

European Commission
DG TREN

Ex-post evaluation of transport RTD projects funded under the 5th FP by DG TREN, 1999-2002

Final Report

November 2007

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RTD projects funded under the 5th
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Executive summary

Scope and aim of evaluation

This *Ex-post evaluation of transport RTD projects funded under the 5th Framework Programme (contracts 1999 - 2002) by DG TREN* concerns Key Action 2 'Sustainability and intermodality' (henceforth: KA2) of the GROWTH programme. There are three RTD priorities attached to this Key Action 2 (KA2), each reflecting the main components of an integrated transport system:

- a regulatory framework reflecting socio-economic objectives;
- an interoperable infrastructure which allows the operation of attractive, environmentally friendly and efficient transport means;
- (inter)modal systems for managing operations and providing services.

The evaluation shall give insight into if the programme has achieved its objectives, including supporting the policies of Sustainable mobility and intermodality (the Common Transport Policy) and compile an overview of the impacts of the programme.

The evaluation covers 147 contracts with a sum of EC contributions of around 354 Mio EUR signed within the 5th Framework Programme by DG TREN.

Organisation

The Directorate General for Energy and Transport and, in particular, the Unit responsible for Financial Resources, Evaluation & Supervision of Agencies (Unit R1) together with Unit G3 (responsible for Innovation, Research Co-ordination), has outsourced this evaluation. It is undertaken by COWI A/S under the existing COWI Service Framework Contract with DG TREN covering Ex Post and Mid Term Evaluations (Ref. TREN/A1/17-2003 Lot 2). The evaluation took place between January and October 2007.

A Project Steering Group met four times (kick-off meeting, inception meeting, interim meeting and final meeting) to provide guidance to the evaluation team. Readers should note that the report presents the views of the Consultant, which do not necessarily coincide with those of the Commission.

Evaluation process

In order to understand the impact of the entire project portfolio as well as look into project specific results, the evaluation has used four different data compilation and analysis methods: An internet based questionnaire sent to the project holders; detailed review of 20 projects; on-site visits to selected projects, and literature review. The key steps of the evaluation process have been:

- To review background information on FP5, the KA2, and relevant policies
- To analyse the project portfolio
- To select projects for review and to undertake project reviews
- To develop the questionnaire and to analyse the findings
- To select projects suitable for field visits and to undertake field visits
- To report the key findings and recommendations.

The programme objectives

The KA2 has three objectives and a number of sub-objectives attached to each of these, cf. the table below, which also shows the categorisation of the 147 projects against these objectives.

Table 1 Overview of projects against the Objectives and sub-objectives of KA 2: Sustainability and Intermodality

Objective	Sub-objective	No. of projects
	Socio-economic	10
	Quantitative tools for decision-making	3
	Drives forces in transport	8
	Policies for sustainable mobility	8
<i>Socio economic objectives - Sub-total</i>		29
	Infrastructures and their interfaces with transport	4
	Infrastructure development and maintenance	9
	Environment	5
	Transport Safety	13
	Human factors	1
<i>Infrastructure and traffic related objectives - Sub-total</i>		32
	Modal and intermodal transport management system	66
	Traffic management systems	10
	Transport and mobility services	5
	New generation GNSS	5
<i>Transport management and system objectives - Subtotal</i>		86
Total		147

The KA2 has not been implemented at the basis of clear ex-ante goals for the programme, and it does not offer a clear hierarchy of priorities of objectives. This implies that a stringent comparison between ex-ante expectations and outcomes cannot be made.

The policy context consists first and foremost of the Common Transport Policy which seeks to generate a shift in the balance between modes of transport. The so-called White Paper entitled 'European Transport Policy for 2010: Time to

'Decide' (henceforth 'The White Paper')¹ contains a list of targeted policy areas/sectors and these used as a benchmark to see if the KA2 is meeting its societal objectives.

The overall conclusion: Mainly positive results

With a project portfolio of 147 very different projects - in terms of size, duration, research areas and organisations - it is not surprising that some are very successful while others are not. However, as a general tendency the projects were successful. The conclusions for each of the evaluation themes are summarised below.

The project effectiveness is overall satisfactory - with many projects delivering either the expected or above-expected results, and with only a few failed projects. All main transport sectors benefit from the KA2, which is in line with the programme statement that the KA2 shall facilitate a general improvement across sectors. The four transport modes emphasised by the White Paper accounts for 54% of the total EC contribution, and in addition to that a large group of the road projects are addressing environmental and safety issues. Also the 'horizontal' GNNS/Galileo projects have the potential to facilitate safety and environmental services asked for by the White Paper.

It is therefore found that the projects overall are relevant for the meeting of societal objectives. The fact that the KA2 to a large extent is policy-driven implies, however, that projects may be vulnerable to changes in the political context, and examples have been given of projects with a low level of what could be termed 'real' relevance. Such accidental contextual changes are likely to be de-motivating from the perspective of the involved partners.

Problems with programme management

On the efficiency of the programme administration, the evaluation brings interesting information from the project owners. A clear majority of the projects owners are moderately satisfied with the administration of the programme but are also pointing to specific problems which reduce the attractiveness of the programme. It is alarming that in the magnitude of one-fifth (22%) of the project owners all in all consider that the costs of participation have exceeded the benefits.²

Also many project participants note that there appears to be a lack of EC capacity to follow up on projects which consequently means that certain project results are not feed into the political process.

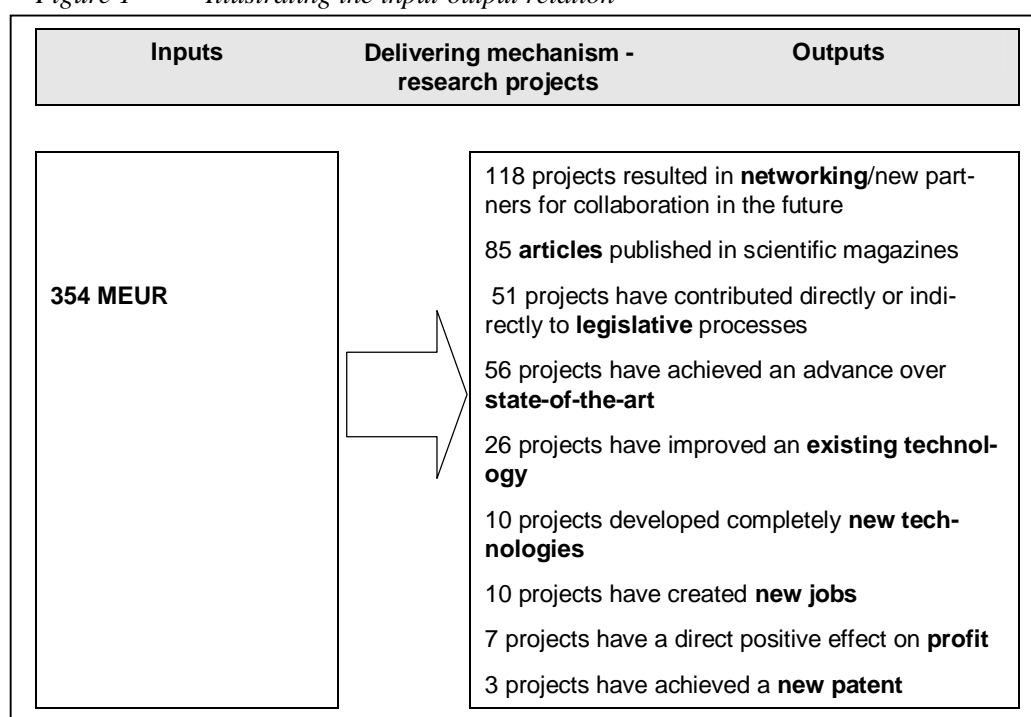
¹ COM (2001)0370

² The survey that was carried out as part of the Five Year Assessment of EU Research Activities (1999-2003) showed that for the FP5 in general only 14% of the project participants consider that the costs of participation in FP5 activities outweigh the benefits. The 22% level found for KA2 within the context of this evaluation is therefore above the FP5 average.

The results

To be able to give an overall efficiency assessment of the programme as such, i.e. if the results from all 147 projects are good compared to the investment of 354 MEUR, the evaluation team - using extrapolation - has established the below overview of the accumulated results.

Figure 1 Illustrating the input-output relation



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The two most significant results

Besides the general increase of the EU knowledge base resulting from this programme, the two most significant results of KA2 are, first, its contribution towards creating transport research networks and establishing new contacts. A very clear majority of the projects have lead to improved networking; hence the KA2 encouraged cooperation between a rich mix of R&D oriented stakeholders in the EU. The other significant result is the contribution made to the preparation of new legislation.

A condensed expression of the main impact of the KA2 would therefore be that the programme:

- **has strengthened transport research communities and has improved transport policy-making.**

What characterises successful research projects?

It has not been possible to identify particular research areas that perform better than others. Rather it seems that the effectiveness of projects depend on project-internal factors, in particular:

- The quality of *project management* is essential and appears to be the single most important factor. An experienced project leader with previous experi-

ence working with the Commission and leading research projects can facilitate the successful project implementation. EC research projects do have a certain culture, including the multi-country partner approach and the sometimes very large projects, which should be reflected in project management.

- *Quality and motivation of human resource* - the project is likely to be successful if there is a core team of high quality research staff pushing for results (ownership).
- *Communication*. The project manager/coordinator must at a very regular basis send up-dates to the project partners to maintain momentum and to turn the consortium into a truly working entity. It is likewise important to communicate with the EC, to explain project and scientific developments, changes to direction, contract amendments timing etc.
- *Role models* are important. Important that all consortia have individuals that see the project as not just-another-project but as a real opportunity for improvement, profiling and the development of new contacts.
- *Commitment and trust from the DG TREN* is essential. While it is understandable that Commission officials cannot follow the projects at a very detailed level, they should nevertheless show an active interest and the DG TREN contact person should contribute to the project as a 'facilitator' and interested partner (rather than a 'controller').
- The project should be sliced into tasks that allow the *individual partners a real impact* to avoid that input from one partner 'disappears' against the accumulated amount of activities/products.
- *Want to make a difference*. Transport researchers want to make a difference, and successful projects deliberately investigate how their results can be put into practice. This aspect can be institutionalised - e.g. in the form of a panel of End Users acting as advisory board.
- *Visibility improves prestige*. Dissemination of project results is a profound feature of successful projects.

Recommendations

In light of the evaluation findings the following are recommended:

- That for future research programmes addressing 'sustainable mobility' a clearer relation should be established between the concept of sustainable mobility and the research priorities (positive developments to be seen for FP7).
- That the DG TREN considers the need to develop a post-project dissemination and follow-up strategy to ensure a better utilisation of research results. This relates also to the Cordis project database which needs to evolve into a fully operational project database with availability of all deliverables

and project document. It will benefit both the public and DG TREN staff and at the same time signal transparency and modern project management.

- That the DG TREN put even stronger emphasis and allocates more resources into dissemination of RTD projects. It is often the case that successful RTD projects are backed up by the necessary resources to disseminate project findings and to ensure end-user knowledge of the results. More prestige and attention can be devoted to the quality of web-pages, e.g. by requiring that all project websites contain a mechanism whereby web-page visitors can rank the quality and usability of the site.
- That the DG TREN carefully considers the critical feedback from the project holders on project management. Steps need to be taken to improve the acceptability of programme procedures and modalities, in particular payment arrangements. DG TREN could formulate an internal target that for future transport research programmes, the level of project holders perceiving costs of participation to exceed benefits should not be higher than 10%.
- That the DG TREN considers methods to secure that a contextual change impacting upon the relevance of a research project can be adequately reacted upon. If the project context changes dramatically the project objectives and activities may need to be adjusted and sufficient flexibility for doing so should be accepted.
- That the DG TREN should ensure stable monitoring of projects by launching an effort to keep the same project officer on a project from start to end.
- That the efforts to reduce the 'innovation-bridge' between idea and practices, e.g. via demonstration projects, is strengthened. In the transport sector there is often a low willingness-to-accept risks associated with the introduction of new materials or systems because possible flaws are extremely exposed to the public - which is likely to lead to a slow up-take of research results.
- That the DG TREN, while continuing mainly to fund immediately policy relevant research projects, also considers the perspectives of funding more projects with radical innovation potentials.

Overview of specific conclusions

A condensed presentation of the conclusions of the evaluation questions are given in the table below.

Evaluation Theme	Score	Argument
Effectiveness <i>general assessment</i>	High-medium	The project effectiveness is overall satisfactory - with many projects delivering either the expected or above-expected results, and with only a few projects failing to deliver expected outcome
<i>in terms of meeting thematic objectives</i>	High-medium	The thematic objectives are met insofar that all 147 projects can be categorised according to the thematic objectives (hence eligibility are confirmed)
<i>in terms of meeting sectoral objectives</i>	Medium	All main transport sectors benefit from the KA2, which is in line with the KA2 programme objective.
<i>in terms of meeting societal objectives</i>	High-medium	A clear majority of the projects are relevant for the meeting of societal objectives. Some projects are vulnerable to changes in the political context
Efficiency	Medium	The project efficiency is overall satisfactory with app. half of the projects showing a high level of efficiency A majority of the projects owners are moderately satisfied with the administration of the programme but are also pointing to specific problems which reduce the attractiveness of the programme. 22% of the project owners consider that the costs of participation have exceeded the benefits.
Utility	Medium-high)	A relatively high level of utility is found, and it is underlined that this result should - and also do - correlate with the findings on effectiveness The two most significant results of KA2 are: <ul style="list-style-type: none"> • the contribution towards creating transport research networks and • the contribution made towards the preparation of new legislation.
Sustainability	(Medium) Project - specific	There seems to be a lack of a post-project dissemination strategy, and it is therefore relevant to open the discussion whether the DG TREN needs to direct more investment into dissemination of RTD projects. The creation of stronger transport research networks is likely to have a long-lasting effect.

