

EXECUTIVE SUMMARY

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Acronym
FORESIGHT for TRANSPORT

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**Foresight for Transport;
A Foresight Exercise to Help Forward Thinking in Transport and Sectoral
Integration**

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Partners: ADELPHI Research (DE)
University of Cardiff (UK)
NESTEAR (F)
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Executive Summary

The FORESIGHT for TRANSPORT project was launched in 2001 under the 'Competitive and Sustainable Growth Programme' (1998-2000) of the European Community with the main objective to organise and run a strategic dialogue in the form of a foresight exercise on the influence of non-transport factors and policy on mobility and transport.

The implementation of the project entailed the organisation of thematic expert panel consultations on the topics of enlargement, environment and energy, information and communication technologies, multilevel governance and time dynamics, a Delphi survey involving 165 experts around Europe as well as the establishment of a meta-database system with information on indicators that can be used to monitor developments in fields of relevance for transport and mobility.

The results of the project are documented in eight scientific deliverables.

- Deliverable 1 – the project's inception report – presents background information on the foresight method and the areas addressed by the thematic expert panel consultations.
- Deliverables 2 to 6 report on the results of the thematic expert panel consultations. Deliverable 2 deals with the subject of enlargement, Deliverable 3 with environment and energy, Deliverable 4 with information and communication technologies, Deliverable 5 with multilevel governance and Deliverable 6 with the time dimension. All consultation documents are available in English, French and German.
- Deliverable 7 is a report on the impact of external developments on mobility and the transport system. External developments are defined as all those factors that fall outside the direct realm of transport policy and the transport market. On the basis of the results of the thematic expert panel consultations these were classified as belonging to eight dimensions, namely, demographics, attitudes, social (policy) developments, institutional arrangements, science and technology, politics, the environment and the economy.
- Deliverable 8 is the project's monitoring system. The technical tool is accompanied by a manual as well as a feasibility plan on the further use of foresight in the transport field.

The *pathways* through which external and/or policy variables impact on transport and mobility – and both at the macro- and the micro-levels – was the focus of the FORESIGHT for TRANSPORT study. At the macro or aggregate level, the relevant associations were described through a reference scenario and a set of alternative scenarios. The reference scenario was specified with

the help of key measurable indicators and on the basis of projections based on expert judgement on how past and contemporary trends may unveil in the future. At the micro level, the impact pathway concept was used to describe the effects of very specific socio-economic, cultural and political trends on mobility and transport. Here the emphasis was placed on shedding light not only on the driving but also the intermediary role of developments operating outside the transport realm proper.

The scenarios for the future were elaborated in five thematic expert panel consultations and validated through a Delphi survey. The strategic dialogue also provided the material for the elaboration of the transport impact pathways. The latter were also submitted to validation through the Delphi survey. A second (smaller) round of expert consultations refined these impact pathways using the feedback of the Delphi survey.

In summarising the project's substantive findings we begin with the thematic areas which provided the starting point of the analysis, namely enlargement, environment and energy, information and communication technologies and multilevel governance.

The EU enlargement will impact on the volumes of traffic, the transport market and the organisation of the transport sector as well as infrastructure development. The impacts will however differ considerably depending on the institutional and socio-economic basis of the enlargement and alignment process. The strongest positive effects in terms of liberalisation, the harmonisation of prices and taxation as well as logistics, railway reform and TEN-T infrastructures can be expected under a scenario of rapid institutional and policy integration supported by high economic growth. Economic sluggishness and/or setbacks with regard to institutional reform following the variable geometry or core/periphery rationale would diminish these positive impacts or slow down their trajectory.

The environmental impacts of transport will be reduced only if sustainable environmental policies are adopted, also within the transport sector, and if people change their behavioural / lifestyle patterns. A significant reduction of both the speed and volume of transport (in absolute terms) would bring about revolutionary reductions of greenhouse gas emissions. These would be positive from the ecological point of view. However, such a 'strong sustainability' scenario risks having negative repercussions with regard to welfare. Alternative trajectories placing more emphasis on technological and logistics improvement within transport, the rational use of energy and renewable energy sources, more careful land-use planning as well as pricing and environmental taxation are, therefore, preferred. On their own, none of these measures could bring about sustainable changes, which is why it is important to work with policy-mixes at both the global and local levels. The possibilities of reducing the need for travel long distances for both individuals and goods through either the better spatial

location and organisation of services or the optimisation of agricultural (over-) production must also be examined.

