















# "10 OUT OF TEN"

TEN-T Project Implementation Successes





















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TEN-T Project Implementation Successes



1-2-3-4-5-6-7-8-9-TEN: This brochure highlights 10 out of the many implementation successes of the Trans-European Transport Network programme, for projects that the TEN-T Executive Agency is managing on behalf of the European Commission.

The TEN-T programme plays a vital role in financing transport infrastructure by granting support to selected European projects in all transport modes and in every EU Member State. With the ultimate aim of forming a multi-modal network that allows people and goods to circulate quickly and easily in a single European transport area, TEN-T projects are also helping to build an integrated, greener and ultimately decarbonised European transport system which benefits all EU citizens, both economically and socially. The TEN-T Executive Agency is playing its part by ensuring efficient and effective implementation of the projects.

As you journey through these pages, you will experience first-hand how these individual TEN-T projects are collectively helping to complete the TEN-T network and change the face of European mobility. Let's get moving...



# Improving the management

# of Danish and Swedish skies



2003-SE-1408-S and 2004-DK-90403-S

#### **Member States involved**

Denmark and Sweden

# **Implementation schedule**

2003-SE-1408-S

Start date: January 2003 End date: December 2010

#### 2004-DK-90403-S

Start date: April 2004 End date: December 2010

# & Implementing bodies

LFV (Luftfartsverket) - Swedish air navigation service provider

www.lfv.se

Naviair — Danish air navigation service provider www.naviair.dk

#### **Budget**

2003-SE-1408-S

Total project cost covered by this Decision: €15,600,000 National budget: €7,800,000 EU contribution: €7,800,000

#### 2004-DK-90403-S

Total project cost covered by this Decision: €8,060,000 National budget: €6,060,000 EU contribution: €2,000,000

# Percentage of EU support

2003-SE-1408-S Studies: 50% 2004-DK-90403-S Studies: 25%

### **Additional information**

NUAC www.nuac.eu



## **Project description**

This project's overall aim was to reduce costs for the provision of Air Navigation Services (ANS) in Denmark and Sweden. The idea was to align the region's Air Traffic Management (ATM) with both the European Commission's Single European Sky (SES) legislation and the respective national strategic guidelines, as well as to integrate the two companies providing ATM services: LFV of Sweden and Naviair of Denmark.

The SES legislation provided the foundation for organising European airspace into Functional Airspace Blocks (FABs) according to traffic flows instead of national borders. FABs are important in making European airspace safer and more efficient and will prepare it for the predicted doubling of air traffic levels by 2020.

In this framework, ANS providers within each FAB should coordinate together to ensure their airspace is correctly and efficiently managed. For the establishment of the Danish and Swedish FAB and the integration of the en-route areas, LFV and Naviair used the TEN-T co-funded study to look at the various possible business cases for closer mutual cooperation. When the study was completed, they set up an interim operational alliance which paved the way for the creation of NUAC HB in 2009, a subsidiary jointly owned by Naviair and LFV.

## **Benefits of the project**

NUAC HB started providing operational support at the beginning of 2011. From mid-2012, NUAC will take over the operations of the three air traffic control centres from Naviair and LFV. It will deliver air traffic services in the Danish/Swedish FAB — the first integrated ANS provider to do so in a FAB.

By creating NUAC and giving it the responsibility of delivering the en-route services in the Danish and Swedish FAB, Naviair and LFV have managed to reduce costs, streamline decision making and ensure that a professional, efficient ANS service is delivered.

However, the advantages do not stop here and are not only for the companies involved. Through the integration and establishment of the FAB and NUAC, the programme can deliver shorter flight times between the regional airports, thus reducing journey times for travellers and lowering the environmental impact of the air sector.

The completion of the NUAC programme also benefits the EU as a whole, as it increases flight capacity within the airspace block and ensures that transit traffic is more efficiently handled.