1 Introduction

1.1 Aim of the evaluation

Scope

This *Ex-post* evaluation of transport RTD projects funded under the 5th Framework Programme (contracts 1999 - 2002) by DG TREN concerns Key Action 2 'Sustainability and intermodality' (henceforth: KA2) of the GROWTH programme. There are three RTD priorities attached to this Key Action 2 (KA2), each reflecting the main components of an integrated transport system:

- a regulatory framework reflecting socio-economic objectives;
- an interoperable infrastructure which allows the operation of attractive, environmentally friendly and efficient transport means;
- (inter)modal systems for managing operations and providing services.

Specifically, the evaluation covers 147 contracts with a sum of EC contributions of around 354 Mio EUR signed within the 5th Framework Programme by DG TREN.

Organisation

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The evaluation took place between January and October 2007. A Project Steering Group met four times (kick-off meeting, inception meeting, interim meeting and final meeting) to provide guidance to the evaluation team. Readers should note that the report presents the views of the Consultant, which do not necessarily coincide with those of the Commission.

Aim of the evaluation

The evaluation shall give insight into if the programme has achieved its objectives, including supporting the policies of Sustainable mobility and intermodality (Common Transport Policy), and it shall compile an overview of the impacts of the programme. Based hereon, the evaluation shall make realistic and implementable recommendations and emphasising the lessons learned for their uptake into any next programming phase. In particular, the evaluation addresses the following themes:

- *Effectiveness*: the extent to which the objectives are achieved. The ToR asks for assessment of thematic, sectoral, and societal objectives.³
- *Efficiency*: the extent to which the desired effects are achieved at a reasonable cost level;
- *Utility*: the extent to which effects corresponded with the needs, problems and issues to be addressed.
- *Sustainability*: to what extent the programme results are robust and relevant for long term exploitation and give positive social impacts.

1.2 Methodology

The methodology is developed on the basis of a standard EU evaluation approach to ex-post evaluations and adjusted in light of the specific objectives of this evaluation.

1.2.1 Approach to data compilation and analysis

In order to understand the impact of the entire project portfolio as well as look into project specific results, the evaluation has used four different data compilation and analysis methods.

Method 1:
Questionnaire

An internet based questionnaire was sent to the project holders with the possibility of collecting information from a majority of all the projects funded. Acknowledging that many projects were completed some time ago, difficulties in getting correct contact details were expected. The evaluation team therefore allocated some resources to identify contact persons and a remainder process was also carried out. This effort was successful as the response rate turned out to be 55%⁴. In order to avoid biased (over-optimistic) answers from project owners, naïve questions on effectiveness and efficiency were avoided, and the questionnaire was focused on detecting objectively impacts and clear indicators on impacts.

Method 2:
Project reviews

A further 20 projects were reviewed in detail - 2-3 projects per sector on the basis of three criteria: a) The sample shall represent the main types of sectors - as it is relevant to see if there is a difference between these types in how well they have achieved their objectives; b) Within each sector there must be thematically different projects, and c): The sample shall to the extent possible con-

³ In assessing to what extent the societal objectives have been met, the evaluation effectively also assess the evaluation theme of *relevance*, which is the extent to which the projects support relevant policies/needs. The societal objectives are namely in the context of this evaluation defined as the relevant transport and research policies.

⁴ Out of 147 projects, we were able to identify 115 valid mail addresses of project coordinators. Out of the 115 recipients 63 completed the e-questionnaire.

tain a variety of projects (in terms of e.g. budget size, consortia set-up, timing). For an overview of the reviewed projects we refer to appendix 1.

The projects were analysed via examination of project documents and interviews with relevant EU officials and in some case also interview with the project holder. The project reviews were reported in a standardised project fiche formats showing the evaluation themes for each project. To be noted, the nature of the benchmarks varies between the themes - some are precise and unambiguous (such as numbers/units), others have a softer qualitative nature (such as assessments on impacts, potentials and changes), and we therefore developed a three-level scoring system enabling a ranking and comparison of projects (see chapters 3-6).

Method 3:
Literature review

The evaluation also draws on relevant literature such as previous FP evaluations, policy documents and relevant studies.⁵

Method 4: Field visits

In order to get a detailed insight into the issues of impact and sustainability five projects were visited and additional interviews were carried out with project managers and coordinators. These visits also turned out to provide valuable information and ideas on how a program like the KA2 can be administered more effectively by the EU Commission. The following projects were visited:

- SAMARIS; Sustainable and Advanced Materials for Road InfraStructures.
- COMPRIS; Consortium Operational Management Platform River Information Services
- FORESIGHT; A foresight exercise to help forward thinking in transport and sectoral policy integration
- ECBOS; Enhanced Coach and Bus Occupant Safety
- SOURDINE II; Study of Optimisation procedURes for Decreasing the Impact of NoisE around airports-II.

For a brief overview of these projects see appendix 3.

Summarising the
methodology

The table below summarises the methodology, showing the relation between the various methods/data sources and the evaluation themes. To be seen, some methods (like project review) are good at covering *all* evaluation themes but then cover only a sub-set of the projects. Other methods are good at covering all projects (e-questionnaire) but then provide less value to the answering of individual evaluation themes. It will be made clear throughout the report which data sources in particular are used to draw the specific conclusions.

⁵ Key documents considered are: 'Identification of Indicators to assess the Implementation of the White Paper on European Transport Policy' (September 2004), European Commission; 'European Transport Policy for 2010: Time to Decide' (henceforth 'The White Paper' (COM (2001)0370); 'Keep Europe Moving - Sustainable mobility for our continent'. Mid-term Review of the 2001 Transport White Paper; FP5 Impact Assessment. Survey conducted as part of the Five Year Assessment of EU Research Activities (1999-2003), Atlantis Research Organisation.

Table 2 Matrix showing how various methods have contributed to covering evaluation themes

Methods/themes	Relevance	Effectiveness	Efficiency	Utility	Sustainability
E-Questionnaire	(x)	(x)	(x)	x	x
Project reviews (interview)	X	X	X	X	x
On-site visits	x	X	x	X	X
Literature review	x	x	x	x	x

X: A very important method/data source for addressing the specific evaluation theme

x: An important method/data source for addressing the specific evaluation theme

(x): Provide some complementary information

1.2.2 Indicators to measure results of the programme

A need to define sets of objectives

As noted, the evaluation shall assess if the thematic, sectoral and societal objectives of the programme have been met. These objectives were *not* a priori defined, hence should be elaborated and made operational within the context of this evaluation. The Evaluation Team therefore carefully reviewed the objectives of KA2 and established the below hierarchy of objectives - global, intermediate and specific objectives - with corresponding indicators. An overview is given in the table below.

Table 3 Overview of the thematic, sectoral and societal objectives

Global, intermediate and specific objectives			Source
Overall objective	Intermediate objectives		Specific objectives
To reconcile the demand for mobility from industry and citizens with the need to reduce its negative impact on the environment, the economy and society	Thematic	Socio-economic scenarios for the mobility of people and goods	Decision-making tools Driving forces transport Sustainable mobility policy
		Infrastructures and their interfaces with transport means and systems	Infrastructure development Environment Safety Security Human factor
		Modal and inter-modal transport management systems	Transport management Mobility services GNSS
	Sectoral	Road sector	As specified in the White Paper COM (2001)370: European Trans-
			1999/169/EC: Council Decision of 25 January 1999 adopting a specific programme for research, technological development and demonstration on competitive and sustainable growth (1998 to 2002)

		Railways sector	- do -	port Policy for 2010: Time to Decision (The White Paper)
		Air transport sector	- do -	
		Maritime and inland waterways	- do -	
		Public transport	- do -	
		GNSS/Galileo	- do -	
		Combined mode*	- do -	
	Societal	To support the implementation of the Common Transport Policy	12 policy fields as defined in the White Paper (containing a total of 76 specific measures)	COM (2001)370: European Transport Policy for 2010: Time to Decision (The White Paper) ⁶
		To support the implementation of EU FP5 research policy	9 FP5 common criteria (adjusted for this evaluation)	FP5 Programme Management regulation

Evaluation process

The key steps of the evaluation process have been:

- To review background information on FP5, the KA2, and relevant policies
- To analyse the project portfolio
- To select projects for review and to undertake project reviews, including several personal interviews
- To develop the questionnaire and to analyse the findings
- To select project suitable for field visits and to undertake field visits
- To report the key findings and recommendations.

⁶ To be seen from the above, the various policy areas and recommendations of the White Paper (2001) is used as a benchmark for the answering of *some* of the evaluation questions. It needs to be underlined that the White Paper was launched in 2001, setting in its own words 'new objectives for the EU transport policy' while many of the KA2 projects were launched before 2001 - hence a time-inconsistency exists between the funding criteria and the benchmark that we use to answer some of the evaluation questions. As the advantage of using the White Paper is obvious - it represents well-established objectives - we find it reasonable to accept this time-inconsistency as long as it is made clear to the reader throughout the report what specific implications it may have on the assessments given.

2 Programme description

Purpose of chapter

This chapter provides a background for the evaluation by showing the general content and context of the KA2 programme. First, a description of the KA2 programme and its characteristics is given. Second, the policy context - which is necessary for the subsequent review of the programme's societal objectives - is outlined.

2.1 KA2: Sustainable mobility and intermodality

Research, technology, demonstration

The Fifth Framework Programme (FP5), adopted on 22 December 1998, defines the activities of the European Union in the field of Research, Technological development and Demonstration (RTD) for the period 1998-2002. It is a response to major socio-economic challenges facing the European Union, and it focuses on a limited number of objectives and areas combining technological, industrial, economic, social and cultural aspects. The priorities for FP5 have been selected according to three basic principles:

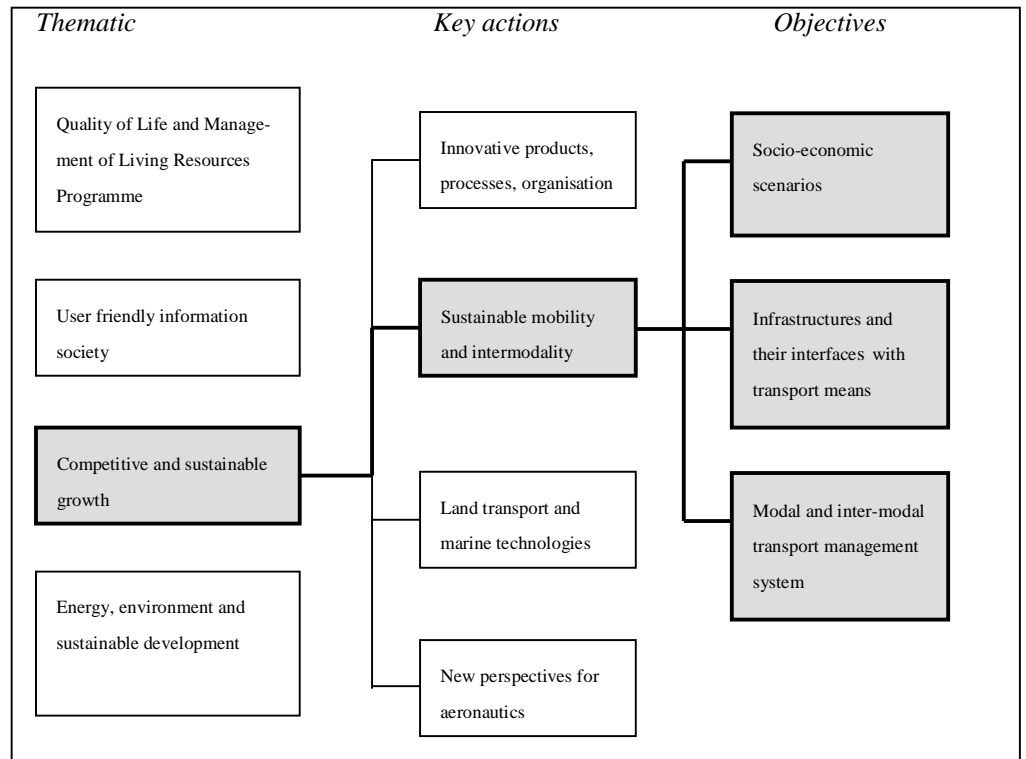
- European 'value added' and the subsidiarity principle, e.g. to reach a critical mass or contribute to solving problems of a European dimension;
- Social objectives, such as quality of life, employment or protection of the environment in order to meet the concerns of the Union's citizens;
- Economic development and scientific and technological prospects in order to contribute to the sustainable development of the European Union.

