

CLEAN URBAN TRANSPORT



Results from
the transport research programme



EUROPEAN
COMMISSION

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Additional information on the transport research programme is available on the Internet. The programme's Knowledge Centre (<http://europa.eu.int/comm/transport/extra/home.html>) provides:

- structured guides to the results and projects for particular topics;
- summaries and final reports of individual projects;
- access to project web sites and other contact details.

References to some projects are included in this brochure, to help the reader access further information quickly through the Knowledge Centre.

Information on the wider transport activities of the European Union is also available on the Internet. It can be accessed through the Europa server (http://europa.eu.int/comm/dgs/energy_transport/index_en.html).

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THE NEED FOR RESEARCH



In this brochure, discover how research is contributing to policies to improve urban transport, and find pointers to topics for further investigation on the web.

Transport makes a vital contribution to the economy and society¹. But these benefits are being lost through traffic growth, particularly in urban areas as a result of congestion, pollution and other factors. Innovative policies can reduce these negative impacts and promote more sustainable patterns of mobility.

Therefore, through its transport research programme², the European Union has

targeted a range of actions to help develop effective solutions.

This brochure highlights the most significant results for urban transport. Its purpose is to raise awareness of the information and support for policy-makers that is now available, and to encourage readers to obtain further details through a web-based Knowledge Centre (at <http://europa.eu.int/comm/transport/extra/home.html>).

THE CHALLENGE: maintaining urban accessibility while reducing detrimental impacts

There is common agreement that urban transport systems need to be improved. Urban congestion is set to get worse under current trends for growth in traffic. Poor air quality remains a major concern, despite substantial reductions in vehicle tailpipe emissions. Public transport services have declined in the face of increasing use of cars, reducing the mobility of disadvantaged groups.

The key policy issue lies in reconciling two major objectives: minimising traffic and its adverse impacts, yet fulfilling the demand for accessibility in support of economic and social goals. Solutions that serve both objectives therefore have a high priority.

These include:

- promoting a switch to sustainable modes such as collective transport;
- taxes and charges to encourage travel choices that are both economically and environmentally sound;
- promoting the use of cleaner vehicles.

Cities across Europe have started to implement a variety of measures. A critical benefit of the Transport Research Programme lies in pooling these experiences and making the resulting information, methods and good practice widely available across the EU.

The transport research programme plays a key role in sharing experiences of new policy measures across Europe.

KEY RESULTS

Research projects have a major impact on urban transport policy. Selected highlights are described in this section.

Reform of the European regulatory framework for public transport

A new regulatory framework has recently been put forward, aimed at improving the performance of public transport through controlled competition. This will establish

an explicit obligation for authorities to pursue good public transport services. It will also introduce transparent procedures under which financial support may be given to operators for their services. Research played a significant role in the preparation of the legislation, and has provided tools to support its implementation.

Controlled competition³

Research into the legal and organisational frameworks for urban public transport concluded that “controlled competition”, where authorities invite tenders for specified services, is to be preferred over full regulation or full deregulation. This now forms the basis for revising the current EU legislation, which is more than 30 years old.

Controlled competition requires that contractual standards are agreed for public transport services.

To support this, standardised quality indicators have been developed for inclusion in public authorities’ tendering and contracting procedures. These indicators are now being used in new Quality Contracts in a number of European cities. They promote a customer-focused approach to service quality, and support the preparation of future Europe-wide calls for tender.



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Adoption of mobility management

Mobility management involves providing information services and co-ordination mechanisms to make better use of existing transport facilities. This can minimise the number of vehicle trips to major sites such as workplaces, schools, hospitals and shopping centres. Projects in the transport research programme have been influential

in promoting the take-up of mobility management practices across Europe, through demonstration schemes in various cities and the preparation of good practice guides. As a follow-up, a permanent European Platform on Mobility Management (EPOMM) has been established with support from Member State governments.

Changing travel behaviour⁴

Based on practical experiences, concepts were defined for mobility management services and for their use in particular locations. Several good practice guides were compiled, aimed at the managers of new schemes, policy-makers and the owners of major worksites.

Demonstrations showed that mobility consultants and mobility centres can result in users switching modes, for instance by encouraging the adoption of Green Travel Plans. The greatest success was obtained with the largest organisations and sites (500+ employees); therefore such organisations should be targeted first. For example, car-pooling was most successful for employees from the same workplace, whereas general



promotion campaigns for car-pooling were found not to be effective. The provision of high-occupancy vehicle lanes was shown to increase car occupancy. "Matching centres" which put drivers and passengers in touch with each other also proved to be effective, provided sufficient people joined the database.