Concretely, establishing the FAB and NUAC leads to the following savings:

- 5,296 fewer flying hours per year, equalling savings of €9,278,088
- 52,000 tonnes of CO₂ per year, or €4,588,079 annually
- €21,156,056 in airline operator costs

# PROJECT 2



# **Safer, quicker journeys** on Poland's A1 motorway



## **Project description**

This project was one of the first steps in the realisation of a section of the Polish A1 motorway linking the cities of Pyrzowice and Maciejów in the highly populated Polish region of Upper Silesia. Specifically, the TEN-T co-funded study looked into the elements necessary to prepare for the construction of the motorway section, such as detailed designs, geological documentation, environmental analysis and road traffic organisation.

Following the study's successful completion in December 2008, the work phase began in July 2009 and the new section of motorway is on target to open by mid-2012.

# **Benefits of the project**

The findings of the study allowed work to start on this very important section of the Polish road network. Modernising the road transport infrastructure is particularly relevant in countries such as Poland, where road fatalities are still well above the EU average.

The new Pyrzowice to Maciejów motorway section will allow road users to reduce their travel time, and at the same time enjoy increased safety on the network by ensuring that all the most modern accident prevention and mitigation measures are included. The Upper Silesian industrial region will also benefit from safety improvements and the elimination of bottlenecks on the existing road network by offering an alternative route that will help relieve the existing infrastructure from increasing traffic volumes.

As well as bringing benefits to regional road users, this section of motorway also has EU-wide importance as it forms a key Polish part of Priority Project 25, the Gdańsk-Brno/Bratislava-Vienna motorway axis. This is an important road axis connecting the two central European hubs of Vienna and Bratislava with the Baltic and Scandinavian regions through the port of Gdańsk. Improvements to this road network at the local level therefore have a multiplier effect in creating more efficient European mobility for all.



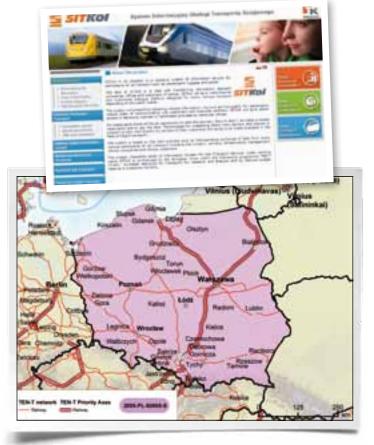




# **Easier journey planning** for Polish railway users







# **Project description**

This project involved the drafting of a feasibility study and a pilot scheme for the implementation of a railway information system for passengers and business customers in Poland called SITkol (*System Informacyjny Obsługi Transportu Kolejowego*).

Launched in January 2009, the SITkol portal — www.sitkol.pl — combines useful information on freight and passenger rail services in Poland, including train timetables, scheduled stops on specific lines, and information about works and expected delays. Similarly, the portal can also be used as a travel planning system from journey start to end and includes the possibility to book and pay for train tickets. SITkol also offers real-time positioning of specific trains within the network.

# Benefits of the project

The completion of the project has given Polish citizens and businesses a unique web portal to plan their rail journeys and track the progress of trains across the network through interactive maps. This allows users to plan, book and pay for their train travel without leaving the comfort of their homes, significantly reducing passenger congestion at busy railway stations.

The possibility of ticketless travel offered by the mobile version of the SITkol portal has also reduced costs for operators and customers alike — anyone with a mobile internet connection has the possibility to book and pay for a journey from any location they choose.

These advantages have been reflected in the increased use of the SITkol portal: 7.5 million visits and over 4 million unique visitors between 2009 and 2011. Daily visits to the site have risen from 2,000 in 2009 to 25,000 today.

This virtual information system is further enhanced by a railway station information system and a multimedia kiosk located in Warsaw Central station. These provide users with direct access to the SITkol portal without the need for an internet connection. The kiosk has proved so popular that the station's governing body has ordered the installation of additional ones with the same functionalities. Rail travel in Poland has never been easier...



# Speeding up rail travel in the Spanish

Basque Country



# **Project description**

This project is part of the Atlantic branch of Priority Project 3 (Paris-Madrid high-speed railway line) and covers the section between Arrazua/Ubarrundia and Mondragón in the Basque Country in Spain. It supports the construction of the following high-speed railway lines in the provinces of Álava and Guipúzcoa:

- Arrazua/Ubarrundia-Legutiano (section completed)
- Legutiano-Eskoriatza (tunnelling ongoing)
- Eskoriatza-Aramaio (works ongoing)
- Aramaio-Mondragón (works ongoing)

Due to the mountainous landscape of this region, the works include the construction of a series of viaducts and tunnels.