Budget, structure and contents

The total budget for the implementation of the European Community section of FP5 consists of 13 700 million EUR whereof 2 705 million EUR adheres to the thematic headline 'Competitive and sustainable growth' and hereof is 354 million EUR dedicated to KA2.

The Framework Programme contains four thematic programmes, one of these being 'Competitive and sustainable growth' (the GROWTH programme). The GROWTH programme is structured in three main elements the first of which contains four key actions. One of these four key actions is 'Sustainable mobility and intermodality'. See figure below.

Figure 2 Overview of KA2 in overall FP 5 set-up



Characteristics of Key Action 2

The KA2 is largely policy-driven, and it is framed around the need to reconcile the increased demand for transport on the one hand and the need to reduce its negative impact on the physical, social and human environment on the other hand. KA2 offers the opportunity to involve all stakeholders in facing this challenge and in enhancing innovation in the transport sector by fostering the use of new technologies, developing new services and providing new concepts and policies. KA2 bases itself on an integrated systems approach to transport. As the road, rail, waterborne and air transport modes are at different stages of their development, their optimisation from a modal perspective will continue to be necessary. However, a major focus has been to enhance the integration between the different modes of transport in respect to infrastructure, operations, services, procedures and regulations.

Three KA2 objectives

As said, there are three RTD priorities of the key action - and 13 sub-priorities - which together reflect the three main objectives of a modern integrated transport system: The regulatory framework (including socio-economic aspects), infrastructure and transport management.

Objective 1: Regulatory framework and socio-economic objective

The goal is to develop a regulatory and accountable framework reflecting socio-economic objectives including strategies and tools for managing the impact of economic, social, political, demographic and technological factors on mobility demand and transport policies. The sub-objectives are:

- 1 Socio-economic tools and studies

Objective 2: Infrastructure objective	<ol style="list-style-type: none"> 2 <u>Quantitative tools</u> supporting decision-making 3 Knowledge of present and future <u>driving forces</u> in transport; and 4 Policies for sustainable mobility, i.e. building blocks for a <u>European transport strategic decision support</u> and information system. <p>The goal of seamless intermodal door-to-door transport chains across Europe requires research into cost-effective development and maintenance of infrastructure and into promising alternative transport concepts. Research should therefore also focus on:</p> <ol style="list-style-type: none"> 5 Infrastructures and their <u>interfaces</u> with transport 6 <u>Infrastructure development</u> and maintenance 7 Methods of assessing and minimising <u>the environmental impact</u> 8 Improving <u>safety and security</u> in transport systems 9 <u>Human factors</u> such as boosting the performance and skills of people who interact with automated systems and the comfort and accessibility of transport for users.
Objective 3: Transport management objective	<p>Improving the efficiency and sustainability of the transport system requires the development of new traffic and transport management tools and transport services. Research in this field aims to:</p> <ol style="list-style-type: none"> 10 Develop and integrate (inter)modal <u>transport-management systems</u> 11 Establish a coherent <u>transport-management architecture</u> across the transport chain 12 <u>Transport and mobility services</u> (incl. door-to-door freight and logistics services and the improvement of passenger transport systems and services) 13 Contribute to the development and implementation of a second generation <u>satellite navigation and positioning system</u>.
The character of the objectives must be noted	<p>From an evaluation point of view it is important to note the character of the objectives. The above objectives have not been supplemented with guidelines on relative allocations between (sub)objectives nor have expected programme effects been specified - which might be understandable since it is a research programme. Nevertheless, it has implications for the ex-post evaluation since a stringent comparison between ex-ante expectations and ex-post outcomes cannot be made.</p>

2.2 The policy context

2.2.1 The transport policy context

Towards a Common Transport Policy

Transport was identified in the Treaty of Rome (1957) as one of the areas requiring development of a common policy. But substantial progress was first made between 1986 and 1992 towards the establishment of a single market in each of the main transport modes, laying the foundation of a Common Transport Policy. Under the Maastricht Treaty (1992), the Commission gained new powers regarding transport safety and transport infrastructure. Moreover, the

Treaty contained three articles providing for the development and financing of trans-European networks.

In late 1992, soon after the adoption of the Amsterdam Treaty, the Commission published a White Paper entitled 'The Future Development of the Common Transport Policy: A global approach to the construction of a community framework for sustainable mobility'. In 1995, the Commission adopted 'The Common Transport Policy Action Programme' for the period between 1995 and 2000.

In 1997, the Amsterdam Treaty made sustainable development a core objective for the EU. Consequently, in 1998, the Commission published the document 'The Common Transport Policy – Sustainable Mobility: perspectives for the future' examining the implications and possible ways of action in each transport mode for achieving that objective.

The White Paper,
2001

Then in 2001, the Commission published the White Paper 'European Transport Policy for 2010: Time to Decide'. It is the most comprehensive and important policy document to consider when developing a benchmark for this evaluation. In the White Paper, it is said that the global objective of the Common Transport Policy is to break the link between transport growth and economic growth, i.e. to reconcile economic growth and social demands for mobility with environmental impact and other costs of traffic movements, while taking into account the international dimension of transport.

Text box 1 The global objective of sustainable mobility, cf. the White Paper

To reconcile economic growth and social demands for mobility with environmental impact and other costs of traffic movements, while taking into account the international dimension of transport.

Intermodal shifts

A core element in the new approach to the Common Transport Policy, as confirmed by the Gothenburg Council (2001), is to generate a shift in the balance between modes of transport. This shift should be accomplished by various means, including an infrastructure investment policy in favour of railways, inland waterways, short sea shipping and intermodal operations. Following the Gothenburg European Council's conclusions, the White Paper places the shifting of balance between modes of transport as the intermediate working objective of sustainable mobility.

Text box 2 The intermediate working objectives of sustainable mobility, cf. the White Paper

To generate a shift in the balance between modes of transport in favour of railways, inland waterways, short sea shipping and intermodal operations.

At the operational level, the White Paper contains 60 policy measures relating to 12 different policy areas/sector plus additional horizontal measures, resulting in a total of 76 measures.

Text box 3 The 12 policy areas/sectors of the White Paper

1. To improve quality in the road transport sector.
2. To revitalise the railways.
3. To strike a balance between growth in air transport and the environment.
4. To promote short sea shipping and inland waterway transport.
5. To turn intermodality into reality.
6. To continue the building of the trans-European transport.
7. To improve road safety.
8. To adopt a policy on effective charging for transport.
9. To put research and technology at the service of clean and efficient transport.
10. To recognise the rights and obligations of users.
11. To develop high quality urban transport.
12. To manage the effects of globalisation.

The above policy areas are used in the context of this evaluation to see to what degree the KA2 supports the realisation of Common Transport Policy.

2.2.2 The research policy context

Towards Lisbon objectives: Increased RTD investment

Research and technological development is an area where EU funding is designed to make strong progress towards achieving sustainable growth. However, the EU lags behind the US and Japan in terms of the proportion of GDP spent on research, suggesting scope for improvement and the Lisbon Strategy includes the goal to increase research spending in Europe to an average of 3% of GDP⁷. Increased investment in Research and Development is seen as a priority to increase the competitiveness and productivity of EU businesses to US levels.

Targeted research and development to support the development of competitiveness is therefore recognised as central to the EU's priorities. The Commission also recognises that action is needed in the field of dissemination of research results, and EU participation and leadership in global initiatives.

The Framework Programs is the largest RTD funding programme

The RTD Framework Programmes (FPs) are the most important mechanism for EU funding of R&D. As set out in the Treaty (art.166), these multi-annual Programmes fix the objectives and priorities for activities to promote cooperation in the field of R&D, the dissemination of research results and the training and mobility of researchers in the EU. The First Framework Programme (FP1), launched in 1984, ran until 1987 and was succeeded by FP2 (1987-91), FP3 (1990-94), FP4 (1994-1998) FP5 (1998-2002), (FP6) in (2002 - 2006) and the recently launched FP7 (2006 - 2010).

2.3 Summary

The key observations from this overview of the content and context of the KA2 are the following:

⁷ COM(2003) 226: Investing in research: an action plan for Europe.

- Overall, the KA2 is an instrument which - through the provision of new knowledge - shall contribute to the tremendous challenge of reconciling the increased demand for transport with the need to reduce its negative impact on the physical, social and human environment. KA2 is thus clearly related to well-established policy-objectives, and the policy driven feature has already been noted by earlier evaluations. Also to be noted, the overall objective of KA2 is almost identical to the overall objective of the Common Transport Policy.
- The KA2 has three objectives and a number of sub-objectives attached to each of these. The KA2 has not been implemented at the basis of ex-ante goals for the programme, and it does not offer a clear hierarchy of priorities of objectives. This implies that a stringent comparison between ex-ante expectations and outcomes cannot be made.
- The policy context consists first and foremost of the Common Transport Policy which seeks to generate a shift in the balance between modes of transport. The so-called White Paper contains a list of targeted policy areas/sectors and these can be used as a benchmark to see if the KA2 is meeting its societal objectives.

3 Effectiveness

Purpose of chapter

The chapter progresses as follows. First an overall effectiveness assessment is made, primarily on the basis of the project reviews, and with a focus on whether the individual projects delivered what they were expected to deliver. Then the focus of the chapter changes towards assessing whether the thematic, sectoral and societal objectives were met.

3.1 Effectiveness of the projects

Findings based on the project reviews

The project review part of the evaluation provided an opportunity to analyse, in some detail, individual projects while still allowing a relatively high number of projects to be reviewed thereby allowing generalisation from the project sample to the total population of projects. A thorough desk study was undertaken and the project owners and project officers was interviewed to get a clear understanding of the results of the projects. The project reviews and following interviews with project owners and EU officers gave the results reported below.

Table 4 Assessment of effectiveness of the projects⁸

	Total of projects	In % of total
High	11	55
Medium	8	40
Low	1	5
Total	20	100

It is the main observation that 55 percent of the projects have been highly effective and that only 5 percent of the projects have scored 'low' which means that

⁸ Scoring system applied:

High: All project objectives have been met, and significant positive results beyond the planned goals are said to exist and can clearly be observed and documented.

Medium: All objectives have been met, and some impacts beyond the planned goals are said to exist.

Low: All objectives have not been fully met, and no positive impacts beyond the planned goals can be claimed, observed or documented

the project did not deliver all of the expected outputs and that no positive impacts beyond the planned goals can be observed or documented.

The results from the e-questionnaire point in the same direction, as more than 2/3 of the projects 'to a large extent' and 23 % 'to some extent' achieved the intended results, according to the consortia themselves. The feedback from the project owners on this particular subject should obviously be interpreted with caution (risk of biased answers) but as the evaluation found the same tendency it appears reasonable that the projects overall have yielded satisfactory results.

No patterns can be seen across categories of projects

The nature of the high scoring research projects varies. For instance, some projects are promotional and awareness raising by nature (thematic networks), some projects are policy driven concerning the production of knowledge to be used for legislative initiatives and some are transport management system projects, hence it is not possible to point to specific areas that perform better than others. Rather it seems that the effectiveness of projects depends on project-internal factors (consortia-internal procedures, organisation, quality of networks, etc.).

Text box 4 Examples of effective projects

EcoPorts aims to create a better understanding of the environmental impact of activities of ports and terminals and to introduce policies and actions to minimise the environmental impact. Within the context of EcoPorts, the PERS - Port Environmental Review System - was developed. Many ports have now received training in the use of PERS - 18 have now been successfully reviewed by Lloyd's as independent auditor, and have received the PERS certificate. At least 15 other ports are in the process of completing the PERS documentation and applying for a certificate. Also to be noted, Environmental Best Practices and Solutions are collected on a regular basis, and exchanged through the on-line database.

The **ECBOS** project concerns safety for coach passengers. A bus accident database containing a representative number of real world accidents was generated; several series of experimental tests were performed, and the findings from all the simulations formed the basis for a new directive on bus and coach safety. The ECBOS results have been recognized internationally as state of the art science (e.g. by UNECE). It has also influenced coach manufacturers by stimulating an increased demand for safer coaches with significantly better roofs and fronts - expected to reduce fatalities in case of accidents involving coaches.

3.2 Meeting the thematic objectives

FP5 Objectives

In the previous chapter the KA2 thematic (sub)objectives were presented, and it was noted that there does not exist guidelines on relative allocations between the themes. It is, however, reasonable to assume that the objectives are met only if all themes are covered. Hence, in order to understand which of the priorities de-facto received the most funding, all project have been categorised against the objectives of the KA2. It shows that a majority of the projects relate to the objective 3: Transport management, cf. the table below.

Table 5 Overview of 147 KA2 transport projects - against objectives

Objective	Sub-objective	No. of projects
	Socio-economic	10
	Quantitative tools for decision-making	3
	Drives forces in transport	8
	Policies for sustainable mobility	8
<i>Socio economic objectives - Sub-total</i>		29
	Infrastructures and their interfaces with transport	4
	Infrastructure development and maintenance	9
	Environment	5
	Transport Safety	13
	Human factors	1
<i>Infrastructure and traffic related objectives - Sub-total</i>		32
	Modal and intermodal transport management systems	66
	Traffic management systems	10
	Transport and mobility services	5
	New generation GNSS	5
<i>Transport management and system objectives - Subtotal</i>		86
Total		147

The table shows:

- That out of 147 projects, 86 projects supports the 'transport management and system objectives' followed by 32 projects within the 'infrastructure and traffic' related objectives and 29 projects are within 'socio economic' objectives.
- That the sub-objective 'modal and intermodal transport management systems' is the dominant category with 66 project or 45% of projects. This is significant more than the other 12 sub-objectives for which between 1 and 13 projects have been co-financed.

