

PROJECT

HEATCO

Developing Harmonised European Approaches for Transport Costing and project assessment

Funding: European (6th RTD Framework Programme)

Duration: Feb 2004 - May 2006

Status: Complete with results

Total project cost: €1,340,698

EU contribution: €1,299,837



Call for proposal: FP6-2002-SSP-1

[CORDIS RCN : 87868](#)

Background & policy context:

As set out in the Commission's White Paper 'European transport policy for 2010: time to decide', external effects such as congestion, accidents, health risks from pollutant and noise emissions as well as other environmental impacts contribute to current unsustainable development patterns. The conclusions drawn are that the completion of the trans-European network (TEN) and the internalisation of external effects by infrastructure charges are essential elements of a policy aimed at overcoming unsustainable trends in development. This clearly has implications for the evaluation of TEN infrastructure projects.

At the time of this project, evaluation of investments and policy measures took place in a highly pragmatic manner. National guidelines existed in a number of countries, but these differed widely in terms of their methodology, level of detail and indicators. These differences are partly due to a natural bias of guidelines towards state level economic and social objectives. They were not developed for assessing international projects. In part, however, there are also differences in assumptions between countries in terms of the economic valuation of impacts. The existing guidelines at EU level (DG REGIO: Guide to cost-benefit analysis of investment projects) already was a step in the right direction, however, indicators or procedures that are specific to act as a standard in the evaluation of TEN projects are still needed.

Guidelines from organisations like the European Investment Bank or the World Bank do include basic economic and environmental indicators but fail to provide an integrated view or to address certain EU-specific concerns. Project assessment guidelines based on harmonised approaches and comparable values are not available. Furthermore, there is a huge gap between existing evaluation practice and theoretical approaches. Quoting the EEA website: 'The practice of strategic environmental assessment is growing, but links with actual decision-making are weak'. The Economic and Social Committee, in a recently published opinion paper, expresses the need for an unambiguous and harmonised framework for socio-economic evaluation of policies, including transport. Contrary to Japan and the USA, until now R&D in Europe in this area has been highly fragmented, although first steps were taken in the EUNET and IASON projects. Another useful step is the Guideline document for TINA and now UNECE - Cost-benefit analysis of Transport Infrastructure Projects. However, all of these documents lack

Objectives:

The objectives of the project were:

1. to develop a set of harmonised guidelines for project assessment and transport costing on the EU level in the following areas:
 - value of time and congestion;
 - value of accident risk reduction;
 - costs from health impacts and costs of other nuisances due to pollutants and noise;

- wider economic effects, i.e. indirect effects; infrastructure costs;
 - general CBA aspects (e.g. inter- and intra-generational distribution, risk and uncertainty).
2. to achieve as much as possible convergence of national guidelines within an international framework by organising interaction with policy makers and other relevant stakeholders;
 3. to conduct surveys for selected impacts;
 4. to carry out contingent-valuation studies for valuing noise annoyance and travel time changes in Norway, the UK, Spain, Hungary, Germany and Sweden to explore differences from different geographical, cultural and traffic conditions;
 5. to perform case studies on a number of TEN transport infrastructure projects;
 6. to demonstrate the assessment framework by applying it to selected TEN transport projects and comparing the results with those of existing CBAs.

Methodology:

The starting point was the compilation and analysis of the national assessment practice in the 25 EU member states and Switzerland, which will be carried out in the first project phase. Based on this, common definitions and consistent valuation methods were agreed. The framework was based on welfare economics and cost-benefit analysis.

The design of harmonised guidelines was not a straightforward task. The gap between research and practice is large and can certainly not be bridged by research alone. In addition many vested (though legitimate) interests exist in the various guidelines for economic appraisal in different countries. In order to propose guidelines at EU level, the existing differences in guidelines required a careful mediation and uncovering of underlying assumptions and preferences. Therefore, a process approach is required rather than a linear sequence of development tasks. As a consequence a cyclical approach with a series of meetings was established. In cases of non-convergence different options were proposed in order to bridge the gap or insight will be provided for the existence of different practices.

The main focus of HEATCO was major European infrastructure projects, for which a sound evaluation scheme was established that in the long run may become a standard procedure.

