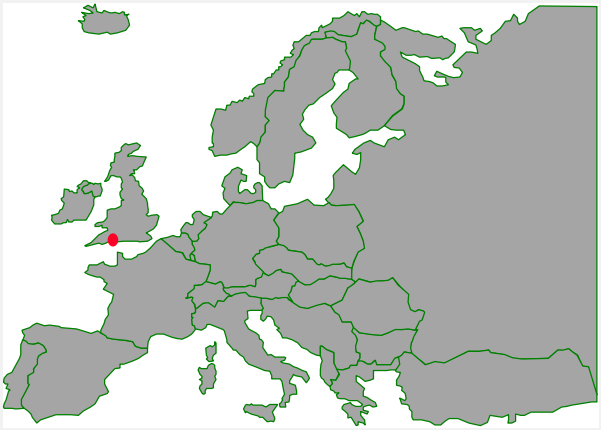
DEMONSTRATION SITE:	HAMPSHIRE/SOUTHAMPTON/UNITED KINGDOM 
NAME OF THE DEMONSTRATION PROJECT (CASE STUDY):	ROMANSE TRAFFIC AND TRAVEL INFORMATION CENTRE (TTIC)
DURATION OF THE PROJECT:	1992-1995 SCOPE/ROMANSE I 1996-1998 EUROSCOPE/ROMANSE II
NAME OF THE TAP PROJECT:	EUROSCOPE

URBAN PROFILE

Southampton is an important port city in the South of England with about 207 000 inhabitants and 1,2 million in Hampshire County around (including the city of Winchester). The port deals with many freight types but especially the car and fruit trade. It is a major sailing base and has strong links with the Isle of Wight.

ABSTRACT

Over the last 10 years, road traffic in Hampshire has grown at an unprecedented rate. The transport policies of the past have helped ensure the development of a highly efficient Strategic Road Network, but providing more road capacity could not solve the ever-growing congestion and pollution problems in an environmentally acceptable and sustainable way. In the context of sustainable development, telematics has become an essential part of Hampshire and Southampton's integrated approach to transport policies and implementation.

The ROMANSE project (Road Management System for Europe), based in Southampton, was started as a 3 year pilot wide-ranging transport telematics project in 1992 and has now moved onto the level of a wider-scale demonstration project. ROMANSE, developed and implemented by a public-private consortium of interested organisations, disseminates real-time and accessible information to travellers of all motorised transport modes both during and before their trips. The strategic aims of the project are to improve information about traffic and travel conditions and encourage a switch in mode from the private car to public transport.

The project is broadly split into the following 4 areas :

Strategic Information Systems: The strategic information system contains a fully integrated locationally referenced traffic and travel database, presented against a map display.

Public Transport: STOPWATCH provides real-time information about bus arrival times on bus services to waiting passengers at bus stops.

Integrated Urban Traffic Management: Under the ROMANSE project, Closed Circuit Television (CCTV) and digital video traffic analysis (ARTEMIS) have been added to the loop

detector systems and a network of Variable Message Signs have been installed to provide a flexible driver dissemination system.

Traffic and Travel Information: The Travel Terminal at the Traffic and Travel Information Centre collates and exchanges information with other travel organisations and the broadcast media. Display Units at key locations display up-to date travel information. The Multi-modal TRIPlanner provides terminals at 24 key locations in Southampton and Winchester and an internet site which give up-to-date travel planning information.

These systems have been brought together into a single Traffic and Travel Information Centre. Costs of the pilot and demonstration phase have been over 20 million EUR, of which 65 % has been covered by sources outside of the project consortium.

Socio-economic evaluation of ROMANSE against the objective to provide improved travel information has been generally favourable with a positive response of travellers to all information applications and indication for example that passengers are willing to cover the extra cost of STOPWATCH. VMS Parking guidance has proved particularly useful and effective. It is still too early to reliably test the objective of influencing modal-split in favour of public transport, although a large evaluation of the ROMANSE II demonstrator should be completed towards the end of 1999.

The success of the project has been helped by its being embedded in the local transport policy, a strong public-private project team with diverse skills, interests and spheres of influence and a high profile approach with an emphasis on publicity, dissemination and experience sharing.

