Sintropher is a five-year €23m cooperation project with the aim of enhancing local and regional transport provision to, from and within five peripheral regions in North-West Europe.
Sustainable transport for North-West Europe's periphery

INTERREG IVB North-West Europe is a financial instrument of the European Union's Cohesion Policy. It funds projects which support transnational cooperation.
The focus of Sintropher is to assess and promote development of new or improved tram services, linked to national rail systems or regional airports as one way to improve access into and out of EU regions which are disadvantaged by reason of being geographically peripheral within the context of North-West Europe. The emphasis is on sustainable, cost-effective solutions which make best use of existing transport infrastructure by applying innovative technologies – an important consideration in regions where the cost of major new transport infrastructure may be a barrier. >>
Sintropher’s objectives

— Promote best possible cost-effective technology-based solutions
— Assess the appraisal procedure for regional tram systems and improve the business case development process
— Achieve high-quality, seamless interchange between regional tram systems and regional rail and air hubs
— Promote and market the benefits of regional tram-based systems to users and stakeholders

Sintropher is a transnational cooperation project bringing together five regions in North-West Europe. The project is due to last five years, with 14 partner agencies in five EU Member States. With a budget of €23m, it is part-financed by the EU INTERREG IVB programme, and involves a series of 36 feasibility evaluations, pilot investment and demonstration projects, as well as comparative analysis of EU best practice. The Lead Partner is University College London.

The project name Sintropher stands for ‘Sustainable tram-based transport options for peripheral European regions’.

Sintropher’s objectives

All our work is motivated by one overarching aim: to develop sustainable, cost-effective solutions to improve accessibility to, from and within peripheral regions in North-West Europe.

As part of this, we have four specific objectives:
— Promote best possible cost-effective technology-based solutions
— Assess the appraisal procedure for regional tram systems and improve the business case development process
— Achieve high-quality, seamless interchange between regional tram systems and regional rail and air hubs
— Promote and market the benefits of regional tram-based systems to users and stakeholders

We have a particular focus on tram-train systems which allow local trams to run on to national rail networks, as well as high-quality interchanges at key rail or air hubs.

This will all be tested across five demonstration regions in five EU Member States: in Valenciennes (France), the Fylde Coast (UK), West Flanders (Belgium), North Hesse (Germany), and Nijmegen-Kleve (The Netherlands). Each region will implement a programme of technical and economic feasibility evaluations for new systems, pilot investment projects, and demonstration projects. The overall project will complement this by a set of comparative analyses of EU best practice.

The INTERREG IVB North-West Europe (NWE) Programme is a financial instrument of the European Union’s Cohesion Policy.

The programme is investing money from the European Regional Development Fund (ERDF) into the economic, environmental, social and territorial future of North-West Europe (NWE). The fund is used to co-finance projects that maximise the diversity of NWE’s territorial assets by tackling common challenges through transnational cooperation. To this end, the Programme seeks organisations that are resolute in their ambition to contribute to a cohesive and sustainable territorial development of North-West Europe.

Further details about the INTERREG IVB programme for North-West Europe can be found at www.nweurope.eu
Improvements to the transport network within North-West Europe, particularly with high-speed trains, have reduced journey times and increased frequencies between major urban regions, especially around the economic heart of Europe. But at the same time pockets of inaccessibility have developed. Firstly peripheral areas beyond the economic core suffer from a lack of accessibility. But secondly, even within a zone of economic prosperity, those areas located a short distance away from the attractive rail and air interchange hubs become relatively harder to reach. The central challenge for the project, therefore, is to address the periphery’s increasing marginalisation.>>
Sintropher draws its inspiration from a number of sources...

Seamless-web transfer
Some regions lack high-speed networks because they have insufficient population and activity to support such investments. They remain car-dependent, thus compromising the EU’s response to the global Climate Change agenda. We propose a strategy based on new regional tram-based transport systems which connect seamlessly to rail or air hubs.