# Benefits of the project

Once fully complete, the project will boost the competitiveness of rail transport between Madrid and the cities located along the affected corridor (Valladolid, Burgos, Vitoria, Bilbao and San Sebastián).

The project also aims to substantially improve travel times along this line by replacing conventional rail transport with high-speed trains and by creating a faster direct rail connection between the cities involved. Once the entire line is complete, passengers will be able to travel from Madrid to Bilbao in 2h30min, compared with the current journey of over five hours. Safety will also be improved through modern signalling and train control systems (ERTMS).

Local and regional rail traffic — both passenger and freight — will benefit once the project is complete: passengers will take advantage of faster travel times, and business customers will profit from the reliability of the new infrastructure. The high-speed line will increase rail's share from 3% to 21% of the total trips between Madrid and the various cities along the rail line in the Basque Country.

Completion of this rail section will also have a positive effect on eastwest mobility in the EU, by completing one of the missing high-speed rail sections needed to connect Paris to Madrid.









# **Improving railway safety** and efficiency using ERTMS



**Member States involved**The Netherlands

### **Implementation schedule**

Start date: September 2007 End date: May 2012

## Beneficiary & Implementing body

Prorail www.prorail.nl

### **Budget**

Total project cost covered by this Decision: €9,000,000

National budget: **€4,500,000** 

EU contribution: €4,500,000

Percentage of EU support Works: 50%

#### **Member States involved**

Belgium, France, The Netherlands, Germany

#### Implementation schedule

Start date: February 2007 End date: April 2010

# & Implementing body

Thalys International www.thalys.com

#### Budaet

Total project cost covered by this Decision: €9,600,000

Action promoter: €4,800,000

EU contribution: €4,800,000

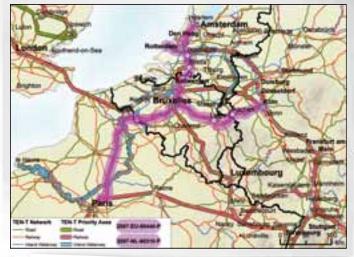
**Percentage of EU support** 

Works: **50%** 

### **Benefits of the project**

The installation of ERTMS receivers and the parallel equipping of locomotives with ETCS is a long-standing priority for the harmonisation of railway traffic management systems throughout Europe. It allows for a more efficient use of the rail infrastructure, ensuring timely connections between cities and a higher level of safety.

ERTMS deployment and equipping locomotives with ETCS ensures that both passenger and freight connections in the rail sections can reap the benefits of the system. By being able to instantaneously track a train's progress through the rail network, operators are better able to manage traffic (towards Rotterdam's busy port or the Thalys passenger service) and hence reduce travel times and increase capacity. At the same time, knowing that the system ensures the highest possible safety levels by automatically spacing trains, rail traffic can be safely managed and operated, resulting in a more efficient and environmentally friendly service.





# **Project description**

The European Rail Traffic Management System (ERTMS) is a train control system designed to gradually replace the existing incompatible national signalling systems throughout Europe. Technically composed of two elements — a unique European Train Control System (ETCS) and a radio system GSM-R — ERTMS and its implementation is supported by the EU according to a defined ERTMS European Deployment Plan.

This stretch of line involved two projects: one to equip the actual infrastructure with ERTMS, and one to equip the locomotives with ETCS, including:

- Deployment of ERTMS/ETCS over a 48 km section of Priority Project 24 (Lyon/Genoa-Basel-Duisburg-Rotterdam/Antwerp rail axis). This section, commonly referred to as the harbour or port railway, connects the port of Rotterdam to the city itself and continues to the German border forming TEN-T Priority Project 5 (Betuwe Line a double-track freight line).
- Equipping 24 Thalys locomotives with ETCS in order to enable them to circulate on TEN-T Priority Project 2 (PBKA Paris-Brussels-Köln-Amsterdam rail axis), mainly on the Brussels-Amsterdam and Brussels-Köln (Cologne) routes.

