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TRANSLAND

Integration of Transport and Land Use Planning



Deliverable 4

Final Report for Publication

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Transport Research Laboratory

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THE PARTNERSHIP

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- ISIS (Italy) (technical director)
- CERTU (France)
- SOCIALDATA (Germany)
- TNO (The Netherlands)
- IRPUD (Germany)

Subcontractors are:

- CETE Nord-Picardie (France)
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EXECUTIVE SUMMARY

Background

There is increasing concern across the European Community, and elsewhere, about increasing congestion and the costs it imposes, particularly on accessibility, the environment, other social factors, such as accidents, and the economy in general. Strong and ongoing growth in mobility, especially in road traffic, means that transport trends are unsustainable if only current policies are pursued: with constraints on resources, space, safety and the environment there are only limited possibilities to extend transport supply to safeguard accessibility.

It is quite clear that the need for travel cannot really be avoided; it is crucial for the performance of social and economic functions in any society. We know that people are not travelling much more often than twenty years ago, but they are travelling further and with greater use of the private car. Increasing car ownership is a central component of this. Growing personal car-mileage is engendering the well-known effects on the environment and transport systems, especially roads, which are not able to cope with the increasing amounts of traffic. Further development of innovative, integrated and well-balanced policies is strongly needed to cope with these problems within the EU member states, with a stimulating, co-ordinating and enabling role of the EC.

However, successful implementations of integrated planning concepts are still rather scarce in most of the EU member states. One reason for this can be the lack of knowledge about the interaction between land use and transport and the related planning consequences. Another reason can be found in the institutional demands for integrated policy making. Planning co-ordination is complex due to the different relevant spatial levels (local, regional, national, European), the different sector policy fields involved and the variety of public and private actors and stakeholders involved. Institutional barriers and insufficient planning regulation and procedures are likely to be partly responsible for the uncoordinated and fragmented current planning practice. Further deregulation and liberalisation can intensify this co-ordination problem. The momentum of market forces will become increasingly important, and will impel a fundamental consideration about the future role and legitimacy of pro-active and re-active public planning.

The EC can play a stimulating role in the development and implementation of policies in this promising field of integrated land-use/transportation planning. Such a role calls for enhancing the exchange of good practice experiences, the enhancement of further knowledge development, the incorporation of effective and feasible planning concepts and institutional innovations, and further harmonisation in the field of planning regulations and procedures, both within the member states and at the EU level.

Objectives

The EU research project Transland has studied innovative policies and future research needs in the field of integrated urban transport and land-use planning. Transland's main scope has been to study and improve the present state of the art and practice of transport and land use planning.

Transland has served two objectives:

- to look backward in identifying good planning practice examples, insights from conducted research in this field and institutional conditions and barriers for integrated policy making, and
- to look ahead to advise on best planning practice and to recommend future research and policy development.

The main activities within Transland to fulfil these objectives have been:

- identifying existing good practice and its transferability;
- overviewing administrative and legal provisions influencing integrated policies; and
- selecting and prioritising areas for further research and institutional development.

Central and fundamental themes to the approach of the project are two closely related and inter-connected concepts which may be labelled as ‘what’ and ‘how’. ‘What’ relates to land-use/transport systems, policies and measures, while ‘how’ relates to the coordination of transport and land-use policies under different institutional arrangements.

State of the Art

An extensive review exercise considered the ‘What’ question and identified successful land use and transport policies based on theories, empirical and modelling studies. The review concluded that:

- Land-use and transport policies are only successful with respect to criteria essential for sustainable urban transport (reduction of travel distances and travel time and reduction of share of car travel) if they make car travel less attractive (i.e. more expensive or slower).
- Land-use policies to increase urban density or mixed land-use without accompanying measures to make car travel more expensive or slower have only little effect as people will continue to make long trips to maximise opportunities within their travel cost and travel time budgets. However, these policies are important in the long run as they provide the preconditions for a less car-dependent urban way of life in the future.
- Transport policies making car travel less attractive (more expensive or slower) are very effective in achieving the goals of reduction of travel distance and share of car travel. However, they depend on a spatial organisation that is not too dispersed. In addition, highly diversified labour markets and different work places of workers in multiple-worker households set limits to a optimum co-ordination of work places and residences.
- Large spatially not integrated retail and leisure facilities increase the distance travelled by car and the share of car travel. Land-use policies to *prevent* the development of such facilities (‘push’) are more effective than land-use policies aimed at *promoting* high-density, mixed-use development (‘pull’).
- Fears that land-use and transport policies designed to constrain the use of cars in city centres are detrimental to the economic viability of city centres have in no case been confirmed by reality (except in cases where at the same time massive retail developments at peripheral greenfield locations have been approved).
- Transport policies to improve the attractiveness of public transport have in general not led to a major reduction of car travel, attracted only little development at public transport stations, but contributed to further suburbanisation of population.

In summary, if land-use and transport policies are compared, transport policies are by far more direct and efficient in achieving sustainable urban transport. However, accompanying and in the long run supporting land-use policies are essential for creating less car-dependent cities.

The identification of promising policies was one necessary precondition for identifying how sustainable urban transport could be achieved but this does not tackle the question of implementation of such policies. The second part of the review exercise considered the 'how' questions, i.e. the institutional possibilities for the co-ordination of land use and transport policies at the urban-regional level in the different institutional settings of the Member States and the potential barriers to such co-ordination.

Member states were grouped into one of three categories according to their degree of co-ordination and integration of transport and land use planning:

- Category A** Countries with institutionalised regional planning with binding regional plans or other forms of binding effects. (10 countries)
- Category B** Countries with institutionalised regional planning without binding effects. (3 countries)
- Category C** Countries without regional planning and/or regional plans, with co-ordination just on the local level. (2 countries)

Category A shows the highest potential of formal and material co-ordination with respect to the institutionalised regional planning level due to the binding effect of regional plans. Countries of category B also show a high potential for formal co-ordination but because of the missing binding effect, vertical co-ordination between local and regional levels is weak. In countries of category C, where regional planning is not institutionalised, local binding planning nevertheless plays an important role in the process of policy implementation. The assignment of the different countries into these categories showed that in most EU countries regional planning is institutionalised and includes binding regional plans.

The leading objective of land-use and transport planning is to reduce the need for travel and to promote sustainable transport. Different policies in the area of land-use and transport were assigned to the following policy types: investment and services, planning, regulation, pricing and information and informal policies. Due to their interdependent effects policies of land-use and transport need to be combined to reach the sustainable objectives. This mainly refers to the relationship of investment and services and planning on the one hand and regulation, pricing and to a certain extent information on the other hand. Most policies relating to planning and investment, while necessary, are not adequate by themselves to reduce the need for travel and to reach sustainable transport. Their successful implementation is only possible if additional pricing and regulatory policies create the necessary frameworks. Planning and investment policies are nevertheless the most important means to reduce the need for travel because they influence land-use, traffic infrastructure and travel behaviour (i.e. a pull effect). However, they often must be coupled with pricing and regulatory policies which not only support the planning and investment policies but also promote a change in the settlement behaviour, a reduction of land-consumption and support an efficient use of the transport network (i.e. a push effect). It can be concluded that all policies are important and they can be used in combination to lead to successful implementation.

The realisation of the policies can be restricted or prevented by different types of barriers, including resource barriers, social/political, legal and institutional barriers, as well as side

effects. These barriers determine the feasibility and transferability of policies. It can be concluded that all policy types, except information policies, face several barriers, with planning and investment mainly being restricted by institutional barriers and pricing and regulatory policies mainly facing social barriers. Information policies, which are limited in their effects on reducing the need to travel, hardly face any barriers.

Transferability of policies depends on the country-related barrier effects with respect to the legal, institutional, social/political, resource barriers and side effects. Transferability becomes more difficult if policies are implemented in combination with other policies. According to the categories of countries mentioned above, it can be said that, in general, policies can be transferred between countries of the same category. In addition, policies which have been successfully implemented in a country of category C can also be implemented in countries of category B and A. Altogether, most policies are transferable, with category A showing the highest degree of success related to the aspect of institutional regional planning. Policies that depend on institutional forms of co-ordination at a regional level cannot be transferred to countries of category C. However, even if the institutional, legal, political, legal and social framework of different countries is similar, the implementation of a certain policy, which has successfully been implemented in one country, does not guarantee a successful implementation in another country. This is because this process also depends on special conditions in the respective region or municipality regarding the interest or willingness to act by the responsible actors. Nevertheless, the most important issue for the transferability of policies is to analyse the institutional, legal and social framework for the implementation of a policy timely enough either to adjust the policies to the given framework or to adjust the framework to enable implementation of the designed policy.

Best Practice

In the Transland context, 'best practices' are 'good practices' that have worked successfully in a wide range of situations and have been shown to produce results satisfying integration and sustainability objectives. An important dimension to best practice is that it should be transferable to other cities and countries, with differing geographic and institutional backgrounds. For the purposes of the Transland project, sustainability is mainly seen as the promotion of environmentally friendly modes, and their accessibility for different social groups, while reducing dependence on the private car.

Practical planning methods which have been successfully implemented elsewhere can promote the acceptance of an integrated approach by planners, decision makers and the public. The transfer of an integrated approach identified as best practice increases the chances of its success. Through the illustration of best practice, the public can see that integrated land use and transport planning can have a positive effect on their quality of life, leading to greater public support of innovative approaches. Planners, decision makers, investors and citizens can make use of best practice by learning how they can focus their efforts and see how they can benefit by participating in the planning process.

In order to give an overview of current planning practice in the field of transport and land use planning a number of possible case studies were identified in Transland. In total, twenty six case studies were selected as being particularly interesting with respect to the integration of transport and land-use planning; they also helped to illustrate best practice in this field. Projects examined in the case studies are implemented at different spatial levels (national, regional, local and district level).

Of the twenty six case studies examined, one case study has been considered to exhibit a good vision of integrated planning; three case studies have been considered to be best practice in the field of integrated land-use and transport planning; and three have been considered as best practice mainly with respect to their transport planning components. In addition five case studies show promising practice mainly with respect to their land use elements. However, not all the measures examined in the case studies were at the same stage of development. Some case studies are still at the planning stage, while others have been implemented but it is still too soon to assess their overall success. It was therefore necessary to devise a framework for best practice, including a time scale given in four levels, selecting promising practice as well as considering transferability of projects.

The results of case studies examination shows that most successful elements are transferable. Four levels of transferability have been examined: Measures of high transferability (investment measures and supportive measures), measures of good transferability (mainly restrictive measures), transferable measures requiring certain political instruments (mainly in the field of land use planning / integrated planning), measures which might be difficult to transfer (mainly specific political frameworks). No project/planning approach is completely transferable; however transferability does include "learning from each other".

A precondition for transferability is in some cases the structure of locations: some elements of best practice are mainly transferable to the same structures as shown in the case study (for example connection to attractive public transport depends on a nearby existing network of public transportation; development of a new district with compact dense structures is mainly possible in open space / redevelopment areas) and some elements of best practice can be implemented elsewhere (for example, implementation of an infrastructure which promotes cycling could be implemented in existing structures as well as in structures newly developed). Most of the elements are transferable to other EU-countries, mainly to countries of category A and B according to their planning framework.

Another important finding is the role of soft policies for success of integrated transport and land use planning. Most of the examined innovative planning approaches already include soft policies to ensure the acceptance of measures and influence citizen's behaviour. The identified best practices show, that a good spatial organisation linked by a well balanced transport network can be considered as one precondition for enabling sustainable mobility. But success of these structures is highly related to soft policies targeting people's behaviour when using these structures.

Research Agenda

Former experiences, and the state of the art and practice review, have underlined the importance of integrated land use and transport planning to enhance sustainable urban development. The objective of the research agenda is to support the improvement of the efficiency and effectiveness of these integrated planning approaches. The agenda should also address the possible role of the EC in this field. The EC has its own responsibility in policy development and legislation on some aspects of integrated urban land use and transport planning, and can play a role in stimulating research and development activities and the exchange of knowledge and experiences in this field. The objectives of the 5th Framework Program provide an important reference in this perspective.

Given these objectives of the research agenda, some criteria have been formulated which have been used as a reference for generating and selecting research suggestions. These criteria can be described as follows:

- Lack of understanding (lack of explanatory and forecasting capabilities, scientific relevance)
- Need for resolving (strategic and operational policy relevance, political actuality)
- Rationale for EC involvement (contribution to objectives, need for community involvement, e.g. in relationship with the structural funds)
- Research investment effectiveness (return on investment from a policy point of view, short-term benefits, dissemination spin off, improvement of effectiveness and acceptance of policies, potentials for policy innovation and new win/win opportunities).

The following research areas and themes were identified in the research agenda:

Subjects:	Research themes
1. Understanding the system (describing, explaining and modelling relationships)	2. Driving forces in location choice behaviour, 3. Short and long term dynamics in the Land-Use Transport system, 8. Innovations in land-use transport interaction modelling
2. Strategic issues related to goal setting, strategy development and planning	1. The future spatial organisation of our cities, 4. External relationships of cities, 10. Harmonisation issues in sustainable land use and transport, 12. Financial intervention mechanism
3. Planning process redesign	14. New governance mechanisms enabling integration of land use and transport policies, 15. Public private partnerships, 16. Developing integrated land use transport policies with the use of participatory approaches
4. Concepts for planning and organisation	5. City logistics, freight transport and land use patterns in urban areas, 9. Best practice assessment of integrative urban policies, 11. Communication, and dissemination tools for integrated LUT-planning, 13. Integrated Regional Policy Development and Institutional Frameworks
5. Tactics for integrated land-use and transport planning	6. Impact of urban form and spatial organisation on transport needs, 7. New Transport Systems and their effects on urban travel and land use patterns

The aim of the Transland project has not been to provide extensive project proposals, but the report does provide descriptions of the 16 themes. The aim has been to guide future research efforts, to demarcate research themes and to indicate promising research leads. Consequently, the descriptions contain choices while at the same time they are kept fairly general. The themes have been described using a fixed format with the following content: theme description; problems; objectives; research method; possible role for the EC; expected results.

Most research themes included do have scientific urgency. But the lack of understanding is particular clear in the field of the setting of objectives (the future spatial organisation of our cities) and with concern to new developments (new technology, external relationships). Besides, special attention remains to be needed for analysis of the core relationships within the land use and transport system. This includes general approaches investigating both directions of the interaction circle (impact of transport on location choice, impact of urban

form/organisation on transport) as well as evaluation of current practices (best practice assessment). Both from the planning- and the implementation perspective there seems to be a special need to enlarge our understanding of economic mechanisms in the land use transport system. Policies based on financial interventions are becoming into use more and more. On other themes there is a considerable amount of literature available but new promising research aspects remain.

1 INTRODUCTION

There is increasing concern across the European Community, and elsewhere, about increasing congestion and the costs it imposes, particularly on accessibility, the environment, other social factors, such as accidents, and the economy in general. Strong and ongoing growth in mobility, especially in road traffic, means that transport trends are unsustainable if only current policies are pursued: with constraints on resources, space, safety and the environment there are only limited possibilities to extend transport supply to safeguard accessibility.

It is quite clear that the need for travel cannot really be avoided; it is crucial for the performance of social and economic functions in any society. We know that people are not travelling much more often than twenty years ago, but they are travelling further and with greater use of the private car. Increasing car ownership is a central component of this. Growing personal car-mileage is engendering the well-known effects on the environment and transport systems, especially roads, which are not able to cope with the increasing amounts of traffic. Further development of innovative, integrated and well balanced policies is strongly needed to cope with these problems within the EU member states, with a stimulating, co-ordinating and enabling role of the EC.

Travel patterns of persons and goods are the results of an equilibrium between preferences of people and companies (travel demand) and the travel conditions resulting from the supply of transport facilities and spatial patterns of activities. These preferences and conditions will determine the travel choices with respect to trip distances (distribution), mode choice and time of travel.

The inherent desire and need to perform different activities at different places implies a need for travel in any society. The crucial planning challenge is to arrive at an optimal spatial organisation of activities (maximising opportunities) and a well balanced transport network linking these activities in an efficient and sustainable way. Therefore, land use and transport planning are highly related by nature. Finding the right balance is a delicate task in urban areas especially, with their complex activity patterns and their evident spatial and environmental constraints

The potential benefits from integrated land-use transportation planning have been recognised for decades. Recent research into future urbanisation strategies in the Netherlands, for instance, has shown a margin of about 10% in car kilometres and public transport use between alternative concepts by varying the location of 15 % of the activities. Combined with adjusted transport supply development (within a constant investment budget), these margins can be increased by another 5% in car use and 40% (!) in public transport use. The magnitude of these effects is impressive, although they must be placed alongside research by Breheny¹, for instance, which has shown that if the population of England and Wales had not suburbanised between 1960 and 1990 the energy savings would have been less than 3%. In any event, the effects are relatively robust in the long term because of the inertia of spatial structures.

However, successful implementations of integrated planning concepts are still rather scarce in most of the EU member states. One reason for this can be the lack of knowledge about the

¹ Breheny, M (1995). Transport planning, energy and development: improving our understanding of the basic relationships. In: Bannister, D (ed) Transport and urban development. Spon, London

interaction between land use and transport and the related planning consequences. Another reason can be found in the institutional demands for integrated policy making. Planning co-ordination is complex due to the different relevant spatial levels (local, regional, national, European), the different sector policy fields involved and the variety of public and private actors and stakeholders involved. Institutional barriers and insufficient planning regulation and procedures are likely to be partly responsible for the uncoordinated and fragmented current planning practice. Further deregulation and liberalisation can intensify this co-ordination problem. The momentum of market forces will become increasingly important, and will impel a fundamental consideration about the future role and legitimacy of pro-active and re-active public planning.

The EC can play a stimulating role in the development and implementation of policies in this promising field of integrated land-use/transportation planning. Such a role calls for enhancing the exchange of good practice experiences, the enhancement of further knowledge development, the incorporation of effective and feasible planning concepts and institutional innovations, and further harmonisation in the field of planning regulations and procedures, both within the member states and at the EU level.

1.1 Objectives of Transland

The EU research project Transland has studied innovative policies and future research needs in the field of integrated urban transport and land-use planning. Transland's main scope has been to study and improve the present state of the art and practice of transport and land use planning.

Transland has served two objectives:

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- identifying existing good practice and its transferability;
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Central and fundamental themes to the approach of the research project are two closely related and inter-connected concepts which may be labelled as 'what' and 'how'. 'What' relates to land-use/transport systems, policies and measures, while 'how' relates to the coordination of transport and land-use policies under different institutional arrangements.

1.2 Project Structure

The project is structured as shown in Figure 1.1.

1. **Outline of concept:** formed the basis of the detailed methodology for the project. The outline was developed further during the review of the state of the art and in the inventory of current practices.
2. **Review of the state of the art:** reviewed the state of the art in the theory of land-use transport interaction at the urban-regional level and develops a conceptual framework for the analysis of current practice in this area. The detailed findings were given in Deliverables 2a and 2b but a summary is provided in Chapter 2.1 of this report.
3. **Inventory of current practice:** reviewed practices in urban planning in the fields of land use or land-use/transport in several European countries. The detailed findings were given in Deliverable 2c but a summary is provided in Chapter 2.2 of this report.
4. **Structured overview:** developed a structured overview of issues in land-use transport integration at the local level, following the review of the state of the art and current practices in Europe. The Structured Overview was given in Deliverable 2d.