Comparing with actual funding

In terms of funding the table below shows that the largest amount of EU funding (64%) is targeted 'transport management and systems', which is not surprising given that the largest number of project are also within this category.

Table 6 Overview of funding of 147 RTD transport projects - against objectives

Objective	Sub-objective	EC Contribution €	Project Costs*
	Socio-economic	23.8	40.0
	Quantitative tools for decision-making	3.7	3.8
	Drives forces in transport	9.1	10.2
	Policies for sustainable mobility	35.7	82.5
<i>Socio economic objectives - Sub-total</i>		72.4	136.6
	Infrastructures and their interfaces with transport	4.3	7.8
	Infrastructure development and maintenance	15.8	27.9
	Environment	7.5	12.3
	Transport Safety	24.5	33.8
	Human factors	1.8	3.5
<i>Infrastructure and traffic related objectives - Sub-total</i>		53.9	85.3
	Modal and intermodal transport management systems	155.5	230.1
	Traffic management systems	35.6	65.5
	Transport and mobility services	10.0	14.9
	New generation GNSS	26.7	31.4
<i>Transport management and system objectives - Subtotal</i>		227.8	342
Total		354.0	563.8

* Eligible project costs

Other observations are:

- That the average RTD project cost about 3.8 MEUR.
- That the average level of EC contribution is 62% of total project costs. Projects with a 'socio economic nature' received on average 50% EC contribution whereas the sub objectives 'driving forces in transport' and 'quantitative tools for decision-making' received more than 80% EC contribution.
- That some areas of research such as public transport and in particular the GNSS area are characterised by expensive research projects whereas particularly combined mode are characterised by inexpensive projects.

How innovative should projects be?

The possible tension between 'willingness to take a risk' vs. 'need to deliver useful results' is always salient in the context of a research programme. 39 % of the projects were successors of previous projects, 25% of the projects were motivated by new innovative ideas and 20% was motivated by requests by market actors. The fact that a very significant number of the projects are rooted in previous research projects is an advantage insofar that such projects have a better chance of meeting expectations in an already well researched field. But the output of such research projects might be less ground-breaking or pioneering com-

pared to those projects where the driving force was a new idea or a request from the market. A point emphasised by some project officers was that DG TREN sometimes are not willing to run risks and go 'where no one have been before'.

3.3 Meeting the sectoral objectives

Relating projects to sectors

The project portfolio was further analysed in accordance with the respective transport modes as a way to see if the sectoral objectives were met. The sectoral objectives have at no point been formally specified (thus there is no formal benchmark) but in the context of this evaluation the sectoral objectives were defined as those sectors given attention in the White Paper, cf. the below table showing the results.

Table 7 147 RTD transport projects - according to transport mode

Transport Mode	Number of Projects	%
Road sector	26	18%
Railways sector	14	10%
Air transport sector	14	10%
Maritime and inland waterways	22	15%
Public transport	17	12%
GNSS/Galileo	11	7%
Combined mode*	43	29%
Total	147	100%

* Combination of mode relates to projects involving two or more modes (road, rail, air etc.).

The table shows that projects with an intermodal nature (combined mode) make up the largest group, and also that many projects relate to the road sector, maritime sector and inland waterways. However, there seems to be a relatively even distribution between the transport sectors.

Funding per transport mode

As seen from the table below, a similar even distribution of EC contribution appears - with the exception of the railway sector receiving 6% of the EU contribution and the combined modes receiving 17% which in both cases is significantly less than the relative amount of projects.

The White Paper gives four transport modes a privileged position; cf. its working definition of sustainable mobility according to which a shift in the balance of modes of transport in favour of the following four modes should be generated: railways, inland waterways, short sea shipping and intermodal operations. These four modes accounts for 54% of the total EC contribution (incl. the 'Public transport' category, cf. the below table) and in addition to that a large group of the 'road' projects are projects aimed at a greening of the road sector; some

road projects concern safety (also a profound White Paper issue)⁹, and the GNSS projects are steps towards a Galileo system which is expected to enable a broad range of services asked for by the White Paper such as guidance systems/road safety, road pricing, traffic management, railway goods tracking, interoperability of public transports, etc.¹⁰

Table 8 Funding and project value in accordance with transport mode

Transport Mode	EC Contribution €	EC Contribution %	Project Value €
Road sector	50,440,051	14%	83,092,139
Railways sector	21,074,970	6%	32,492,922
Air transport sector	43,272,444	12%	75,968,233
Maritime and inland waterways	44,625,504	13%	72,696,078
Public transport	64,407,799	18%	143,414,516
GNSS/Galileo	69,823,701	20%	76,926,384
Combined mode*	60,376,177	17%	79,242,740
Total	354,020,646	100%	563,833,012

* Combination of mode relates to projects involving two or more transport modes (road, rail, air etc.).

A 'Willingness-to-contribute' index

As mentioned earlier, the EC contribution (354 MEUR) makes up 62% of total project portfolio value (564 MEUR). Further to this, on the basis of the information on EC contribution and total project value in combination with the different transport modes, we can construct a 'Willingness-to-contribute' index, showing - for each transport mode - what share of total project value is made up of non-EC contribution, cf. the table below. It shows a huge difference between the transport modes - e.g. public transport projects (55% co-financing) compared to the GNSS projects (only 9% co-financing).

⁹Examples of 'road' projects addressing environmental and/or safety issues are Sustainable Road Surfaces for Traffic Noise Control, Pan-European Co-ordinated Accident and Injury-Databases, Roadside Infrastructure for Safer European Roads, Road Safety and Environmental Benefit-Cost and Cost-Effectiveness Analysis for Use in Decision-Making, Assessment of Road Transport Emission Models and Inventory Systems, and DESigns for Inter-urban Roadpricing schemes in Europe.

¹⁰ Examples of Galileo applications are described at the Galileo part of the DG TREN homepage, see http://ec.europa.eu/dgs/energy_transport/galileo/applications/environment_en.htm.

Table 9 Willingness-to-contribute index - level of co-financing

Transport mode	Co-financing (% of total project costs)
Public transport	55
Air transport sector	43
Road sector	39
Maritime and inland waterways sector	39
Railway sector	35
Combined mode	23
GNSS / Galileo	9
For all projects	38

Addressing societal objectives ~ addressing relevance

3.4 Meeting the societal objectives

While the ToR of this evaluation does not ask for an assessment of relevance, it asks for an assessment of whether the projects have supported the relevant societal objectives. Effectively, this will lead to a focus similar to that of the theme of relevance (which is defined as the extent to which the projects support relevant policies).

The societal objectives were not a priori specified - nor by the ToR, neither by the relevant FP5 / KA2 regulation which implied a need for preparing some sort of benchmark specifically for this evaluation. Societal objectives have therefore been interpreted as those policy objectives that are found in the EU policy(ies) that the KA2 relate - which first and foremost is the Common Transport Policy. The evaluation question is therefore: To what extent are the funded projects relevant for the realisation of the policy priorities outlined in the White Paper? In addressing this question, we have relied primarily on project reviews and interviews with DG TREN personnel. We have also seen indications on relevance from the e-questionnaire but concern over biased answers makes this data source less valid for this particular evaluation theme.

Findings based on project reviews

The findings derived from the project reviews can be condensed as follows:¹¹

- Out of the 20 projects, 14 projects (70%) scores 'a high' on relevance as they are assessed to clearly support the intermediate objectives of the Common Transport Policy. The themes of the projects are thus at the core of the sustainable mobility agenda, and they not contradict with any of the specific sectoral objectives. They address areas in which prospects of significant scientific and technological progress are opening up.
- 6 projects (30%) scores 'a medium' as the projects support the sectoral and the societal objectives, while they are less directly related to the Sustainable Mobility Policy.

The high relevance of the projects can be illustrated by the fact that many of the research subjects covered by the projects are mentioned in the INDIC report which indicates a strong link between the projects and the transport policy. Many projects were constructed to answer specific policy needs.

Text box 5 Examples of a highly relevant project

The FORESIGHT project prepared the Common Transport Policy for the future will contribute to the preparation of decisions that are demand-oriented, economically and ecologically reasonable and socially acceptable, as well as consistent with other sectoral policies. The project represents the first attempt to establish a foresight exercise tailored to the needs of the European Common Transport Policy (CTP), and to establish a procedure that assists in the cross-sectoral policy integration and co-ordination and, more specifically, in the integration of non-transport concerns in transport policies and vice-versa.

Indications on relevance, via the survey

Relevance was also captured via the survey by asking the project owners to indicate which of the relevant White Paper policy areas 'their' project would support, cf. the table below.

¹¹ Scoring system applied:

High: The project clearly supports the sectoral and the societal intermediate objectives. The theme of the project is a core issue for the Sustainable Mobility Policy of the EU (Common Transport Policy), and it does not contradict with any of the specific sectoral objectives; and it addresses areas in which prospects of significant scientific and technological progress are opening up.

Medium: The project supports the sectoral and the societal objectives, while is less directly related to the Sustainable Mobility Policy, and it does not contradict with any of the specific sectoral objectives.

Low: The project supports to a less degree the sectoral and societal objectives, and the project contradicts with some of the specific sectoral objectives, and it does not address areas in which prospects of significant scientific and technological progress are opening up

Table 10 On which of these EU transport policy objectives do you think your project had an impact? (The recipients may mark more than one answer)

	No of replies	In % of total
To improve quality in the road sector	18	32
To revitalise railways	11	20
To strike a balance between growth in air transport and the environment	8	14
To promote short sea shipping and inland waterways	15	27
To turn intermodality into reality	22	39
To continue the building of the trans-European transport	13	23
To improve road safety	12	21
To adopt a policy on effective charging for transport	10	18
To put research at the service of clean transport	21	38
To recognise the rights and obligations of users	5	9
To develop high quality urban transport	10	18
To manage the effects of globalisation	7	13

The table shows how the project objectives are spread out on different EU transport policy objectives. The most emphasised objectives are 'to turn intermodality to reality' and 'to put research and technology at the service of clean and efficient transport. In all it shows a good coherence between the magnitude and significance of EU transport policy objectives and the composition of the projects in the programme.

The 'real' relevance might be lower

The above conclusion derived from a formal comparison of the project objectives and the policy of the White Paper does, however, not take into account those situations where external circumstances - e.g. a change of the political agenda - have reduced the relevance of a given project. We have thus seen examples of projects that we rated highly relevant, cf. our methodology, but which nevertheless have been overtaken of events and thus have provided outputs which were not in demand.

Text box 6 Changes in political agendas can affect the 'real' relevance of projects

SAFE-T was supposed to support the sustainable mobility agenda by providing guidelines on safety risk analysis methodology in tunnels. Following the accident in the Mont Blanc Tunnel, the EC adopted the tunnel directive (Directive 2004/54/EC Trans-European road network: minimum safety requirements for tunnels) essentially making the SAFE-T project outdated before it was finished. The project therefore had limited influence on the preparation of the directive.

CLEANER DRIVE's overall goal was to specify and test actions that remove barriers to market entry of new generation vehicles, with a particular focus on information barriers. Its aim was consistent with EU environmental policy and it made a sound attempt at developing/standardising a vehicle environmental rating system using indicators as a basis. Nonetheless, half way through the project, the political direction of EU policy shifted and there was a loss of interest in CLEANER DRIVE and its results. The project results therefore had a limited impact on the development of new technologies in the field.

3.5 Summary

This chapter has analysed how effective the 147 projects have been with regard to the realisation of projects objectives, and in meeting thematic, sectoral and societal objectives. The key observations are the following:

- The project effectiveness is overall satisfactory - with many projects delivering either the expected or above-expected results, and with only a few failed projects.
- The thematic objectives are met insofar that all 147 projects can be categorised according to the thematic objectives (hence eligibility confirmed). The sub-objective 'Modal and intermodal transport management systems' is by far the dominant category accounting for 45% of all projects.
- All main transport sectors benefit from the KA2, which is in line with the programme statement that the KA2 shall facilitate a general improvement across sectors. In the context of fulfilment of sectoral objectives it is to be noted that the four transport modes emphasised by the White Paper accounts for 54% of the total EC contribution, and in addition to that a large group of the other projects are addressing environmental and safety issues.
- There is a notable difference in the level of co-financing given for different transport modes. For instance, the non-EU contribution makes up 55% of the total project costs for public transport projects while GNSS projects only received 9% of co-financing. On average, co-financing amounts to 38% of total project costs.
- It is found that a clear majority of the projects are relevant for the meeting of societal objectives. The fact that the KA2 to a large extent is policy-driven implies, however, that projects may be vulnerable to changes in the political context, and examples have been given of projects with a low level of what could be termed 'real' relevance. Such fortuitous contextual changes are likely to be de-motivating from the perspective of the involved partners.

