensive use of innovative technologies. In parallel, traffic solutions for A, B and D terminals in the Tallinn Old City Harbour will also be developed to smoothen traffic flows. Finally, a study on the Tallinn-Helsinki corridor Roll-on Roll-off (Ro-Ro) traffic scenarios will also be conducted.

Benefits of the project

Once completed, the project will improve the maritime link between Finland and Estonia, facilitating the sea-based transport of freight, which will ultimately lead to capacity and efficiency gains. Furthermore, the improved cooperation and collaboration between the two ports will foster cohesion and integration between the two EU Member States and the respective regions facilitating development and growth for industry.

Along with the enhancement of port cooperation and the benefits to industrial growth, the project will also help tackle climate change by testing and adopting new innovative technical solutions to help lower emissions.
Cross-border project description

The Rail Baltica initiative involves the construction and upgrade of a continuous EU gauge railway line between Tallinn (Estonia) and Warsaw (Poland), passing by the Baltic cities of Riga (Latvia) and Kaunas (Lithuania).

At its northern end, Helsinki and Tallinn are joined by means of rail ferry services, thus bridging the gap between Baltic and Scandinavian countries.

This interoperable North-South railway line is one of the key elements of the North Sea-Baltic TEN-T Corridor linking the European Union from east to west. To develop the full railway, 1,200 kilometers or rail track (of different standards, track types and electrification levels) will have to be upgraded. This will be realised through several projects at national level which will upgrade the existing rail infrastructure.

Benefits of the project

Completion of this project will result in a high quality continuous connection for freight and passenger rail transport between Finland, the Baltic States, Poland and other European countries. Moreover, it will result in the harmonisation of rail standards along this line, facilitating the interoperability between countries and enabling a modal shift from road to rail transportation.

Travel times along the route will be reduced as the region moves from a patchwork of individual national rail networks to a unique network compatible with the rest of the European Union. Rail safety will also be positively affected as the region upgrades its rail traffic control systems.
The **INNOVATION & NETWORKS EXECUTIVE AGENCY (INEA)**

As an executive agency established by the European Commission, INEA ensures the successful implementation of parts of the **Connecting Europe Facility (CEF)** and **Horizon 2020 Programme**, and the legacies of the **Trans-European Transport Network (TEN-T)** and **Marco Polo (freight performance) Programmes**. INEA manages a total budget of up to €34.1 billion (2014-2020): €27.4 billion from the CEF and €6.7 billion from H2020*

INEA follows the entire project lifecycle and makes implementation happen by:

- Organising Calls for Proposals and external evaluation of projects to be co-financed
- Providing support to beneficiaries
- Administering the grants awarded
- Ensuring technical and financial follow-up of project implementation
- Controlling the use of allocated funds
- Giving feedback to the Commission as input to policy-making

### Horizon 2020

Horizon 2020 is the EU’s biggest ever programme for research and innovation that aims to ensure Europe produces world-class science and technology that drives economic growth. It couples research and innovation, and focuses on three key areas – including ‘Societal Challenges’. Two of the seven challenges are partly managed by INEA:

- Smart green and integrated transport
- Secure, clean and efficient energy

### INEA’s added value

Beneficiaries benefit from INEA’s long-standing experience and proven high-level performance, including:

- Simplified access to EU funding opportunities via a single entry point;
- Expertise to increase the efficiency of technical and financial programme and project management;
- Bringing innovative ideas, concepts and products to implementation;
- Promotion of the programmes and increased visibility of the EU for project results and achievements;
- Promotion of synergies and economies of scale between the programmes;
- Close working relations with beneficiaries;
- Best practices, guidance and technical support in project management, public procurement, financial engineering and environmental legislation;
- Streamlined and harmonised procedures for a better use of EU funds and maximised programme efficiency — such as shorter payment times and response to requests;
- Efficient evaluation procedures, user friendly and transparent call documentation, and customised IT tools to support applicants.

---

*These figures are subject to final approval of the European Fund for Strategic Investments which at the time of going to print was still pending.*

---

**Making Implementation Happen**

INEA’s mission is to implement the programmes in an efficient and effective manner by providing its stakeholders with expertise and high-level programme management, in order to benefit economic growth and EU citizens.

**Connecting Europe Facility (CEF)**

The CEF is a key EU instrument to promote growth, jobs and competitiveness through targeted infrastructure investment at the European level. It supports the development of the high-performing, sustainable and interconnected Trans-European Networks in the fields of:

- Transport
- Energy
- Telecommunications
Europe Direct is a service to help you find answers to your questions about the European Union.

Freephone number (*):

00 800 6 7 8 9 10 11

(*) The information given is free, as are most calls (though some operators, phone boxes or hotels may charge you).


Conception/pre-press: Eworx S.A.

Cover © Shutterstock, bymandesigns

Images ©
Page 4 – Fjord Line Danmark A/S
Page 5 – BBT SE
Pages 6, 10, 12 – INEA
Page 7 – Plunger
Page 8 – Femern A/S
Page 9 – Rail Net Europe
Page 11 – Tunnel Euralpin Lyon Turin SAS
Page 13 – Estonian Technical Surveillance Authority

doi:10.2840/316418

© European Union, 2015

Reproduction is authorised provided the source is acknowledged.

Printed in Belgium on elemental chlorine-free bleached paper (ECF)

H How TO Obtain EU PUBLICATIONS

Free publications:
• one copy: via EU Bookshop (http://bookshop.europa.eu);
• more than one copy or posters/maps: from the European Union's representations (http://ec.europa.eu/represent_en.htm);
from the delegations in non-EU countries (http://eeas.europa.eu/delegations/index_en.htm); by contacting the Europe Direct service (http://europa.eu/europedirect/index_en.htm) or calling 00 800 6 7 8 9 10 11 (freephone number from anywhere in the EU) (*).

(*) The information given is free, as are most calls (though some operators, phone boxes or hotels may charge you).

Priced publications:
• via EU Bookshop (http://bookshop.europa.eu).

Priced subscriptions:
• via one of the sales agents of the Publications Office of the European Union (http://publications.europa.eu/others/agents/index_en.htm).