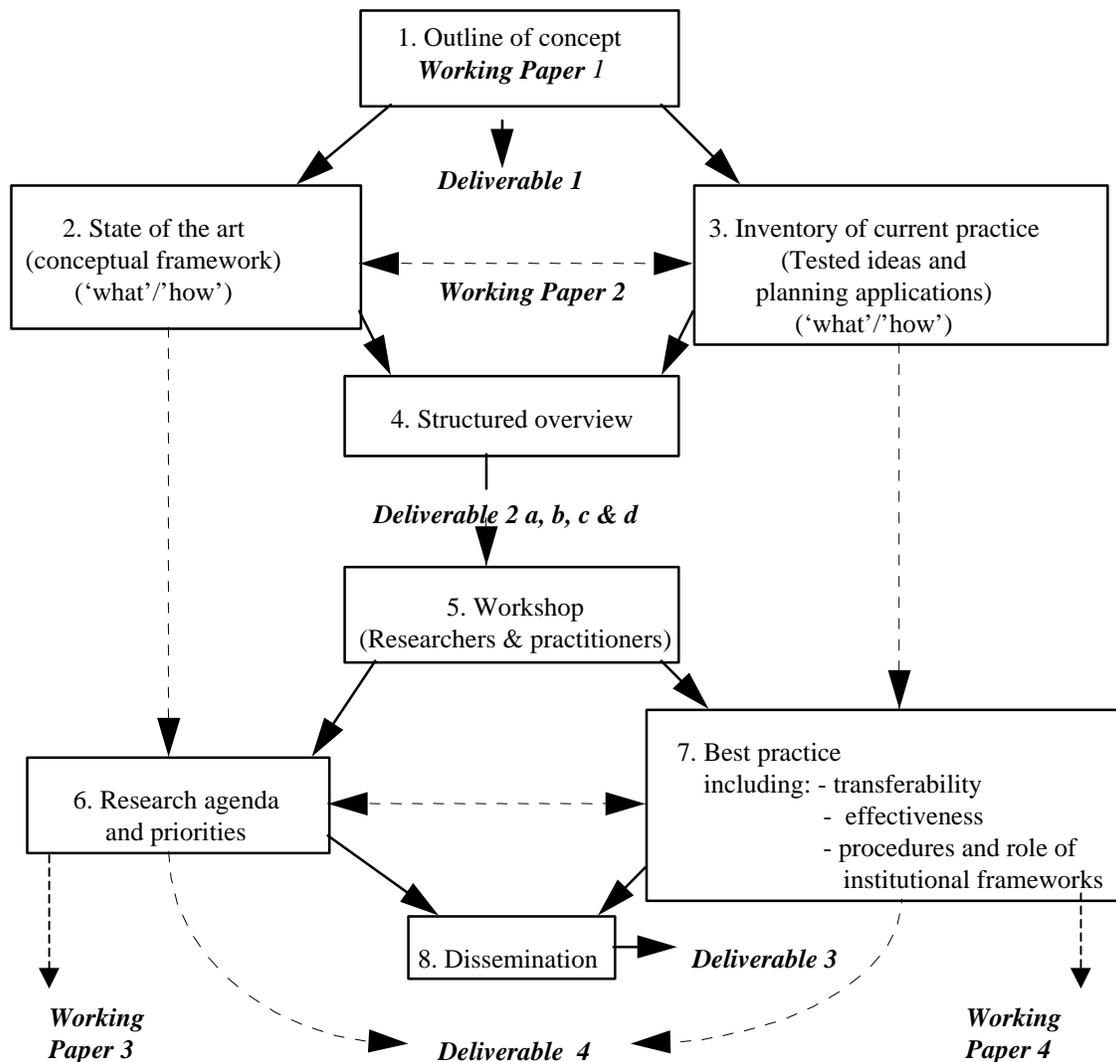


Figure 1.1 Structure of the project

5. **Workshop:** presented the preliminary findings of the results of the review stages of the project. The primary aim was to obtain constructive feedback and comment from informed experts, both researchers and practitioners.
6. **Research agenda and priorities:** synthesised the results related to the second main aim of the project: providing an overview of the priority research areas which constitute input for the future research agenda for the EC. Results of this phase of the study are given in Chapter 4.
7. **Best Practice:** identified best practice in the field of integrating transport and land-use planning and analysed their transferability (towards other countries/settings/spatial levels), including legal and regulatory requirements. Results of this phase of the study are given in Chapter 3.
8. **Dissemination:** disseminates the results of the project to the relevant interest groups (EC administration, research world, urban and transport planning practitioners, and private companies involved in infrastructure, transport and land-use development), and stimulates discussion on the research and policy agenda in this field. Dissemination is through this report, a brochure and the Transland website.

2 REVIEW OF CURRENT TRANSPORT AND LAND USE PLANNING ISSUES

2.1 State of the Art Review

Deliverables 2a and 2b of TRANSLAND reviewed the state of the art in the theory of land-use transport interaction at the urban-regional level. The review covered both technical, behavioural and institutional issues, i.e. impacts of local land-use policies on the behaviour of travellers and, vice versa, impacts of transport policies on the location behaviour of households and firms within urban regions ('What'), as well as issues of co-ordination of land use and transport policies in different national and regional institutional contexts ('How').

In the context of this study the term transport does not explicitly include freight transport, which is dealt with in other 4th RTD Framework programme projects. Also a thorough discussion of the growing importance of telecommunications both as a substitute for travel and as a new intra-urban location factor (which might lead to substantial revisions of traditional theories of intra-urban locational behaviour) was not possible in this study.

2.1.1 The What Issues

Deliverable 2a addressed the 'What' issues, i.e. the technical and behavioural aspects of the integration of urban transport and land use. It reviewed theoretical and conceptual work on land-use transport interaction and land-use transport policy integration at the urban-regional level existing in the member states. The review included a summary of theoretical results from transport science, urban economics and from previous and ongoing RTD projects for the European Commission urban geography as well as an overview of the state of the art in land-use transport models. The focus was on the identification of successful policies or policy mixes.

Theory of Land-Use Transport Interaction

Theories on the two-way interaction between urban land use and transport address the locational and mobility responses of *private* actors (households, firms and travellers) to changes in the urban land use and transport system at the urban-regional level.

That urban land use and transport are closely inter-linked is common wisdom among planners and the public. That the spatial separation of human activities creates the need for travel and goods transport is the underlying principle of transport analysis and forecasting. Following this principle, it is easily understood that the suburbanisation of cities is connected with increasing spatial division of labour, and hence with ever increasing mobility.

However, the reverse impact from transport to land use is less well known. There is some vague understanding that the evolution from the dense urban fabric of medieval cities, where almost all daily mobility was on foot, to the vast expansion of modern metropolitan areas with their massive volumes of intraregional traffic would not have been possible without the development of first the railway and later the private automobile, which has made every corner of the metropolitan area almost equally suitable as a place to live or work. However, exactly how the development of the transport system influences the location decisions of landlords, investors, firms and households is not clearly understood even by many urban planners.

The recognition that trip and location decisions co-determine each other and that therefore transport and land-use planning needed to be co-ordinated led to the notion of the 'land-use transport feedback cycle'. The set of relationships implied by this term can be briefly summarised as follows (see Figure 2.1):

- The distribution of *land uses*, such as residential, industrial or commercial, over the urban area determines the locations of human *activities* such as living, working, shopping, education or leisure.
- The distribution of human *activities* in space requires spatial interactions or trips in the *transport system* to overcome the distance between the locations of activities.
- The distribution of infrastructure in the *transport system* creates opportunities for spatial interactions and can be measured as *accessibility*.
- The distribution of *accessibility* in space co-determines location decisions and so results in changes of the *land-use* system.

The major theoretical approaches to explain this two-way interaction of land use and transport in metropolitan areas include technical theories (urban mobility systems), economic theories (cities as markets) and social theories (society and urban space). The results of these theories of land-use transport interaction are summarised in Tables 2.1 and 2.2 in terms of expected impacts of essential factors such as urban density, employment density, neighbourhood design, location, city size, accessibility, travel cost and time.

Table 2.1 illustrates the impact of land use policies on transport patterns from a theoretical point of view. The impact of high residential density in reducing average trip length is likely to be minimal in the absence of travel cost increases, whereas a high density of employment is

positively correlated with average trip length. Attractive neighbourhood facilities can be seen as a 'pull' factor for reducing trip length. Since more peripheral locations usually have longer trips, trip length can be expected to be negatively correlated with city size. Little or no impact on trip frequency is to be expected from land-use policies according to the theory of fixed travel budgets. Residential and employment density as well as large agglomeration size and good public-transport accessibility of a location tend to be positively correlated with the modal share of public transport, while neighbourhood design and a mixture of workplaces and residences with shorter trips are likely to have a positive impact on the share of cycling and walking.

Table 2.2 illustrates the impact of transport policies on land-use patterns and the impact of transport policies on travel behaviour. The latter impacts are included because they tend to be much stronger than those of land use on transport or transport on land use. The impact of transport on land use is mediated by a change in the accessibility of a location. Higher accessibility increases the attractiveness of a location for all types of land uses thus influencing the direction of new urban development. If, however, accessibility in an entire city is increased, it will result in a more dispersed settlement structure.

The impacts of transport policies on transport patterns are clearer and stronger compared to the interplay of land use and transport. While travel cost and travel time have a negative impact on both trip length and trip frequency, accessibility has a positive impact on both. Mode choice depends on the relative attractiveness of a mode compared to all other modes. The fastest and cheapest mode is likely to have the highest modal share.

In general, the theoretical considerations support the conclusion that the impact of 'pull' measures, i.e. land use measures, is much weaker than the impact of 'push' measures, i.e. increases in travel time, travel cost etc.

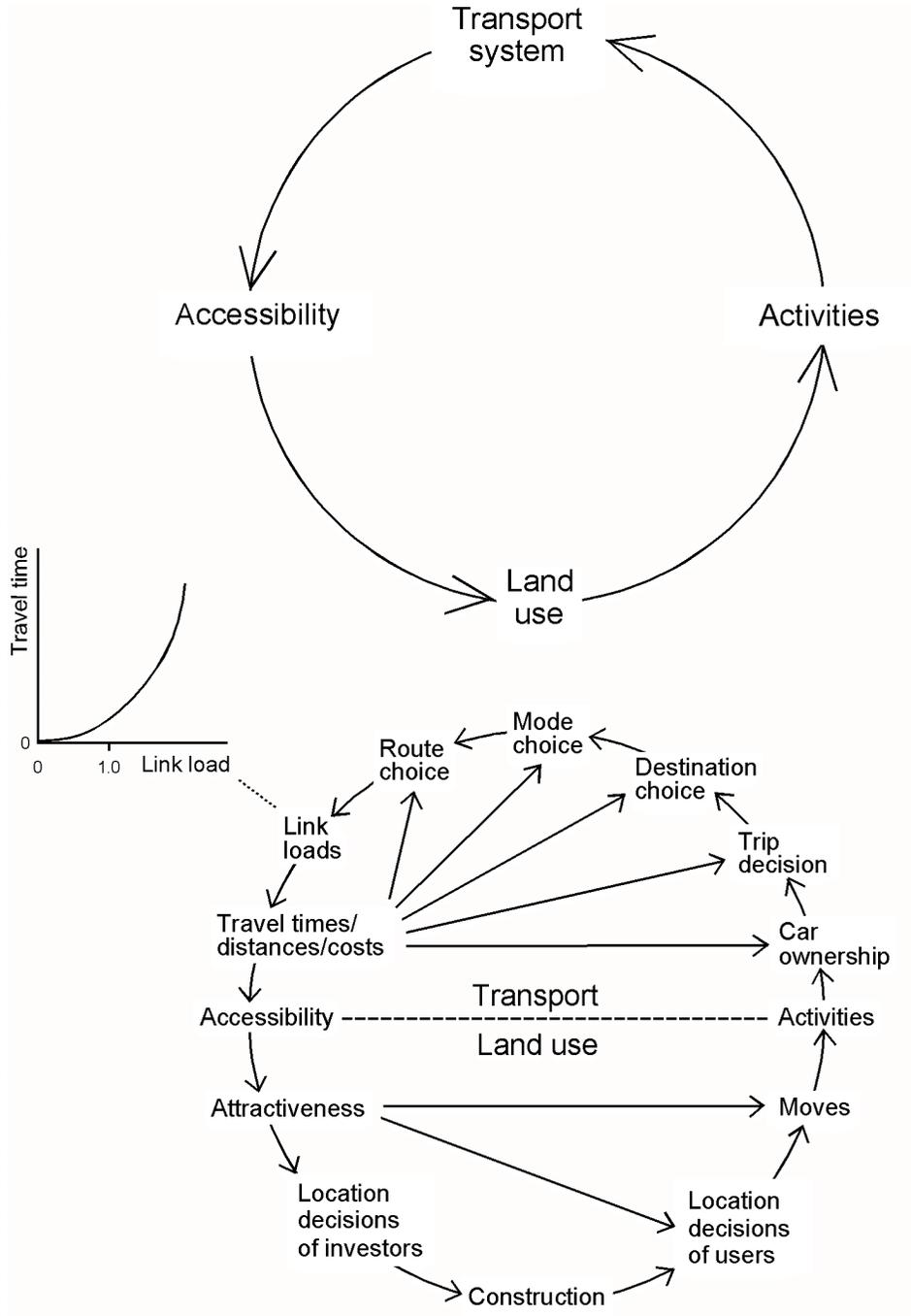


Figure 2.1. The 'land-use transport feedback cycle'

Table 2.1. Theoretically expected impacts of land use

Direction	Factor	Impact on	Expected impacts
Land use ↓ Transport	Residential density	Trip length	Higher residential density alone will not lead to shorter trips. A mixture of workplaces and residences can lead to shorter trips if travel costs are increased.
		Trip frequency	Little impact expected. If trips are shorter, more trips may be made.
		Mode choice	Minimum residential densities are a prerequisite for efficient public transport. More walking and cycling trips will be made only if trips become shorter (see above).
	Employment density	Trip length	Concentration of workplaces in few employment centres tends to increase average trip lengths. A balance of workplaces and residences in an area would lead to shorter work trips only if travel becomes more expensive.
		Trip frequency	Little impact expected. If trips are shorter, more trips may be made.
		Mode choice	Concentration of workplaces in few employment centres may reduce car use if supported by efficient public transport. More walking and cycling trips will be made only if trips become shorter (see above).
	Neighbourhood design	Trip length	Attractive public spaces and a variety of shops and services can induce more local trips.
		Trip frequency	If trips are shorter, more trips may be made.
		Mode choice	Street layout, pedestrian spaces and cycling lanes could lead to more walking and cycling.
	Location	Trip length	More peripheral locations tend to have longer trips.
		Trip frequency	No impact expected.
		Mode choice	Locations close to public transport stations should have more public transport trips.
	City size	Trip length	Trip length should be negatively correlated with city size.
		Trip frequency	No impact expected.
		Mode choice	Larger cities can support more efficient public transport systems, so more trips should be made by public transport in larger cities.

Table 2.2. Theoretically expected impacts of transport

Direction	Factor	Impact on	Expected impacts
Transport ↓ Land use	Accessibility	Residential location	Locations with better accessibility to workplaces, shops, education and leisure facilities will be more attractive for residential development, have higher land prices and be developed faster. Improving accessibility locally will change the direction of new residential development.
		Industrial location	Locations with better accessibility to motorways and railway freight terminals will be more attractive for industrial development and be developed faster. Improving accessibility locally will change the direction of new industrial development.
		Office location	Locations with better accessibility to airports, high-speed rail railway stations and motorways will be more attractive for office development, have higher land prices. Improving accessibility locally will change the direction of new office development.
		Retail location	Locations with better accessibility to customers and competing retail firms will be more attractive for retail development, have higher land prices and be faster developed. Improving accessibility locally will change the direction of new retail development.
Transport ↓ Transport	Accessibility	Trip length	Locations with good accessibility to many destinations will produce longer trips.
		Trip frequency	Locations with good accessibility to many destinations will produce more trips.
		Mode choice	Locations with good accessibility by car public transport) will produce more car (public-transport) trips.
	Travel cost	Trip length	There is a strong inverse relationship between travel cost and trip length.
		Trip frequency	There is a strong inverse relationship between travel cost and trip frequency.
		Mode choice	There is a strong relationship between travel cost and choice of travel mode.
	Travel time	Trip length	There is a strong inverse relationship between travel time and trip length.
		Trip frequency	There is a strong inverse relationship between travel cost and trip frequency.
		Mode choice	There is a strong relationship between travel cost and choice of travel mode.

'Ideal' Land-Use Transport Systems

A variety of 'ideal' land-use transport systems as optimal solutions to urban land-use and transportation problems have been formulated since the late 19th century. These systems vary with regard to spatial structure, residential density, distribution of land uses and predominant transport mode. Attempts to determine the 'ideal' land-use transport system in contemporary cities have yielded different results. While it has almost become common wisdom that systems involving dispersed development are much less favourable with regard to average trip length, energy consumption, greenhouse gas emissions and land take, there is no unequivocal evidence for the advantages of either compact-city or decentralised-concentration policies.

Empirical Studies of Land-Use Transport Interaction

The results of empirical studies of land-use transport interaction are summarised in Tables 2.3 and 2.4 with regard to factors identified in such studies.

Table 2.3 describes the impact of land use policies on transport patterns. Residential density has been shown to be inversely related to trip length. Centralisation of employment results in longer trips, while trip lengths are shorter in areas with a balanced residents-to-workers ratio. American studies confirm that attractive neighbourhood facilities also contribute to shorter average trip lengths. The theoretical insight that distance of residential locations to employment centres is an important determinant of average trip length has been confirmed empirically. The larger a city is, the shorter are mean travel distances, with the exception of some of the largest metropolises. None of the studies reported a significant impact of any factor on trip frequency. Residential and employment density as well as large agglomeration size and rapid access to public-transport stops of a location were found to be positively correlated with the modal share of public transport. 'Traditional' neighbourhoods showed a higher share of non-car modes.

Table 2.4 illustrates the impact of transport policies on land-use patterns and the impact of transport policies on travel behaviour. The latter impacts are included because they tend to be much stronger than those of land use on transport or of transport on land use.

Accessibility was reported to be of varying importance for different types of land uses. It is an essential location factor for retail, office and residential uses. Locations with high accessibility tend to be developed faster than other areas. The value of accessibility to manufacturing industries varies considerably, depending mainly on the goods produced. In general, ubiquitous improvements in accessibility invoke a more dispersed spatial organisation of land uses.

Regarding impacts of transport policies on transport patterns, causal relationships are relatively undisputed, and empirical studies largely agree on the impact mechanisms. While travel cost and travel time tend to have a negative impact on trip length, high accessibility of a location generates longer work and leisure trips. Studies on changes in trip frequency are only known for travel time improvements, where time savings were found to result in more trips being made. Mode choice depends on the relative attractiveness of a mode compared to all other modes. The fastest and cheapest mode is likely to have the highest modal share. However, offering public transport free of charge will not induce a significant mode switch of car drivers, rather of walkers and cyclists.

Table 2.3. Impacts of land use in empirical studies

Direction	Factor	Impact on	Observed impacts
Land use ↓ Transport	Residential density	Trip length	Numerous studies support the hypothesis that higher density combined with mixed land use leads to shorter trips. However, the impact is much weaker if travel cost differences are accounted for.
		Trip frequency	Little or no impact observed.
		Mode choice	The hypothesis that residential density is correlated with public transport use and negatively with car use is widely confirmed.
	Employment density	Trip length	In several studies the hypothesis was confirmed that a balance between workers and jobs results in shorter work trips, however this could not be confirmed in other studies. Mono-functional employment centres and dormitory suburbs, however, have clearly longer trips.
		Trip frequency	No significant impact was found.
		Mode choice	Higher employment density is likely to induce more public transport use.
	Neighbourhood design	Trip length	American studies confirmed that 'traditional' neighbourhoods have shorter trips than car-oriented suburbs. Similar results are found in Europe.
		Trip frequency	No effects are reported.
		Mode choice	'Traditional' neighbourhoods have significant higher shares of public transport, walking and cycling. However, design factors lose in importance once socio-economic characteristics of the population are accounted for.
	Location	Trip length	Distance to main employment centres is an important determinant of distance travelled.
		Trip frequency	No effect observed.
		Mode choice	Distance to public transport stops strongly influences public transport use.
	City size	Trip length	Mean travel distances are lowest in large urban areas and highest in rural settlements.
		Trip frequency	No effect observed.
		Mode choice	Public transport use is highest in large cities and smallest in rural settlements.