BACKGROUND AND OBJECTIVES

Over the last 10 years, road traffic in Hampshire has grown at an unprecedented rate and has become a serious burden to the road network, causing serious congestion and pollution. Within ten years it can be expected that every second person in the county will own a car. At the same time public transport patronage has continued to decline steadily and now only 14 % of journeys in the county are made daily by public transport. The transport policies of the past have helped ensure the development of a highly efficient Strategic Road Network, but providing more road capacity cannot solve the ever-growing problem in an environmentally acceptable and sustainable way.

In this context, telematics has become an essential part of Hampshire and Southampton's integrated approach to transport policies and implementation. Planning and transport policies seek to reduce dependence on the car whilst acknowledging the driver's rights and maintaining an efficient and reliable transport system.

The provision of information through Intelligent Transport Systems to create the "Informed Traveller" can achieve this. The ROMANSE (Road Management System for Europe) Project was conceived in 1992 in the framework of the SCOPE project[1] in which different European port cities developed and implemented a wide variety of driver and passenger information systems to provide flexible control and co-ordinated, accurate, timely and reliable information. The Traffic and Travel Information Centre (TTIC) is at the core of this mission.

The ROMANSE project was set up by a small consortium led by Hampshire County Council and including a supplier (Siemens), consultants and Southampton University.

[1] The SCOPE project, funded in the Transport Telematics programme EU DRIVE II of the European Commission (1992-95), tested and implemented Advanced Transport Telematics products in the cities of Southampton, Cologne and Piraeus.

The strategic aims of the project were to:

- Improve information about traffic and travel conditions for both the travelling public and transport systems operators, thereby improving the ability to manage traffic and public transport services more efficiently.
- Influence travel demand, encouraging a switch in mode (from the private car to public transport), in time of journey and in route or destination.

PRESENT STAGE OF IMPLEMENTATION

The ROMANSE pilot project has been expanded within the framework of ROMANSE II - EUROSCOPE[2] project and has moved from an experimental pilot project to a full demonstration project in daily operation with wide implementation of the integrated traffic management measures.

The ROMANSE pilot project set up the Travel and Traffic Information Centre that was to house a number of systems, some using well tested technology and others tested during the project. Each subsystem and work-area was developed and tested independently, bearing in mind the need for complete integration. This bottom-up approach ensured that the system didn't stand or fall on any one "weak link". The systems were also made in such a way that they could easily be made compatible with other technologies (the value of which is already apparent since the subsequent rise of the Internet).

Thanks to the positive evaluation and high-profile of the ROMANSE pilot, further funding was gained in 1996 through the ROMANSE II demonstration project, where all of the systems have been expanded into widely operational demonstration projects. The private sector partner has also commercially marketed products developed within the project such as the Ordnance Survey road network database and Siemens suite of products such as the AERTEMIS.

Hampshire is now looking to implement the ROMANSE projects county- wide at least in the larger towns. They are also using the public transport parts of the system as the basis for a Quality Partnership agreement with the private PT operators which outline measurable joint quality objectives.

Financing and Resources Used

Costs can be split into ROMANSE pilot and ROMANSE II demonstration in the following table:

Costs in Million EUR	ROMANSE pilot	ROMANSE II demonstration
R&D	1.3	1.3
Infrastructure	8.50	9.55
Evaluation	0.74	0.95
Other	0.70	0.45
Total	**12.3**	**11.2**

[2] EUROSCOPE is funded in the Telematics Applications Programme (TAP) of the 4th Framework Programme of Community, Research, Technological Development and Demonstration (1994-98), builds on the infrastructure and results of the SCOPE project. Partner cities of EUROSCOPE are Cologne, Hampshire County, Piraeus, Rotterdam, Strasbourg, Genoa, and Hamburg, followed by Cork and Brandenburg. EUROSCOPE was active in the following work areas: Traveller Information, logistic information and communication systems and network management.

The EU has provided about 10% of funds (in ROMANSE exclusively for R&D). The majority of funds for infrastructure development has been covered by the UK Department of Transport. In ROMANSE II, local authority and project partner contributions have accounted for about 35 % of funding.