Cleaner vehicles and fuels

Over the next few decades, Europe needs to diversify its sources of transport fuels, in order to reduce the high level of dependence on oil imports⁵. Using alternative fuels in vehicles could also help to combat

global warming and improve air quality in our cities. Therefore research has been aimed at helping Member States to promote cleaner vehicles and fuels, in conjunction with major demonstration projects funded by the THERMIE⁶ Programme.

Demonstrations with cleaner vehicles⁷

Over the last four years, the EU has funded vehicle demonstration projects in more than 60 cities. These involved some 1,800 vehicles operating on clean fuels, together with policies to manage traffic flows and encourage a switch to public transport. New propulsion systems such as fuel cells were also tested. In total, the energy saved by these measures was enough to run a fleet of 2,000 buses, with greater indirect benefits foreseen as other cities exploit the projects' findings.

In the transport research programme, city experiences were used to identify good practice in the promotion of cleaner vehicles and fuels.

One important output was a good practice guide to setting up and running pilot and demonstration projects, aimed at the people who initiate and manage such schemes.

This guide has been made available on the web to assist cities in their future actions.



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City experiences⁸

The ELTIS web site provides hundreds of case studies and other documentation on local transport measures and projects, submitted by organisations across Europe. Information can be added on-line, and news items are updated on a regular basis.

Information base for local authorities

The European Commission and the International Union of Public Transport (UITP) jointly funded the setting-up of the European Local Transport Information Service (ELTIS), a web-based guide to policy measures and practices implemented in cities across Europe. This guide aims to support a practical transfer of knowledge and exchange of experiences.

Design tools for passenger interchanges

To encourage passengers to use sustainable transport modes, the interchanges between modes need to be as efficient and user-friendly as possible. Research has shown that, in the past, the emphasis has been on efficiency for the operators. To redress this, guidance has now been developed on good practice in meeting the needs of all stakeholders (users, planners, transport service operators and interchange managers). The outputs include market research and modelling tools to assist in the design of new or improved interchanges, and are available on the web.

Meeting user needs⁹

One project analysed a sample of European interchanges to assess the extent to which the needs of the various stakeholders are being met. It then developed and tested an innovative approach to defining and providing for those needs, through stakeholder participation in the planning process. This methodology has been published as a handbook.

European research has played a central role in evaluating the implications of pricing.

Road pricing

One of the key tools for managing transport demand is the use of pricing instruments to influence choices about trips. European research has played a central role in evaluating

the implications of pricing. In addition, behavioural reactions and the traffic effects of the introduction of different road pricing options have, for the first time, been tested through practical small-scale demonstrations.

Building consensus on pricing¹⁰

A framework was provided for information exchange between the large number of research projects on transport pricing.

This set up a dialogue with Member States and sought to build consensus on the research results.

The findings were translated into policy recommendations for European, national and local levels, and have already had a major input in EU policy development. As input to this, city demonstrations have provided a practical test of the effects of environmental pricing and congestion pricing.



AREAS OF RESEARCH



The aims of research on urban transport have been to demonstrate and evaluate effective policy measures and to provide guidance on their implementation. A range of supporting tools have been developed, such as:

- compilations of good practice;
- indicators and benchmarking methods;
- advice on awareness and information campaigns;
- selection, design and assessment methods for transport measures.

The research has supported policy in five main areas:

Influencing transport demand

Identifying the appropriate mix of road-user charges, parking fees, public transport tariffs and land-use planning regulations to modify demand and travel patterns.

Managing traffic

Evaluating the effects of urban traffic management systems, parking/access restrictions, bus priority and other physical and regulatory measures on traffic flows and modal shift.

Using modes efficiently

Identifying how best to implement mobility management, promote cycling and walking, and organise urban freight deliveries from terminals.

Improving transport services

Developing frameworks and methods for the efficient running of public transport services and passenger interchanges.

Introducing cleaner-fuelled vehicles

Providing guidance for policy makers and project managers on the practicalities of implementing and promoting new vehicles and fuels.