Table 2.4. Impacts of transport in empirical studies

Direction	Factor	Impact on	Observed impacts
Transport ↓ Land use	Accessibility	Residential location	More accessible locations are developed faster. If accessibility in the whole region grows, residential development will be more dispersed.
		Industrial location	There is little evidence of impacts of accessibility on location of manufacturing, but ample evidence of the importance of accessibility for high-tech and service firms.
		Office location	Office development occurs predominantly at highly accessible inner-city locations or in office parks or 'edge cities' at the urban periphery with good motorway access.
		Retail location	Retail development occurs either at highly accessible inner-city locations or on peripheral sites with ample parking and good road accessibility.
Transport ↓ Transport	Accessibility	Trip length	Suburban dispersal accelerated by good accessibility to the central city generates longer work and shopping trips.
		Trip frequency	No systematic studies on the impact on trip frequency are known.
		Mode choice	Accessibility differences generate modal shifts via travel time and travel cost (see below).
	Travel cost	Trip length	Price elasticity of trip length was found to be in the range of -0.3.
		Trip frequency	No systematic studies of trip frequency as a function of travel cost are known.
		Mode choice	Travel cost differences influence modal choice; making public transport free will not induce many car drivers to switch to public transport, mainly former walkers and cyclists.
	Travel time	Trip length	Travel time savings through transport system improvements are partly spent on longer trips.
		Trip frequency	Travel time savings through transport system improvements are partly spent on more trips.
		Mode choice	Travel time improvements on one mode strongly influence modal choice.

Models of Land-Use Transport Interaction

Urban land-use transport models incorporate the most essential processes of spatial development including land use and transport. A number of integrated land-use transport models are in use today. There are significant variations among the models as concerns overall structure, comprehensiveness, theoretical foundations, modelling techniques, dynamics, data requirements and model calibration. Despite the achievements in developing these models, there remain some challenges to be met. The transport submodels used in current land-use transport models do not apply state-of-the-art activity-based modelling techniques but the traditional four-step travel demand model sequence which is inadequate for modelling behavioural responses to many currently applied travel demand management policies. The spatial resolution of present models is too coarse to model neighbourhood scale policies and effects. In the future, the integration of environmental submodels for air quality, traffic noise, land take and biotopes are likely to play a prominent role. Issues of spatial equity and socio-economic distributions are expected to gain similar importance in model building. Figure 2.2 presents a matrix in which the past and future evolution of urban land-use transport models are charted. The rows correspond to different levels of land-use modelling capability, the columns represent different levels of travel demand modelling capability.

Transport model	T1 No public transport no modal split	T2 Public transport no logit 24 h	T3 Public transport logit peak hour	T4 Multi- modal activity -based
L1 None				
L2 Activity and judgement				
L3 No market-based land allocation				
L4 Logit allocation with price signals				
L5 Market-based land-use model				
L6 Activity-based land-use model				

Figure 2.2. Evolution of urban land-use transport models

(adapted from¹ Miller, E.J., Kriger, D.S., Hunt, J.D., Badoe, D.A. (1998): *Integrated Urban Models for Simulation of Transit and Land-Use Policies*. Final Report, TCRP Project H-12. Toronto: Joint Program of Transportation, University of Toronto)

Modelling Studies of Land-Use Transport Interaction

Tables 2.5 and 2.6 summarise how typical land-use and transport policies performed in modelling studies.

Different policies affecting the location of workplaces including the construction of peripheral industrial estates and out-of-town shopping centres as well as an equal distribution of employment and population were investigated. It was found that decentralisation of facilities negatively affects the economy of the inner city while trip length and mode choice depend on the specific location and spatial configuration of population and facilities in the decentralised areas. When examining housing policies, neither the centralisation of population nor residential development in subcentres were found to have a significant impact on key transport indicators. Land use planning policies have a major impact not only on spatial development but also on travel patterns. Development restrictions, e.g. a green belt around the city, can retard the suburbanisation of population and workplaces thus strengthening the economy of the city centre.

A wide range of transport policies were examined. The construction of an outer ring road results in further decentralisation, relief of congestion and increasing travel distances. New public transport lines have little impact on location choice but tend to strengthen the inner-city economy. Introducing speed limits results in shorter trips and increased use of public transport. The effect of increased fuel taxes on the number and length of car trips is particularly strong. Significant fuel tax increases curb the further dispersal of residences and workplaces. Higher downtown parking fees generate negative economic effects in the centre and make out-of-town shopping centres more attractive. Public transport use free of charge reinforces a pattern of centralised employment and decentralised residential locations. Volume and length of car trips remain by and large unaffected by this measure.

EU 4th RTD FP Studies of Land-Use Transport Interaction

The findings of the studies carried out within the European Commission's 4th RTD Framework Programme are largely in line with other theoretical and empirical results reviewed in this report. The ESTEEM study showed that the share of automotive travel in modal choice decreases with increasing size for cities above a threshold of 750,000 inhabitants. For cities below the threshold, a slightly positive relationship between city size and car use was found. The SESAME study reports that urban density and the share of non-motorised travel and public transport are positively correlated. Car ownership and car use were found to be positively related. However, the assumption that the daily time budget allocated to travel is fixed regardless of prevailing land-use and transport patterns could not be verified. The mean total time used for daily travelling varied between 50 and 90 minutes in the case study cities and was found to be heavily dependent on the particular modal split of a city.

The EUROSIL project found that infrastructure investments will only induce significant economic growth in areas where isolation and bottleneck situations are being resolved. Similarly, infrastructure investment enhances economic growth only in areas where a sound economic basis existed prior to the investment. The only factors relevant for mode choice seem to be travel time and cost.

Table 2.5. Impacts of land-use policies in modelling studies

Policy area	Policy type	Policy	Examples	Model impact
Land use	Investment and services	Work places	Peripheral industrial estate	Decentralisation of non-service employment, negative economic impact on city centre, little effect on population. Travel distance may increase but also decrease if location closer to already decentralised population.
			Out-of-town shopping centre	Strong decentralisation effect on retail employment and population, negative economic impact on city centre. Distances increase or decrease depending on the location. Car use increases.
			Employment distributed as population	Travel distances and travel times decreasing. Effect on modal choice ambiguous: share of car increases in some cities as work places are more dispersed. Walk and cycle trips increase as trips become shorter.
		Housing	New residential development concentrated in subcentres	Little impact on travel distances, mode choice and energy consumption.
			Centralisation of population as employment	Only slightly reduced trip distances, share of car trips and energy use.
	Planning	General land use plan	Development restrictions (green belt)	Significant retardation of suburbanisation of population and retail, positive economic effects on city centre. Travel distances and times decrease, increase of public transport use.
			Peripheral land made available for development	Acceleration of suburbanisation, increasing travel distances and car use.

Table 2.6. Impacts of transport policies in modelling studies

Policy area	Policy type	Policy	Examples	Model impact
Transport	Investment and services	Road construction	Outer ring road	Further decentralisation of population, uncertain effect on non-service employment location. Less congestion in the city centre, positive effect on downtown retail. Travel distances increase, mainly by car.
		Public transport lines	New public transport lines	Little impact on residential location, small centralisation effect on employment. Positive economic effect on city centre. Increased public transport use at the expense of car and walking.
	Regulation	Traffic regulations	Speed limits on car travel	Significant reduction of trip length by car and increase of public transport trips. Little impact on residential location; somewhat faster decentralisation of employment.
	Pricing and subsidies	Fuel taxes	Higher fuel taxes	Strong reduction of number and length of car trips and significant shift to public transport. Retardation of decentralisation of employment and population.
		Parking fees	Higher central area parking fees	Negative economic effects on inner cities and longer shopping trips (by car) to out-of town shopping centres
		Public transport fares	Public transport free	Less decentralisation of employment and more of population. Benefits for inner-city retail. Strong increase in distance travelled but little reduction in car trips.

Successful Land Use and Transport Policies

The following findings for successful land-use and transport policies based on theories, empirical and modelling studies investigated can be summarised:

- Land-use and transport policies are only successful with respect to criteria essential for sustainable urban transport (reduction of travel distances and travel time and reduction of share of car travel) if they make car travel less attractive (i.e. more expensive or slower).
- Land-use policies to increase urban density or mixed land use without accompanying measures to make car travel more expensive or slower have only little effect, as people will continue to make long trips to maximise opportunities within their travel-cost and travel-time budgets. However, these policies are important in the long run as they provide the preconditions for a less car-dependent urban way of life in the future.
- Transport policies making car travel less attractive (more expensive or slower) are very effective in achieving the goals of reduction of travel distance and share of car travel. However, they depend on a spatial organisation that is not too dispersed. In addition, highly diversified labour markets and different work places of workers in multiple-worker households set limits to a optimum co-ordination of work places and residences.
- Large spatially not integrated retail and leisure facilities increase the distance travelled by car and the share of car travel. Land-use policies to *prevent* the development of such facilities ('push') are more effective than land-use policies aimed at *promoting* high-density, mixed-use development ('pull').
- Fears that land-use and transport policies designed to constrain the use of cars in city centres are detrimental to the economic viability of city centres have in no case been confirmed by reality (except in cases where at the same time massive retail developments at peripheral greenfield locations have been approved).
- Transport policies to improve the attractiveness of public transport have in general not led to a major reduction of car travel, attracted only little development at public transport stations, but contributed to further suburbanisation of population.

In summary, if land-use and transport policies are compared, transport policies are by far more direct and efficient in achieving sustainable urban transport. However, accompanying and supporting land-use policies are essential for in the long run creating less car-dependent cities.

2.1.2 The How Issues

Deliverable 2b focused on 'How' issues. It identified potentials for and barriers to a better co-ordination and integration of transport and land use, i.e. the institutional possibilities for and barriers to the co-ordination and integration of land use and transport policies in the different institutional settings of the member states.

Co-ordination and Integration

As the form of urbanisation has a strong influence on travel behaviour and, conversely, the transport system has a structuring effect on urban development, a better co-ordination and integration of transport and land-use planning presupposes policies that closely link land use and transport. Co-ordination and integration of transport and land-use planning contribute to reducing the need for travel and making the remaining traffic sustainable in the institutional and policy dimension. Co-ordination includes institutional potentials, and integration encompasses policy-related potentials.

Policies in the area of land use aim at reducing the need for travel, as they primarily affect urban development and land use and therefore contribute to a reduction of distances. Transport policies aim at making the remaining traffic sustainable, as they primarily influence the travel behaviour and energy efficiency of transport. However, this analytical distinction becomes somewhat blurred in practise, especially in the long run, because transport policies as a secondary effect influence land use as well, for instance where pricing policies such as fuel taxes increase the tendency that people move closer to their work places or to the urban centre to save travel costs.

The relationship between co-ordination and integration of land-use and transport policies is illustrated in Figure 2.3:

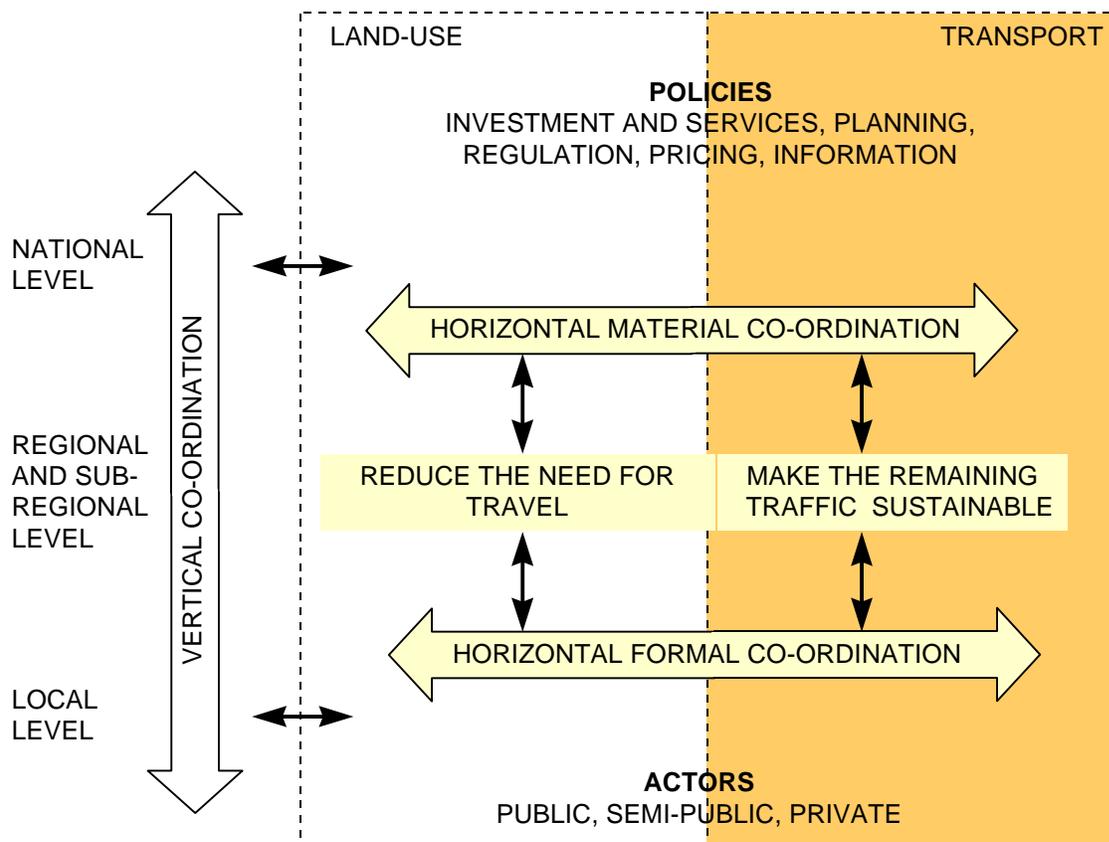


Figure 2.3. Co-ordination and integration of land-use and transport policies

The analysis of the organisation of transport and land-use planning and the co-ordination between them in different member states revealed some common characteristics:

A first group of similarities refers to the trends of decentralisation, horizontal articulation, flexibility, growing impacts of plans, the impact of the EU on spatial planning and the increasing interest in public-private sector linkages. The main conclusion is that throughout Europe the significance of economic objectives increases, but the lack of considering social and environmental needs leads to demands for a more direct approach to social issues and greater community involvement.

A second area where similarities are encountered relates to the systems of spatial planning which are closely related to the structure of government. Some common characteristics in the organisation of land-use and transport planning instruments can be identified. There is a hierarchical structure for spatial planning instruments. In this structure, land-use plans usually have an integrating function, while transport plans often follow a sectoral policy. However, ongoing changes in legislation contribute to a more integrative approach in many countries.

Based on the analysis of the institutionalised organisation of transport and land-use planning, the member states were grouped into three categories referring to the degree of co-ordination and integration:

- Category A contains countries with institutionalised regional planning with binding regional plans or other forms of binding effects.
- Category B includes countries with institutionalised regional planning without binding effects.
- Category C contains countries without regional planning and/or regional plans, with co-ordination just on the local level.

The assignment of countries into these categories shows that in most member states regional planning is institutionalised and includes binding regional plans. As land-use and transport policies are carried out by sectoral departments and semi-public or private actors at different administrative levels, horizontal and vertical co-ordination is indispensable for temporal, territorial and sectoral cohesion. A regional-planning level with binding planning instruments and sufficient authority in decision making can facilitate the implementation of policies for a better integration of land use and transport. Non-institutionalised forms of co-ordination also play an important role, especially in the context of participation and partnership.

Policies for a Better Integration of Land-Use and Transport Planning

As far as policy-related potentials are concerned, policies to better integrate land use and transport to reduce the need for travel and to make the remaining traffic sustainable were identified. The different policies were assigned to the following policy types: investment and services, planning, regulation, pricing, and information and informal policies. Table 2.7 presents land-use and transport policies by content and objectives. The objective column indicates the intentions lying behind a policy and its relationship to the primary objective of reducing the need for travel and making the remaining traffic sustainable.

Table 2.7. Land-use and transport policies

Policy area	Policy type	Policy objectives	Primary objective
Land-use	Investment and services	Dense, mixed-use structures Co-ordination of urban development with transport infrastructure	Reduce the need for travel
	Planning	Dense, mixed-use structures Co-ordination of urban development with transport infrastructure	
	Regulation	Dense, mixed-use structures Accessibility by public transport	
	Pricing	<i>Subsidies:</i> Dense, mixed-use structures Accessibility by public transport <i>Restrictive Pricing:</i> Dense, mixed-use structures	
	Information	Dense, mixed-use structures Co-ordination of urban development with transport infrastructure	
Transport	Investment and services	Co-ordination of transport modes Extension and densification of (public) transport network	Make the remaining traffic sustainable
	Planning	Co-ordination of transport modes Extension and densification of (public) transport network Co-ordination of transport network with urban development	
	Regulation	Restriction in car use Restriction in parking	
	Pricing	<i>Subsidies:</i> Co-ordination of transport modes Extension and dense (public) transport network Co-ordination of transport network with urban development <i>Restrictive Pricing:</i> Restriction in car use Restriction in parking	
	Information	Restriction in car use	

Due to their complementary effects, land-use and transport policies need to be combined to reach the primary objective. The combination of policies within the same policy area is important to achieve synergetic effects. This refers to the relationship of investment and services and planning on the one hand and regulation, pricing and to a certain extent information on the other hand. Planning and investment policies are the most important means to reduce the need for travel, because they influence land-use and transport and represent an important pre-condition for reducing travel distances and land take and making efficient use of the transport infrastructure (pull effect). Their successful implementation is only possible if additional pricing and regulatory policies create the necessary incentives for these changes in behaviour (push effect). Figure 2.4 illustrates the interaction of different policies.

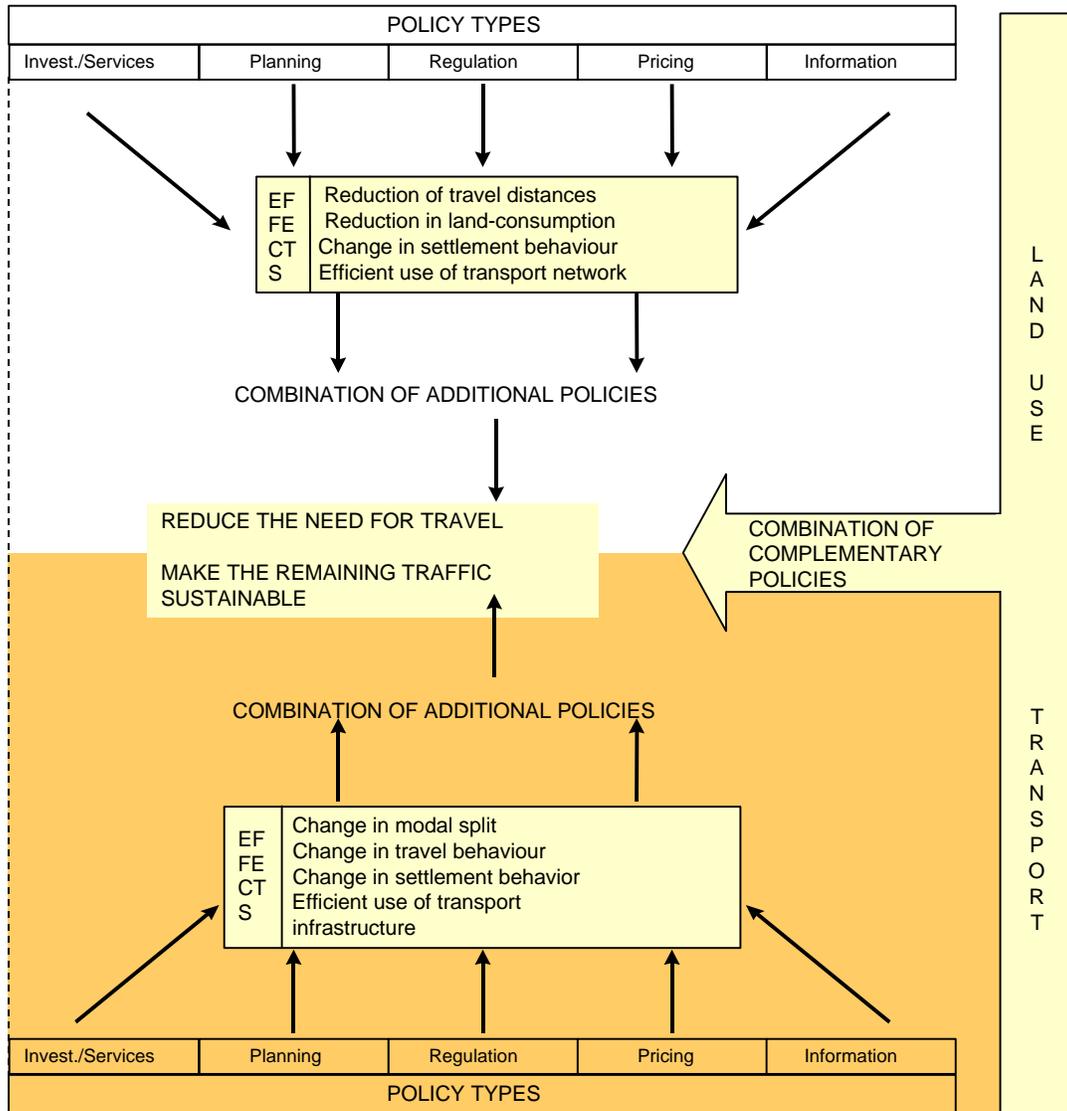


Figure 2.4. Combination of policies, policy types and policy areas

It can be concluded that all policies are important because they enter in some combination which leads to a successful implementation and a high degree of efficiency. Since the different policies have different but complementary effects and are carried out by sectoral departments and semi-public or private actors at different administrative levels, horizontal and vertical co-

ordination is indispensable for temporal, territorial and sectoral cohesion. A regional planning level with binding planning instruments and sufficient authority in decision making is most efficient for the integration of land use and transport.