Among technological developments, the development of the information and communication sector has over the past several years attracted most attention and high expectations are associated with the so-called information revolution, also for transport. ICT developments will affect the transport sector both in a direct and an indirect way. Direct impacts relate to safety and the efficient use of capacity through, for instance, the instalment of traffic management systems. Indirect effects relate to new modes of doing business (e-commerce) and new methods of work (teleworking) and are potentially more fundamental in the long-term. However the extent to which these technological changes will also result in measurable impacts within the foreseeable future largely depends on the pace of diffusion of relevant technologies, the legislative / regulatory framework within transport as well as commercial and labour market policy. The structure of economic activities and capital flows have also a significant role to play in this respect. Monopoly situations at the global level or protectionist policies at the national level might facilitate a more rational organisation and deployment of technology and lead to a better transport logistic organisation. However they are also associated with higher social costs and undermine market conditions. The major challenge faced in the technological field is thus how to optimise the diffusion of technological innovations in a market economy without undermining precisely those conditions that are necessary for technological innovation, namely, diversity, plurality, competition and collaboration.

Institutional arrangements covering the mode and structure of the policy process were found to be significant mediators of transport and mobility impacts. The multilevel governance context of supra-national political systems like the European Union necessitates networking and consultation at different levels, across sectoral boundaries and among several actors. In principle it is thus more conducive to open and participatory processes in decision-making and better policy outputs. However, it is also linked to higher transaction costs in terms of deliberation and coordination, longer delays with the implementation of policies and longer transition periods during which the distortions to competition may be accentuated.

Over and beyond the above, the assessment of how external developments impact on transport and mobility must also take into account developments in the labour market and how these affect wages and working hours; the evolution of leisure activities and tourism; and attitudes to the environment.

Demographic changes, household structures and residency patterns in relation to the place of work (and in this connection land-use and housing policy) are key contextual variables with regard to mobility. The structure and organisation of the transport sector, including logistics, as well as investment policy are important contextual variables with regard to freight transport.

Based on the above observations eighteen transport impact pathways were elaborated by the project and validated through the project's Delphi survey and second round of expert consultations. These impact pathways deal with the following subjects:

Regarding individual mobility and passenger transport

- The way ageing can be expected to affect transport demand as well as leisure patterns and the number of trips
- The way in which the valorisation of time, speed and flexibility among the population influences motorisation as well as tourist travel patterns
- The impact of attitudes to the environment on the use of the transport system
- The effect of the flexibilisation of the labour market, including the flexibility of working hours, on the type, length and frequency of local trips.
- The effects of the decentralisation of transport policy competences on urban and regional transport, including how conflicts on land use may affect network development.

Regarding (primarily) freight transport

- The impact of the emergence of a European level of decision-making with rising competences on network development and infrastructure investment as well as the role this has for a re-orientation of transport policy towards a new balance between modes and sustainable mobility.
- The role of technological innovation and diffusion – in general as well as more specifically with regard to alternative fuels and energy – on transport demand and on the environment (through transport).
- The way in which economic growth – in general and, in particular, in view of enlargement – can be expected to influence trade patterns and transport demand.
- The impact of restrictive migration policies on transport efficiency.

In the elaboration of the transport impact pathways we paid particular attention on specifying not only what drives developments but also what mediates development. External factors – including some not listed above – have in this respect often a much bigger role to play.

Individual mobility and, hence, short-distance passenger transport is especially receptive to external influences deriving from non-transport policy domains and relating to work, lifestyle, settlement and demographics. It is in these more 'distant' policy domains that we must look for what drives and mediates change whereby the 'distance' of these policy domains from the core (of transport and

mobility) also suggests that the changes thus effected are gradual and slow. It follows from this that, in order to be successful, mobility management within transport policy must elaborate strategies that are in line with contemporary forms of living and working and take into account demographic developments and settlement patterns. In addition, modern mobility management should try to effect changes within the above external policy domains that are consistent with sustainable mobility, for instance through the promotion of housing or labour market initiatives that take into account transport and environmental constraints.