INFLUENCING TRANSPORT DEMAND

Pricing measures

The European Commission has proposed that transport pricing should be based on “marginal social costs”; charging users for the additional costs caused through their use of infrastructure, including air pollution, global warming and noise¹¹.

Research results have confirmed the viability and economic efficiency of this approach.

To enable city authorities, planners and transport operators to implement such pricing policies, practical guidelines have been produced on the evaluation of these costs and the financing of urban transport systems¹².

Conclusions from research on pricing in urban areas¹³



In general, existing pricing mechanisms and levels fail to provide appropriate signals to influence behaviour. For example, coping with congestion resulting from heavy peaks in travel demand requires greater differentiation in charges by time period and area than has generally been implemented.

Electronic road pricing has attracted much interest, but other pricing measures such as parking and cordon charges were found to be more cost-effective and practical in many situations. Simulation

studies showed that, in general, pricing reform to reflect marginal social cost is likely to involve a sharp increase in the price of urban road travel (particularly for the private car), although this varies according to the local situation.

Demonstration projects and modelling indicated that pricing at marginal social cost can reduce traffic levels by up to 30% at peak periods, mainly by encouraging drivers to travel at different times or by different routes (rather than switching to public transport).

Road pricing in urban areas¹⁴

Demonstrations of road pricing measures have been used to evaluate their likely impacts. For example:

- In Trondheim, car drivers incurred peak period charges that varied over short time intervals to reflect different levels of congestion. Reductions in peak-period traffic exceeded 10%, mainly due to drivers changing their time of travel.
- In Bristol, charges applied throughout the day, with additional incentives for using public transport and higher charges during days of poor air quality. Here, 15-20% reductions in daily car travel could be largely attributed to drivers switching to public transport.

User surveys in eight cities showed that public acceptability of isolated pricing measures is low. However, this can increase substantially if the revenue is allocated to public transport and improved provision for walking and cycling.

Demonstrations and modelling work in five cities showed that road use pricing can give city centre traffic reductions of 5-25% (for charge levels of 1-3 euro). Cordon pricing is particularly effective when applied to congested central areas and at peak periods. Pricing of parking is also effective in restraining car trips in cities where there is continuous high demand, provided enforcement can be maximised.

Integration of transport and land-use planning

Research has shown that there is no simple strategy that will dramatically reduce levels of urban congestion in the short to medium term. Therefore there is strong interest in the use of policy to change patterns of land-use in the longer term, aimed at reducing the extent of vehicle movements. For instance, this may involve requiring major new commercial

developments to include good public transport links.

However, there is only limited experience of this approach in the European Union. Research has therefore been targeted on compiling and disseminating good practice. Overall, transport policies were found to be more direct and efficient than land-use planning controls in moving towards a sustainable urban transport system.

Conclusions on land-use planning¹⁵

Critical lessons were identified from existing practice in the combined planning of land-use and transport:

- Combined policies are only successful in reducing travel distances and the proportion of car travel if they make car travel less attractive (more expensive or slower).
- Land-use policies to increase urban density or mixed land-use (e.g. locating homes near factories and services) without accompanying measures to discourage car use have only little effect.
- Policies to make car travel less attractive depend on trip start and end points not being excessively dispersed. For instance, the increase in multiple worker households sets limits on the co-ordination of work places and residences.
- Large dispersed retail and leisure facilities increase the distances travelled by cars and the share of car travel. Land-use policies to prevent the development of such facilities are more effective than land-use policies favouring high-density mixed-use development.
- Fears that policies to constrain the use of cars in city centres are detrimental to the economic viability of those centres have in no case been confirmed in practice, except where massive out-of-town retail developments have been approved at the same time.

- Planning systems in many Member States fail to integrate spatial planning with transport and environmental aspects.



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MANAGING TRAFFIC

Research projects have collected real-life evidence of the effects of using urban traffic management systems, parking restrictions, physical infrastructure and other measures to improve traffic flows and encourage users to shift modes. Combinations of measures were shown to have the greatest effect. Good practice guides and databases have been provided on their implementation, to help city planners learn from each other's experiences. Of course, in applying case study results from elsewhere in Europe, the benefits for the local situation can only be estimated. But research has shown that simulation modelling can provide a cost-effective means of screening alternative solutions prior to pilot-scale or full-scale implementation. In addition, guidelines have been devised to help cities assess the transfer of experiences to their own situation.