Feasibility and Transferability of Policies

The implementation of the policies can be restricted or prevented by different types of barriers including resource barriers, social/political, legal and institutional barriers as well as side effects. All policy types, except information policies, face several barriers, with investment and planning mainly being restricted by institutional barriers and pricing and regulatory policies mainly facing social barriers. Information policies hardly face any barriers. Given that the combination of policies is necessary for a better co-ordination and integration of land-use and transport planning, the different kinds of barrier cannot be regarded separately in the implementation of policy packages. A policy which has successfully been implemented in one country cannot simply be transferred to another country. Especially policies that imply institutional and legal changes are difficult to be transferred to other countries. However, transferability also depends on the interest and willingness to act by the relevant actors. Table 2.8 shows which barriers land-use and transport policies typically have to overcome.

Evaluation of Case Studies

Using several case studies at the national level (United Kingdom, Germany, The Netherlands and North America) and at the urban-regional level (Amsterdam, Toulouse), examples of current best practice to co-ordinate and integrate land-use and transport planning are presented. The analysis of the different approaches shows that co-ordination between different jurisdictions and sector departments on the one hand, and the integration of different policies to policy packages on the other hand, are the corner stones for the successful implementation of policies to reduce the need for travel and to make the remaining traffic sustainable. In addition, non-institutionalised forms of urban management are important to allow for more flexibility in the planning process.

Successful and Transferable Policies

Based on the analysis of the organisation of land-use and transport planning within the EU, of different policies and barriers to implementation as well as on the case studies, successful and transferable policies can be identified. For most policies a successful implementation is closely linked with its relation to other policies and the institutional and organisational context in which it is implemented. With respect to the first aspect it can be concluded that all policies are important for a successful integration of transport and land-use because only the combination of different policies promises success. Regarding the institutional and legal framework of implementation, most policies presuppose an institutionalised regional planning to efficiently integrate land-use and transport. This is important for the transferability of policies.

Table 2.8. Barriers to implementation of land-use and transport policies

Policy area	Policy type	Policy	I	L	S	R	E	
Land use	Investment and services	Housing, Workplaces, Facilities	-	O	O	X	X	
		Services	X	O	X	X	X	
	Planning	Regional plan	X	O	O	-	-	
		General land-use plan	X	O	O	O	-	
		Detailed land-use plan	O	X	X	O	X	
	Regulation	Expropriation	O	X	X	O	-	
		Purchase, pre-emption rights	-	-	-	X	-	
		Building regulation, Building permits	O	O	X	-	-	
		Building order	O	X	X	O	-	
		Transfer of development rights	-	-	-	X	O	
	Subsidies	Development funding, disbursements	O	O	-	X	O	
		Tax relief	-	O	-	X	O	
	Restrictive pricing	Property tax	-	X	X	-	X	
		Development in-kind requirements	-	-	-	X	-	
		Developer fees, recouping betterment	-	O	X	-	-	
		Public land banking	-	-	-	X	O	
	Information	Information campaigns, education	O	-	-	O	-	
		Flat or housing exchange, teleworking	-	-	-	-	-	
	Transport	Investment and services	Transport infrastructure network	O	O	X	X	X
			Co-ordination of transport modes	O	O	X	X	X
Transport system operation			O	-	-	O	O	
Planning		Regional transport plan	X	O	O	-	-	
		Municipal transport plan	X	O	O	O	-	
Regulation		Transport infrastructure approval	O	O	X	-	-	
		Car-use regulations (speed/access limits)	O	O	X	-	X	
		Travel demand management	-	-	O	-	O	
		Trip reduction ordinance	-	O	O	O	-	
		Parking regulations (licenses, restriction)	-	-	X	-	X	
		Vehicle, emission standards	O	O	X	X	-	
		Transport corridor	X	O	O	O	-	
		Subsidies	Transport infrastructure funding	-	O	-	X	O
Restrictive pricing		Subsidising public transport fares	-	-	-	X	-	
		Vehicle tax, fuel tax	O	-	X	-	O	
		Parking charges	-	O	X	O	X	
		Road-pricing	-	O	X	O	X	
Information		Impact fees	O	O	X	X	-	
		Information campaigns, education	O	-	-	O	-	
		Car-sharing	-	-	-	-	-	

I Institutional barriers
L Legal barriers
S Social/Political barriers
R Resource barriers
E Side effects

X Barriers with strong effects on the policies
O Barriers with medium effects on the policies
- Barriers with low effects on the policies, or the policy is indifferent to barriers

Transferability depends on country-specific legal, institutional, social/political and resource barriers and side effects. According to the classification of countries, most policies are transferable. In general, policies can be transferred between countries of the same category. In addition, category A shows the highest degree of success with respect to institutionalised regional planning. Policies that depend on institutional forms of co-ordination on regional level cannot be transferred to countries of category C. Table 2.9 shows the relationship between transferability and the three categories.

Table 2.9. Transferability of policies

Policy type	Category A	Category B	Category C
Investment and services	+	o	o
Planning	+	o	x
Regulation	-	-	-
Subsidies	+	+	o
Restrictive pricing	-	-	-
Information and inf. policies	-	-	-

+ Policies can be transferred to countries of this category with a high potential of success.

o Policies can be transferred to countries of this category without too much restriction.

- The implementation of the policies is indifferent to the category.

x Policies cannot be transferred to countries in this category.

However, even if the institutional, legal, political, legal and social framework of two countries is similar, the implementation of a certain policy, which has successfully been implemented in one of them, does not guarantee a successful implementation in the other, because this also depends on financial resources, social resistance and the interest or willingness to act of the relevant actors. Nevertheless, it is most important for the transferability of policies to analyse the institutional, legal and social framework for the implementation of a policy early enough to adjust the policies to the given framework or to adapt the framework to the policy.

The Transland structured overview produced a table to compare national planning systems and assign the EU member countries to the above mentioned categories A, B and C, based on their respective frameworks for the different spatial and transport planning activities. The table is reproduced in the following page (table 2.10).

	SPATIAL PLANS			TRANSPORT PLANS		
	Vertical & Horizontal coordination between land use and transport			Vertical coordination of spatial levels		
Planning Authority	Category A	Category B	Category C	Category A	Category B	Category C
• State level	Austria Germany Luxembourg	Portugal	France Greece	Austria Germany Luxembourg Netherlands	Italy Portugal	France Greece
• Regional level	Austria Belgium Germany Denmark Netherlands Spain Sweden	Italy United Kingdom Ireland		Austria Belgium Denmark Netherlands Spain Sweden Italy	France	
• Province/Department level	Belgium Netherlands Spain Sweden Finland	Italy		Finland Netherlands Italy		
• Metropolitan/ Inter-communal level			France		France (urban area of more than 100,000 inhabitants)	France
• Municipal level	Austria Belgium Germany Italy Denmark Finland Luxembourg	Netherlands Spain Sweden Portugal France Greece	United Kingdom Ireland	Austria Germany Italy Spain		

Category A = Institutionalised planning with binding effects ; Category B = Institutionalised planning without binding effects; Category C = No institutionalised regional planning

2.2 State of the Practice Review

Deliverable 2c provided a review of practices in urban planning in the fields of land-use or land use-transport in several European countries. This was achieved through the review of selected case studies. The accent was put on the interactions between land-use and transport at the urban-regional level both in terms of study of the effects and in terms of co-ordination of planners and policy makers. This review also gave emphasis to case studies which incorporate innovative policies.

The review of practices focused on the two main questions that characterise the TRANSLAND approach, already mentioned in previous sections:

- ‘What’: this includes the intended objectives, the context (existing and innovative elements) and the results (assessment or expected results).
- ‘How’: this details the administrative framework of the implementation, the co-ordination process between decision makers, the national policies and the tools on which the decisions were based.

2.2.1 Case Studies

Twenty six case studies were chosen on the basis of

- **Country:**
Denmark (1), Italy (2), France (5), Great Britain (4) Germany (6), Spain (1), Sweden (1) and Switzerland (2), Portugal (1), Netherlands (3);
- **Territorial scale:**
National frameworks with their local impacts (2 cases), regional or metropolitan areas (in 6 cases), urban areas (in 8 cases), central cities (2 cases) and parts of an urban area (in 13 cases);
- **Size of urban area:**
From less than 100 000 inhabitants to more than 2 million inhabitants;
- **Level of implementation:**
Cases already implemented where there are elements about assessment of the results, as well as cases still in the development phase;
- **Integration between transport and land use:**
- **Good practices and bad practices:**
Bad practices are included, as a way of illustrating what should be avoided. In addition, some of the cases of good practice also highlight factors that should be eliminated to make the implementation more successful.

Of the twenty-six case studies: 12 were studied 'in-depth' and 14 were studied 'not in-depth'. For the in-depth studies more investigations have been carried out and greater contact has been made with the local authorities in charge of the case studies.

Table 2.11 and Table 2.12 list the 26 case studies, identifying some main characteristics. Tables 2.13 and 2.14 provide some specific features of the cases, with details of lessons learned and transferability. More details of the case studies are given in Annex 1.

Table 2.11 : Scales and main features of the in depth case studies

Case study		ABC policy	Cycle town Gävle	Madrid	Messestadt Riem	CentrO Oberhausen	Potsdam-Kirchsteigfeld	Rennes	Rome	Strasbourg	Toulouse	Vaud and Geneva	VINEX dwelling locations
Scale	National level												
	Regional/metropolitan area												
	Urban area												
	Central city												
	Part of an urban area												
Is the project implemented, partly implemented or not implemented?		I	I	PI	PI	I	PI	-	NI	PI	NI	PI	PI
Fields	Integrated land-use and transport policy and planning												
	Mainly transport policy with impacts on land use												
	Mainly land use planning with impacts on transport												
Is the case specific in relation to the national institutional framework ² ?		N	N	Y	Y	Y	N	Y	Y	N	Y	Y	N

	Yes, it is the main purpose of the case
	It is partly the case in this study
I	Implemented
PI	Partly implemented
NI	Not implemented
Y	Yes, it is specific
N	No, it is not specific

² as it is described in Deliverable D2b

Table 2.12 : Scales and main features of the not in-depth case studies

Case study		Basel	Bilbao	Bologna	Camden	Greater Copenhagen	Edinburgh	Euralille	Freiburg-Rieselfeld	Groningen	Manchester Metrolink	Nantes	Poundbury	Saalepark	Tübingen Südstadt
Scale	National level														
	Regional/metropolitan area	■				■									
	Urban area		■							■					
	Central city			■											
	Part of an urban area				■		■	■	■		■	■	■	■	■
Is the project implemented, partly implemented or not implemented?		PI	PI			PI	PI	PI	PI	PI	PI	PI	PI	I	PI
Fields	Integrated land-use and transport policy and planning	■				■	■	■		■			■		■
	Mainly transport policy with impacts on land use			■							■	■			
	Mainly land use planning with impacts on transport		■						■					■	
Is the case specific in relation to the national institutional framework ³ ?		Y	N	SC	SC	SC	SC	SC	N	N	Y	N	Y	SC	SC

■	Yes, it is the main purpose of the case
■	It is partly the case in this study
I	Implemented
PI	Partly implemented
NI	Not implemented
Y	Yes, it is specific
N	No, it is not specific
SC	Specific context

³ as it is described in Deliverable D2b

Table 2.13: Specific features and lessons learned from the in-depth case studies (Part 1)

	Specifics of the case	Lessons to be learnt	Comments about transferability
ABC policy	<p>It is a national rule for integrated land use and transport planning for the new location of companies in Netherlands. The ABC location policy aims to match the mobility needs of businesses and services with the accessibility of different locations ('the right business in the right place'). New businesses are graded according to whether they generate passenger or goods traffic. Locations are graded A, B or C according to their accessibility by public and private transport. Eindhoven and The Hague are taken as examples.</p>	<p>From an institutional perspective, the ABC location policy is working quite well and it must be concluded that it is worthwhile to use existing legislation as much as possible, before creating new institutional bodies. However, due to severe criticism the implementation mechanism of the ABC location policy will probably change from a vertical co-ordination towards more regional governance. The ABC location policy successfully regulated public and private investments and has strongly strengthened the vitality of the cities. The mobility effects are however not clear yet. The well-balanced policy packages turned out to be very important. Especially the additional parking policy could play an important role in limiting the car use of employees on B-locations, nevertheless there is a tendency towards loosening the parking regulations rather than strengthening them. It provides good effects on new settlements, but that provide few effects at short term, as most of the land use policies.</p>	<p>The ABC location policy can be an attractive example or lesson for other European urban regions. The policy can help boosting and structuring public and private investments within the urban area. However it must be noticed that its effectiveness in regard to sustainable mobility is not yet proven and that much depends on the character of the regional implementation. The most important conditions for a successful implementation of a location policy for companies are: a high urbanised surrounding with a well developed public transport system, an institutional structure which enables governments to restrict land use and a general commitment among both private and public actors to favour public transport and to restrict car use. To increase the effectiveness of the policy the institutional system should also enable supporting policies like a restrictive parking policy. For most other European countries the ABC location policy will be implemented without the co-ordinating power of the national government. Therefore, it is expected that additional institutional innovations are needed, similar to the current decentralisation efforts made in the Netherlands.</p>

Table 2.13 Specific features and lessons learned from the in-depth case studies (Part 2)

	Specifics of the case	Lessons to be learnt	Comments about transferability
Cycle town Gävle	Swedish urban area of about 90 000 inhabitants, with a quite low density of population. Start of the cycling programme in 1996. Aims: increase the share of cycling trips for 30% between 1996 and 1999, reduce the number of cycling accidents in the same time, information to inhabitants about good conditions for cycling in Gävle and changing their attitude towards cycling. Great investments took place in order to improve the bicycle ways (today about 200 km). Gävle is an example of successful planning politics coping with existing structures.	The modal share of bicycle use can be improved even when the urban density is quite low in an urban area. A promise made by the city to improve cycling conditions, a program to induce people to cycle to work, and promotion of bicycle safety resulted in the goals of the program to be achieved. In addition to create positive attitude towards cycling among citizens, investments in bicycle ways and bicycle infrastructure promote increasing share of cycling.	Bicycle town Gävle is a result of a process, comparing Gävle with cities in the Netherlands showing high share of cycling. It was the aim of Gävle city administration to increase the share of cycling – in order to reach this aim cycling cities in the Netherlands were examined concerning the measures for increasing the share of cycling. Gävle is a product of transferability, but of transferability concerning the special, individual framework of the city. Conditions for success include a high level of financial investment in expanding and improving bicycle paths and in a number of public awareness campaigns to change attitudes towards cycling.
Madrid	Planning practice in metropolitan Madrid moved away from top-down, centralised, and directive planning to a more negotiated and horizontal approach. The achievement came in the form of the strategy 'Madrid Region Metropolitana' based on 3 principles: "integrated", that meant forming a coherent unit of the new territory of the region of Madrid, "equitable", that meant balancing the longstanding imbalance between the rich north and west with the poor south and east; "efficient" that meant supporting the proper working of the region's economy.	A larger approach is needed to cope with the planning stakes. Planning has to be done not only at the level of a basic administrative unit (municipalities in Spain) or a few number of them but at the level of the urban area which could be at least the contiguous built-up area but probably a largest functional one which could be defined by the commuting daily trips. Interest of a policy whose aims are to improve housing quality of life in the same time in a social focus and a transport objective. A well-organised land use without wasted land is a way to improve the attractiveness of the urban area and by consequences to develop a more compact city and to limit the housing behaviour turned toward the outer suburbs.	Conditions for success includes a high level of investments, the creation of a good network and a strong action of communication towards companies and inhabitants. Interest for developing planning at a large scale.

Table 2.13: Specific features and lessons learned from the in-depth case studies (Part 3)

	Specifics of the case	Lessons to be learnt	Comments about transferability
Messestadt Riem	Messestadt Riem is the development concept for a new district in eastern Munich, rebuilding the area of the former Munich airport Riem. A mixed-used, mostly independent and attractive district at the edge of the built-up urban area will be developed, integrating car-reducing models and models to reduce travelling distances. Core of Messestadt Riem is the new Munich trade fair opened in 1998. The transport concept is focused on modes of public transport, car-sharing concepts and traffic networks for cyclists and pedestrians. The concept of Messestadt Riem was honoured at the 17th International Making Cities Liveable Conference (1995) for succeeding in sustainable town planning.	The integration of transport and land-use planning is established in the legally binding development plan of Messestadt Riem. Creating an ecological framework (including an ecological transport system, high quality of life in the district ensured by nearby green spaces, ecological building concepts) fits into the concept of integrated and sustainable planning. In spite of extending roads to Messestadt Riem, public transport as well as non-motorised modes are promoted (extending the underground which connects Messestadt to Munich central city, creation of a cycling network). Innovative planning tools were integrated in the planning process (reduced number of parking spaces for residents and employees, concept "living without an own car").	Conditions for success include an integrated decision-making process between the city administration and the private development company. The aim of developing the district in a sustainable way was established by the city administration - they decided an innovative way for planning a new district, using existing planning tools in an innovative way. Building of Messestadt Riem requires the adoption of Local Agenda 21 concept as framework for development guidelines.
CentrO Oberhausen	Oberhausen CentrO is a huge shopping mall and entertainment centre on a former steel mill site in the Ruhr area. The development is isolated without spatial integration with the existing settlements. CentrO draws large numbers of shoppers and visitors from far away at the expense of neighbouring city centres. The concept for the transport system is mainly car-oriented. However, a former freight railway line was converted to an exclusive right of way for buses and light rail with a new public transport station at the entrance to the mall. There is no reasonable possibility to reach CentrO for pedestrians and cyclists.	Because of its central location in the Ruhr area and its good connection with the regional public transport system, the CentrO may be less detrimental from an ecological point of view than similar developments on peripheral greenfield sites. However, the huge attractiveness of the shopping mall has been very negative for the economic viability of nearby city centres and certainly is creating more and longer shopping and recreation trips. A better spatial integration of CentrO into the settlement structure might have been possible if residential development would have been encouraged along the new public transport line.	It is very doubtful whether CentrO is a model to follow, even though it might be preferable to peripheral Greenfield shopping centres. However, its example seems to be transferable, as currently several big shopping and urban entertainment centres are being planned in Germany and other European countries, mainly at or above railway stations of big cities.