4 Efficiency

Purpose of chapter

This chapter presents the evaluation results in relation to efficiency: the extent to which desired effects are achieved at a reasonable cost. It contains three main sections:

- First, an efficiency assessment is made on the basis of the reviewed projects (primarily) as well as feedback from the project owners. It is a bottom-up assessment therein that we generalise from individual projects to the entire population of projects.
- Second, a complementary efficiency assessment is made on the basis of an overview of all main results of the programme. Having established this overview we discuss if there is a satisfactory relation between the funds that were used and the results that were yielded.
- Third, the efficiency of the programme administration is analysed. This part draws in particular on the feedback provided by the project owners.

The reader is asked to keep in mind that it is notoriously difficult to assess efficiency of a group of different research projects as clear-cut comparisons are difficult. (What is a reasonable price for innovation? How much should it cost to develop one patent? Or one scientific article? Or a new decision-making tool?)

4.1 Efficiency of the projects

Half of the projects were highly efficiency

The project review indicates that almost half of the projects were carried out with a high level of efficiency meaning that the budget, timing and deliverables were in accordance with or above expectations of the task managers and in the context of the terms of reference. Half of the projects received a 'medium' score primarily due to delays or budget overrun. One project was evaluated to have had a low level of efficiency, cf. the table below.

Table 11 Measure of efficiency¹²

	Total of projects	In % of total
High	9	45
Medium	10	50
Low	1	5
Total	20	100

Other observations

The above reported result is (not surprisingly) less positive than the feedback from the consortia themselves. Their self-assessments, done via the e-questionnaire, shows that 57% of the projects delivered all results within the foreseen cost range while 36% acknowledged that the project only 'to some extent' fulfilled all its promises.

Problems with delays could also be seen. More than half of the all projects have suffered from minor (45%) or significant (11%) delays.

Also to be noted, no significant differences were observed with regard to type of project or sector. Overall, the assessed projects show a satisfactory level of efficiency; however also in many cases leaving room for improvement (see below for examples).

Reasons for under-performance?

Table 12 below investigates issues that have negatively influenced the efficiency of project - as seen from the perspective of the project owners.

Table 12 Did any of the following issues influence the efficiency of the project? (Recipients may mark more than one answer)

	No of replies	In % of total (49)
Problem with the performance of partners	31	63
Inadequate internal administration	0	0
Practical issues related to the RTD process	12	24
EU administrative procedures or contract handling	30	61

Most noticeably, 63% of the projects owners report problems with 'performance

¹² Scoring system applied: *High*: The planned project outputs are delivered within budget and time, and the efficiency of the project is assessed as high by the Task Manager, and the efficiency of the project is assessed as high by the evaluator. *Medium*: Almost all of the project outputs are delivered within budget and time, and the efficiency of the project is assessed as medium by Task Manager, and the efficiency of the project is assessed as medium by evaluator. *Low*: The planned project outputs not delivered within budget and time, and the efficiency of the project is assessed as low by the Task Manager, and the efficiency of the project is assessed as low by the evaluator.

of partners' while 61% of the project owners blame 'EU Commission administrative procedures and contract handling'. The EU Commission payment procedures are in particular subject to criticism (see further section 4.3).

From the perspective of the involved DG TREN project officers, the performance of the research problems depends largely on the ability of the consortia to find the right partners in the first place and afterwards to develop a sense of shared commitment and ownership thereby reducing the likelihood that some partners will not fulfil their obligations.

Table 13 Example of remarks from project officers on project internal efficiency

<p>'Some partners appeared more focused on the individual benefits rather than the overall results'</p> <p>'More attention should be given to the process of choosing of partners, not all partners performed as expected'</p> <p>'The project teams should have a limited number of partners - not more than 10 - as we see many cases of large consortia where some partners free ride and under perform'</p> <p>Others mentioned ' that the number of partners, does not matter if the consortium is run by a good and experienced project management team'</p>
--

What factors explain that some projects are more successful than others?

It is equally important to highlight those factors of a generic nature that tend to produce successful projects - so what characterises the successful KA2 research project? On the basis of all the data sources, including the field visits to successful projects, our observations are the following:

- Success is *not depended on sector or research area* as we have not detected systematic differences between sectors. A successful project can just as well address the preparation of a new policy-making and analytic tool (FORESIGHT¹³) as being a more tangible and 'hard' subject in the form of road pavement improvements (such as SAMARIS¹⁴).
- The quality of *project management* is essential and appears to be the single most important factor. An experienced project leader with previous experience working with the Commission and leading research projects can facilitate the successful project implementation. EC research projects do

¹³ The FORESIGHT for TRANSPORT project was launched in 2001 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.

¹⁴ The SAMARIS project is a 4,6 MEUR project running from 2002 to 2006 with the participation of 23 partners from 15 countries, including representatives from non-EU member states, Switzerland and USA. It has developed and tested new and alternative materials in the pavements and concrete structures in the road infrastructure. A Reference Group of End Users was formed as a dialogue partner for the project to provide advice on setting of priorities and to ensure an effective up-take of the research results. The End Users Group was mainly composed of representatives from national Road Directorates.

have a certain culture, including the multi-country partner approach and the sometimes very large projects, which should be reflected in project management.

- *Quality and motivation of human resource* - the project is likely to be successful if there is a core team of high quality research staff pushing for results (ownership).
- *Communication*. The project manager/coordinator must at a very regular basis send up-dates to the project partners to maintain momentum and to turn the consortium into a truly working entity. It is likewise important to communicate with the EC, to explain project and scientific developments, changes to direction, contract amendments timing etc.
- *Role models* are important. Important that all consortia have individuals that see the project as not just-another-project but as a real opportunity for improvement, profiling and the development of new contacts.
- *Commitment and trust from the DG TREN* is essential. While it is understandable that Commission officials cannot follow the projects at a very detailed level, they should nevertheless show an active interest and the DG TREN contact person should contribute to the project as a 'facilitator' and interested partner (rather than a 'controller').
- The project should be sliced into tasks that allow the *individual partners a real impact* to avoid that input from one partner 'disappears' against the accumulated amount of activities/products.
- *Want to make a difference*. Transport researchers want to make a difference, and successful projects deliberately investigate how their results can be put into practice. This aspect can be institutionalised - e.g. in the form of a panel of End Users acting as advisory board.
- *Visibility improves prestige*. Dissemination of project results is a profound feature of successful projects.¹⁵

¹⁵ To be noted, the above characteristics are in line with the findings following from a survey conducted as part of the Five Year Assessment of EU Research Activities (1999-2003) highlighting the following factors: high quality of project leadership, high calibre of own technical capability, high calibre of partners' technical capability, complementarities of competences, well-specified project goals, good communication between all partners, high level of interest within all concerned partners, high quality of technical equipment and availability of qualified personnel.

Text box 7 Example of communication as a success factor

The SOURDINE-II project (Study of Optimisation procedURes for Decreasing the Impact of NoisE around airports-II) commenced in November 2001 and completed in November 2004, with an overall budget of €6,758,344, half of which was funded by the EC. The project was the follow-up of FP4's SOURDINE-I, which provided an inventory of noise abatement procedures and an initial demonstration of the associated noise reduction potential. SOURDINE-II's objectives were to develop new procedures and supporting technology through the development and validation of new advanced and innovative environment-friendly approach and departure procedures that have a positive impact on safety, capacity, environment and financial aspects, on the basis of SOURDINE-I results. In addition to the simulation and assessment results (safety, capacity, noise, user acceptance), SOURDINE-II's main output was the Implementation Plan (IP) for Noise Abatement Procedures (NAPs).

The main reasons of success include the fact that the project was well embedded with other ATM-related projects both at the time of implementation and for future projects. There were very productive panel meetings with e.g. air companies such as Aer Lingus and communication with the outside world was excellent.

4.2 Efficiency of entire project portfolio

This section generates an overview of all main results of the programme. The results are categorised as scientific results, effects on legislation and regulation, technical progress, and commercial effects. All data sources are used, and in particular the e-questionnaires have provided a wealth of information useful for the understanding of the results of the programme.

Scientific results

The main scientific results from the projects are publications in peer reviews (58%) and network relations with new partners (62%). Networking between partners and research institutions is felt to be a very important result from the projects.

Table 14 What was the scientific impact of your project? Recipient may mark more than one answer

	No of replies	In % of total
Applied for patent protection	1	2
Planning to apply for patent protection	2	4
Publication in peer review	26	58
Plan to publish in peer review journal	8	18
Implying new partners	28	62

A large group of projects have contributed with scientific articles which indicate scientific excellence and thus an overall 'high' scientific impact. However the scientific impacts have rarely resulted in patents and direct spin offs to job creation or profit making (see below). A vast majority of the projects have had scientific impact by providing knowledge, guidelines or best practice to decision makers.

Technical progress
(Level of Excellence)

A large portion of the projects (37%) indicate 'Advances over state of the art' as the main technical result together with 'improvement of existing technologies' (18%). Extraordinary results and findings such as a 'completely new technology' (4%) or a 'significant breakthroughs' (7%) are rarely found, cf. table below.

Table 15 What was the main technical result of your project? (Recipients may mark more than one)

	No of replies	In % of total (56)
Improvement of existing technologies	10	18
Advances over state of the art	21	37
Completely new technology	2	4
Significant breakthroughs (new technology)	4	7
Other (Policy recommendations, methodological breakthroughs, Best practice studies, new tools,)	20	35

The project owners were also asked to the impact of the project in terms of development of expertise in the research areas, and 70% of the projects are reported to have a high or a very high level of impact. Several interviewed partners and project officers made the point that research projects without the intended results or impacts are not necessarily failures as important insights can also be gained from the unexpected results.

Commercial effects
(market penetration, growth perspectives)

The project owners were asked what form of commercial impact their project had, and the answers show, e.g.:

- that 15% of the partners achieved an improved market share
- that 5% improved profit
- that 13% of the projects generated new jobs
- while most of the projects did not have any direct commercial impact.

The conclusion is therefore quite clear: The main merits of the KA2 are not associated with commercial effects for the involved partners. Other effects are much more significant - and two examples of such significant effects are found within the category of socio-economic effects.

Socio-economic effects

First, the KA2 has had a very significant impact in terms of **networking** and finding partners to work with in the future - and the positive impact on networking is probably one of the most significant effects from the programme at all. Almost all projects have strongly indicated that working together with fellow colleagues from other European organisations or universities was rewarding in terms of knowledge sharing, exchange of ideas and future endeavours. The impacts are clearly noticeable from the project owners' point of view and will in many cases last beyond the lifetime of the project. A popular slogan of the KA2 could therefore be: 'Connected researchers'.

Another significant result is the effect KA2 has had on **legislation and regulation**. It delivers research of importance for the solving of specific policy problems. Half of the projects are thus reported to have produced knowledge of relevance for the preparation of new legislation. This happened in different ways: There are cases where the research projects have produced almost ready-to-use information for new regulation as well as cases where the influence is less direct, e.g. broader guidelines. The results of KA2 in terms of aiding legislative processes appear to be very substantial.

Text box 8 A project having contributed to preparation of new regulation

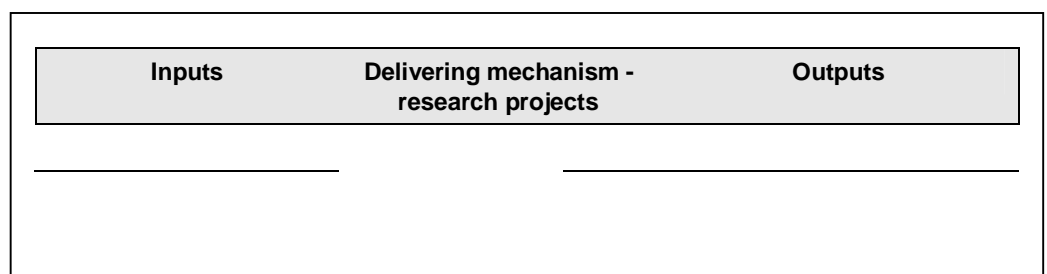
COMPRIS is an example of a research projects developing simultaneously with the RIS (River Information System) directive and providing a roadmap for the implementation of the Directive. The direct outcome of the study was a test centre platform in Vienna which resulted in direct recommendations and input for the River Information System Directive. COMPRIS was a demonstration project showing the way forward with a common approach to River Information Systems. Through COMPRIS all the EU RIS requirements were collected and an EU sytandard was developed. The timing of COMPRIS was important given the 2001 Transport White Paper and the political willingness to do something on RIS. COMPRIS is an example of the right project at the right time combined with good partners and experienced project management team.