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Conclusions for traffic management measures¹⁶



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Studies showed that incentive (“pull”) measures such as an increased public transport service, if applied alone, are fairly ineffective in stimulating a switch from private cars.

By comparison, “push” measures such as parking and cordon charges alter the modal split significantly. But the greatest reductions in car trips result from combinations of pull and push measures (e.g. Park & Ride facilities, parking controls plus restricted access zones). Similarly, in using informatics systems, combinations of urban traffic control, bus monitoring and driver information systems are the most effective, cutting travel times and reducing emissions by up to 20%.

Optimisation of urban traffic control¹⁷

A new low-cost approach to the optimisation of traffic signal timings has been developed and demonstrated. In contrast to current design tools, this takes account of travellers' responses to changes in signal timings (such as re-routing).

At one demonstration site, a 25% increase in peak-hour use of park & ride buses could be attributed to the new timings.

Physical infrastructure measures¹⁸

Research showed that physical measures (such as bus lanes and parking restrictions) do not in themselves generally have a major short-term impact on modal split, unless they are large in scale. Nevertheless, physical measures are important because they can improve the performance and perceived advantages of public transport. This is an essential precursor for a change in travel behaviour, whatever the levers (pricing, green commuter plans etc.) used to induce that change. However, city experiences show that physical measures are not easy to introduce. For example, serious conflict can arise with just two or three institutions involved.

This highlights the importance of building consensus throughout the process. Also, it is apparent that there are no "off-the-shelf" solutions for cities to apply. For example, bus lanes have had good success in some cities and little in others.



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USING MODES EFFICIENTLY

Mobility management and communication strategies

through strategies such as providing better information on transport options and co-ordinating car-pooling.

Mobility management aims to make more efficient use of existing transport and minimise the number of vehicle trips to traffic-generating sites (such as schools and workplaces)

As described previously, projects in the transport research programme have been influential in promoting the acceptance of mobility management practices across Europe.

Experience with car-pooling¹⁹

A demonstration project found that one of the most effective ways of increasing car occupancy is through the provision of infrastructure measures such as lanes reserved for high-occupancy vehicles (HOV). Test site experience showed that, on average, car-poolers cut their travel time by one third in the morning peak period using a 1.5km HOV lane in Leeds. This was the first significant trial of an urban HOV lane in Europe.

The research identified that, in many Member States, the tax treatment for the reimbursement of costs amongst car-poolers needs to be defined and the insurance situation for car-pooling clarified. In addition, a harmonised European road sign for HOV lanes is required.



The change in behaviour required by mobility management is strongly dependent on communication tools. To spread good practice across Europe, more than 100 past transport information and publicity campaigns have

been reviewed and included in a software tool, and guidelines have been developed for local authorities, public transport operators, site managers and cycling and walking groups.

Good practice for information and awareness campaigns²⁰

Analysis of previous experiences has shown that:

- Communications as part of an integrated transport plan can enable changes in travel behaviour.
- General awareness campaigns need to be repeated at regular intervals – otherwise they lose their “power” to influence behaviour.
- Campaigns targeted on specific groups (such as schools, workplaces and neighbourhoods) have stronger and longer-lasting effects.

Promotion of cycling and walking

Around 50% of car trips in cities are less than 6 km in length, and could be partly replaced by walking and cycling. Different cities have had variable success in pursuing this strategy, and therefore there is strong interest in learning from wider European experiences.

In response, research projects have provided various information tools to help city authorities in giving greater priority to safe cycling and walking. These tools include a review of good practice in the design of infrastructure, guidance on the implementation of a wide range of measures, and the first comprehensive catalogue of measures concerning walking.

Policies to promote cycling and walking²¹

Based on city experiences, research projects have identified a number of priority actions:

- Providing networks of segregated routes for pedestrians and cyclists.
- Increasing the number of (secure) parking places for bicycles and decreasing the number for cars in inner city areas.
- Targeting journeys to and from school, in order to influence transport habits at an early stage.
- Reducing vehicle speeds in urban areas to 30 kph maximum, except on arterial roads.
- Introducing direct financial incentives for employees not to use cars, such as taxation of workplace parking.
- Revising national design standards for road infrastructure.
- Appointing local authority staff to promote change of transport users' habits in the city.



