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Transport and Mobility in an Enlarged Europe - 2020 Foresight Brief No. 019

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Summary

This brief reports on the experiences made in the 'Foresight for Transport' project. The project was undertaken to test the applicability of the foresight method for visioning transport and mobility futures and specifying impact pathways. Special attention was placed on the impact of external developments on transport and mobility. The implementation of the study entailed the organization of thematic expert panel consultations on the topics of enlargement, environment and energy, multilevel governance, information and communication technologies 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.

A Holistic Approach for Assessing the Future of Transport

The context

The decision to run a foresight exercise on European transport policy was motivated by the recognition of the limitations of mainstream policy assessment methods and, more specifically, transport models, with regard to the identification and analysis of the impact of non-transport or 'external' factors on transport and mobility.

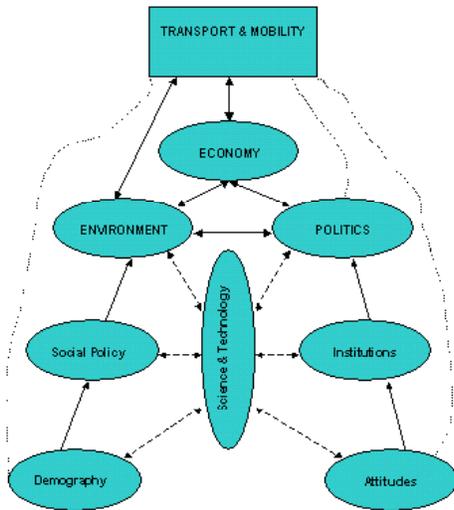
An alternative approach is to focus on unveiling *how* changes within the external or policy environments come to impact on transport and mobility. The key term here is 'how', hence also the organization of the research around the notion of 'impact

pathway'. In other words, while models work with already established assumptions about cause and effect in order to achieve estimation and valuation of impacts, the study has sought to clarify the cause-effect relationships as *processes* – in time and through a range of intermediate variables or policy domains. Understanding process in conceptual terms, i.e. the impact pathways, implies integrating specialized knowledge as well as different normative appreciations regarding the future.

Moving Beyond 'Strategic Modelling'

The 'Foresight for Transport' study had as main objective to clarify the *pathways* through which external and/or policy variables impact on transport and mobility. The following figure represents the conceptual framework of the study.





The underlying assumptions are as follows:

- First, the more distant external elements are to be found from the top box representing mobility and transport, the weaker their *direct* impact will be. An example of this is the way in which demography impacts on mobility.

- Second, science and technology is centrally and vertically located in the above diagram to represent how this is influenced but also influences other external factors and, hence, mobility and transport. Innovations are alone not enough to effect a significant change of policy. The diffusion of innovations is equally, if not more, important.
- Third, the location of the triangle politics-environment-economy close to the top is indicative of the significant role of business and industry, on the one hand, as well as politics, on the other, in filtering developments from other 'lower-level' factors and in having an own sustainable impact on transport and mobility. The addition of environment to this core reflects the broad consensus that the environment is a key factor for determining the societal sustainability of the future.
- Finally, continuous lines or arrows indicate stronger impact pathways than broken lines or arrows. The positioning of the external dimensions as well as the strength of the relations between them can change depending on what future is envisioned. The constellation presented in Figure 1 is a generic one that corresponds closest to the 'business-as-usual' scenario.

Methodology

Combining Qualitative and Quantitative Instruments

The time frame for this Foresight exercise was the time from now until after 2020, distinguishing between short-term (2004-2009) medium-term (2010-2019) and long-term (2020+) perspectives. Geographically the exercise focused on the enlarged European Union.

The elaboration of impact pathways that link external elements to mobility and the transport system was done in four steps: First an expert knowledge base on each of the external dimensions was compiled. This involved understanding what drives developments for each, what are the main contextual issues involved and how these are likely to play out in the future. Second, measurable indicators were defined for each dimension and available data was collected in an attempt to describe actual trends and estimate how these might develop in the future. This established a basis for the reference scenario that describes the present and the latter's trajectory into the future. Third, alternative ways in which the various dimensions correlate with each other and with transport and mobility were envisioned. Such alternative global futures provide the setting for specific impact pathways. The fourth step was that of specifying the impact pathways at the micro-

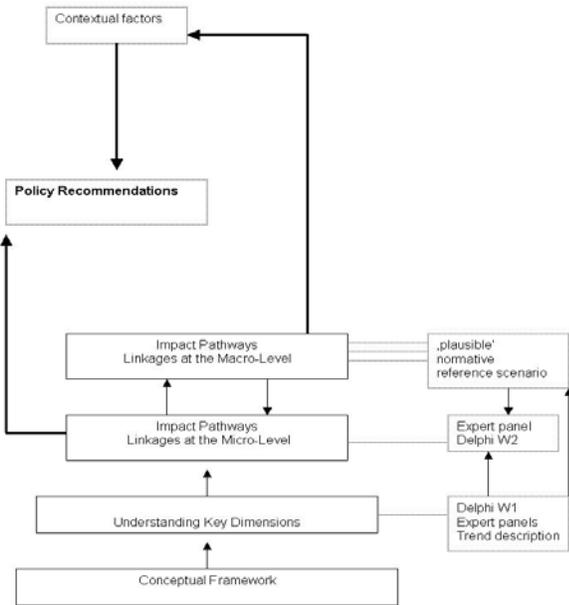
level as well as the degree of association between factors that are linked along this pathway.