Interchanges
The ability to switch transport modes is critical in raising the attractiveness of public transport. Interchanges and transport hubs therefore play a key role at all levels: local to regional as well as national to international. Our focus in Sintropher is on state-of-the-art ICT systems and good physical design solutions to knit interchanges closely with the urban fabric.

The tram-train
Tram-trains are operational in a number of locations across Europe, having been pioneered in Karlsruhe in Germany. The technology allows conventional trams to run on to the mainline railway network, offering a superior service quality over conventional rail, coupled with the flexibility, service penetration and cost-effectiveness of bus-based systems. But the adoption of tram-train has been restricted to date, and better knowledge transfer is needed to increase its uptake.

EU Policy context
Sintropher addresses EU transport policy (2001 White Paper and 2006 Review), as well as taking account of:
— European Spatial Development Perspective (1999)
— Territorial Agenda for the European Union (2007)

It follows on from the ESPON research projects and INTERREG IIIIB POLYNET project.

“Sintropher aims to revolutionise European public transport services, and the regions they serve, by linking peripheral regions seamlessly to the high-speed high-quality corridors that bring them into the hearts of the EU’s great central mega-city regions.”

Professor Sir Peter Hall
A key feature of Sintropher is transnational cooperation. By working together, each region has the opportunity to benefit from knowledge transfer, joint problem-solving on economic and technological issues, exchange of experience, pilot projects and demonstration projects, and capitalising on best practice across the EU. There are fourteen project partners in the five participating regions representing a cross-section of transport operators, local authorities and academic research expertise from North-West Europe. The project is led by University College London (UCL), and coordinated by Prof. Sir Peter Hall. This section gives an overview of our partners and their projects. >>
Fylde Coast
A historic tram system connecting a regenerating area to the regional economy

The Fylde Coast is a peninsula between the River Wyre and Ribble estuary in North-West England which defines its peripheral location. Although there is a mixed economy, public service and tourism employment have come to dominate. The Fylde needs to be further integrated into the wider north-west of England economy so that it can prosper again.

Blackpool is the single biggest town and since 2000 has been the centre of regeneration efforts. It is Britain’s most exciting coastal resort, attracting up to 10 million visitors each year. Blackpool’s 125-year old coastal tramway is a tourist attraction that also provides vital transport. This tramway is currently being refurbished, work which will underpin prospective future development undertaken within Sintropher.

Improved tram-railway connection
What is now proposed is an appraisal of options to develop the local transport offer further. Stage one will review options to connect the tramway to either the north or south railway lines, shortlisting route choices for more detailed work. Segregated working and light and heavy rail interoperation will both be considered. Stage two will produce a recommended development strategy in three phases:

— short-term (2009-12): consideration of the feasibility of constructing a short test track within the lifetime of SINTROPHER and to test tram-train operations on it by summer 2012
— medium-term (2013-17): developing options
— long-term (beyond 2017): effectively ‘blue-sky’ thinking

The refurbished tramway offers the opportunity to test a tram-train unit on British rails, potentially using diesel tram technology as neither of the local railway lines is electrified.

Find out more >>
David Simper, Transport Policy Officer
+44 (0)1253 476176
david.simper@blackpool.gov.uk
Layton Depot
Plymouth Road
Blackpool FY3 7HW
United Kingdom
www.sintropher.eu/fyldecoast
Valenciennes lies in the north-east of France, in the Nord-Pas de Calais region. Located on the River Scheldt, the town sits at the centre of a larger metropolitan area.

Following a decline in the area’s industry since the 1970s, economic activity has been rekindled through automobile production, the railway industry – it’s a base for the European Railway Agency, Alstom, Bombardier and other suppliers – the University of Valenciennes and, in 2006, a new city tramway. The tramway has stimulated urban regeneration, and has since become the symbol of a new and dynamic city.