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Consolidation of urban freight deliveries

Reducing trips by part-loaded and empty goods vehicles would significantly reduce pollution problems in urban areas. Therefore, significant research work has focused on the potential for introducing freight transshipment terminals, where loads can be transferred between modes and consolidated for urban delivery. Site-specific evaluations, computer simulations and demonstration projects have captured

the lessons from limited European experiences and disseminated them to a wider audience.

In addition, better ways of managing road trips to and from terminals have been identified. Organisational solutions are dominant, requiring improved communications and co-operation between various actors. Technology can also contribute, such as a new Internet-based system for the reservation of space in a city centre zone for loading and unloading lorries, aimed at reducing congestion.

Freight platforms²²

These are transshipment areas involving many transport companies and ideally at least two transport modes. There is only limited experience and knowledge of how such platforms perform. Therefore a database of 96 European freight platforms and their key characteristics has been created, and a handbook developed for local authorities and companies providing

guidance on establishing new freight platforms.

In addition, computer simulation has illustrated the potential benefits – such as a 15% reduction in urban truck kilometres and 10% cost savings.



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IMPROVING TRANSPORT SERVICES

Ensuring quality in public transport

If passengers are to be encouraged to use public transport instead of cars for urban trips, reversing current trends, better services will be required. As indicated previously, the regulatory framework for public transport is being revised to open up the sector to competition, in order to increase efficiency. Research laid the foundation for this, by identifying how to achieve the best trade-off between

efficiency and societal goals. It was concluded that controlled competition can give reductions in unit operating costs of at least 15% over fully regulated operations, even with no redundancies or wage reductions.

Guidance has been developed on quality standards for public transport, to support local authorities in the tendering process. To complement this, further research has provided indicators to benchmark the performance of different operators.

Benchmarking quality in public transport services²³

A handbook for the self-assessment of internal quality by transport operators has been devised. This also supports the provision of (anonymous) data for benchmarking purposes. There are separate but compatible versions of

the handbook for five public transport modes (bus, trolley bus, tram and light rail, metro and local heavy rail), plus a short version with 27 “super indicators” for benchmarking.

Improving passenger interchanges

Competition between operators also raises organisational issues for the provision of passenger interchanges. Stakeholder consultation carried out in the transport research programme has shown that there is a need to define the authorities responsible for the interconnection of long distance, regional and local transport networks. This is needed to ensure effective planning to cope with traffic generation in the vicinity

of interchanges, the efficient management of interchanges, and a fair allocation of financial responsibilities. Of course, interchanges need to be user-oriented as well as efficient, if a switch from cars is to be realised. As noted previously, a cluster of research projects has developed guidance on the optimisation of interchange design, aimed at the planners, designers and managers of interchanges. In addition, guidance has been provided on improving transport connections to and from terminals.

Good practice in interchange design²⁴

Specific policy actions have been recommended to reinforce good practice:

- Central and regional governments need to oversee the location, planning and co-ordination of interchanges. This will help to synchronise services through the interchanges and guide investment priorities for public transport.

- Authorities should extend the guidance they give to public transport designers and operators to include good practice for the design of interchanges.
- A Europe-wide standard should be developed for the basic elements of signing schemes that indicate the various services available at an interchange.



INTRODUCING CLEANER-FUELLED VEHICLES

Cleaner vehicles and alternative fuels provide another means of improving the urban environment, but they face barriers such as high costs and a lack of refuelling infrastructure. Barriers are lower in certain niche applications such as public sector fleets, and can be reduced further by policy actions and demonstration projects. To aid market take-up,

the transport research programme has developed software tools and guidelines to help project managers and policy-makers develop appropriate strategies towards cleaner vehicles.

Information on cleaner vehicles²⁵

The following information resources have been made available on the web:

- an assessment of the most promising applications for cleaner vehicles and supporting measures, from a city perspective;
- recommendations on policy actions at the European and national levels to promote or facilitate market introduction and demonstration;
- a good practice guide to setting up and running pilot and demonstration projects, aimed at potential project champions;
- a software tool which provides information and assessment methodologies covering cleaner transport solutions, to support city planners and vehicle operators.