Table 2.13: Specific features and lessons learned from the in-depth case studies (Part 4)

	Specifics of the case	Lessons to be learnt	Comments about transferability
Potsdam-Kirchsteigfeld	Potsdam-Kirchsteigfeld is one of the first examples of new mixed-use residential and working areas in east Germany after the large-scale high-rise housing areas built in the former GDR. The recognition of the enormous social problems associated with these dormitory suburbs led to the plan to create in Kirchsteigfeld a new multi-functional quarter for 7,000 residents and 5,000 work places. The urban design concept of the new area is based on low-rise residential buildings partly with shops and offices on the lower floors. The area is well connected by a tramline to the public transport network of Potsdam. A planned business and service park has not yet been completed.	The case study is a good example of effective integration of land-use and transport planning. The public transport connection to the quarter was established almost simultaneously with the completion of the quarter itself. Only four months after completing the major part of the residential buildings and social facilities the new tramline started to run. The intended mix of functions in the area could reduce the need for long work, shopping or leisure trips, while the high residential density makes good public transport services feasible and so contributes to reducing car use. Further measures, like traffic calming and limiting residential parking to one space per dwelling, support the goal of reducing car use and car ownership.	The innovative public-private partnership established for the development of Potsdam-Kirchsteigfeld is in principle transferable to all European countries. However, the high level of co-operation between state and local governments and developer may not be easy to replicate. The partners have to bring in the willingness to negotiate and work towards a compromise. The land-use and transport concept of Kirchsteigfeld is transferable especially to suburban parts of cities with a demand for new dwelling and offices.
Rennes	French urban area of more than 250,000 inhabitants where there is a long practice of urban planning at the level of the Rennes municipality. It differs from the national context also by a largely District-based approach, including a fiscal harmonisation of local taxes for companies.	Land use planning and especially land bought by the local authorities for future urban developments allows good possibilities for strong long term planning. Furthermore a good co-ordination at a large territorial scale (a District) allows the urban area to have a green belt and a not so bad car modal share (for a French city). In the central city, the policy of a denser centre, and at the same time the promotion of housing in the centre are factors in reducing the need of travel yet keeping a good accessibility. However, it also shows that it is necessary to have a good co-ordination between land use and transport. Finally, a real will is required beyond reflections around a project. Problems of side effects around the district territory have also to be pointed out.	A strong land use policy like this one and a large territory framework could be a good starting point for a land use and transport planning. Limits about transferability: such a policy requires money and long term reflections; it is important to take care of the side effects. Interest for planning at a large scale, as the district here, is a transferable practice especially in countries like France where the urban areas are administered by several local administrative units. However a problem of side effects appears: some new activities are newly located in the far outer suburbs where taxes for companies are lower than in the district area; it is important to be prepared to counteract these effects.

Table 2.13: Specific features and lessons learned from the in-depth case studies (Part 5)

	Specifics of the case	Lessons to be learnt	Comments about transferability
Rome	<p>Integrated mobility planning in Rome: Current and new institutional arrangement in the field of planning. The city of Rome is currently undertaking an innovating process of integrated land use and transport planning which will ultimately take the form of a new Master Plan and an Integrated Mobility Plan.</p> <p>Four main strategic policies will be pursued: a) creation of metro-railways network nodes, b) road network improvements, c) promotion of urban development alongside transport axis, c) promotion of a network of “peripheral centricities” intended as transport, service and business poles capable of attracting customers and acting as intermodal change locations.</p> <p>The interest of the case lays in the large institutional arrangement that allows a good co-ordination between the local authorities.</p>	<p>It refers to the idea of a functional organisation of space. It seems to be a large institutional co-ordination, but public participation does not take a large part in this plan. So this strong project is valuable, as it is a way to reduce traffic jump in a city where the streets are very congested.</p> <p>To date, the administration has so far been able to live up to the expectations by undertaking the following steps: completion of park & ride lots, completion of multilevel downtown parking garages, extension of car free zones and increase of off street parking places, and completion of off-street motorcycle parking places.</p> <p>At the same time, a wide array of public transportation improvements have been accomplished. Among them, worth mentioning are the partial extension of one of the two metro lines, the realisation of a new light-rail line, and the implementation of an integrated public transportation fare system.</p> <p>The Rome study case is not a case of practice whose aim is to reduce the need for travel, but rather a case of a city that has to provide a better organisation of its urban mobility, including an improvement of accessibility. One could expect that the modal share of car will be reduced, but this is not sure.</p>	<p>Main interests are coming for the large territorial scale approach and the large institutional arrangement including a participation of partners from the fields of transport and land use Arguably one of the most interesting and innovative endeavours of the city has been the decision to entrust S.T.A. (Municipal mobility agency) with both relevant land use and transportation competencies..</p>

Table 2.13: Specific features and lessons learned from the in-depth case studies (Part 6)

	Specifics of the case	Lessons to be learnt	Comments about transferability
Strasbourg	Strasbourg is an urban area of more than 400,000 inhabitants where a strong transport policy is running especially in the central city with links to land use. The used tools are the same than everywhere in France, it differs from the other French urban area by a stronger action to limit the place of car in the city. More generally, this study shows a case of good use of the possibilities of the planning tools.	Strong transport policy linked with land use is valuable to limit the growth of the place of cars in the modal share in the central city. But these high investments in public transport supply do not result in reducing the place of the car in the whole urban area of Strasbourg. That has to be linked to the effect of a bad land use organisation in the outer suburbs and the lack of co-ordination at a level of the functional urban area (commuting area). Real land use and transport planning requires a larger scale and time	The institutional framework exists in France for creating a good horizontal co-ordination between land use and transport. A strong will could help to change things. Limits: not enough horizontal territorial co-ordination (a French problem?) but more certainly a problem linked to the existing urban form (not organised urban spread). High cost of improvement in public transport supply provides quite good results in the car modal share in the centre, but at the level of the whole urban area the share of cars is still growing, although it is growing at a lower rate than it used to in the past.
Toulouse	Toulouse (700,000 inhabitants) and its region (2,500,000 inhabitants) is a case of integrated land use transport masterplan in an urban area project. This project is linked to a new directory scheme for town planning and development. A regional approach is also studied including regional transport planning on Toulouse and its sub-centres. Few have been yet implemented and Toulouse is still a city where the cars have a large place. The interest of the case is the development of an integrated planning at the level of the urban area and the first steps of a regional approach.	When transport-planning studies are integrated in a land use reflection, it is possible to enable land use restraints in the outer suburbs. Housing and transport infrastructures must be integrated in the implementation at the scale of a relevant area for land use transport planning. A light underground provides at least two advantages: to increase the access to the centre and to offer the same travel time than mobility by cars. The concession of the highways helps to limit the number of exits and consequently, the number of new land use developments.	The need of a good information and an agreement of the inhabitants is required for the implementation of planning so the efforts done for developing this kind of practices are not only useful but necessary in the planning process. The high cost of an underground line do not allow this type of equipment in all the size of cities and such a practice provides additional constraints for the future, including the risk to have high level of investments to improve a realised underground network. In the fields of land use and transport, the results of decisions are various and slow: for example the results of a new directory scheme will require waiting 25 years. When an existing infrastructure, here a highway is free, it is difficult to come back and apply a toll to the users.

Table 2.13: Specific features and lessons learned from the in-depth case studies (Part 7)

	Specifics of the case	Lessons to learn	Comments about transferability
Vaud and Geneva	Regional land use and transport policy concerning a network of three cities: Lausanne, Neuchatel and Montreux. The interest of this case is coming from the efficient multidisciplinary co-ordination between transportation management and land use. The global objectives are a modal transfer from private vehicles to public transportation, bikes and pedestrianisation. The effort to co-ordinate land use and transport policies is about re-qualification of the areas surrounding the railway stations for easier access and urbanisation, promotion of public transportation oriented land development In the case of Geneva an assessment of this planning is possible.	In the past few have been done in the planing process in the French-speaking to integrate land use and transport and the results are clears when one compare the car modal share in these Swiss canton and the same indicator in the German-speaking cantons. A land use transport integrated planning, but more generally by a stronger concern for the transport issue could mostly explain this. The new concern for such an integration of land use and transport in planning is now in place with ambitious goals and very good institutional arrangements but have been yet implemented.	A new model of governance have been implemented including a multiplication of commissions allowing a large partnership including non-governmental actors and institutions to take part to the decision making process.
VINEX dwelling locations	It is a national rule for integrated land use and transport planning for the location of new housing in Netherlands. One of the main aims is to develop sustainable mobility by reducing unnecessary car traffic. The choice of locations for new large-scale settlements is made on base of mobility criteria. It concerns norms like: high-density settlements, distance to urban agglomerations, public transport accessibility. All new settlements after 1990 are located on basis of these criteria. Urban development around a rail line in Twente is taken as an example.	Each dwelling policy should find ways to keep up with dynamics in the housing market (the same can be said of contracts between private and public partners). An integrative dwelling location policy must be careful when expecting large investments in new high quality public transport. Often the densities are too low to enable cost-effective public transport. Extending existing public transport lines might be much more effective.	The guidelines used in the VINEX dwelling location policy contain certainly valuable lessons for other European countries. However, the way of implementation will probably have to differ because in most European countries it is not that easy to regulate the housing market (at least the size, density and location of new dwelling areas). Important geographical characteristics are needed for a successful transfer of the VINEX dwelling policy: an institutional legislation which enables governments to regulate housing development; a government which is able to make considerable investments in both infrastructure and housing development and a commitment between public and private partners to co-operate.

Table 2.13: Specific features and lessons learned from the not in-depth case studies (Part 1)

	Specifics of the case	Lessons to be learnt	Comments about transferability
Basel	<p>The City of Basel has already since the 1970s implemented a consistent policy of promoting sustainable urban transport by measures for the improvement of pedestrian and bicycle traffic, such as traffic calming, speed limits, car-free zones and improvement of public transport. The urban transport system and regional public transport have been extended, with the bus- and tramlines having separate rights of way. Basel is a good example of integrated land-use and transport planning as demonstrated by two case studies, the master plan for the redevelopment of the main railway station and the plan to guide urban development in typical residential urban quarter</p>	<p>The Basel case study shows that vis-à-vis the dominant trend to more car ownership and car use the co-operation of land-use and transport planning needs several decades to significantly influence the settlement pattern and so indirectly also mobility behaviour. It also demonstrates that that the key to sustainable urban transport are not single grand solutions but the synergies between many interconnected small measures - both of pull and push character - planned and implemented over an extended period of time.</p>	<p>The close integration of land-use and transport planning in Basel is in principle transferable to all European cities, although due to the federal system in Switzerland, Swiss cities have more autonomy to develop their own plans according to their specific needs. The master plan for the redevelopment of the Basel main station is an example for a comprehensive mode of planning that may be difficult to copy in other European countries with a weaker planning system.</p>
Bilbao	<p>Strategic plan for the revitalisation of metropolitan Bilbao. The city of Bilbao is currently experiencing a major shift from industry to a more service-oriented economy. As many other post-industrial cities whose industry heavily depended on manufacturing, Bilbao has been facing the consequences of an unsustainable environmental situation for the last few decades. The economic transition presents the local authorities with the challenge of guiding such shift through the environmental, transport and social issues that will inevitably arise. The city has agreed upon the creation of a public-private partnership, Bilbao Metropoli 30, to co-ordinate and implement the strategic plan for the revitalisation of Bilbao.</p>	<p>A large public participation of partnership and a land use & transport planning could be valuable. It is especially the case of an action on derelict areas and more generally every land use policy whose aims is to reinforce the central city toward a more compact city. Improvement of the way the city is perceived: it allows to create an agreement of the population to the project</p>	<p>This kind of policy has to be promoted in the cases of cities whose centres are in bad state. However it requires a real will from the public authorities, important financial means and a large partnership. An action on the quality of life in the centre is certainly valuable for the travel demand in the long time. But it also requires time and tools to assess these effects.</p>

Table 2.14: Specific features and lessons learned from the not in-depth case studies (Part 2)

	Specifics of the case	Lessons to be learnt	Comments about transferability
Bologna	Car restriction in the historical centre of Bologna. The large increase in motor vehicle traffic inside the historical centre, which was built for pedestrian traffic over centuries, has led to unsustainable conditions for the environment and the people. The project seeks to increase mobility through public transportation, cycling and walking and to raise the quality of life. This case is also a way to assess Italian current practices in transport planning.	The implemented policy seems good, however an interest for a large horizontal co-ordination at a larger scale appears: who takes part in the referendum? How are the outer suburb involved in such a project? The interest for a large horizontal co-ordination appears in a project which is very interesting but where a larger territorial co-ordination is needed. Limits to the policy: the car ownership is very high.	Interest of approaches that integrate a strong action toward inhabitants. A referendum appears as a good way to take care of the public point of view on a land use and transport project. However it would be useful to know who and how is the public participation organised? More generally, households' behaviours, in terms of urban mobility but also of residential mobility, have to be taken into account. This case shows that if the things are going in a good way, a real improvement in the land use transport fields need to develop this kind of approaches more in depth. That reminds that a large territorial approach is request for getting good result in an integrated approach
Camden	Car free housing is part of Camden's Green Transport Strategy. This strategy contains many initiatives outlined in the government's White Paper. Camden is different to other urban areas as it benefits from being in London and therefore, has excellent access, facilities and public transport.	Car free areas need to be developed in areas with restricted parking. Developers have been accepting of car free residential areas in Camden as it is a borough of London, where many areas have restricted parking. Due to the restricted parking in London, developers would not be able to achieve the national parking standards of new developments anyway.	Excellent opportunity for land use and transport integration, as London has a dense population with good public transport and restricted parking zones. Main barrier could be lack of co-operation from developers who have found that car free developments lower the price of housing.

Table 2.14: Specific features and lessons learned from the not in-depth case studies (Part 3)

	Specifics of the case	Lessons to be learnt	Comments about transferability
Greater Copenhagen	For almost 50 years, the development of the greater Copenhagen metropolitan area has been based on the concept of the 'finger city' to guide urban growth. This urban concept promotes the use of public transport and the protection of green space between fingers of development. It is an example of regional and municipal land use and transport planning which shows that long term consistency in planning is an important factor. It is because of this consistency that the integration of land use planning and public transport planning could be achieved. Recent planning themes such as the concentration of working areas around stations and the development of green and ecological zones fit well within this main planning concept.	It is a way to show how a land use and transport planning could provide effects. The lesson is that environmental policy should be based on consistent and sustainable land use plans and principles. The success of the 52 years of the Finger Plan may be explained by the fact that it is simply a framework with no legal basis, allowing for flexibility in short term planning. General guidelines must be mutually accepted.	Consistent , long term planning is very valuable to prepare for integrated land use & transport planning. History can teach us that short-term planning will not provide immediate results but that consistent long-term planning coupled with development concentration along public transit corridors, can achieve sustainable and environmental goals. This case also shows that heavy reliance in forecasts can hurt short-term planning but an adherence to basic long-term principles can negate the effects of mistakes made in the short-term.
Edinburgh	Car free residential areas is one strategy within Edinburgh's car free project called 'Moving Forward'. This project fits with government guidance given in PPG13 and the White Paper especially concerning reduction in car travel. Edinburgh has a strong policy to reduce car travel in the city, stronger than many other cities in the UK.	Lessons learnt from other European countries including location criteria and good design of developments. A specific problem in Edinburgh is the lack of controlled parking zone around the development.	A good policy if there was co-ordination between the land use and transport departments at the local level. Car free developments need to be supported by parking restrictions in the adjacent area. Further barriers to success include the ability of local authorities to co-ordinate public transport when public transport (in the UK) is privately owned.

Table 2.14: Specific features and lessons learned from the not in-depth case studies (Part 4)

	Specifics of the case	Lessons to be learnt	Comments about transferability
Euralille	Euralille is a key symbol of the urban transformations of the Lille metropolis. Located close to the city centre at a strategic node of the transport network, near the new TGV station of Lille Europe, two metro stations and the regional railway station of Lille-Flandres, Euralille is one of the tools used to make Lille Metropolis become an international transfrontier metropolis. The decision to build a new business district in Lille in close link with the construction of the Channel Tunnel and of a new TGV station in Lille was taken in 1990. In 1994, as well as the new TGV, metro and tramway stations of Lille Europe became operational, the first offices buildings, some students dwellings and the new commercial centre of Euralille opened.	Need of public-private partnership for big projects. A big shopping centre located near the city centre is a valuable idea to reduce the need to travel when such possibility exists. According with a local expert, the assessment about shopping activities shows that shopping in the centre have been improved and in the same time turned around more quality. So it could be considered as a reinforcement of the centre. However, basic shopping moved from the centre to EURALILLE but it could be considered as good a thing because it limits the length of the trips for a shopping purpose which became to be mainly turned to the outer suburbs. So the assessment in terms of transport is certainly good, not so good as it could be because the modal share for bike is very low.	Interest for creating a new development of the city when wasteland exists. Interest to integrate commercial centre in the centre of the urban area with a good connection to public transports. Even if a location near a strategic node is not completely used in a transport policy aim, it provides good impacts on the success of a project. The important point is the fact that this node and this new urban development have been located near the city centre and that is the strong interest of this project
Freiburg-Rieselfeld	Freiburg is called the German ecological capital because of its integrated planning strategies and its excellent public transport system. Since the mid-1990s a new residential area has been developed on the Rieselfelder area at the western outskirts of the city. The compact settlement structure of the development is characterised by 4-5 storey apartment houses with shops and offices on the ground floors along the main street and tramline. The development of small businesses and services in the southern part of the area potentially provides employment for part of the residents. Two tramlines, one of them new, connect the area with the city centre of Freiburg. Within the area traffic calming measures make walking and cycling more attractive.	The case study illustrates the benefits of a close integration between urban development and municipal transport policy. Compact urban development promotes the use of public transport, while efficient public transport is only possible with compact urban development. Important elements of this integration are the measures to promote public transport not only by new lines but also by giving priority to non-car traffic in the area. Another significant aspect of the project is the good balance between public and private investment, which created the framework for a successful co-operation between public and private actors and the integrated consideration of ecological, economic and social issues.	The productive co-operation between planners, developer and marketing practised in Freiburg could be a model to follow in all European countries. The integration of land-use and transport planning demonstrated in the case study is in principle transferable to all European countries. The urban design and transport concept developed for Freiburg-Rieselfeld could serve as a model for future suburban developments in cities with a demand of dwellings and office space and a commitment to environment-friendly urban transport.

Table 2.14: Specific features and lessons learned from the not in-depth case studies (Part 5)

	Specifics of the case	Lessons to be learnt	Comments about transferability
Groningen	Groningen is one example having a compact city structure now promoted in Dutch land-use policy to reduce the need of travel. Bicycle use is very high. Groningen has a well functioning regional land-use and transport government and a structure plan approved in 1987. Cycling policy plays a major part in it. The concentration of institutions and employment-intensive development near the station is being strengthened, and new housing areas are located near the city centre.	Case of strong integrated land-use transport planning which provide among effects a very high modal share for cycling (up to 50% in the city of Groningen). Limitation of car traffic in the centre by a system where the city centre is divided into four sectors and one could only pass the boundaries of these sectors by bus, taxi, bicycle or walking. The compact city, the transport policy and the involvement of local interest groups in the decision-making process, only that could explain the modal share of cycling and car in this urban area.	Interest for developing a compact city, which is not possible from short term policies but only with a continuous action. Interest to develop a partnership between private and public authorities. It appears also important to include neighbourhood interest groups in the decision making.
Manchester Metrolink	The first phase was awarded planning permission through parliament as all light rail developments had to be approved by parliament. However, between the First Phase and the Salford Quays development the Transport and Works Act was passed and light rail developments were subject to the same planning permission process as other developments. Therefore, the Salford Quays development was granted planning permission through the normal local government procedure of planning applications It is unclear whether there will be any future light rail developments in the UK.	Effective public enquiries are vital to gain local knowledge and opinions of the development. Planning the location of transport space into the land use development assists effective transport integration when developments are complete.	Salford Quays is a good example of integration of land use and transport. Considering where space needs to be left undeveloped to develop public transport links in the future helps to make public transport effective. A barrier to this is that often a public transport scheme may be approved but the money is not available for development. Before money can be made available the land may have been developed for other reasons and therefore limiting the effectiveness of the new public transport route.