Freight transport is a field which is more 'closed' in the sense of having clearer and more restricted boundaries of influence. The core triangle of economy, environment and technology is what drives developments. Change can also mostly be effected within this extended transport policy domain. A policy mix comprising investment, pricing (including environmental taxation) and technological measures (with regard to new sources and more sustainable uses of energy as well as the deployment of communication technologies for advanced traffic management systems) is here largely adequate for effecting change towards sustainable mobility. The main challenge is, however, how to operationalise such policy mixes at a broad scale. Insofar as long-distance freight transport is concerned, policies supporting the re-balancing of modes will only be effective if implemented at a broad level. This requires a re-thinking of decision-making processes towards better coordination and stakeholder involvement across countries and industrial sectors. The EU institutional framework provides a useful platform in this respect but is also comparatively novel. Not without reason the European or Common Transport Policy represents a master plan for the advancement and sustainable development of freight transport. Its success will however ultimately depend on the ability of the EU institutional framework to perform well as a multilevel governance structure.

How likely are we to meet the above challenges? A review of past and present trends and future projections based on expert judgement suggests a number of positive elements but also several problematic aspects in contemporary policies. The general expert view is that we can indeed observe a shift towards sustainable mobility. However given the slow pace of implementation of relevant policies (with regard to fuel prices, investment strategy etc.) and the likewise slow diffusion of innovations (for instance with regard to renewable energy) positive impacts in terms of environmental degradation or the re-balancing of modes is not expected to begin to happen prior to 2010. The White Paper projections on passenger and rail freight remain thus highly contested: around half of the respondents agree that passenger rail and freight rail will be increasing at an average yearly rate of 2.7 per cent, the other half disagree. This is however also not surprising. The White Paper itself does not argue that such growth rates are possible at no cost or with no new policy initiative.

The future which represents the most desirable state of affairs is that which capitalises on the positive elements of the present and completely overcomes

its negative aspects. This we have called the 'Sustainable European Ecological Identity' future scenario. Experts assess this as highly desirable but also as highly unlikely to materialise. This reflects pessimism in part but also pragmatism.

The negative future which we have called 'Governance Failure' focuses on the negative elements of the present and expects these to become worse in the years to come. This is caused by the prolongation of economic recession in conjunction with technological breakdown. The reason for calling this negative future state of affairs 'governance failure' has to do with the failure of existing institutional arrangements to deal with negative developments.

The present situation is not such that we can lay back and rest assured that inevitably it will all turn out well. The slow down of the economy in conjunction with increasing social inequalities and the real loss of power of social and political institutions to effect change in the short-term contribute to the perceived instability and insecurity. These dangers are not inherent to transport but they affect transport as well. Governance failure is not imminent but the tendency to substitute technocracy for governance is a real problem currently faced at both national and European levels.

Contextual conditions facilitating progress along the paths established by the transport impact pathways include a multilevel governance framework within which policy coordination and cooperation can be designed *and* implemented as well as a social policy agenda that assists in the integration of economic and social objectives in the face of the challenges of the knowledge society. A better linking of economic and social objectives will also make it easier to integrate environmental sustainability concerns into sectoral policy.

The above contextual conditions are largely independent from sectoral policy like transport. However transport policy would be advised to follow a similar logic when designing long-term strategy. This is also what is suggested by the analysis of the transport impact pathways identified by this study. To reiterate: individual mobility management must be better integrated with labour market and settlement policies and take into account both demographic trends and lifestyle patterns. Freight transport is a policy domain which can be easier delineated. A policy mix comprising investment, pricing and technology measures represents a suitable strategy towards sustainable mobility. This however presupposes that policies can be implemented on a broad scale and not only in select national environments. The challenge here is ultimately one of multilevel governance.