TECHNICAL PROFILE OF PROJECT

The project is broadly split into 4 areas :

- Strategic Information Systems
- Public Transport,
- Integrated Urban Traffic Management
- Traffic and Travel Information.

These systems have been brought together into a single Traffic and Travel Information Centre.

Strategic Information Systems

The Strategic Information System contains a fully integrated locationally referenced traffic and travel database and provides the means to integrate, manage and maintain a current view of the highway network, presented against a map display. A variety of transport applications can be selected and displayed including traffic information, network conditions disruptions, car park information, and public transport information. In future it should be developed into a main traffic control operational interface as well as acting as a data source for other interactive map travel and traffic information.

Public Transport

STOPWATCH provides real-time information about bus arrival times to waiting passengers at bus stops using simple VMS (transflective LCD displays) and Automatic Vehicle Location technology using radio beacons and in-bus transmitter -receivers. Information, on route number final destination and minutes to arrival time, is sent from bus to bus-stop via the Travel and Traffic Information Centre. A network-wide system is clearly also valuable for public transport management and two public transport operators also receive information about the location of their buses. The system has been linked to the Urban Traffic Control system allowing priority at traffic signals to be given to buses. 270 buses and 115 stops are now equipped with the system in Southampton and Winchester.

Transflective LCD signs proved to be the best option

Integrated Urban Traffic Management

Hampshire's SCCOT Urban Traffic Control system has been in operation for many years. Under the ROMANSE project, Closed Circuit Television (CCTV) and digital video traffic analysis (ARTEMIS) have been added to the loop detector systems and a network of VMS signs have been installed to provide a flexible driver dissemination medium. All facilities have been integrated into the Traffic and Travel Information Centre where they are used for traffic management purposes. It is possible to reliably pin-point congestion and incidents, control flow (gating) into areas using integrated traffic light control and to monitor occupation of car parks. Over 60 simple VMS signs are used for car-park guidance, route guidance and special information announcements.

Traffic Information VMS

Integrated Traffic Management Strategies for dealing with incidents, road-works or congestion are tested and evaluated on the CONTRAM network model.

Traffic and Travel Information

The Travel Terminal at the Traffic and Travel Information Centre collates and exchanges information with other travel organisations and the broadcast media using forms based message input, typed into the system according to a standard travel information template). This provides a formal system for travel information broadcasters to receive detailed, accurate and timely travel news.

Information Display Units (suspended video screens) at key locations (car-park entrances, railway stations, bus stations etc.) display up-to date travel information both for private and public transport including messages typed into the Travel Terminal. This widens the travel information audience to include strategically important targets who are out of radio-range.

Stand alone TRIPlanner

The multi-modal TRIPlanner consists of free-standing terminals which give up-to-date travel planning information at 24 key locations in Southampton and Winchester. The user enters origin / destination information and the TRIPlanner prints out a trip plan (by car or public transport) into, out of or within the region. An internet TRIPlanner has also been developed via the WWW (HTTP://ROMANSE.SOTON.AC.UK) which provides similar information. A special public transport database has been developed for the purpose.

RESULTS & IMPACTS

The ROMANSE project is a wide-ranging multi-modal test-site but great commitment and no-little expense has been dedicated to evaluating the impact of the various individual applications. Given the pioneering nature of the project in the UK and European context, implemented systems were comprehensively monitored and evaluated both technically and socio-economically. Appropriate changes were made in response to feedback from the evaluation programme.

A partial socio-ecomonic evaluation was carried out for individual projects. This was accompanied by measurement of a wide range of indicators which cannot be readily transferred into monetary units (popularity, awareness etc.). To examine the effect on attitudes and travel behaviour, surveys were conducted including interviews (on-street, car-park, household panels etc.) and focus-groups. These results have been continually fed-back into the project.

Direct cost-savings are hard to demonstrate especially at this stage. Major economic benefits for Public Transport products are expected in increased public transport use.

For STOPWATCH, consideration was given to willingness to pay. 50 % of passengers expressed a willingness to pay an extra 6.7 pence per trip, which would comfortably cover the investment and maintenance costs of the system. There also indications that bus patronage has increased in the evenings and at weekends when frequencies are lower.