Table 2.14: Specific features and lessons learned from the not in-depth case studies (Part 6)

	Specifics of the case	Lessons to be learnt	Comments about transferability
Nantes	The tramway of Nantes (about 500,000 inhabitants, 600,000 with the outer suburbs): effects of a light public transport network on modal split linked with an urban policy on public space have been developed. In France it is considered as a good example and the studies about new investments on the light underground in Toulouse refers to the results from the case of Nantes.	It is an example of regional and municipal land use and transport planning which shows that long term consistency in planning is an important factor. It is also a case where the development of the light train networks is the opportunity to improve the urban development and to develop accessibility of some inner suburb neighbourhood. The success in terms of modal share is coming by the fact that a true priority is given to public transport.	Public sector and decision-makers must support the operation as a group. The expected effects in terms of increase of the values of housing along the new lines are not strong as expected, but this new extension of light rail provide good urban effects.
Poundbury	Poundbury was subjected to the normal planning application process. However, as the owner of the land is the Prince of Wales the development has had a higher profile than other developments. Poundbury has been planned in an unconventional way compared to the usual segregation of land uses. There is no division of private/public housing and industrial estates. This fits with government guidance to promote mixed land use to reduce car travel by living and working in close proximity. Poundbury has social housing mixed with private housing, as well as office, shops and light industrial uses. The development has been innovative, putting built form and urban space ahead of traffic.	All parts of the development team e.g. Architects, planners and developers should share their thoughts, ideas and knowledge. This leads to a more balanced and well-designed development.	Particularly good for seem-rural areas as they are often disadvantaged with poor public transport. This type of mixed-use development encourages residents to reduce travel by living in close proximity to their workplaces.

Table 2.14: Specific features and lessons learned from the not in-depth case studies (Part 7)

	Specificities of the case	Lessons to learn	Comments about transferability
Saalepark	Saalepark Halle, is an example for non-integrated shopping centres being built in the Eastern Germany rural region in the 90ies. Saalepark includes about 105,000 m ² sales area. There's no possibility for pedestrians and cyclists to reach this shopping Centre, light rail or suburban trains do not exist. The only chance for using modes of public transport are shuttle-buses, but the visitors do not accept them. An overwhelming majority of visitors uses the car to get to Saalepark: in 1993 about 91,6% of the visitors.	An example of very bad practice since the decision to site the shopping centre was made in a period before the planning laws of the Federal Republic of Germany were adopted in eastern Germany. Since the local government did not set conditions for building permissions, the developer was able to build a shopping centre whose only criteria was the availability of inexpensive land and good accessibility by car. Public transport and alternative transport modes were not considered. The negative effects of such developments must be analysed in an effort to avoid further development of non-integrated regional shopping centres. This case study also illustrates the need for regional co-operation and consultation since the transport impacts are region wide in scale.	The bad effects of such urban developments have to be analysed as an example of what have to be avoided. This negative feedback have to be point out mainly for pedagogic purposes. On the opposite side, this case also shows the interest for integrated approaches and for planning at a good large geographic scale.
Tübingen Südstadt	The Französisches Viertel in Tübingen's dstadt is an example of re-using a military residential area Primary aims of the redevelopment are short walking distances between dwellings, shops, workspaces and social facilities for new inhabitants; the buildings and the whole district are mostly mixed use. Reduced car use, traffic calming and the priority of pedestrians and cyclists inside the district are further measures. It is an example of a pilot project using an innovative town-planning tool specific for rebuilding areas in a sustainable planning concept: the so-called development measure in town planning. This project is supported and evaluated by the Federal Ministry of Transport	Planning at the district level where a mixed use of functions is promoted as is found in more traditional European cities. Preferences to purchasing properties in the district are given to those who will live and work in the district. Participation of property owners and future residences in site design and planning support development goals. When giving the citizens the responsibility to plan their own building they are strongly involved in decision-making processes. Public relations in order to inform citizens about the mixed used concept ensure the acceptance of the concept (disturbance cannot be avoided in a strongly mixed-used district).	The project is transferable to areas that are owned by the city administration in order to ensure financing the project. City administration should adopt usage of innovative planning tools - in the case of Tübingen the 'urban development measure' included in German building laws. This planning tool allows experiments in re-using a district.

2.2.2 Lessons learnt

This section highlights the main lessons learnt from the 'in-depth' and 'not in-depth' case studies.

2.2.2.1 Public – Private Co-operation and Partnerships

Partnerships offer a variety of advantages

The creation of a public-private partnership offered a lot of advantages for financing the project as well as fostering operating processes. Planning stages were shorter than in an administrative way, flexibility in reacting on new developments was ensured. At the same time, it ensured the compliance with the ecological concepts. (*Messestadt Riem*)

Local public and private parties should be prime actors in land use and transport planning

Vertical co-ordination does not leave much space for regional initiatives and is often seen as restrictive. Local governments ask for more and more flexibility and decentralisation. They argue that local private and public parties together should make a comprehensive regional land use and transportation plan without too much interference of national concepts which are not adapted to their specific regional needs. The different parties should come to an agreement in a contract, which should contain measurable standards to achieve. The national government, which is one of the parties, could monitor the process using these agreed standards and adapt their financial support on the effectiveness of the local policy. (*ABC Policy*)

Project financial responsibility should be borne by all partners

Complex urban planning projects require a true political desire, which is defined in urban development documents and results in preserving land sites for the future even if it is a long term plan. They also need an appropriately set up structure to control all development work, through a public-private partnership. The financial risks of the project must be borne by all partners. In particular, banks, when present, must not limit themselves to being part of the structure simply to provide funds to operators and property developers who will be responsible for construction work. (*Euralille*)

Joint actions must start at the very beginning of the planning process

Joint action must be organized from the very beginning of any planning process and be kept open to a wide array of participants. It is understood that this joint action is indispensable; it is not however sufficient to guarantee the success of the process. (*Toulouse*)

Users must always be the prime target of a plan

Users must always be the target of a plan. Users' attention must be raised to make them interested in working for their district, to accept disturbance which cannot be absolutely avoided in densely mixed used areas, and to be prepared to reduce travelling by car. (*Tübingen*)

2.2.2.2 Citizen Participation

Citizens associations are a good mean of public participation

A good example of citizens participation can be realized through the establishment of a network of citizens association. Public involvement, when properly raised and organized, represents a viable and desirable addition to the decision making and implementation process. (Madrid)

2.2.2.3 Large Scale Developments

Preliminary studies can help project development

A large scale urban project should be managed on a long-term basis and the contracting authorities must play a leading role in deciding what work has to be carried out by the partnership responsible for implementing the project and then assessing the actions according to a clearly defined framework. To achieve this, it is essential that at the start of the project, the contracting authorities carry out preliminary studies to effectively define all aspects of the project. (Euralille)

Local authorities and professionals should work in team

In developing large scale developments, it is important that local authorities work as part of a 'development team'. Therefore, all professions building the development should work together and consult with each other. Architects, developers and planners should compromise and not work in isolation. The end result should be for the general public to be able to live with the different professional viewpoints and therefore for the views not to be extreme. (Poundbury)

New developments' early inhabitants should immediately enjoy the benefits

In planning a large scale development, even the early inhabitants should be offered the most important infrastructures for supply, education, leisure, public transport connection in order to give them the immediate possibility to reduce their need to travel by car. (Messestadt Riem)

It is possible to plan sustainable large districts

The concept of sustainability as well as ecology is feasible in a large context such as building a new district. (Messestadt Riem)

Public transport companies should be involved in developing housing policies

The construction of adequate public transport facilities is one of most problematic issues when implementing a housing policy. As large investments are necessarily required, it is safe to assume that considerable delays may be expected with negative pitfalls on the quality of service.. These problems can be averted if (private) public transport companies were to be included at an earlier stage in the policy planning process. (VINEX)

2.2.2.4 Mixed-Use Developments

Citizens participation is pivotal for creating mixed-use areas

The shaping of traditional European cities leads to postulate that mixed-used areas are not the result of detailed planning – as they are more the outcome of spontaneous development. According to this assumption, self organisation and citizens participation in developing mixed-used districts (not only in the planning and building stage) is one of the preconditions for creating a mixed-used area accepted by its inhabitants for a long time. (*Tübingen*)

Shopping malls can pose a threat to businesses located in mixed-use areas

Shopping malls can compete with businesses located in well integrated mixed-use city centres. Well-situated customers prefer shopping in malls, but also distant shoppers accept long travel distances, long travel time as well as congestion in order to shop there. Information campaigns, informing that time is not gained when driving to non-integrated shopping centres in peak hours and public transport must be promoted to influence customers. (*Saalepark*)

2.2.2.5 Location Policies

Location policies succeed in regulating public and private investments

Location policies successfully regulate public and private investments and have strongly strengthened the vitality of the cities. Firstly, they can concentrate public investments in infrastructure and public transport within the urban areas. Secondly, they can start large urban renewal programs to upgrade the inner city areas around major transport node urban locations, and thirdly they help to attract private investments to the city. Especially the strong development of locations reachable both by public transport and car can induce a new economic impulse for the urban economy. (*ABC Policy*)

Location policies need to be part of a balanced policy package

To make a location policy successful, the implementation of other transport policies and land use policies are necessary. The location policy can only function well when included into a well-balanced policy package. Furthermore, the success of this policy depends on the availability of all the accessibility profiles. (*ABC Policy*)

2.2.2.6 Non-Motorised Modes

Cycling works both in high and low density areas

Great investments on cycle ways, and not just in the more central city zones, seeking to form an attractive network, have increased the cycling share providing good cycling opportunities also for inhabitants living outside the downtown area. Such investments, suggest that cycling can be promoted as a mode of transport in both high and low density areas. (*Gävle*)

Non-motorised modes grow in attractive environments

Interesting design and landscaping will encourage potential residents who are considering living in a car-free environment. (*Edinburgh*)

Car-free life style's appeal is sometimes overrated

The concept of "living without an own car" has encountered difficulties due to the overestimation of the demand for this style of life, and it offered the opponents arguments against the implementation of the new policies. Therefore, pilot projects must be based on a solid background in order to face off the barriers posed by detractors. (*Messestadt Riem*)

Information campaigns can overcome conflicts between transport modes

When promoting cycling, conflicts between pedestrians, car drivers and cyclists will inevitably arise but they can be solved with information campaigns, not by means of restrictions (dividing pedestrian and cycling areas, prohibition of cycling in pedestrian areas). (*Gävle*)

Enforcing 'car-free living' is problematic

At present the only method of enforcing car-free living is the prevention of residents' parking within the development, through the lack of parking spaces and through residents' good will. (*Edinburgh*)

2.2.2.7 Land Use and Transport Integration

Refrain from creating new planning bodies

While it is correct that the integration between land use and transportation planning is in its essence a regional task, it must be concluded that it is worthwhile using existing legislation as much as possible, before creating new institutional bodies to handle the planning. (*ABC Policy*)

Consistency between land use and transport development must be thoroughly controlled

It is advisable to implement a procedure for creating a "zone of consistency between urban development and transportation" that should provide proper means of controlling the occupation of land as long as transportation infrastructures are not in place. This procedure imposes actual monitoring of the various urban development projects. Therefore, projecting a situation at a given time horizon is not enough; it is also necessary to plan for the intermediate steps and control the mechanisms to be implemented in order to limit inconsistencies. (*Toulouse*)

Lack of integration leads to lack of mobility

Lack of integration between transport and land-use can cause negative mobility effects such as increased share of motorised modes, as well as increased travel times and travel distances. (*Saalepark*)

Strict top-down planning organisation impedes good co-ordination

A rigid and vertical planning hierarchy results in a series of strictly independent local plans organised in general, partial and special plans, action programs and detailed studies which effectively cause a disconnect and lack of co-ordination between authorities and citizens. Such extreme top-down articulation leads to a deadlock which can only be overcome when a shift towards a more co-ordinated and participatory planning approach is decided. (*Madrid*)

Transport sustainability in semi-rural areas is not easy

It is difficult for integrated transport to work in a semi-rural area due to poor public transport. Therefore, an alternative option to encourage sustainability is to encourage people to live in close proximity to their place of work. (*Poundbury*)

Poor integration grows in absence of building regulation

The lack of building laws and regulations fosters growth of poorly integrated developments. (*Saalepark*)

2.2.2.8 Light Rail Development

Information is crucial during project development

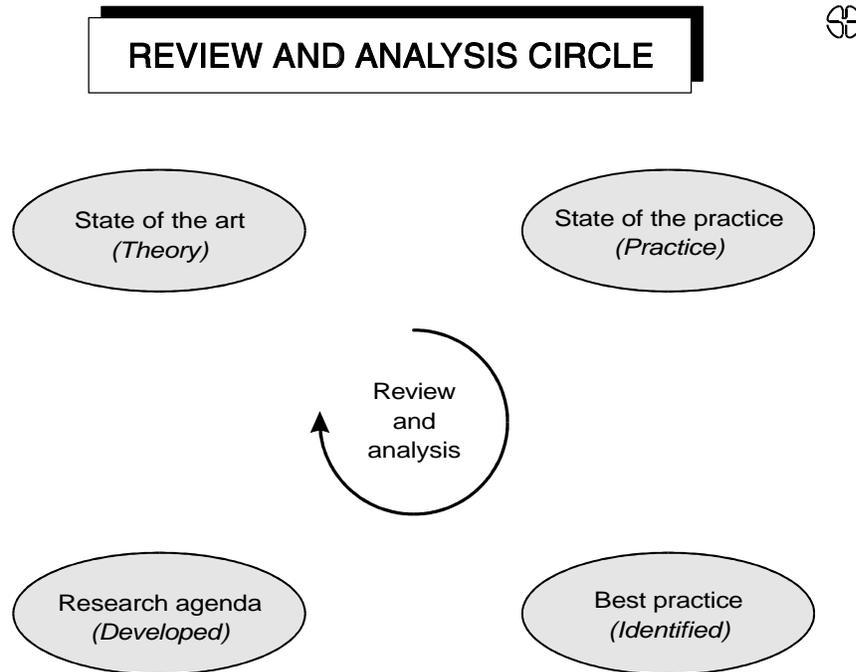
In planning a light rail system, there is the need for detailed design and to keep the public informed during construction. It is crucial that great care is taken in ensuring that all parties know of construction work and the public kept up-to-date by media announcements. (*Manchester*)

Considerable thought must be placed on operation phase of a light rail scheme

Light rail systems require specialist operational management. Concentrating too much on engineering, design and organisation and not considering the operation of the scheme can harm the project. (*Manchester*)

3 BEST PRACTICE

This section aims to identify good planning practices and recommend future policy development. The previous chapters on the “State of the Art” and the “State of the Practice” of integrated transport and land use planning have guided the selection process for choosing best practice. Findings from best practice influence the research agenda outlined in Chapter 4.



3.1 Reflections about best practice

3.1.1 Why are we studying best practice?

Before considering ‘best practice’ in the Transland context it is necessary to consider how to define ‘best practice’. Significant literature and thorough studies concerned with the field of best practice have been unable to produce a standard definition of the term. It has become obvious that there is little information available which gives concrete “how to” instructions in order to reach a certain point which one can conclusively identify a best practice in a certain field.

A central point of view in most discussions about best practice considers the fact that best practices are good practices that have worked successfully in a wide range of cases and have proven to produce results which fit into the goals of a project. For instance, best practice is a central element in the process of benchmarking “learning from the best” in order to avoid mistakes already made by other benchmarking partners. Another dimension of best practice is its transferability to other projects in spatial and political structures as well as in a national, international context.

When studying best practice reference is made to the case studies examined in Section 3.2

‘State of the Practice’ in order to identify best practice among them. A comprehensive approach is not sought here, but rather successful instruments in case studies which have promoted sustainability. The goal of identifying a best practice is, at least in some respects, to identify those elements which could be applied to several structures. In most of the cases of practices one can find useful elements to transfer to another project.

Successful practical methods which are applicable to other projects promote the acceptance of an integrated approach by planners, decision makers and the public. The transfer of an integrated approach onto a similar project eliminates that project in question as an “experiment” and increases the odds of its success. Identifying a best practice is useful when showing the public that a concerted effort of integrated transport and land use planning can result in more than just putting restrictions upon them, but rather that the results will have a positive effect on their quality of life and that their participation will be rewarded.

3.1.2 Best practice in relation to the ‘what’ and the how’ question

As best practice includes the term ‘practice’, reference is mainly made to the case studies described in Section 3.2 which are examples for current planning practices. These case studies were chosen as interesting and relevant by partners in relation to the integrated approach. But it must be considered that it is only a collection of examples since best practice surely can be identified in other case studies which have not been examined in Transland.

Section 3.1 examines policies for a better integration of land use and transport, feasibility and transferability of these policies as well as approaches to the integration of land use and transport planning. This could be considered as the theoretical framework of best practice. According to best practice the following statement is of particular interest: “As far as the combination of policies is concerned, due to their different effects most policies can only promise success if combined with policy packages”.

Referring to the relation between the ‘What’ and the ‘How’ questions, planning theory and planning approaches mentioned in Section 3.2 are considered when identifying best practice. The “What”-question is important for identifying the used concept and planning tools of best practice and its transferability in national and international context.

3.1.3 Best practice – suggestions by experts

The group discussion held in the Transland workshop was structured to defining best practice and identifying best practice case studies. The group discussion of best practice was included in the overall framework of the workshop – presenting the results of the reviews of the state of the art and of practice to experts in order to promote the discussion about successful integration of transport and land use planning.

Experts involved in the group discussion mentioned that the following questions must be answered when working towards defining best practice:

- How can integrated planning be defined? What is innovative planning?
- Which goal will be reached by best practice?
- What are the target groups of best practice?
- How could “sustainable development” be defined.

Experts made the following suggestions to the above mentioned terms in the discussion:

- Definition of best practice: this is impossible without defining the goals that should be reached by best practice. In the Transland project best practice targets on sustainability and traffic reduction, but this term can be imprecise. However, a definition of sustainability according to the project must take place when working on best practice.
- Preconditions for best practice: Best practice can only be identified in a project that has been successfully implemented and has been proven to be successful. Best practice offers lessons to be learnt for practitioners in charge of transport and land use planning projects. Best practice must be transferable to other projects.
- Criteria for best practice: Integration of citizens in planning and implementation process; integrated transport and land use planning; sustainability; control of success.

A list of attendees at the workshop is given in Annex 2. The full questionnaire circulated to experts at the workshop is given in Annex 3.

The inputs given by experts concerning best practice revolved around similar topics mentioned in the group discussion. Experts realised the difficulties in defining and identifying best practice in the field of integrated transport and land use planning. According to their considerations, best practice must be related to implementation and success of a project, but some of the case studies presented in Section 3.2 have not been implemented yet or are in an early phase of implementation.