# PROJECT 6



# Speeding up train travel through Eastern France



# **Project description**

The aim of France's LGV Est high-speed railway line is to improve links between Paris and the major cities in the eastern part of the country, as well as to ameliorate connections with Luxembourg and the western region of Germany.

This project — also part of Priority Project 17, the Paris-Strasbourg-Stuttgart-Wien-Bratislava rail axis — involves conducting the design studies, land acquisition, environmental studies and preparatory works for a 106 km stretch of the LGV Est line between the French towns of Baudrecourt and Vendenheim.

The preparatory design phase was concluded in 2010, two years ahead of schedule, and the construction phase is currently ongoing and set to be completed by the end of 2012. The TEN-T programme is also supporting the construction phase of the high-speed rail section to the tune of almost €76 million under the European Economic Recovery Plan.

# **Benefits of the project**

The first phase, from Paris to Baudrecourt, was already completed in June 2007, six months ahead of time. The link from Baudrecourt to Vendenheim will therefore provide a high-speed rail connection right through to Germany. Once completed, it will reduce travel times between Paris and Strasbourg to 1h50min, thus shortening the time it takes to travel between those cities by half an hour.

In addition, the journey time on the Luxembourg to Strasbourg stretch will also be lowered to 1h25min — a net gain of 45 minutes.

Rail connections with Germany and Switzerland will also be improved thanks to the new line, confirming eastern France's place at the heart of the European high-speed railway network. After completion of the high-speed network in Germany, it will be possible to travel from Paris to Munich in 4h30min (compared to 8h30min today) and from Paris to Stuttgart in just over three hours, compared to the six hours it currently requires.









# **Making Flemish inland waterways safer**

and more navigable



### **Project description**

This project involved the creation of various pilot schemes by the inland waterway managers of the Belgian region of Flanders in order to comply with the EU's RIS (River Information Services) Directive. The RIS Directive requires the Member States to implement information services to support the planning and management of traffic and transport operations in inland waterways, transforming them into an even more transparent, reliable, flexible and easy-to-access transport mode.

The project specifically included studies and works undertaken by the two Flemish inland waterway managers (Waterwegen en Zeekanaal NV and nv De Scheepvaart) and the sea ports of Antwerp and Ghent. They led to the introduction of harmonised, interoperable and publicly accessible Intelligent Transport System (ITS) solutions such as Electronic Navigation Charts for inland navigation, Electronic Ship Reporting, notices to skippers, and tracking and tracing applications which were realised over a period of just under three years.

Results of the project have been disseminated by Promotie Binnenvaart Vlaanderen, the Flemish inland navigation promotion office.





# **Benefits of the project**

Introducing these various ITS solutions to the inland waterway network of Flanders has facilitated navigation, improved safety, increased the speed of transfer of information between authorities and skippers or between skippers, and reduced waiting times at locks.

Presently, more than 20 inland waterways in Flanders and the Port of Antwerp area are covered by Inland Electronic Navigation Charts (IENCs) that were produced by this project. These systems offer significant benefits to vessels including accurate and real-time display of vessel positions relative to waterway features, journey planning and monitoring. Additionally, three inland AIS (Automatic Identification System) base stations were installed along the Flemish waterways as a pilot under this project, with 18 more due to become operational before the end of 2011. These base stations play an important role in RIS as they receive electronic signals containing information such as position, speed and navigational status from vessels using the waterway. The information received can then be displayed on an onboard screen or chart plotter, allowing vessels to see the positions of waterway users — much like with a radar display.

The benefits of RIS also extend beyond easier navigation along rivers and canals, and bring positive benefits to efficiency and the environment. By being able to accurately plan their journeys, skippers are able to estimate arrival and waiting times at locks and can therefore adapt their cruising speed accordingly, resulting in less fuel burnt and lower emissions.