**New journey opportunities**

Building on the success of its tramway system launched in 2006 (phases 1 and 2), Valenciennes is undertaking work to upgrade transport links to the north-east of the metropolitan area, the Pays de Condé (phase 3), as well as a second branch towards the Belgian border at Crespin (phase 4). These phases will make up the second tramway line.

— It will serve 129,000 inhabitants along a route with 32 stations with a service frequency every 10 minutes for most of the line. The final three stations will be served every 20 minutes
— Passing loops at certain stations will allow trams to cross, and the associated signalling technology will be a technical challenge and necessitate innovative solutions

— The whole scheme will cost €155,022,000, of which the Sintropher allocation amounts to €11.09m (£2.22m ERDF, £8.88m match funding)

Find out more >>

Antoine Plard, chargé de mission PDU
+33 (0) 3 27 45 21 25
antoine.plard@siturv.fr
Syndicat Intercommunal des Transports Urbains de la Région de Valenciennes (SITURV)
21 n°4 BP112
F-59880 Saint Saulve
France
[www.sintropher.eu/valenciennes](http://www.sintropher.eu/valenciennes)
Enhanced interchanges
Activities in West Flanders are chiefly demonstration projects at stations, to improve interchange and the station experience.

These will act as a test bed for better facilities, to include:

- Platform adjustments for train-to-tram interchange
- Relocation of bus stands
- Signalling
- Enhanced passenger circulation
- Integrated customer information systems (CIS)
- Renewable solar-powered facilities

De Lijn is planning a tramway extension from Koksijde to Veurne to improve the connectivity between the coast and the railway. However the realisation of the tramway itself is beyond the timeline of Sintropher. The tramway will enhance the role of Veurne station as regional hub for the Westhoek. The works at the regional hub will be carried out jointly by De Lijn and Veurne.

As a new junction station for the coast tram, the interchange point at Koksijde will complement the hub at Veurne, with a particular emphasis on a Park and Ride facility for tourists arriving via the E40 coastal motorway. At Diksmuide Sintropher will invest in a pilot demonstration project to upgrade the station facilities as a train-bus interchange (no tram).

Find out more
Eveline Huyghe, Cross-border and European cooperation
+32 (0) 50367171
e.huyghe@wvi.be
West Flanders Intermunicipal Association (wvi)
Baron Ruzettelaan 35
8-8310 Brugge
Belgium
www.sintropher.eu/westvlaanderen

Our focus in West Flanders is on three towns and municipalities in the Westhoek area in the western part of West Flanders. It is semi-rural, coastal, with poor accessibility between towns, rural areas and coastal resorts, although the coast itself is served by the 68km coastal tram (Kusttram).
The RegioTram
Building on the success of the tram-train technology pioneered in Karlsruhe, Kassel has developed its own system the RegioTram, linking the city tram network with the Deutsche Bahn mainline. A further innovation is the electro-diesel hybrid tram, which can operate on non-electrified routes by virtue of its onboard diesel engine.

Tram-train in Kassel has been running since 2007, and within Sintropher, the North Hesse actions centre on the assessment of the experience to date.

— Evaluation of the long distance transport network’s accessibility by local public transport, with special reference to the RegioTram
— Improve the connectivity of the stations and stops on the RegioTram system with local communities within the context of enhanced economic development
— A technical marketing evaluation survey of the reasons for choosing the RegioTram
— Effects of the RegioTram service launch. What has been the impact of the RegioTram on the local and regional economy?
— Development of new RegioTram marketing strategies. How are passengers targeted with ticketing and customer service information?
— Interchanges as an aid to marketing. The focus here is on how stations can integrate with their communities
— Feasibility study into extending the RegioTram to Kassel-Calden airport
— Feasibility study into extending the RegioTram to centres of employment in the Kassel region