3.1.4 Relationship between best practice and the goals of Transland

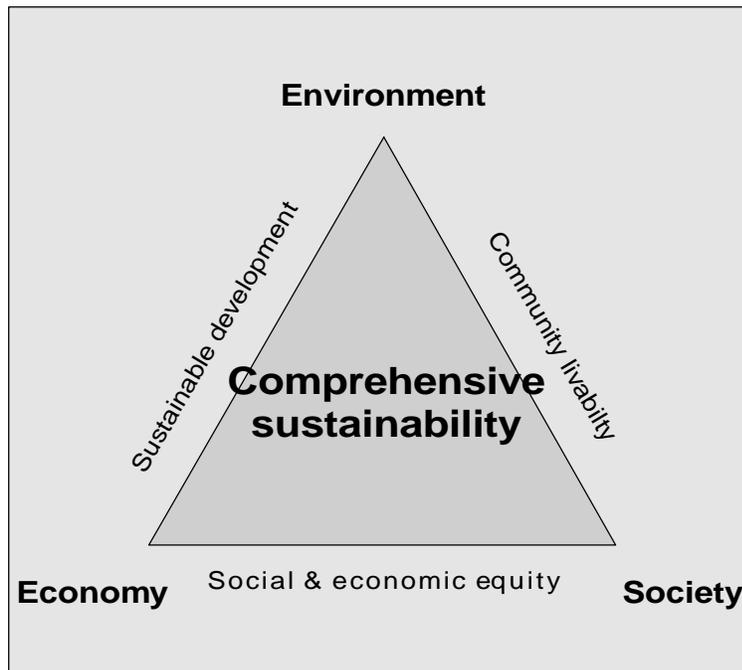
3.1.4.1 Definition of sustainability in the Transland project

Since there is no exact and generally valid definition of a best practice, the specific understanding of a best practice is strongly related to the goals of a project. In relation to the recommendations of the EC, the most important goal of the Transland project is the creation of sustainability when promoting the integration of transport and land use planning. Three main dimensions of comprehensive sustainability which cannot be seen in isolation are identified: Environment, Society and Economy (following the chart “comprehensive sustainability” in Bundesumweltministerium: Nachhaltige Entwicklung in Deutschland, 1998, page 10).

It is not possible to exactly define or predict how such a sustainable society or economy will look like. The definition must be based on the existing framework (political, social, cultural and economic) and the goals of the project. Referring to the findings of former stages of the project it is obvious that best practice will revolve mainly around social and environmental sustainability. As already mentioned in Chapter 3 there could be some conflicts between the Transland objectives of successful land use and transport policies, such as including economic development in these objectives. Despite this, economic efficiency is one part of the sustainable triangle and it will be influenced by integrated land use and transport patterns. However, it should not play a leading role when identifying best practice in Transland.

The Transland project especially targets the urban scale which allows a concentration of

sustainable aspects to be feasible in urban planning. The integrated approach of Transland mainly targets on creating spatial urban patterns as well as transport patterns which fit into these spatial structures in order to ensure the development of sustainability.



The White Paper “Developing the citizens network” by the EU sets practical methods for making transport systems more sustainable and shifting away from excessive dependency on private car use:

- Raising the quality and accessibility of public transport services
- Making walking and cycling more attractive
- Reducing the demand for travel, for example by reversing the trend of dispersing of functions to places which are hard to reach except by car
- Removing psychological barriers to the use of alternatives to cars and winning public support for policies to encourage more use of these alternatives
- Making transport an essential component to strategies of spatial planning

3.1.4.2 Integration of transport and land use planning- a move towards sustainability

The integration of land use and transport planning can only provide a partial contribution to the implementation of sustainability. Such integration contributes to promoting the sustainable development of transport and land use concepts which obviously have an impact on sustainable development within the areas of ecology, economy and society. The use of structures developed in a sustainable manner is of equal importance to sustainable development. An integrated planning approach develops structures in which ecological, social and economic sustainability can be promoted. Two basic strategic goals can be identified:

- Land use goal: “fulfilling land use needs occupying fewer space in a better (more
- Transport goal: “fulfilling travel needs through environmentally friendly modes”

Sustainable mobility can be achieved considering the following chain of goals/actions:

- Improve accessibility and the use of the space;
- Increase the environment-friendly modes share (public transport, cycling, walking);
- Reduce congestion;
- Improve safety;
- Reduce air pollution, noise, and visual nuisance.

while

- Developing and maintaining a wealthy and healthy urban economy;
- Ensuring social equity and transport opportunities for all community sectors.

3.1.4.3 Possibilities for the development of sustainable transport and land use structures through an integrated planning approach

It is important to identify measures in order to reach the development of sustainable transport and land use structures. These steps however should not be isolated from each other but should instead be connected. The case studies examined in Section 3.2 delivered some examples of the successful connection of these measures as well as examples of measures which are less integrated in a framework but provide successful results themselves. These measures can be divided in the field of spatial organisation and the field of transportation. To give an overview about measures in different spatial levels, case studies show projects which were implemented in the national, regional, local or district level. Measures in the field of social integration, citizens communication and participation are useful to support these measures and are also taken into account.

Measures in the area of spatial organisation

Spatial structures reducing distances between urban functions can be considered as an important precondition for decreasing traffic, especially traffic caused by motorised modes.

The measures can be subordinated under the following statement: a revision of spatial organisation or the development of spatial organisations in areas with future development which fit into traffic-reducing concepts. Vice versa, land use planning must recognise existing transport structures: for instance the development of a new area intending to promote less car dependency but with easy connection to a motorway may not be successful. The following measures could fit into an integrated concept:

- Assign functions (housing, working, leisure, education, supply + services) on the urban/regional scale.
- Development of mixed used structures.
- De-central concentration.
- Creation of dense, compact structures.
- Protection of landscape and nature and reduction of land consumption by avoiding urban sprawl.
- Redevelopment in existing structures.

- Infill development on vacant land in existing structures
- Concentration of urban development around public transport stops.
- Create concentrated development nodes which allow for public transport to be economically feasible.
- Give attention to developing high quality public spaces to attract the public and create liveable cities.

Measures of transport planning

Land use planning should also consider existing transport structures. The following are examples for measures in the field of transportation planning that promote sustainability:

- Promotion of public transport (allowing for quantitative and qualitative improvements in order to make public transport competitive with car use)
- Improvement of accessibility of public transport.
- Promotion of non-motorised transport (by making quantitative and qualitative improvements).
- Promotion of transportation intermodality.
- Influencing car usage (reducing traffic, traffic calming, parking management).
- Networking regional economy and production

Measures of social integration and involvement of citizens, administration, stakeholders and decision-makers in transport and land use planning

Social equity

Referring to the sustainable triangle mentioned above, creating social equity is one important aim in urban sustainability. Social equity could be defined as giving all inhabitants of a city the opportunity to satisfy their demands and needs (for instance supply, working, housing, leisure). Different social groups also have different demands on mobility. A consideration of these demands in an integrated transport- and land use system could promote the accessibility of different social groups to cities facilities. People without cars should be given the opportunity to reach important locations by public transport, bike or walking. Conversely, the reduction of social inequity and social integration could influence spatial structures as well as the capacity of public transport.

Reduction of social segregation could be related to public participation. Involvement of different social groups in decision-making helps to ensure that land use patterns meet the needs of these social groups. If mixed use facilities meet the demands of social groups living in a district than car mobility can be reduced. Some measures in this term are:

- Increasing accessibility to transport networks.
- Mix of private and public investors in building new districts.
- Increasing accessibility to social, cultural life and working / education.
- Implementation of mix use to offer low distances for people without an own car.

Public awareness, Public participation

Public participation as well as public awareness in order to ensure the acceptance of the

above mentioned integrated planning goals must be considered as an important part of integrated transport and land use projects. Public information and participation can reduce social barriers which could hinder the implementation of planning tools promoting sustainability. Creating awareness among citizens about the disadvantages of car usage could, for example, promote the usage of public transport and non-motorised modes. The measures in this aspect are:

- Create awareness to the public about mobility related problems.
- Create awareness to the public for another mobility behaviour.
- Influencing private housing preferences by awareness campaigns to promote higher population density.
- Citizens' participation in planning and redeveloping of structures.
- Citizens' participation in planning and implementation of new districts to promote local identity.
- Informing citizens about the advantages of integrated measures.
- Information should be made available and participation by stakeholders, decision-makers and politicians involved in the project should be promoted.

Target groups for best practice

The following groups have been identified as those who are targeted by implementation of best practice in the field of integrated transport and land use planning, who can use best practice and how they can profit from its use.

- **Planners:** Best practice as an example of a successful integrated planning approach. The successful implementation of a previous project can serve as a motivation. Such practices can help planners to choose the right planning measures for their particular project.
- **Citizens:** Citizens must be informed that their quality of life will improve if they use best practice (this is very important especially with car use restrictions since such restrictions are not popular). Many measures towards integration could help reduce an existing social imbalance in cities. Certain social groups rely on public transport, bicycles, or travelling by foot due to objective and subjective dependency. Such groups profit by integration. Land use patterns (mixed use, density), public transport infrastructure investment and the promotion of non-motorised transport can facilitate access to urban functions by such social groups.
- **Decision-Makers:** Planning instruments which have been successful in the past are more likely to be accepted by policy makers.
- **Investors:** Projects are more likely to be supported by investors if proven instruments or elements of best practice are used to reduce doubt by investors.

3.1.5 Best practice in the historical framework

When considering best practice it could be helpful to look for existing structures which reduce car dependency but were not planned on an integrated concept. There is no example in the case studies examined in Section 3.2; however some cities show existing spatial structures which help to reduce car usage. Examples of such spatial structures are given in Delft with its compact form, high density and mix of housing, working and supply; Bern: since the 1970s, city planning promotes the remaining mixed use of the old city and quarters in its boundary. Oxford: natural restrictions for motorised private modes are present due to the topography and history which are integrated in actual transport planning. The increase of motorised private

modes in the modal share has not take place since 1960.

But can a best practice be derived from a case in which the urban form is based on historical development or must it come from recent developments which have intentionally used an integrated planning approach? Successful measures do not necessarily have to be new or innovative, rather one can learn from existing structures which have had a positive influence on the integration of land use and transport planning and apply those successful measures in areas that have an altogether different urban form. In this case, the urban forms are historical products which have repeatedly used the same measures over long periods of time. This can raise the question as to why existing structures with for example, mixed use, are still prevalent while other cities have developed in other ways. But as Transland concentrates on innovative planning measures and an active integration of transport and land use planning, remaining structures are not considered as best practice in Transland. It would however be helpful to examine these structures in future research projects.

3.1.6 Definition of ‘success’ referring to the goals of Transland

How can success be defined when referring to the goals of Transland? A list of measures of success was proposed in Deliverable 1:

- Reduced trip length;
- Reduced trip times;
- Increased public transport patronage;
- Increased multimodal trips;
- Increased ratio of off-peak to peak travel;
- Increased incidence of cycling/walking;
- Reduced rate of increase of passenger km travelled on roads;
- Reduction in energy used by the transport sector;
- Reduced emissions from vehicles;
- Reduced noise exposure;
- Capitalisation in home/office values;
- Attraction of new business;
- Employment;
- User/citizens satisfaction.

These measures of success are considered when identifying best practice as well as promising practice. One important point must be taken into account when success of a case study project is evaluated: success was examined mainly referring to the spatial level the project was implemented in. In project Transland it was not possible to evaluate direct and indirect impacts of a project on the lower and higher spatial level.

3.2 Determining Best Practice

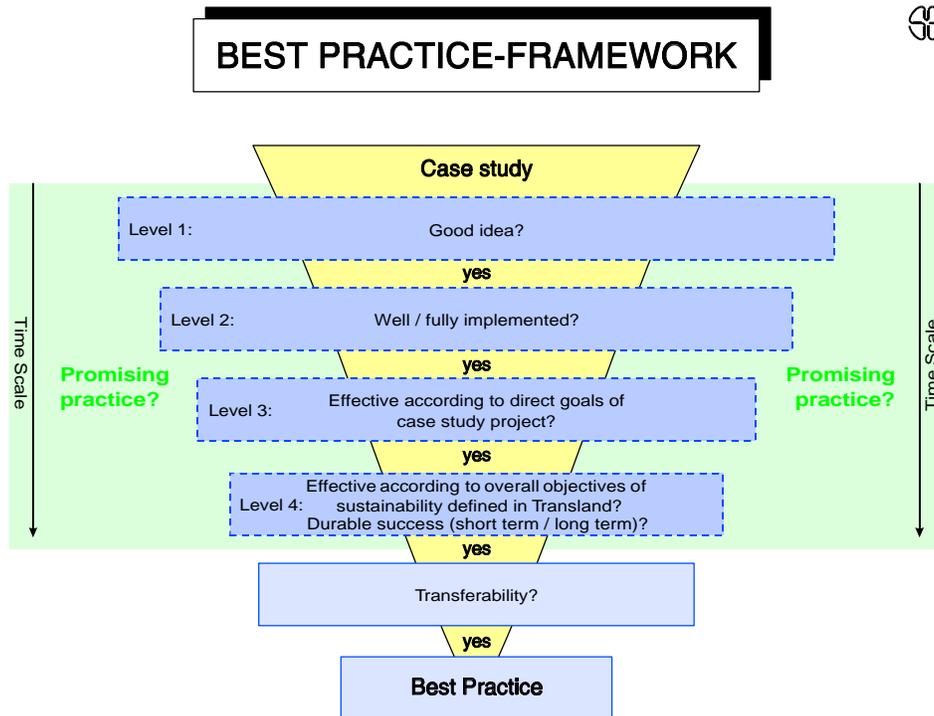
The objectives of this project note that it is of particular importance that a consensus regarding the definition and assessment of what is best practice (and how it is to be measured) can be reached among the partners and other experts. This is not only crucial for selection of examples, but also for the analysis of their transferability.

As there is a collection of many different case studies in the Transland it is useful to identify best practice based on a multi-criteria analysis. The first part of the analysis is based on a group discussion with experts and practitioners who attended the Transland Workshop based on a list of questions concerning best practice. The second part of this analysis is based on inputs delivered by experts concerning the term best practice, and the third part is the evaluation of case studies based on a questionnaire. During preparation of the group discussion and the questionnaire, literature review about terms concerning best practice and sustainability took place.

The aim of the group discussion in the workshop was to get suggestions about a definition and criteria for best practice, suggestions for case studies being considered as best practice and transferability of best practice. Since the group discussion delivered enough results and suggestions for best practice, further expert interviews were not made.

In addition to their engagement in the group discussion, experts joining the Transland workshop were asked to send the completed Interview Outline and their reflections about best practice. Transland partners provided their reflections about best practice as well. The results of these inputs are included later in this section.

The questionnaire was used to evaluate the different case studies examined in Section 2.2. The results of the workshop / group discussion were considered when creating the questionnaire. The questionnaire was sent to Transland partners in charge of the case studies presented in Section 2.2. Partners completed a questionnaire for each case study and judged the success of



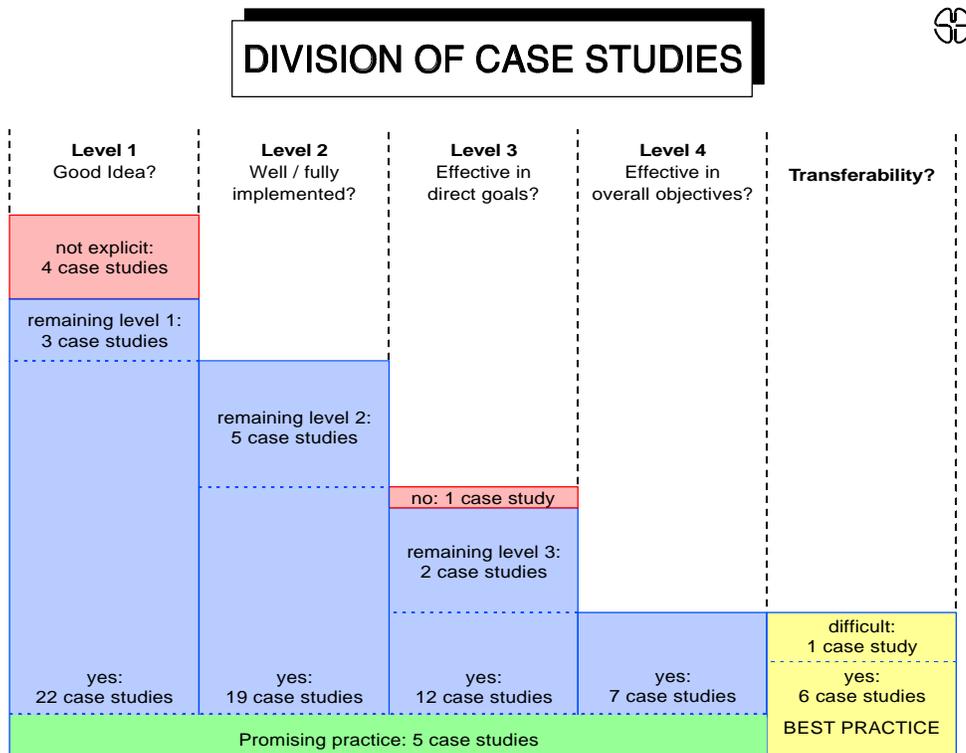
cases based on their know how about it. The questionnaire completed by Transland partners is in Annex 4.

Every case study was examined on a framework based on four levels of implementation and success, including analysis of transferability:

The framework presented is useful for filtering the case studies which are in very different stages of implementation. The filtering down process refers to the time scale of implementation as well as to success of the project that can be seen in each stage. To give an explanation: case studies remaining in level 1 or level 2 are not estimated to be less successful than case studies of level 4 in the long term, unless they remain in this level because of negative results. But case studies remaining in level 1 are just a concept (or evaluated as based on a concept that does not fit into the goals of Transland). Case studies in level 2 are in a very early part of implementation and cannot be evaluated as providing success in overall goals of sustainability. Case studies remaining in level 3 are successful in direct goals of project, for instance providing mixed use and short distances, but overall success referring to the defined objectives of sustainability cannot be evaluated at this stage. Level 4 includes case studies being even successful in overall goals. Case studies that passed the filtering down process till level four are in addition analysed according to their transferability. Case studies which are already implemented, showing success in direct goals as well as overall goals of sustainability while being transferable are considered as best practice.

Considering expected long term effects of projects, case studies remaining in level 1 to 3 are analysed with respect to promising practice. Promising practice can mainly be seen in innovative, integrated projects with large share of land use planning. In competition with transport planning which causes in most of cases effects in short time run, land use planning is proven to mainly cause effects on long term scale. To appreciate case studies with important land use concepts estimated to promote sustainability these case studies are included in the section on “promising practice” (“potential” best practice) below.

Four case studies are not successful in level 1 because they are not explicitly based on a good idea according to the goals of Transland; one case study is not successful in level 3. The following figure provides an overview of the filtering down process of the twenty-six case studies.



3.3 Results of Best Practice Analysis

3.3.1 General results of analysis / problems

As already mentioned, a general problem of identifying best practice was to establish a useful definition of best practice for the goals of Transland. The term “practice” implies that a good idea / concept that fits into the goals of Transland cannot be considered as best practice, but some of the case studies are not more than a concept because the implementation is missing. The term “best” must be related to success according to the defined objectives of sustainability, but information showing this success according to the measures listed in Section 3.1.6 is not available in most of the case studies. Besides these aspects a lot of promising innovative projects have been examined in Workpackage 3 of Transland. Most of these projects have a significant amount of land use planning elements causing long term effects. Success of these longer-term land use elements cannot yet be evaluated referring to the above-mentioned criteria for success. To appreciate these case studies they will be considered as “promising practice”.

3.3.2 Best practice - results of the group discussion / workshop concerning case studies

Experts suggested the following best practice case studies (only those case studies which were sent to the experts before the workshop were considered):

- Tübingen-Südstadt

Reasons for decision: integrated planning, legal background is transferable to other countries without difficulties, integration of citizens and stakeholders in planning and implementation.

- Manchester Metrolink

Reasons for decision: development of light rail was well co-ordinated with development of settlement on light rail stations. But success of the integrated planning approach is not obvious yet.

- Gävle

Combination of hard and soft policies were very successful in increasing cycle share in a town with low density. Main emphasis was given to change the attitude among citizens towards cycling by information campaigns. However, case study is mainly transport oriented.

- ABC-policy

Good planning approach, but implementation is only partly proven to be successful. Transferability could be difficult.

Why have these case studies been chosen as best practice?

These projects are useful in promoting less dependence on motorised private modes while promoting the usage of sustainable means of transport (non-motorised modes, public transport).