# PROJECT 8

# Improving safety and navigation

in Europe's inland waterways



## **Project description**

Since 2002, the establishment of intelligent infrastructure on European rivers has been part of the TEN-T programme, through RIS (River Information Services) initiatives. A new dimension of coordination and cooperation was launched in 2006 with IRIS Europe (Implementation of River Information Services in Europe) — the first multinational TEN-T project of its kind, aimed at improving RIS across eight EU Member States. The original IRIS Europe project was concluded in December 2008, but the work now continues in the follow-up pilot project IRIS Europe II.

The IRIS Europe II project includes nine EU Member States and four cooperation partners, which means it covers the width of Europe from east to west. It focuses on further enhancement and fine-tuning of key RIS technologies, services and applications, concentrating on four main thematic areas:

- Fairway Information Services (FIS): FIS services, traditionally provided through paper charts and VHF radio, provide dynamic geographical, hydrological and administrative data that are used by skippers and fleet managers to plan and monitor a journey
- Traffic and transport-related RIS services
- Technical and Administrative Agreement for international data exchange
- Quality of Information Services for RIS

The project aims to significantly contribute to harmonised RIS implementation at European level.

# **Benefits of the project**

The IRIS II project is bringing forward the implementation of RIS services across Europe as envisaged by the European Commission's RIS Directive, adopted in 2005.



The project has had a positive effect on inland waterway navigation, making it more attractive as an alternative means of transporting goods across Europe. In particular, the project:

- Increases the safety of inland navigation accurate positioning
  of vessels in canals and rivers means fewer collisions and makes
  it possible to safely navigate even in adverse weather conditions,
  such as heavy fog.
- Increases the efficiency of inland navigation and makes it more environmentally friendly — through better journey planning, operators will be able to optimise fuel consumption and reduce or eliminate waiting times at locks.

Both land infrastructure and onboard equipment were installed as part of the IRIS II projects. In Slovakia, Hungary and Romania around 375 vessels were equipped with Automatic Identification System (AIS) transponders, with a further 60 Romanian vessels being equipped with electronic chart displays.

Through these efforts, IRIS II has helped increase the attractiveness of inland navigation, and has therefore made it an environmentally friendly alternative to the main transport modes such as road and rail.



# Increasing accessibility and efficiency

at the Port of Norrköping

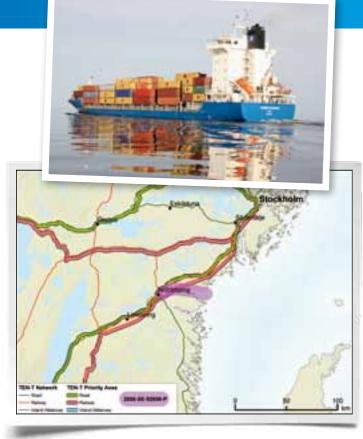




This project's objective was to broaden and deepen the access fairway to the Pampus terminal of the Port of Norrköping in Sweden. The port is one of the most modern harbours in the Baltic region and is situated in a key location not only for Swedish exports, but also for the import and distribution of goods to markets in Sweden, the Nordic countries and the Baltic region as a whole. The project aimed to increase accessibility and allow for more efficient handling of freight flows, with sustainable transport modes, and consequently increase competitiveness for local and regional trade and industry.

Improvements to the safety, capacity and accessibility of the port were made mainly by increasing the depth and width of its entrance channel, as well as in the port manoeuvring and docking area. The port's 3.8 km long access fairway was deepened from 12.7 to 14.9 metres and broadened from 60 to 100 metres. The project also included the improvement of fairway markings to facilitate navigation into the port and the reinforcement of berths, enabling them to hold larger vessels.





## **Benefits of the project**

This project contributes to safer navigation by widening the access to the port and therefore allowing larger vessels to use the infrastructure. Following the improvements, existing restrictions for darkness, visibility and wind have been reduced, allowing for 24-hour access to the port for vessels measuring  $260 \times 35 \times 13.5$  metres.

This specific project also forms part of the Norrköping Intermodal Infrastructure Package, a long-term project aimed at further developing Norrköping as an intermodal node capable of shifting goods from sea to rail/road and vice-versa, increasing the competitiveness of the region and boosting its capacity to attract commercial traffic. Thus, the improvements made will also lead to increased intermodality in the future.