Find out more >>

Achim Vorreiter, Research Assistant
+49 (0) 561 804 3483
vorreiter@uni-kassel.de

FB06
Integrierte Verkehrsplanung/Mobilitätsentwicklung
Universität Kassel
Gottschalkstr. 28
D-34127 Kassel
Germany

www.sintropher.eu/nordhessen

North Hesse
Tram-Train ‘Mentor Region’

North Hesse (Nordhessen in German) lies at the centre of Germany, and the region is the crossroads of many national road and rail links. With Frankfurt a major centre in the southern part of the Land of Hesse, the importance of maintaining and growing the economic competitiveness of the northern part of the state cannot be underestimated. Good transport links are central to this.
ProRail, the Dutch infrastructure manager, and Arnhem Nijmegen City Region are investigating the possibilities for improving the quality of cross-border public railway transport. Work will include a feasibility study and business case into reopening the former rail corridor between Nijmegen in the Netherlands and Kleve in Germany. The feasibility of a new connection between the Kleve – Weeze railway line and Weeze Airport will also be investigated.

The line from Nijmegen to Kleve was closed in 1991. Despite the long period of non-use, parts of the route are now used for tourism. As a result of demographic changes and altered mobility needs, the reopening of the rail connection is being investigated. All of this brings the Ruhr metropolitan area within closer range.

Various alternatives
Cross-border public transport means different things to different people. The study will develop three transport options (tram, tram-train and Regional Express). Each mode will be developed further as an alternative.

— Tram option. Trams that use their own line, with the possibility of integrating it with the proposed tram network to be developed in Nijmegen
— Tram-train option. Here tram-trains are operated that can use the “heavy rail” infrastructure under certain conditions
— Regional Express. Some German stakeholders have already indicated that they are interested in extending the Düsseldorf – Kleve Regional Express to Nijmegen. This is a traditional heavy rail solution

Finally, based on wide-ranging considerations, a recommendation will be made regarding which alternative is best suited to meet the wishes of the parties involved.

Find out more >>
Henri Olink, Project Manager, Rail Development
+31 (0) 30 235 59 28
henri.olink@prorail.nl
ProRail
Postbus 2038
3500 GA Utrecht
The Netherlands
www.sintropher.eu/nijmegen-kleve
Our approach is to focus on five in-depth regional demonstration projects involving 27 actions and 9 investments – economic and technical feasibility studies, pilot projects, demonstration projects, marketing trials, and comparative analysis of EU best practice. These are configured into four cross-cutting work areas (or ‘Work Packages’) in order to promote knowledge transfer, cooperation between partners, and exchange of experience and best practice. This allows us to develop active knowledge transfer and practical joint working across the five regions, exchange experience, and jointly commission and benefit from best practice in other European cities and their regions.>>
## Work Package 1

### Technical and Legal Challenges

This area of research focuses on the knowledge transfer on technical and legal challenges in the development of regional tram-based transport systems.

We want to promote the best possible, cost-effective, innovative technical solutions for tram- and rail-based systems, drawing on successful experience in peripheral regions of North-West Europe, and identify the added value of transnational cooperation for the diffusion of this knowledge.

A primary focus will be on applying the German tram-train solution (Kassel model) elsewhere. However, there will be an equal focus on other cases where adoption of this model has been inhibited by problems: technical (incompatible rail gauges), legal/administrative (cooperation inhibited by problems: technical (incompatible rail gauges), legal/administrative (cooperation), and commercial (rail routes that bypass potential passenger demand).

Outputs comprise feasibility and technical studies, pilot investments and demonstration projects and a comparison of technical solutions.

**WORK PACKAGE 1 WILL BE LED BY UCL (UNIVERSITY COLLEGE LONDON)**

## Work Package 2

### Economic Feasibility of Tram Systems

Here we will be looking at knowledge transfer on the different approaches to appraisal of economic feasibility and territorial impacts of new regional and local tram-based transport systems.