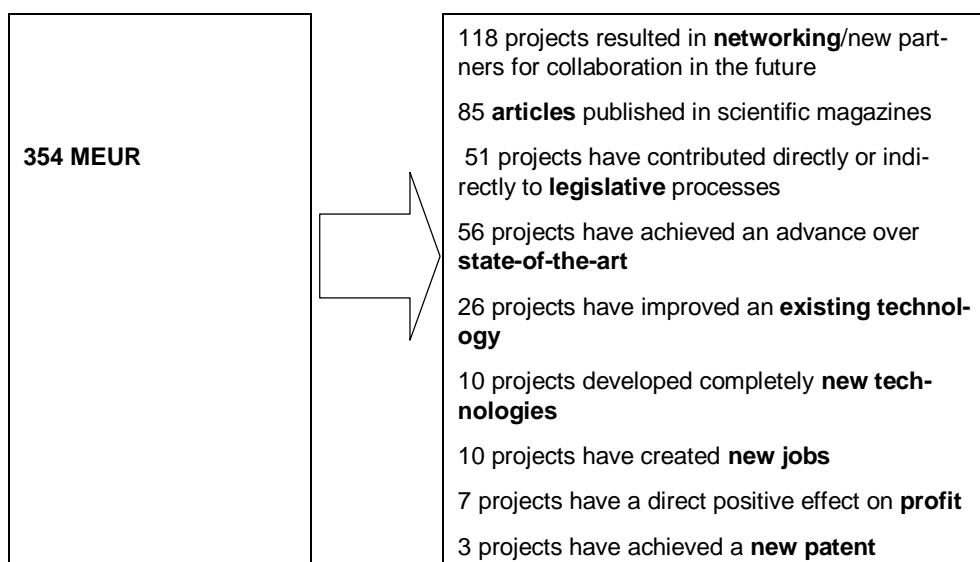
Overview of achievements

The EU task managers of the 20 projects selected for project review have been approached in order to learn about their understanding of the projects. Interviews confirm that project efficiency varies but in most cases are found to be either high or medium. Project owners receiving grants from the programme have stated that the projects have met expectations and needs with satisfactory results. Our review of 20 selected projects also confirms a satisfactory level of efficiency.

With the uncertainties involved in using extrapolation we present in the figure below the overall results and effects of the 147 projects under the Sustainable mobility and intermodality programme - developed on the basis of all data sources in particular: interviews with Commission officials, representatives from the reviewed projects, and data from the questionnaire.

Figure 3 Illustrating the input-output relation





Overall assessment of programme administration

4.3 Efficiency of the programme administration

As part of the survey/e-questionnaire, the project owners were asked to assess programme efficiency, including expressing an opinion on the overall programme administration.

Table 16 How satisfied were you with the overall project administration of the programme implementation?

	No of replies	In % of total
Not satisfied	11	19
Moderately satisfied	34	60
Very satisfied	12	21
Total	57	100

Table 16 shows that 60% of the projects were moderately satisfied with the project administration with approximate equal portions saying they were 'not satisfied' or 'very satisfied'.

Problems with payment procedures

Table 17 below shows a strong dissatisfaction with the payment procedures as 49% of the project owners indicate that they were 'not satisfied'.

Table 17 Project payment arrangements

	No of replies	In % of total
Not satisfied	28	49
Moderately satisfied	21	37
Very satisfied	7	12
Unsure	1	2
Total	57	100

Overall, the project owners are moderately satisfied with the programme administration, however showing dissatisfaction with payment procedures. Examples of critical statements received via the e-questionnaire is given below.

Text box 9 Examples of statements on programme efficiency

'Financial administration of EC was absolutely unacceptable; we had to wait several months for the contract which led to cancellation of participation of two major industry partners. Several interim payments have been delayed for months, contract amendments was delayed and final closure of project lasted almost 2 years; several changes of internal regulations and at least five financial officers dealing with the project over its lifetime. We had to start the final closure procedure three times with new persons. The consortia output suffered from participation of financially weak SMEs'

'The project was a Thematic network, which are oddly configured. In theory requiring new and original work to advance the objectives but denied a research element under the prevailing rules'

'Rapid alteration and succession of DGTREN project officers and financial officers lead to delays, bad communication and confusion between DG TREN and consortia members. The continuous procrastination was only accepted as a deliberate avoidance of direct conflict with an organisation with which most partners would hope to have RTD contracts in the future.'

'Contractual rules are much too rigid for this type of activity running over a 4 years period. Any changes are very difficult to implement and are necessitating a lot of resources which are not funded'

Preparing proposals

Table 18 shows how many workdays the project owners have put into the project proposal. It varies a great deal from project to project with approximately same number of projects spending under 25 working days as projects spending over 75 working days. Feedback from the project coordinators in fact shows that some projects utilised up to 200 man-days to prepare proposals.

Table 18 How much work was required to prepare the project proposal? Approximate number of work days?

	No of replies	In % of total
0-25	13	25
26-50	18	34
51-75	8	15
75-	14	26
Total	53	100

Table 19 Did you find this number?

	No of replies	In % of total
Low	0	0
Fair	31	55
Excessive	25	45
Total	56	100

Administering projects

Table 20 shows how many working days were spent on project administration during the project implementation. 87% of the projects spent more than 40 working days.

Table 20 How much work was required by the project coordinator to administer the project during implementation? Approximate number of work days over the project duration?

	No of replies	In % of total
Less than 40 days	7	13
More than 40 days	48	87
Total	55	100

This was found to be 'fair' by 62 % of project owners while 35 % felt it was an 'excessive' amount of time being used on administration. The rest 3 % felt it was a 'low' amount of time for administration.

The attractiveness of the KA2

The answers from the table below show that 84% of project owners had worked previously on Framework Programmes and only 9% had no experience of EU-funded projects. The fact that project owners were very experienced in working with EU funded projects indicates that EU-projects continually are of interest for the relevant actors.

Table 21 Had you received any EU funding prior to your FP5 project? (The 56 recipients may mark more than one answer)

	No of replies	In % of total (56)
No	5	9
Yes previous FPs	47	84
Other EU projects	13	23

Further to this, Table 22 below shows that programme owners were moderately satisfied by the program relative to similar national programmes and in

Table 23 the same tendency of moderate satisfaction can be detected.

Table 22 Relative attractiveness compared with national programmes

	No of replies	In % of total
Not satisfied	11	20
Moderately satisfied	24	42
Very satisfied	16	29
Unsure	5	9
Total	56	100

Table 23 Relative attractiveness of FPs compared with other schemes

	No of replies	In % of total
Not satisfied	7	12
Moderately satisfied	34	61
Very satisfied	14	25
Unsure	1	1
Total	56	100

A clear majority of the receivers of grants have experienced working with either other Framework Programmes or national programmes. This indicates experience and know-how not only of DG TREN procedures and processes but also of the expected achievement and level of scientific excellence.

Worth to continue working with EU programmes....

The fact that the Framework Programme continues to be attractive is illustrated in Table 24 which goes to show that even though administrative burdens are considered to be excessive it is still worth applying for EU programmes. A large portion of 85% of the projects owners have applied for projects under the 6th FP and 21% for other EU projects.

Table 24 Have you applied subsequently for any of the following EU funding? (The recipients may mark more than one)

	No of replies	In % of total
No	8	14
Yes, FP 6	48	85
Other (Interreg., TEN, Marco Polo, FP7, IEE, URbact, etc.)	12	21

But also many disappointed researchers...

Table 25 below shows that 40% of the participating consortia consider benefits to exceed the costs while 38% consider costs and benefits to be equal. It is alarming that in the magnitude of one-fifth of the project owners all in all consider that that costs of participating in KA2 were larger than the benefits.

The survey that was carried out as part of the Five Year Assessment of EU Research Activities (1999-2003) showed that for the FP5 in general only 14% of the project participants consider that the costs of participation in FP5 activities outweigh the benefits; hence the KA2 participants are more sceptical towards the value of the KA2 than the entire population of FP5 participants.

Table 25 Overall how do you feel the costs compare with the benefits of participation of the program?

	No of replies	In % of total	Similar figures for all FP5 participants ¹⁶
Costs > Benefits	12	22	14
Benefits = Costs	22	38	31
Benefits > Costs	23	40	55
Total	57	100	100

Examples of problems and statements

The following notes some examples of problems mentioned by the project coordinators that were visited:

- *Delays in payment.* A project that ended 31/3 2006 (with approved accounts) still misses around 25% of total payment. A senior national civil servant, having functioning as the project coordinator, thinks that there sometimes is a discrepancy between the determination with which the DG TREN asks for detailed cost statements on the one side and the tendency, see within this particular project, to late payments and a general low management quality from the side of the Commission. He argues that 'it ap-

¹⁶ FP5 Impact Assessment. Survey conducted as part of the Five Year Assessment of EU Research Activities (1999-2003), Atlantis Research Organisation.

pears like the Commission is misusing its attractiveness as a research project donor; it's very frustrating and de-motivating'.

- *Lack of flexibility.* For major research projects running of some years, it is quite natural that some activities will turn out to be more demanding than other - requiring a reallocation of resources between partners within the consortium. A representative from a project consortium argues that there is little flexibility to do so within the project budget ceiling. She notes that the Commission in that way does not motive the consortium to act as - a consortium.
- *In and out.* High staff turn-over within DG TREN reduced the constructive interplay between the Commission and the research project. In one case, a project, running from 2003 to primo 2006 had four different DG TREN contact persons. The contact persons were kindly and interested in the project but did of obvious reasons not know the project very well.
- *The contract disappeared!* A project experienced that the contract simply disappeared in the Commission - two times. In both cases the Commission had to ask the project manager to submit new examples of the contract.

Putting the finding into context

The survey that was carried out as part of the Five Year Assessment of EU Research Activities (1999-2003) covering FP5 in general concluded that: 'Although the majority of participants were moderately satisfied with most aspects of the implementation, significant minorities were dissatisfied with FP application and evaluation procedures and project payment arrangements'.¹⁷

While the seriousness of the above-noted problems should be recognised, in fairness it shall therefore also be noted that the problems are not DG TREN specific - the problems with KA2 programme administration are therefore to a large extent *typical* of more general problems associated with FP5 programme management.

4.4 Summary

This chapter analysed the efficiency of the projects and the programme itself. The main observations are the following:

- On the basis of the reviewed 20 projects, the project efficiency is overall satisfactory. The review indicates that app. half of the projects are carried out with a high level of efficiency meaning that the budget, timing and deliverables were in accordance with or above expectations of the task managers and in the context of the terms of reference. Half of the projects received a 'medium' score primarily due to delays or budget overrun.

¹⁷ FP5 Impact Assessment. Survey conducted as part of the Five Year Assessment of EU Research Activities (1999-2003), Atlantis Research Organisation.

- To be able to give an overall efficiency assessment of the programme as such, i.e. if the results from all 147 projects are good compared to the investment of 354 MEUR, we have established an overview of the accumulated results. The two most significant results of KA2 are, first, its contribution towards creating transport research networks and establishing new contacts, and second the contribution it has made on the preparation of new legislation.
- On the efficiency of the programme administration, the evaluation brings interesting information from the project owners. A clear majority of the projects owners are moderately satisfied with the administration of the programme but are also pointed to specific problems which reduce the attractiveness of the programme. It is alarming that in the magnitude of one-fifth of the project owners all in all consider that the costs of participation have exceeded the benefits.
- It should be noted that many of the EU task officers acknowledge and support the view that the administrative procedures were non-optimal, time consuming, inflexible and inefficient to the degree that it often served as a barrier for efficient projects. Hence, there appears to be a mutual understanding between the donor and the beneficiary of the need for improvement on this particular issue.

5 Utility

Purpose of chapter

This chapter presents the evaluation results on utility. Utility is defined in evaluation terminology as a measure of the extent to which effects corresponds with the problems to be addressed. As many aspects of utility were covered in previous chapters, only supplementary information is provided.

Additionality

A first hint on the utility of the projects are given by checking how important it was for the projects to receive funding; hence we asked the beneficiaries that received a grant from the KA2 what the consequences were of receiving the grant, cf. the table below. To be noted, a striking proportion of participants, 73% of the projects, would not have been initiated without the EC funding while the rest of the projects would have been implemented in a reduced scope. It appears that a clear majority find that the grant was a precondition for the project or added significantly to the project.

Table 26 *Would the project have been implemented without the EC funding?*

	No of replies	In % of total
Yes, but with reduced scope, fewer activities and or fewer partners	15	27
No, it would not have been initiated	41	73
Total	56	100

Project review results

As mentioned earlier, utility¹⁸ is assessed against the description within the White Paper on needs and problems. When reviewing the project sample, the project team therefore carefully compared the content and purpose of the pro-

¹⁸ Scoring system applied: *High*: The White Paper explicitly asks for policies/studies/initiatives/ projects that are similar to or closely related to that of the project, and the project clearly addresses areas which are expanding and creating good growth prospects, and the project clearly addresses areas in which Community business can and must become more competitive. *Medium*: The above criteria but all of the 'to a lesser degree'. *Low*: The White Paper does not ask for policies/studies/initiatives/ projects that are similar to or closely related to that of the project, and the project does not address areas which are expanding and creating good growth prospects, and the project does not address areas in which Community business can and must become more competitive

jects with the descriptions in the White Paper of challenges and needs. The results of the review of the 20 projects show a high level of correlation between the results on utility and effectiveness. Half of the projects show a high level of utility, while app. 10% of the projects shows a lower level of utility.