Furthermore, the port is located on TEN-T Priority Project 12 (the "Nordic Triangle") that links the Nordic countries and their capital cities to each other and improves connections to central Europe and between the EU and Russia. The city of Norrköping and its port have been identified by the Swedish transport administration as one of the key intermodal nodes in Sweden within the Nordic Triangle corridor, and this will help to ensure international traffic flows and the viability of the TEN-T network in this region.



# Safer, quicker travel and faster incident response

on the UK's A14 motorway





## **Project description**

The project focused on the installation of Intelligent Transport Systems (ITS) solutions on a stretch of the A14 motorway in the United Kingdom, part of the Priority Project 13 road axis linking the United Kingdom and Ireland with the Benelux countries.

The following ITS applications were installed:

- Incident detection and automatic signing, traffic detection system and queue protection using variable message signs on cantilever structures
- Strategic diversionary message sign information at specific junctions
- Extensive closed circuit television (CCTV) coverage for improved incident response

# **Benefits of the project**

The extensive ITS applications on this stretch of infrastructure have allowed the road network operator to gather real-time information regarding traffic flows, possible bottlenecks and accidents. Road users have benefited from increased levels of safety and have utilised real-time traffic information for better journey planning and alternative route suggestions. Research has shown that queue protection systems



significantly reduce the risk of rear-end accidents, saving an average of 13% of all injury accidents on the affected network. Additionally, CCTV coverage has lowered incident response time and shortens the duration of accidents, giving in turn a 2% reduction in the severity of casualties.

Through the use of ITS, the project has helped to remove bottlenecks for both national and international traffic, through improved interconnections with ports and airports and increased capacity.

It has improved safety and throughput of traffic, particularly the traffic travelling to and from the ports of Felixstowe and Harwich connecting to Europe. Furthermore, by using detection technology rather than carriageway widening, the project minimised any adverse environmental impact.

The project also contributes to ongoing EU ITS initiatives including EasyWay, the TEN-T co-funded project for Europe-wide ITS deployment, and the ITS Action Plan, which seeks to foster the uptake of ITS services, increase interoperability and solve privacy and liability issues.





The TEN-T Executive Agency was established in 2006 to provide important and necessary support for the completion of the TEN-T network, including the execution of the TEN-T budget and technical and financial management of projects from start to finish. It is responsible for all TEN-T projects selected under the EU's 2007-13 Financial Framework (€8 billion) as well as the closure of open projects from the 2000-06 programme. The projects represent all transport modes — air, rail, road, and maritime/sea — plus logistics and intelligent transport systems, and involve all the EU Member States. Through its effective and efficient follow-up of project implementation, the TEN-T EA has contributed to the timely realisation of TEN-T projects while guaranteeing the best possible value for money for European taxpayers.

Its status as an Executive Agency means that, although independent, the TEN-T EA is closely linked with its European Commission parent, Directorate-General Mobility and Transport (DG MOVE). DG MOVE deals with all policy-making issues related to the TEN-T programme, while the Agency's role is to execute the programme's specific tasks.



The Agency's key stakeholders are the EU Member States, who are the beneficiaries of TEN-T project funding. Its work aims to benefit these stakeholders by:

- Simplifying administrative procedures
- Reducing the time taken to make payments and the reaction time for responding to amendment requests
- Using new project management techniques and IT tools (GIS, statistical data)
- Focusing on public-private partnerships
- Improving the visibility of EU support to infrastructure projects through dissemination activities

Based in Brussels, the Agency's multinational team of 100 staff includes specialists experienced in financial and project management, financial engineering, transport engineering and legal affairs.

# More than just TEN...

The 10 projects highlighted in these pages have not only brought positive benefits at local and regional levels, but have also contributed to building the overall TEN-T network and improved European mobility as a whole. The projects have been achieved with sound project management techniques, attention to budget and good working relationships with the Agency — all factors which have helped to contribute to their success. However, many more projects than just these ten have been realised since the inauguration of the TEN-T programme. Find out more information about these projects in a dedicated section on the Agency's website — http://tentea.ec.europa.eu/en/ten-t\_implementation\_successes — devoted to showcasing these and other TEN-T successes which are helping to connect Europe and its citizens.

**European Commission** 

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