Parent Programmes:

[FP6-INTEGRATING - Specific research and demonstration programme aimed at integrating and strengthening the European Research Area](#)

Institute type: Public institution

Institute name: European Commission

Funding type: Public (EU)

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Key Results:

In line with the objectives, the HEATCO project produced the following results.

1) Provision of an overview of existing national transport infrastructure project assessment practice in the EU 25 member states and Switzerland.

In order to develop a harmonised 'state-of-the-art' approach for assessing European infrastructure projects, a comparison and analysis of the current practices in project appraisal in Europe was required. Similarities between countries make harmonisation easier, while differences make it more difficult. In general it can be concluded that the main challenges to the development and use of harmonised guidelines are;

- significant regional differences in the approach to and tradition for transport project appraisals;
- the appraisal framework for road is far more developed than that for air, inland waterways and sea transport;
- lack of consensus on which elements to include in the cost-benefit analysis (especially environmental effects);
- lack of consensus on approaches to valuation;
- the significant range of values used (e.g. for safety).

2) Development of a set of harmonised guidelines for project assessment and transport costing at EU level

The current EU practice is that of no institutionalised evaluation approach, let alone harmonised. Various advantages as well as drawbacks of harmonisation have been identified. Advantages include a high network value of standardisation, transparency, time saving for decision-makers, and less borders. However, constraints exist:

- maximum support from member states is needed to make harmonised evaluation work;
- the European financial budget is relatively low; rent seeking should be avoided;
- any evaluation standard will be hard to change;
- issues exist where harmonisation might harm cultural identity or where the subsidiarity principle is violated.

After evaluating strengths and weaknesses of MCA and CBA criteria, HEATCO decided to use CBA on the condition that indirect effects must be included in the analysis.

Another important issue was that of the treatment of equity. It has been found that is better to take economic utility theories as reference rather than to make political choices ingredients of the assessment, as well as is better to limit ourselves to prescribing the format for presentation of equity results rather than to prescribe methods for evaluation of equity score, which is more appropriate

Technical Implications

When carrying out a Cost-Benefit Analysis (CBA), the HEATCO project recommends following these

general principles:

T1: Appraisal as a comparative tool.

To estimate the costs and benefits of a project, one has to compare costs and benefits between two scenarios: the 'Do-Something' scenario, where the project under assessment is realised, and a 'Do-Minimum' scenario, which needs to be a realistic base case describing the future development. If there are several project alternatives, one has to create a scenario for each alternative and compare them with the 'Do minimum' case.

T2: Decision criteria.

The use of NPV (net present value) to determine whether a project is beneficial or not is recommended. In addition, depending on the decision-making context and the question to be addressed, BCR (benefit cost ratio) and RNPSS (ratio of NPV and public sector support) decision rules could be used.

T3: The project appraisal evaluation period.

The use of a 40 year appraisal period, with residual effects being included, as a default evaluation period is recommended. Projects with a shorter lifetime should, however, use their actual length. For the comparison of potential future projects, a common final year should be determined by adding 40 years to the opening year of the last project.

T4: Treatment of future risk and uncertainty.

For the assessment of (non-probabilistic) uncertainty, a sensitivity analysis or scenario technique is more appropriate. If resources and data are available for probabilistic analysis, Monte Carlo simulation analysis can be undertaken.

T5: Discounting.

It is recommended to adopt the risk premium-free rate or weighted average of the rates currently used in national transport project appraisals in the countries in which the TEN-T project is to be located. The rates should be weighted with the proportion of total project finance contributed by the country concerned. In lower-bound sensitivity analyses, in order to reflect current estimates of the social time preference rate, a common discount rate of 3% should be utilised. For damage occurring beyond the 40 year appraisal period (intergenerational impacts), e.g. for climate change impacts, a declining discount rate system is recommended.

T6: Intra-generational equity issues.

Minimally, a 'winners and losers' table should be developed, and presented alongside the results of the monetised CBA. Distributional matrix

Documents:

 [Current practice in project appraisal in Europe \(Other project deliverable\)](#)

STRIA Roadmaps: Infrastructure

Transport mode: Multimodal transport

Transport sectors: Passenger transport, Freight transport

Transport policies: Societal/Economic issues

Geo-spatial type: Other