Observations from site visits

As noted some projects were visited to get a better understanding of how they operated and what they produced. Some of the observations are briefly presented below:

- *The SAMARIS project*, a 4,6 MEUR project running from 2002 to 2006, with the participation of 23 partners from 15 countries, including representatives from non-EU members states, Switzerland and USA, has developed and tested new and alternative materials in the pavements and concrete structures in the road infrastructure. A Reference Group of End Users was formed as a dialogue partner for the project to provide advice on setting of priorities and to ensure an effective up-take of the research results. Key objectives were to encourage the use of recycled materials in pavements and the development of new bridge maintenance materials. The project results are being used by some countries already (Germany), the study results are brought into a new OECD-study, one patent was developed.
- The timing of a research project is important to how the outcome of the project is perceived. However, research results not directly taken up in the law making process may prove their impact in the long run. The *FORESIGHT* project is an example of a project which was implemented efficiently but DG TREN did not show much interest at the time of implementation and never submitted substantial comments. However, the project results have been referenced by other EU institutions and international organisations and the knowledge base have been developed in the field of transport and foresight. DG TREN may in the future decide to take up the *FORESIGHT* project results in their work, hence the full impact may be seen later.

Summary

The main observations on utility are the following:

- A relatively high level of utility is found, and it is underlined that this result should - and also do - correlate with the findings on effectiveness.
- The 'additionality' provided by the KA2 is high - and is clearly illustrated by the fact that 3/4 of the projects were depended on KA2 as the funding source while the remaining projects would have been implemented within the programme but at reduced scope.

6 Sustainability

Purpose of chapter

This chapter assesses the sustainability of the good results - whether the effects of a given project continue to be used. Since approximate half of the projects are still underway, the assessment on sustainability is tentative.

General sustainability assessment

6.1 Sustainability of the various outputs

The most important information stems from the project reviews, as the review process provided an opportunity to discuss the sustainability of the projects with the task managers. The overall results of the review of the 20 projects are shown in the table below.

Table 27 Overall project review result - sustainability¹⁹

	Total of projects	In % of total
High	4	20
Medium	13	65
Low	3	15
Total	20	100

Hence, the reviewed projects indicate a level of sustainability which is not excellent, although in some cases the sustainability is very high - e.g. in those case where the results of a project has been used for the preparation of new legislation. In particular, there appears to be problems with the dissemination of results (see section 6.2 below).

¹⁹ Scoring system applied:

High: Two years after the project has been completed, the results of the project are significantly evident, either legislation/regulation: turned into new regulation, market penetration: patents and/or brought to market; scientific excellence: Journal presentation achieved or jobs created

Medium: The above criteria but all of the 'to a lesser degree'

Low: The results of the project are not used two years after the project has been completed

Sustainability of different categories of outputs

As seen in previous chapters - and typical for RTD projects - the KA2 has resulted in different categories of results. The table below assesses briefly the likely sustainability for each of these.

Table 28 Assessment of the sustainability of various categories of outputs

Effects	Expected level of sustainability
Contribution to the preparation of new legislation	Several projects have provided recommendation and input to a subsequent legislative process. The sustainability is high in those cases where knowledge from a KA2 project either has been seriously considered or even directly have influence the new regulation.
Technical progress	18% of the projects resulted in improvement of existing technology and 4% resulted in a completely new technology.
Networking / new partners	The results of KA2 in terms of networking are significant, and the sustainability of this result is high.
Other	More than 20 projects are so-called <i>thematic networks</i> concerning the organising of conferences, study trips, to gather collective experience and knowledge in a field etc. It is not possible to assess the sustainability of these projects. A number of projects in the programme concerned the production of statistics and databases. These are assessed to have a high sustainability as they have generated usable transport statistics on broader European level than ever before.

Research results must be understood...

6.2 Dissemination of RTD projects

In RTD projects, dissemination is of great importance because no matter how successful, the outcome of a research project must be read, understood, documented and put to use. While the above assessment is relatively positive, this section indicates problems with dissemination of project results. First, Table 29 below suggest that a good dissemination effort has been done by the consortia as 9 out of 10 have disseminated results on project homepage and presented results at conferences.

Table 29 How and via which media did you present and disseminate the projects results?

	No of replies	In % of total
Project homepage	52	90
Publication in referred journal	28	48
Conference	52	90
Other	32	55

Table 30 below also leaves the impression of a good dissemination effort as 69% of project holders find impacts in terms of transfer of expertise to either 'high' or 'very high'.

Table 30 What was the impact of the project in terms of transfer of expertise / know-how?

	No of replies	In % of total
Low	3	5
Medium	14	26
High	27	49
Very high	11	20
Total	55	100

Problems with web-pages - they are not up-dated

However, slightly contradictory to the impression left by the above information, we have found from interviews and analysis that dissemination of projects either ends when the project is finished or is very weak in the aftermath of projects. During the project review phase it became noticeable that many of the project websites were either closed or simply not updated. Since project partners are not obliged to update and maintain project websites after the project is finished they tend not to do so. Examples of typical statements were the following: *'I believe the project was successful but attempts to disseminate and commercialise the end results were not', and 'At the time of FP5 we were discouraged from funding the attendance of experts and delegates to dissemination conferences etc. This was a mistaken strategy as it meant that our dissemination activities were few '.*

Dissemination strategy Therefore, there seems to be a lack of an overall dissemination strategy after the project deliverables have been made - addressing more clearly the post-project situation. Also it is often the case that project deliverables are very academic and poorly suited for the general public debate and decision makers. As dissemination in general is very much attached to communication and how you present ideas and knowledge, successful projects should also be promoting their findings actively through a combination of other activities for instance:

- Journalistic articles and journal type papers to provide a more immediate and accessible results
- Consistently improvement the homepages
- Slide shows and presentation efforts
- Workshops and seminars (actively presenting usability of project)
- Improved databases with research results

The above activities should be custom-made to the specific context of the project to ensure that relevant private or public institutions or organisations take notice of project findings, ideas and possibilities for future research, collaboration, commercialisation etc. Therefore, the DG TREN needs to direct more investment into dissemination of RTD projects as it is often the case that successful RTD projects are not backed up by the necessary resources to disseminate project findings.

Text box 10 Examples of dissemination

OPTIRAIL II (later on EUROPTRAILS) developed a management system that allows vision of international train transport. The project findings have been disseminated throughout Europe and is planned to be implemented with very good prospects throughout Europe.

6.3 Summary

This chapter has analysed the sustainability of the results of the KA2, and the main observations are the following:

- The results and effects of the projects did not, as a general rule, disappear on termination of the projects, but the dissemination effort is found to be far from optimal (e.g. closed or not-updated homepages). This evaluation therefore finds that 'sustainability' is the evaluation theme showing the least positive results. That said, we have also noted that some categories of results and effects are more sustainable than others. In those cases where KA2 has provided input to legislative processes, the sustainability is obviously very high. The research networks established through the FP5 network tend to remain and partners reappear in other research projects
- There seems to be a lack of a post-project dissemination strategy, and it is therefore relevant to open the discussion whether the DG TREN needs to direct more investment into dissemination of RTD projects, including improved databases with EU research results.

7 Conclusion

This chapter presents the main conclusions and a number of recommendations is given. The chapter also contains an overview table summarising the conclusions on each of the key evaluation questions.

The overall conclusion: Mainly positive results

With a project portfolio of 147 very different projects - in terms of size, duration, research areas and organisations - it is not surprising that some are very successful while others are not. However, as a general tendency the projects were successful. The conclusions for each of the evaluation themes are summarised below.

The project effectiveness is overall satisfactory - with many projects delivering either the expected or above-expected results, and with only a few failed projects. All main transport sectors benefit from the KA2, which is in line with the programme statement that the KA2 shall facilitate a general improvement across sectors. The four transport modes emphasised by the White Paper accounts for 54% of the total EC contribution, and in addition to that a large group of the road projects are addressing environmental and safety issues. Also the 'horizontal' GNNS/Galileo projects have the potential to facilitate safety and environmental services asked for by the White Paper.

It is therefore found that a clear majority of the projects are relevant for the meeting of societal objectives. The fact that the KA2 to a large extent is policy-driven implies, however, that projects may be vulnerable to changes in the political context, and examples have been given of projects with a low level of what could be termed 'real' relevance. Such accidental contextual changes are likely to be de-motivating from the perspective of the involved partners.

Problems with programme management

On the efficiency of the programme administration, the evaluation brings interesting information from the project owners. A clear majority of the projects owners are moderately satisfied with the administration of the programme but are also pointing to specific problems which reduce the attractiveness of the programme. It is alarming that in the magnitude of one-fifth (22%) of the pro-

ject owners all in all consider that the costs of participation have exceeded the benefits.²⁰

Also many project participants note that there appears to be a lack of EC capacity to follow up on projects which consequently means that certain project results are not feed into the political process.

The results

To be able to give an overall efficiency assessment of the programme as such, i.e. if the results from all 147 projects are good compared to the investment of 354 MEUR, the evaluation team - using extrapolation - has established the below overview of the accumulated results, showing the following results:

- 118 projects resulted in networking/new partners for future collaboration
- 85 articles published in scientific magazines
- 51 projects have contributed directly or indirectly to legislative processes
- 56 projects have achieved an advance over state-of-the-art
- 26 projects have improved an existing technology
- 10 projects developed completely new technologies
- 10 projects have created new jobs
- 7 projects have a direct positive effect on profit
- 3 projects have achieved a new patent

The two most significant results

Besides the general increase of the EU knowledge base resulting from this programme, the two most significant results of KA2 are, first, its contribution towards creating transport research networks and establishing new contacts. A very clear majority of the projects have lead to improved networking; hence the KA2 encouraged cooperation between a rich mix of R&D oriented stakeholders in the EU. The other significant result is the contribution made to the preparation of new legislation. A condensed expression of the main impact of the KA2 would therefore be that the programme *has strengthened transport research communities and has improved transport policy-making.*

What characterises successful research projects?

It has not been possible to identify particular research areas that perform better than others. Rather it seems that the effectiveness of projects depends on project-internal factors, in particular:

- The quality of *project management* is essential and appears to be the single most important factor. An experienced project leader with previous experience working with the Commission and leading research projects can facilitate the successful project implementation. EC research projects do have a certain culture, including the multi-country partner approach and the sometimes very large projects, which should be reflected in project management.

²⁰ The survey that was carried out as part of the Five Year Assessment of EU Research Activities (1999-2003) showed that for the FP5 in general only 14% of the project participants consider that the costs of participation in FP5 activities outweigh the benefits. The 22% level found for KA2 within the context of this evaluation is therefore above the FP5 average.

- *Quality and motivation of human resource* - the project is likely to be successful if there is a core team of high quality research staff pushing for results (ownership).
- *Communication*. The project manager/coordinator must at a very regular basis send up-dates to the project partners to maintain momentum and to turn the consortium into a truly working entity. It is likewise important to communicate with the EC, to explain project and scientific developments, changes to direction, contract amendments timing etc.
- *Role models* are important. Important that all consortia have individuals that see the project as not just-another-project but as a real opportunity for improvement, profiling and the development of new contacts.
- *Commitment and trust from the DG TREN* is essential. While it is understandable that Commission officials cannot follow the projects at a very detailed level, they should nevertheless show an active interest and the DG TREN contact person should contribute to the project as a 'facilitator' and interested partner (rather than a 'controller').
- The project should be sliced into tasks that allow the *individual partners a real impact* to avoid that input from one partner 'disappears' against the accumulated amount of activities/products.
- *Want to make a difference*. Transport researchers want to make a difference, and successful projects deliberately investigate how their results can be put into practice. This aspect can be institutionalised - e.g. in the form of a panel of End Users acting as advisory board.
- *Visibility improves prestige*. Dissemination of project results is a profound feature of successful projects.

Recommendations

In light of the evaluation findings the following are recommended:

- That for future research programmes addressing 'sustainable mobility' a clearer relation should be established between the concept of sustainable mobility and the research priorities (positive developments to be seen for FP7).
- That the DG TREN considers the need to develop a post-project dissemination and follow-up strategy to ensure a better utilisation of research results. This relates also to the Cordis project database which needs to evolve into a fully operational project database with availability of all deliverables and project document. It will benefit both the public and DG TREN staff and at the same time signal transparency and modern project management.
- That the DG TREN put even stronger emphasis and allocates more resources into dissemination of RTD projects. It is often the case that successful RTD projects are backed up by the necessary resources to disseminate project findings and to ensure end-user knowledge of the results.

More prestige and attention can be devoted to the quality of web-pages, e.g. by requiring that all project websites contain a mechanism whereby web-page visitors can rank the quality and usability of the site.

- That the DG TREN carefully considers the critical feedback from the project holders on project management. Steps need to be taken to improve the acceptability of programme procedures and modalities, in particular payment arrangements. DG TREN could formulate an internal target that for future transport research programmes, the level of project holders perceiving costs of participation to exceed benefits should not be higher than 10%.
- That the DG TREN considers methods to secure that a contextual change impacting upon the relevance of a research project can be adequately reacted upon. If the project context changes dramatically the project objectives and activities may need to be adjusted and sufficient flexibility for doing so should be accepted.
- That the DG TREN should ensure stable monitoring of projects by launching an effort to keep the same project officer on a project from start to end.
- That the efforts to reduce the 'innovation-bridge' between idea and practices, e.g. via demonstration projects, is strengthened. In the transport sector there is often a low willingness-to-accept risks associated with the introduction of new materials or systems because possible flaws are extremely exposed to the public - which is likely to lead to a slow up-take of research results.
- That the DG TREN, while continuing mainly to fund immediately policy relevant research projects, also considers the perspectives of funding more projects with radical innovation potentials.