This Foresight exercise used a variety of techniques and combined both qualitative and quantitative methods:

- **Expert Consultations:** The 'Foresight for Transport' project organized two rounds of expert consultations. The first round (60 experts) took place during the project's first year, lasted a full week and was used to gather knowledge relating to external dimensions. The second round was a smaller consultation exercise (12 experts) and took place towards the end of the project. Its objective was to refine the transport impact pathways.
- **Brainstorming:** The expert consultations used the brainstorming and scenario-writing techniques to guide the deliberations. Following the exchange of ideas on important drivers and issues, participants were asked to think in terms of their temporality, their geographical scope and their relevance for transport. This generated the classification of drivers and issues in the eight-fold scheme of Figure 1.
- **Scenario-Writing:** Participants were provided with a summary of the issues produced through brainstorming in their respective sessions and asked to select those that would be most suitable for describing (a) the present situation and (b) possible futures. Through deliberation each group came eventually to agree on the baseline scenario and a limited set of alternative futures. The core research team of the 'Foresight for Transport' project

used these to specify a generic baseline scenario and seven alternative future scenarios.

- **Delphi Survey:** The ‘Foresight for Transport’ project used a two-wave Delphi survey over a period of nine months in 2003. The first-wave questionnaire was distributed among 455 experts and sought to validate the results of the first round of the expert consultations on critical non-transport factors and scenarios. The second wave questionnaire fed back to respondents the results of the first wave of the survey and asked them to reflect upon or confirm their original choices. Against this background, several transport impact pathways were submitted for commenting and validation.
- **Trend Extrapolations of Key Indicators:** In ‘Foresight for Transport’ trend extrapolation was used for indicators selected as important for monitoring future developments with regard to either transport or external developments.
- **Process Management:** The following figure displays the process management of the ‘Foresight for Transport’ study towards the arrival at substantive outputs.



Identifying Impact Pathways

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** will affect transport demand as well as leisure patterns and the number of trips.
- The way in which the **respect for time**, speed and flexibility influences motorization and travel patterns.
- The impact of **attitudes to the environment** on the use of the transport system.
- The effect of a more **flexible of the labour market** on the type, length and frequency of local trips.
- The effects of the **decentralization** of transport policy competences, 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.
- The role of **technological innovation** and diffusion on transport demand and on the environment (through transport).
- The way in which **economic growth** in the context 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 particular attention was placed on specifying not only what drives developments but also what mediates development. External factors have often a much bigger role to play in this respect.

Conclusions

Implementing Sustainable Mobility

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’ (see Figure 1) policy domains that we must look for drivers and mediators of change. 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 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 Policies on Broad Geographical Scale

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 (Figure 1) is what drives developments. Change can 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 largely adequate for effecting change towards sustainable mobility. The main challenge is, however, how to implement such policy mixes at a broad geographical scale. In this regard, the success of the European Transport Policy will ultimately depend on the ability of the EU institutional framework to perform well as a multilevel governance structure.

‘Sustainable European Ecological Identity’

How likely are we to meet the above challenges? 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 future which represents the most desirable state of affairs is that which capitalizes 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 materialize. This reflects pessimism in part but also pragmatism.

‘Governance Failure’

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. 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

Contextual conditions facilitating progress along the paths established by the transport impact pathways include (a) a multilevel governance framework within which policy coordination and cooperation can be designed *and* implemented as well as (b) a social policy agenda that assists in the integration of economic, environmental and social objectives. These contextual conditions are largely independent from a policy domain like transport. However transport policy would be advised to follow a similar logic when designing long-term strategy.

Follow-Up

The knowledge gathered by the ‘Foresight for Transport’ project is of use for scrutinizing and thereafter refining policy implementation strategies as well as for elaborating long-term strategies in a strategic manner, i.e. in relation to other policies. Furthermore the information gathered can be used to improve the assumptions underlying strategic models thus contributing to the amelioration of the latter’s projections and their better interpretation. The results of the ‘Foresight for Transport’ project are being used in this strategic manner in other consultancy and research work of the European Commission as well as by national and international transport policy communities.

Sources and References

www.iccr-international.org/foresight

About the EFMN: Policy Professionals dealing with RTD, Innovation and Economic Development increasingly recognize a need to base decisions on broadly based participative processes of deliberation and consultation with stakeholders. One of the most important tools they apply is FORESIGHT. The EFMN or European Foresight Monitoring Network supports policy professionals by monitoring and analyzing Foresight activities in the European Union, its neighbours and the world. The EFMN helps those involved in policy development to stay up to date on current practice in Foresight. It helps them to tap into a network of know-how and experience on issues related to the day to day design, management and execution of Foresight and Foresight related processes.