Policies to promote cleaner vehicles

Key conclusions on the role of supporting policies were as follows:

- The most important policy measures are fiscal incentives, first to kick-start the market for individual fuels, and then in the longer term based on relative environmental damage.
- Demonstration projects have an important role in testing technologies, stimulating the market and raising consumer awareness.
- Standards for vehicles and fuels are important in creating a unified market and ensuring consumer confidence.
- Eco-labelling and green fleet certification schemes are important, especially where the label remains on the vehicle in everyday use.
- Green procurement by Governments, whether voluntary or mandatory, can be significant in creating an initial market for new fuels and providing a signal to private consumers that these fuels are serious.
- Low Emission Zones that allow city centre access only for clean vehicles, and Quality Contracts and Partnerships between local authorities and fleet operators, are new powerful tools for encouraging cleaner vehicles at a local level. Governments may need to provide the regulatory framework for their implementation and enforcement.



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The research work has provided wider access to the key lessons from city experiences with clean vehicles, including insights from the demonstration projects funded by the THERMIE⁶ Programme. The large scale of the THERMIE projects has been particularly important in showing how new transport technologies can be integrated into urban transport strategy, as well as testing the performance of specific propulsion technologies such as fuel cells. Together, these activities have laid the groundwork for even larger scale actions in the European Union's current research programmes.

To aid market take-up, the transport research programme has developed software tools and guidelines to help project managers and policy-makers develop appropriate strategies towards cleaner vehicles.

THERMIE transport demonstration projects ⁶

Major demonstration projects have proved the effectiveness of integrated transport strategies in real-world applications and have acted as the catalyst for wider commercial exploitation of new vehicle and fuel technologies. For example, one project showed how large-scale ordering of vehicles by cities acting together could achieve significant price reductions. Another project identified a typical payback period of three years for integrated packages of measures, taking into account the full social costs and benefits.

The average modal shift achieved by such measures across test sites in seven cities was a 4.5% reduction in car use and a 12% increase in the use of public transport. This corresponds to energy savings of around 7 % and a similar reduction in CO₂ emissions. Particulate emissions associated with health concerns were reduced by over 20%.

The best environmental results were achieved in cities that sought to restrict

access for private cars in addition to improving the public transport system. This implies that new vehicle technologies contribute most effectively when combined with transport management measures. In one project, over two-thirds of the energy savings came from changes other than vehicle propulsion.

Nevertheless, the vehicle contribution is vital. Some cities achieved 50% reductions in emissions affecting local air quality through the use of alternative-fuelled vehicles. Electricity and gaseous fuels were the options most commonly tested, as well as bio-fuels and hybrid drive systems.

For electric vehicles, one key finding was the importance of driver training. For example, in postal deliveries, a good and motivated driver is able to go 50% further on one charge than an inexperienced driver.

CURRENT DEVELOPMENTS IN TRANSPORT RESEARCH

This section identifies current research projects in the urban transport sector. Further details are available from the Links section of the web-based Knowledge Centre.

The transport research programme has shown that the problems facing urban transport can only be met by radical change, through the introduction of proven and new policy measures as elements of an integrated strategy. Research has identified the scale of benefits that could be achieved, and provided the information base and good practice guidance to support future implementation.

Building on this, research work is moving in a number of directions:

- large-scale testing of integrated strategies, for instance through the CIVITAS initiative;
- in-depth assessment of selected policy options with high potential, such as road pricing;
- development of new solutions to meet emerging needs, such as the education of transport professionals.



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CIVITAS: Large-scale testing of integrated strategies ²⁶

The European Commission will spend up to 50 million euro on the CIVITAS initiative, supporting demonstration projects in a limited number of "laboratory cities" across Europe. CIVITAS addresses both transport and energy concerns. By focusing resources in this way, the initiative is intended to prove that integrated strategies are capable of achieving a significant change in modal split and reductions in congestion across an entire city.

The strategies deployed by the CIVITAS cities will combine: clean vehicle fleets and fuels; demand management based upon access restrictions to the inner city

area; integrated pricing schemes; stimulation of collective passenger transport; new forms of vehicle ownership and use; new concepts for the distribution of goods; "soft" measures for mobility management; and the integration of intelligent systems for transport management and passenger services. These eight elements are seen as a benchmark of quality for any city transport strategy.

As part of the CIVITAS initiative, the Commission will also fund work to assess independently and publicise the cities' achievements, and to develop best-practice guidance for other cities.

In-depth assessment of pricing measures²⁷

Evidence from the transport research programme shows that pricing measures have the potential to be one of the most effective tools for managing urban transport.

However, further lessons on their practical implementation are needed from large-scale demonstrations before pricing measures gain the necessary social and political acceptance.