Overview of specific conclusions

A condensed presentation of the conclusions of the evaluation questions are given in the table below.

Evaluation Theme	Score	Argument
Effectiveness <i>general assessment</i>	High-medium	The project effectiveness is overall satisfactory - with many projects delivering either the expected or above-expected results, and with only a few projects failing to deliver expected outcome
<i>in terms of meeting thematic objectives</i>	High-medium	The thematic objectives are met insofar that all 147 projects can be categorised according to the thematic objectives (hence eligibility are confirmed)
<i>in terms of meeting sectoral objectives</i>	Medium	All main transport sectors benefit from the KA2, which is in line with the KA2 programme objective.
<i>in terms of meeting societal objectives</i>	High-medium	A clear majority of the projects are relevant for the meeting of societal objectives. Some projects are vulnerable to changes in the political context
Efficiency	Medium	The project efficiency is overall satisfactory with app. half

Evaluation Theme	Score	Argument
		<p>of the projects showing a high level of efficiency</p> <p>A majority of the projects owners are moderately satisfied with the administration of the programme but are also pointing to specific problems which reduce the attractiveness of the programme. 22% of the project owners consider that the costs of participation have exceeded the benefits.</p>
Utility	Medium-high)	<p>A relatively high level of utility is found, and it is underlined that this result should - and also do - correlate with the findings on effectiveness</p> <p>The two most significant results of KA2 are:</p> <ul style="list-style-type: none"> • the contribution towards creating transport research networks and • the contribution made towards the preparation of new legislation.
Sustainability	(Medium) Project - specific	<p>There seems to be a lack of a post-project dissemination strategy, and it is therefore relevant to open the discussion whether the DG TREN needs to direct more investment into dissemination of RTD projects.</p> <p>The creation of stronger transport research networks is likely to have a long-lasting effect.</p>

Appendix 1 Selection of projects for review

- **Criteria 1:** The sample shall represent the main types of sectors - as it is relevant to see if there is difference between these types in how well they have achieved their objectives.
- **Criteria 2:** A significant part of the projects must be cross-sectoral - as the KA2 supports the integrative, cross-sectoral and inter-modal perspective on mobility
- **Criteria 3:** Within each sector there must be thematically different projects
- **Criteria 4:** The sample shall to the extent possible contain a variety of projects (in terms of e.g. budget size, consortia set-up, timing).

Sector/Themes	Socio-economic scenarios	Infrastructures and their interfaces	Modal and intermodal transport management systems
Cross-sectoral	1) THINK-UP 2) SPRITE 3) FORESIGHT 4) GUIDE-MAPS		14) MOST 15) BESTUFS
Road sector		5) CLEANER DRIVE	
Road sector - safety		6) SAFE-T 7) PENDANT	16) ECBOS
Railways sector		8) FACT 9) CROSSRAIL 10) STAIRS	17) OPTI-RAILS
Air transport sector - ATM		11) SOURDINE II	18) GATE-TO-GATE
Maritime and inland waterways		12) ECOPORTS 13) THEMES	19) COMPRIS
Public transport			20) ARTS

Appendix 2 Rating of projects reviewed

	Project	Project effectiveness	Relevance (~ societal objectives)	Efficiency	Utility	Sustainability
1	THINK-UP	Medium	Medium	Low	Medium	Medium
2	SPRITE	High	High	High	High	Medium
3	FORESIGHT	High	High	High	High	Medium
4	GUIDEMAPS	Medium	Medium	High	Low	Low
5	CLEANER DRIVE	High	High	High	High	Low
6	SAFE-T	Low	Medium	Medium	Low	Low
7	PENDANT	Medium	High	Medium	High	Medium
8	FACT	High	High	Medium	High	Medium
9	CROSSRAIL	High	High	High	Medium	Medium
10	STAIRRS	Medium	Medium	High	High	Medium
11	SOURDINE II	Medium	(High)	Medium	Medium	Medium
12	ECOPORTS	High	High	High	High	Medium
13	THEMES	Medium	High	Medium	Medium	High
14	MOST	High	High	High	High	High
15	BESTURFS	Medium	High	Medium	Medium	Medium
16	ECBOS	High	Medium	Medium	High	High
17	OPTI-RAILS	High	High	Medium	Medium	Medium
18	GATE-TO-GATE	Medium	(Medium)	Medium	Medium	Medium
19	COMPRIS	High	High	Medium	High	High
20	ARTS	High	High	High	(Medium)	(Medium)

* Brackets indicate particular uncertainty as to the scoring.

Appendix 3 Overview of projects visited

The following projects were visited:

- SAMARIS; Sustainable and Advanced Materials for Road InfraStructures.
- COMPRIS; Consortium Operational Management Platform River Information Services
- FORESIGHT; A foresight exercise to help forward thinking in transport and sectoral policy integration
- ECBOS; Enhanced Coach and Bus Occupant Safety
- SOURDINE II; Study of Optimisation procedURes for Decreasing the Impact of NoisE around airports-II.

SAMARIS; Sustainable and Advanced Materials for Road InfraStructures

The SAMARIS project is a 4,6 MEUR project running from 2002 to 2006 with the participation of 23 partners from 15 countries, including representatives from the non-EU members states Switzerland and USA. The Danish Road Directorate was the project coordinator. The project was divided into two streams. The first one dealt with pavements and the second one with highway structures

Pavements. The project is encouraging a greater use of recycled components in pavement materials and introduced the consideration of environmental performance in the design. It also prepared for the harmonisation of European approaches of material specification within the next generation of CEN standards. This involved moving from a recipe approach, which puts much emphasis on the intrinsic characteristics of the constituents, to a performance-based approach of the in-place products, which allows consideration to be made irrespective of the type of material.

Highway structures. The maintenance of concrete structures, be it pre-emptive or for repair or strengthening, is a heavy burden for society not only in financial terms but also as a major potential disturbance of civil systems. The structures part of the project was specifically targeted to support the EU policy to improve the highway structure maintenance with respect to greater efficiency and durability of the applied procedures, resulting in reduced number of necessary road closures. This will lead to considerable reduction of associated costs and increase users' safety. Special attention was given to the Central European (CE) countries where condition of the highway structures may differ from the EU situation.

A Reference Group of End Users was formed as a dialogue partner for the project to provide advice on setting of priorities and to ensure an effective up-take of the research results. The End Users Group was mainly composed of representatives from national Road Directorates.

COMPRIS; Consortium Operational Management Platform River Information Services

COMPRIS is a pan-European project, focussing on the development and implementation of River Information Services (RIS) on the inland waterways in Europe. The project - having a budget of 9.600.878 € of which 5.021.052 € was EU funded - was launched in September 2002 and finished by the end of 2005. The COMPRIS consortium consists of 44 active partners from 11 European

countries.²¹ The project is co-ordinated by AVV Transport Research Centre of the Ministry of Transport in the Netherlands.

The main objective of COMPRIS is to enhance the existing concept of RIS (River Information Services). RIS will support traffic management on inland waterways in Europe. By improving the transport and logistic information that underpins transport and logistical management, the inland navigation transport mode will become a more competitive modality. Awareness and co-operation of all participants (industry, transport sector and authorities) are crucial factors in the scientific, technical and organisational elements of COMPRIS.

COMPRIS was thus seen as the last stepping stone before the implementation of RIS across Europe. During the Pan-European Conference on Inland Waterway Transport in Rotterdam in September 2001, the European Ministers of Transport declared that River Information Services should be up and running on the main European rivers within five years. COMPRIS is therefore an example of a research projects developing simultaneously with preparation of new regulation - the RIS (River Information System) directive - and providing a roadmap for the implementation of the Directive. The direct outcome of the study was a test centre platform in Vienna which resulted in direct recommendations and input for the River Information System Directive. COMPRIS was a demonstration project showing the way forward with a common approach to River Information Systems. Through COMPRIS all the EU RIS requirements were collected and an EU standard was developed. The timing of COMPRIS was important given the 2001 Transport White Paper and the political willingness to do something on RIS. COMPRIS is an example of the right project at the right time combined with good partners and an experienced project management team.

FORESIGHT; A foresight exercise to help forward thinking in transport and sectoral policy integration

The FORESIGHT for TRANSPORT project was launched in 2001 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. It was managed by the Austrian Interdisciplinary Centre for Comparative Research in the Social Sciences (ICCR) and with the following partners: Cardiff School of Social Sciences, NESTEAR (France), Adelphi Research (Germany), and the Grupo Alamo (Spain).

The FORESIGHT for TRANSPORT project used the foresight method to analyse and assess how mobility and transport is influenced by developments or policies which are non-transport specific. The project thus represent the first attempt to establish a foresight exercise tailored to the needs of the European Common Transport Policy (CTP). The following five areas were investigated: decision-making in the context of multi-level governance; energy and environment; enlargement; the information society and advanced communication technologies; and time politics.

²¹ Austria, Belgium, Bulgaria, France, Germany, Hungary, The Netherlands, Romania, Sweden, Slovakia, Ukraine.

	<p>The FORESIGHT project prepared the Common Transport Policy for the future will contribute to the preparation of decisions that are demand-oriented, economically and ecologically reasonable and socially acceptable, as well as consistent with other sectoral policies. The project represents the first attempt to establish a foresight exercise tailored to the needs of the European Common Transport Policy (CTP), and to establish a procedure that assists in the cross-sectoral policy integration and co-ordination and, more specifically, in the integration of non-transport concerns in transport policies and vice-versa.</p>
<p>ECBOS; Enhanced Coach and Bus Occupant Safety</p>	<p>The ECBOS project concerns safety for coach passengers. A bus accident database containing a representative number of real world accidents was generated; several series of experimental tests were performed, and the findings from all the simulations formed the basis for a new directive on bus and coach safety.</p> <p>The project will thus help to identify safety problem areas with respect to injuries that actually occur in real world bus accidents, and the main technical achievement of this project consisted of improved numerical and experimental test methods including suggestions for written standards.</p> <p>The ECBOS partnership consisted of 7 partners from 6 European Countries with the Technical University Graz being the project coordinator. The project ran over three years (2000-2002) and had a budget of 2.312.999 € of which 1.489.565 € was EU funded.</p> <p>Partner GDV performs research in accidentology and compiles accident databases, partners TUG, UPM-INSIA, LOUGHBOROUGH-VSRC and POLITO are university institutions dedicated to traffic safety research, partner TNO is a national traffic research institute and partner CIC, is a SME research and engineering service provider. All partners have been involved already in certain aspects of bus safety research. This research was partially financed through national programs or collaborations with the bus industry. Some of the partners have also been involved in the definition of new test-procedures and regulations including coach and bus safety.</p> <p>The ECBOS results have been recognized internationally as state of the art science (e.g. by UNECE). It has also influenced coach manufacturers by stimulating an increased demand for safer coaches with significantly better roofs and fronts - expected to reduce fatalities in case of accidents involving coaches.</p>
<p>SOURDINE II; Study of Optimisation procedures for Decreasing the Impact of Noise around airports-II</p>	<p>Commenced in November 2001 and completed in November 2004, this three-year Research, Technology development and Demonstration project had an overall budget of €6,758,344, fifty percent (€3,379,170) of which was funded by the EC.</p> <p>The Dutch National Airspace Laboratory (NLR) was the lead partner of a 7-member consortium, including AENA (Aeropuertos Espanoles y Navegacion Aerea, Madrid – SP), AIRBUS France (Airbus France SAS Toulouse - F), EUROCONTROL Experimental Centre (European Organisation for the Safety of Air Navigation Brétigny - INT), ISDEFE (Ingeniera de Sistemas para la</p>

Defensa de Espana SA, Madrid – SP), INECO (Ingeniera y Economia del Transporte, Madrid – SP), SICTA (Sistemi Innovativi per il Controllo del Traffico Aereo, Naples - IT).

There were four research institutes to provide technological input, and simulation support, one aircraft manufacturer and two ATS-service providers. In addition, two engineering companies provided technological support and financial expertise. Five countries, including France, Italy, Spain, Holland and INT/Belgium, were involved in the Project.

SOURDINE-II was the follow-up of FP4's SOURDINE-I, which provided an inventory of noise abatement procedures and an initial demonstration of the associated noise reduction potential. SOURDINE-I's conclusions clearly demonstrated that the introduction of new anti-noise procedures was to be successful unless they negatively affected current airport capacity and safety levels. Current noise abatement measures are often accompanied by a reduction in airport capacity, mainly due to a lack of enabling technology in this field. Therefore, SOURDINE-II's objectives were to develop new procedures and supporting technology through:

- i) development and validation of new advanced departure procedures that have a positive impact on safety, capacity, environment and financial aspects
- ii) development of an Implementation Plan to provide guidance for the migration from the current operational situation to the new advanced environment-friendly approach and departure procedures
- iii) development of enabling technology to achieve the successful introduction of the selected departure and approach procedures
- iv) achievements consisted essentially of quantified results for each procedure in terms of safety, capacity and environmental benefits as well as associated costs and/or benefits.

The SOURDINE-II Final Report provided a list of 10 Deliverables divided into a total of 38 specific Deliverables.