The reduction in travel times is considered to be significant. The following time savings per ROMANSE user per trip are to required to justify investment and maintenance on a socio-economic basis3 :

Product	Time saving to justify investment
Parking Guidance	20 to 60 seconds
Stationary VMS	3 to 10 minutes
STOPWATCH	1 to 2 minutes
TRIPlanner	3 to 9 minutes
Radio Traffic News	4 minutes per listener yearly

It is difficult to prove if these time savings have been achieved although it is clear that among the most cost effective are the parking system and radio traffic news. As more people begin to use the products, then the required time savings will fall.

A number of surveys demonstrate the popularity of the information dissemination devices; in 1996 70% of those questioned found the VMS parking information good and useful. 10 % of drivers changed their behaviour as a result of interaction with the system and 81 % of respondents stated that it took them no time to find a parking space.

STOP WATCH was found to be used by 22 % as a primary timetable source and 12.6 % left the bus-stop when informed of a long waiting time.

The TRIPlanner was found to be useful and popular by the majority of users and adding complementary information such as visitor attractions and hotels has turned around its initial low use rate.

[3] (lower value assumes 5% discount rate and upper value an 8 % discount rate)

It is too early to say if the information has made a significant contribution in influencing travel demand, although signs are encouraging. It is clear, however, from passenger, driver and operator response that information provision and presentation has much improved and is warmly welcomed by the majority of those coming into contact with it.

A large survey of the impacts of the ROMANSE II demonstrator and covering over 20,000 people should be available at the end of 1999.

BARRIERS & CONFLICTS

The two main problems and obstacles have been securing medium to long-term funding and slippage caused by technical problems. Funding has so far come mainly from the government with backing as a pilot development project which may spawn products useable in other cities. Funding will be harder to find when the ROMANSE products will be implemented county – wide. Technical hitches have included problems with moving from the pilot schemes to wider implementation. For example the STOP-WATCH product worked well through factory testing and in the pilot scheme, but hit on problems with the low powered radio communication at the higher level of complication and distances.

Political conflicts have been quite effectively avoided by managing to make the telematics program part of the integrated policy of the region. An area of possible conflict is over the legal responsibility of travel information provision, which is not clear and might lead to litigation if wrong information were to lead to financial losses on the part of the user. The initial discomfort of the local police over provision and management of travel information by the local authority (traditionally a police area) has been ironed out through dialogue and all parties now work together with clearly defined responsibilities.

TRANSFERABILITY

The project brings important technical implementation possibilities to other cities. Firstly, the commercial partners of the projects have developed and are developing retail products based on the pilots of ROMANSE: For example Siemens Traffic Controls Limited has developed a suite of products such as the ARTEMIS video traffic analysis software. A most useful contribution of the project, however, will be the development of a recognised systems architecture for Intelligent Transport Systems. From a technical angle, in common with other partners in EUROSCOPE, ROMANSE has been designed and implemented in a modular way as to allow the transfer of technology to other regions and cities.

From a financial point of view, it is clear that infrastructure costs for ROMANSE have not been insignificant even though the scope of the project is very wide. The basis for implementation and gaining funds from other sources was to make the whole planned telematics system part of an integrated transport policy, with clearly defined objectives and expected benefits. Effective publicising of the successes of the pilot phase was also crucial in gaining further funds.

The city of Southampton can provide support to other cities through the presentation and demonstrations of its project. Regular presentations and publications are given for professional and policy organisations such as the annual World Congress on Intelligent Transport Systems. The project also has an open house site visit policy, where interested parties may come and view the operations and talk with managers and operators (although interest is so great that there is a waiting list).

LESSONS LEARNED

The critical success factors and thus lessons to follow for gaining funding and a smooth implementation have been the following :

- A policy driven approach to development and implementation.
- A project team with committed individuals, a shared culture and a mix of players with complementary skills and spheres of influence (effective tripartite combination of local authorities, private companies and academics).
- A high project profile with maximum publicity and propagation.

Experience with the project has also shown the importance of thorough testing of all products before going public as first experiences with a new system can be crucial to project acceptance.

ROMANSE shows that it is possible to get major backing for a large ITS project, but only if substantial work is put into gaining and retaining political support through a combination of public and political relations work and clearly demonstrated technical success.

ADDITIONAL INFORMATION

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