Therefore the Commission is funding a major demonstration project in eight cities, through to 2004. This will test a range of road pricing concepts and technologies as part of a wider strategy to combat congestion and improve the environment. In parallel, a Thematic Network will bring together and disseminate the results from these and other demonstrations, aimed at producing a consensus on the implications for policy. This is linked to the work of a further Thematic Network on the implementation of pricing.

In-depth assessment of "soft" measures²⁸



The take-up of mobility management, information and awareness actions requires convincing evidence of their effectiveness. Two new projects are collecting and disseminating data on the impact of such schemes, as well as extending the networking of experiences to additional Member States.

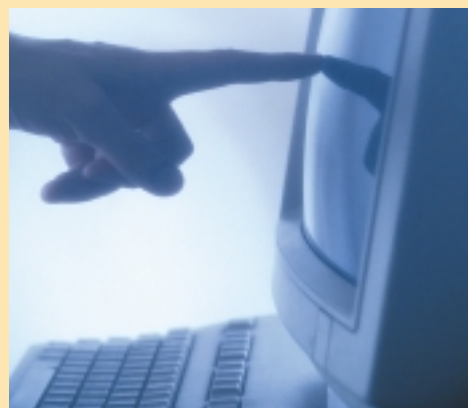
Research to meet emerging needs: professional education²⁹

A new direction for transport research lies in supporting the education of transport professionals. Work is underway to generate and test new teaching materials for higher education, exploiting the results from EU research on local and regional transport.

Modular materials will be designed for use in educational institutions as well as distance learning and self-instruction. Outputs will include audio and video materials, interactive learning packages and hard-copy visual aids. Subsequently, other materials will be developed to support the continuing professional development of people working in the transport sector.

Research to meet emerging needs³⁰

The public transport sector faces a period of dramatic change in regulation, organisation and technology. Therefore tools are being developed specifically to support such changes and monitor their impact. In addition, a Thematic Network will bring together stakeholders to build a vision for the future of public transport in the medium to long term. This will identify the actions needed to meet the challenges, including technology investment paths and management changes.



References

Further information on the following projects can be obtained from the web-based Knowledge Centre.

Other key documents referenced in the brochure are available on the DG Energy and Transport web site (http://europa.eu.int/comm/dgs/energy_transport/index_en.html).

1. White Paper "European transport policy for 2010: time to decide", COM(2001)370
2. The transport research programme is part of the fourth framework programme for Community activities in the field of research, technological development and demonstration for the period 1994 to 1998
3. ISOTOPE and QUATTRO projects
4. MOMENTUM, MOSAIC and ICARO projects
5. See the European Commission's Green Paper on Security of Energy Supply (COM(2000)769)
6. The THERMIE programme was the demonstration component of research and development into non-nuclear energy, funded by the European Community for the period 1995 to 1998 (<http://www.thermie-transport.org/>)
7. UTOPIA project
8. ADVANCE project: www.eltis.org
9. PIRATE project
10. CAPRI and CONCERT-P projects
11. See the European Commission's White Paper on Fair Payment for Infrastructure Use (COM(98)466)
12. FISCUS project
13. AFFORD, CAPRI, CONCERT-P, FATIMA, FISCUS, OPTIMA, START, TRANSPRICE, TRENEN projects
14. CONCERT-P and TRANSPRICE projects
15. TRANSLAND project
16. AIUTO, DANTE, INCOME and START projects
17. MUSIC project
18. CAPTURE and OPIUM projects
19. ICARO project
20. CAMPARIE and INPHORMM projects
21. ADONIS, PROMISING AND WALCYNG projects
22. LEAN and REFORM projects
23. EQUIP and QUATTRO projects
24. GUIDE, MIMIC and PIRATE projects
25. UTOPIA project
26. See the CIVITAS web site at http://europa.eu.int/comm/energy_transport/en/cut_en/cut_civitas_en.html
27. PROGRESS, CUPID and IMPRINT-EUROPE projects
28. MOST and TAPESTRY projects
29. PORTAL project
30. MARETOPE and VOYAGER projects

The programme's Knowledge Centre is available at:

<http://europa.eu.int/comm/transport/extra/home.html>

It provides:

- structured guides to the results and projects for particular topics;
- summaries and final reports of individual projects;
- access to project web sites and other contact details.

Brochures on results from the transport research programme

are available for:

- 1. Sustainable mobility**
- 2. Clean urban transport**
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