The objective of this work package is to overcome economic obstacles, develop business cases and improve the appraisal of regional tram-based systems. Our aims include:

- Undertaking economic feasibility assessments and develop business cases for further investment in tram systems in the five partner regions, with particular reference to linking rail and air hubs.
- Comparing tram-based systems (including tram-train), focussing on the appraisal processes that led to these choices.
- Undertaking a wider transnational analysis of the appraisal frameworks used by member states to evaluate the viability of public transport infrastructure investments, to understand how they may favour or hinder the development of regional tramway schemes; in particular, the treatment of urban development benefits and territorial development potential.
- Exploring more closely the relationship between urban planning and transport systems, through selected case studies of cities within and outside North-West Europe, which have an interest and expertise in this area e.g. Nantes and Grenoble (FR).
- Demonstrating the ability to develop transport systems with a limited budget (e.g. Lausanne, CH), and helping to achieve Lisbon and Gothenburg objectives to reduce emissions of greenhouse gases.

**WORK PACKAGE 2 WILL BE LED BY STUVR (SYNDICAT INTERCOMMUNAL DES TRANSPORTS URBAINS DE VALENCIENNES)**

## Work Package 3

### Interoperability of Transport Hubs

Our objective here is to achieve high-quality, seamless intermodal transfer between the regional tram and major regional rail and air hubs.

This work package links work packages 1 and 2 by testing and applying technical solutions to facilitate user-friendly, cost-effective and sustainable interchange between one mode and another. Such interchanges should be capable of attracting users on to public transport, with special emphasis on the most car-dependent passengers, based on ‘accessibility for all’. Essential elements include standard platform heights, ramps and effective connections from trams and trains to shops, services and homes.

The design process uses three criteria:

- Sustainability: renewable energy (solar-powered systems) to support information systems and innovative renewable features for the station.
- Integration: for current users as well as for infrequent users (e.g. tourists) of public transport; stations as nodes of mixed-use development.
- Technical design: universal access to all means of transport.

Findings will be summarised in a comparative report on improving the technical interoperability of transport hubs.

**WORK PACKAGE 3 WILL BE LED BY WVI (WEST VLAAMSE INTERCOMMUNAALS)**

## Work Package 4

### Innovative Marketing Initiatives

The objective here is to promote the shift to regional tram systems to a range of users, to make them a sustainable success.

The work package complements work packages 1 and 3 by evaluating marketing techniques to attract passengers, including integrated ticketing. It will also test wider initiatives in promoting public transport to understand its effectiveness in attracting new private investment in commercial and residential real estate alongside the new routes.

We have an equal emphasis on the knock-on effects on regional development and cooperation among different stakeholders, such as education providers, tourism planners, other regional administrative bodies and politicians.

Activities involve engagement between transport operators and major employers, specifying marketing strategies, and pilot testing new ones; and targeting those outside the traditional passenger groups. A key element is to integrate passenger information systems from different transport operators.

**WORK PACKAGE 4 WILL BE LED BY NORTH HESSE**
Joined-up public transport

Tram-based systems offer an attractive means of transport to passengers. Extending their reach with through-running onto national rail networks as illustrated by tram-train technology enhances their benefits in a cost-effective and sustainable way. Such systems complement other existing transport services, and effectively fill gaps in the heavy rail network, increasing the number and type of trips that can be taken using the network.

The popularity of the tram has risen in recent times, and as each of our partner regions demonstrates – Fylde Coast, Valenciennes, West Flanders, North Hesse and Nijmegen-Kleve – tram-based systems play a significant economic development role. Improved interchanges enhance seamless connectivity to major regional rail and air hubs, increase such systems’ attractiveness further, and boost accessibility.

Furthermore, a high-quality tram system is a source of civic pride, thereby furthering its credibility with potential new users.
Partners

Sintroper is coordinated by

In partnership with

Co-funded by the INTERREG IVB programme for North-West Europe

Design and typesetting by Effusion