Which frameworks are important for implementation of best practice?

The integrated approach of the project should be fixed in the concept before implementation and each party involved in the project must be aware of this approach, and informed about important goals and steps of the project. Financing of the project and economic feasibility must be ensured for acceptance.

There is a difference between best practice in existing structures and in open spaces and areas designated for urban development. Implementation of an integrated planning approach is more difficult in existing structures since there is usually a certain degree of public protest against changes in land use and higher density levels.

Planning tools important for implementation of best practice

The following important planning tools or planning conditions are identified: balance of powers which are involved in the planning process, co-ordination of investments in order to ensure the success of the project, tools for creating awareness among people for an integrated planning approach and showing them the advantages.

Transferability

No project / planning approach is completely transferable, but transferability includes "learning from each other". It could be useful to transfer not a whole project but elements of best practice to another project.

When transferring best practice projects or concepts to another project in another country the special political and cultural framework must be taken into account. There are some examples of failed implementation of a concept in another country because cultural and social barriers were ignored.

3.3.3 Best practice – results of questionnaire evaluation

An overview of the questionnaire evaluation is given in two tables (see Annex 5). The first table mainly shows the results of general questions to the case study, general evaluation and evaluation of transferability. The second table shows the results of the evaluation of criteria calculated according to the system given in the annex.

The evaluation of the questionnaire of the case studies shows that many projects examined in Transland are only partly implemented or not implemented yet. Some partly implemented projects can be evaluated since they are in the end phase of implementation.

Twelve case studies are implemented in existing structures, eleven case studies are implemented in open space / redevelopment areas, three case studies are implemented in an area showing existing structures as well as open spaces and redevelopment areas. Therefore, there is a balance of different structures examined in Transland.

Most of the concepts are evaluated as very useful or useful as the theoretical base for the integration of transport and land use planning, but only three concepts were very successfully implemented and thirteen concepts were successfully implemented. In ten case studies planning and implementation procedures were documented in detail while in nine case studies these procedures were only partly documented.

The majority of case studies are transferable in a national context as well as in an international context. There are some restrictions in transferability referring to the categories of countries identified in Section 3.1. Some of the case studies are not transferable to countries of "Category C" (no institutionalised regional planning and/or regional plans) such as France and Greece.

3.4 Division of case studies based on best-practice-framework

The best-practice framework, based on four levels with following examination of transferability enables the division of case studies according to time scale and success in implementation, direct and overall goals. Case studies are presented in their remaining level, describing the reasons why they stopped at this level. In addition to the four-level-framework another category for case studies was included to appreciate possible long term success of some projects: promising practice. Case studies showing promising practice can be extracted from level one to four.

3.4.1 Level 1: Good idea?

Twenty-one of the examined case studies have a good concept with respect to the goals defined in Transland. Three of these case studies remain at level 1 because implementation did not take place yet: Rome, Bilbao, Canton de Vaud / Canton Geneve. Four cases show an idea that cannot yet be estimated as successful in reaching the goals of Transland: Toulouse, Basel, Saalepark and Greater Nantes.

Rome

The municipality of Rome is in the process of drafting a Master Plan which revolves around four strategic policies; creation of a metro-railway and improvement of rail systems, a road network improvement, promote urban development along transport axis and promoting peripheral centricities or decentralised development. Another important document will be the Integrated Mobility Plan which has been developed by both land use planning and transportation planning departments. A unique approach towards integration efforts has been the formation of the Rome Mobility Agency (STA), a private company owned by the city and charged with implementing the Integrated Mobility Plan, planning and co-ordinating transport improvement projects and revitalising sections of Rome.

The formation of a private planning agency which is responsible for developing and implementing plans and programs, has proved its worth as it is very adapt at quickly implementing plans. Another noteworthy instrument has been the use of transfer development rights which has been used as a key instrument for implementing land use plans virtually replacing the compulsory purchasing procedure.

Bilbao

The goal of this regional plan, known as the Bilbao Strategic Plan, is to improve the welfare level and the quality of life of its inhabitants through improvement of the urban environment and the international economic competitiveness of the metropolis. The plan calls for hiring a group of experts to make an internal analysis, describe critical issues and formulate a series of concrete actions to be defined and implemented. These duties have been adopted by an

association which implements the Strategic Plan, carries out research projects related to Metropolitan Bilbao and foster co-operation between the public and private sector. The Association involves local and regional governments, universities, over businesses and non-profit organisations.

Adherence to the original objectives set by the 1992 Strategic Plan have not been fully met since a major barrier faced off by the Bilbao authorities has been the chronic lack of funding. However, the plan has set ambitious goals in land use and transport planning which calls for the expansion of the regional transport infrastructure, redevelop brownfield sites, develop a Housing Plan to promote the efficient use of existing housing stock and facilitate municipal planning within the greater model of territorial planning.

Canton de Vaud / Canton de Geneve

The Cantonal Plan 2015 of Vaud seeks to promote multimodality and inter-sectorial coordination in planning. In more concrete terms, the plan suggests that local authorities adopt mandatory lines of action such as integrating land use and transport, promoting development projects aimed at improving public transport use, promote non-motorised oriented leisure and tourist centres and that residential and businesses be subject to public transport related conditions.

The plan seeks to achieve a 5% modal transfer from private vehicles to public transport by 2015.

Basel

The City of Basel is in the process of promoting dense/ compact structures near railway stations in a suburb and at the central station. Of particular interest is the suburban station of Auesseres St. Johann in which a new four lane ring road in the North of Basel will be built in order to detour traffic (transit traffic to and from France, freight traffic and traffic caused by Motorised private modes) accompanied by the development of a new center for housing and working at the station of St. Johann. This center will offer 167.000 square meters usable floor space, 1700 dwellings and 1.000 working places. Pedestrian crossings are planned to connect the center with the Rhine River and speed limits of 30km/h are planned.

A point of critique of the project Auesseres St. Johann is that existing residential and office units will be demolished when building the new ring road. The development of the new mixed use center is planned to be realised by private investment which has not yet been ensured.

Toulouse

A research union consisting of 47 communities was made responsible for revising the Master Plan for the Greater Toulouse Agglomeration and is currently being implemented. The Master Plan seeks to encourage decentralised development, mixed use neighbourhoods, protecting open spaces and delineating urban from rural areas to contain growth. In addition, a regional Mass Transit Plan has brought together 18 public transit networks into the regional territory. While the regional land use and transport plans are still being implemented, preliminary studies show that there is a slight shift from car use to public transport and especially walking.

However, shortcomings exist; only one underground line has gone into service while the

second, which should already be in service, is still in the planning phase and generous residential zoning has stretched the urban fabric making public transport uneconomical over car use.

Greater Nantes

The construction of two new light rail lines (totalling 27km) and 56 bus lines (593 km) seems to have resulted in an increased urban development along the light rail lines which in turn has improved accessibility to public transport. A 1990 urban area modal study compared with a 1997 study shows that there was an increase in public transport use of 0.8%. One interesting and even innovative measure is the use of a region wide sales tax base which reduces the need for communities to compete with each other and facilitate regional co-operation.

However, experts are of the opinion that while the public transport infrastructure may have been improved, a lack of land use planning which seeks to increase urban density will not promote integration between land use and transport planning.

Saalepark

A regional shopping centre in eastern Germany which attracts between 30,000 and 40,000 visitors per day is an example of non-integrated development. The shopping center opened in 1991 in a time after German re-unification when west German land use laws were not yet applied in the new states. Provisional laws were not able to restrict the building of many such retail complexes and developers took advantage of the transitional period by building many non-integrated retail centres in east Germany since they only needed building approval without having to go through a land use and transport impact review process. Far from any existing urban development and not hardly accessible by public transport, 93.5% of the visitors in 1995 reached Saale Park by car, sometimes travelling over 90 minutes to reach the center. This case study is an example of what happens when economic hardship and high unemployment leads to short term solutions which have negative long-term effects. In order to effectively compete for retail business, city centres are having to expand their parking supply to attract more customers, leading to a vicious cycle of increased car use. This case study is a good example of what happens when land use and transport planning are not integrated.

3.4.2 Level 2: Well / fully implemented?

19 case studies reached this level. All of these case studies were implemented with at least important building stages finished. Five case studies remain in level 2 because they are implemented, but effectiveness according to direct goals of the concept, overall goals of sustainability as well as durable success cannot be seen yet. One of the case studies remaining at level 2 is considered as promising practice according to innovative land use planning with integrated transport planning: Messestadt Riem. This case study will be described in chapter "Promising practice". Remaining case studies in level 2 are: Camden, Edinburgh, Poundbury and Rennes.

Camden

Since April 1999, the London borough of Camden has approved 18 car free housing schemes which represent 242 residential units sold on the housing market. Car free housing provides no on-site or on-street parking for residences except for those with disabilities. An advantage of this project is its easy access to public transport and good local facilities and the fact that it is located in a highly competitive housing market. Due to the recent implementation of this project, it is too early to tell whether it has successfully met its goals.

Edinburgh

Edinburgh Car Free Area (CFRA) is located in a redevelopment area of the city and is another example of car free housing although unlike in Camden, the project in Edinburgh of 121 dwellings will not all be sold on the market but rather most will be slated for social housing. 1.5 miles west of the city centre, the 1.4 ha development area is located near a major bus corridor. Legal agreements between the developer and the planning authority have become conditions for planning permission with conditions such as pedestrian and cycle route connections and that each resident should be subject to a resolution of not owning or having a car available. Although it is too early to measure a level of success, it is speculated that a crucial requirement for the success of the development will be the ability of the City to ensure a restrictive parking zone around the car free site.

Poundbury

A new suburban development with mixed use and urban design elements, which follows traditional English villages. The main concept of the development is to build a community where people had to be dependent on living and working in close proximity which would lead to a reduction in car use. The main land use element in the Poundbury case is the promotion of mixed use developments within the development, such as residential and industrial land use as well as mixed use within single buildings, such as retail/office use with residential uses. While residential use comprises the largest land use, the community will ultimately have a hi-tech computer factory, office suites and craft workshops that should employ 200 people. An innovative aspect in Poundbury is the neo-traditional urban design which seeks to reduce traffic congestion by controlling traffic speeds through the shaping of street layouts and making parked cars less obtrusive. At all, the socio-economics of the population living at Poundbury suggests high car ownership and use and not many walking onto Dorchester centre – a change in overall travel behaviour by offering mixed use and low distances cannot be seen in this stage of the project.

Rennes

Land use and transport planning in Rennes has the notable characteristics of having an urban area business tax which reduces competition between local authorities and actively acquires land for the development of a green belt and public housing. The Rennes urban area has also historically been known for its intercommunal co-operation as being one of the first in France to establish a regional planning district. Unfortunately, the implementation of the transport plan has done little to promote public transport and improving accessibility of public transport and district planning documents remain vague as to consider serving built-up areas with public transport. In addition, a recent census shows that population growth rates are twice as high in the peripheries than in the urban center which severely questions the effectiveness of applied measures.

Positive change began when a new regional planning body called the *Consejeria* was developed, housing the department of Public Works and Transportation, the Regional Housing Institute, and a public development corporation which initiates, co-ordinates and funds large-scale economic development projects. Duties of the *Consejeria* are to set standards for municipal planning, approve local plans, plan and develop regional facilities and prepare the regional plan. An innovative planning tool used to implement redevelopment projects has been the realisation of *convenios*, signed agreements between parties which specify obligations. Although courts have ruled that existing laws can overrule *convenios*, they have been popular since their strength lies in taking advantage of informal processes and allow institutions more flexibility.

The massive redevelopment project affecting 30 suburbs ultimately resulted in providing improved housing and public infrastructure. This was due in large part to the efforts of neighbourhood associations which have been directly involved in the decision making process. Influences on residents travel behaviour and reduction of car traffic are not obvious yet.

CentrO

As Germany's first "Mega-Mall" covering 70,000 m², the CentrO shopping mall in Germany is located on a 94 ha site of a former steel plant with divided land use patterns, the majority of which are assigned for shopping and recreational facilities. This "urban entertainment center" attracts 200,000 visitors per day. Unlike Saale Park, which is completely auto-oriented with hardly any access to public transport, accessibility of public transport to CentrO from the city center of Oberhausen was an explicit goal. And indeed, a former freight railway line was converted to an exclusive right of way for buses and light rail leading from Oberhausen's main railway and bus stations via the CentrO to northern suburbs.

Missing restrictions for Motorised private modes, easy access to major autobahns and an abundance of free parking has resulted in a disproportionate amount of visitors who reach CentrO by car causing a reduction of the interval frequency of public transport to CentrO due to reduced demand. CentrO is a success story in terms of its location on a former industrial site thereby "recycling" land and preventing open space on the edge of the city from being developed. However, omitting a combination of push and pull measures has resulted in increased access by car.

3.4.4 Level 4: Effective in overall objectives of sustainability?

Seven case studies passed the framework for determining best practice till level 4: Greater Copenhagen, ABC location policy, Bicycle town Gävle, Manchester Metrolink, Bologna, Euralille and Groningen. All of these case studies are effective in overall objectives of sustainability. To identify best practice among these case studies - which implicates the possibility to transfer at least successful elements of the cases to other projects - they are examined with respect to their transferability.

3.4.5 Transferability?

Six of case studies which passed till level 4 are evaluated to be transferable to other countries and projects. Concrete transferability of another case study, Greater Copenhagen, must be estimated as difficult concerning the specific context of this case study: Greater Copenhagen is the product of an ongoing vision which has lasted for 50 years. At all, the example Greater Copenhagen is useful to encourage politicians in other countries to formulate a vision for the aims of integrated transport and land use planning like the "Finger Plan".

3.4.5.1 Good Practice referring to a vision

Greater Copenhagen

The basic nature of the "Finger Plan" is to guide and promote urban development near suburban rail stations, thereby promoting public transport and increasing accessibility to

public transport. The plan began in 1926 as a traffic plan which included five electric suburban railway lines which radiated out of the city centre towards the periphery, promoting urban development along the rail lines. During the years since, five different regional strategies have been introduced, each implemented in response to changing economies and demographics in the region. The last strategy, the “Regional Plan 1989”, as well as all those strategies, promoted further development to take place in the vicinity of the railway stations.

The consistent urban development pattern of concentrated development along rail lines and especially at rail stations throughout for nearly fifty years, has promoted public transport and increased accessibility to public transport. A uniform tariff system on all buses and trains has also facilitated accessibility. Active preservation of green spaces between the five “fingers” of the suburban rail lines has allowed for protection of open spaces and promoted densification in existing structures.

Transferability

The “Finger Plan” is not a legally binding regional plan, but rather a regional vision which has been maintained for over 50 years. The lesson learned from this case is that it is not necessary to have a strong regional planning body (indeed the regional planning authority of Copenhagen was dissolved in 1990), but rather a common regional development vision which must be maintained and adhered to in order to protect it from short term planning goals. The flexibility offered by an informal regional vision allows for necessary measures to deal with current issues while protecting the development vision which, as proven in Copenhagen, allows for long term success in sustainable development.

3.4.5.2 Best Practice case studies

Gävle

The City of Gävle, located on the east-coast of Sweden, is representative of an averaged sized Swedish city with 90,000 inhabitants but covering a relatively large area allowing for a low density of 56 persons per km². The city wanted to promote a positive change in attitude towards bicycling, increase cyclingtrips by 30% between 1996-1999 and lower the share of bicycle accidents. A combination of policies was implemented in which the City of Gävle was the primary initiator and financier with some support by the Swedish National Road Association and the Public Health Committee. There was a 28% increase in the number of cycling trips between 1994 and 1997 and a decrease in the number of cycling accidents from 371 in 1994 to 273 in 1997. These figures are positive when considering the increase in the share of cycling, in 1997 the cycling share reached 20% of all trips. Today, the cycling share is still on this high level.

Elements

Promotion of non-motorised modes by a combination of hard policies (infrastructure improvements) and soft policies:

Hard Policies: Nearly 26 million SEK were invested in extending cyclepaths, improving bicycle parking in strategic spots in the city, designing special bicycle street signs and painting cyclepaths red in order to make them more visible.

Soft Policies: During the project, regular meetings were held in different groups. The leading group, with representatives from the financiers, worked on sketching the project-plan while politicians from the three financiers met in a reference group and were informed about the project-plan and subsequent activities.

The following extensive informational campaigns were initiated:

- Advertisement were made in the local newspaper along with a “promise” by the City to increase bicycle use.
- Companies in Gävle were invited to participate in a “cycle to work” campaign in which nearly 10 percent of the population of Gävle cycled to work.
- Bicycles were made available to be borrowed for free.
- The project “Healthpedals” took place to show the interaction of cycling and fitness.
- A safety campaign was made aiming to increase the use of helmets.

Transferability

This case study is a good example of how soft policies, in this case informational campaigns, supported by hard policies can change mobility behaviour. The Gävle project is also proof that such campaigns are transferable since the program was originally initiated in the Netherlands in an environment with higher density than Sweden. Therefore, Gävle is a product of transferability itself. A combination of soft policies and hard policies in order to promote cycling can be transferred to any country in Europe.

Manchester Metrolink

The Manchester case study can be divided into two phases. The first phase completed in 1992 was an exclusive public transport improvement project with the main objectives of the Metrolink being to increase rail access into the city centre while redeveloping old, uneconomic railway lines. The second phase, which stresses real-estate development near transit stops, was not evaluated since the project is still underway and therefore has not yet been implemented. However, the integration of land use and transport planning in the second phase of project Manchester Metrolink was of main interest for project Transland. Due to the fact that this building stage is not completed yet, Manchester Metrolink is considered as providing best practice in the field of transport.

The light rail system has a total of 31km of track in its first phase with the majority (27km) running on converted heavy rail tracks with only 3km of street running in the city centre. All stations on the heavy rail line have been converted to light rail stations and a further six have been built. 26 vehicles allow trains to run 6 minutes apart during the day and 12 minutes apart in the evenings and on Sundays. The Metrolink is also able to compete with other modes since it is estimated that a journey from the southern extreme of the network would take 18 minutes by light rail, 42 minutes by car and 62 minutes by bus.

The actual numbers of passengers using the Metrolink each year is 3 million higher than the original estimate of 13 million passengers a year and surveys suggest 43% of Metrolink journeys are made by passengers who would have a car available for the same trip. The shift from car use to public transport has caused an estimated reduction of 1million vehicles on the streets of Manchester.

Elements

Transport: The goals mentioned above were partly achieved through the formation of a consortium which carried out the design and development of phase 1 of the Metrolink. The initial proposals, central government approval and financing for the light rail system were co-ordinated by Manchester's transport authority, the Greater Manchester Passenger Transport Executive (GMPTE) in conjunction with British Rail and Manchester City Council. The consortium formed an operating company called Greater Manchester Metro Limited which has a 15-year contract to operate Metrolink.

Public Communication: The GMPTE made media announcements through television, radio and newspapers every time a new development or consultation took place. In addition, advertising was used to inform the public and to encourage the use of alternative modes during periods of disruption caused by construction of the line. Another interesting point was the efforts by the GMPTE to include comments and concerns of land users within 200 meters of the track in the design of the development.

Transferability

The first phase of Manchester Metrolink is a good example of how old heavy rail lines can be successfully converted into modern light rail using a public-private consortium to reduce costs and complete the project in a reasonable amount of time. An extensive public awareness campaign and efforts to include nearby land users in the project design, helped win public acceptance of the project. Transferability of this project is due to some preconditions referring to existing infrastructure, for instance old heavy rail lines connected with a city which are worth to be redeveloped for public transport. Besides, Germany provides some examples of old rail lines redevelopment similar to Manchester Metrolink, too.

Bologna

The historic city centre of Bologna still retains narrow street patterns ideal for pedestrians but not suitable for car use. The increased car traffic significantly impacted the quality of life which led to a popular vote in 1984, in which 70% of the population voted in favour of the selective restriction of the city centre for private automobile use. Through broad public support and a number of measures, Bologna has been able to promote public transport, increase accessibility of public transport, promote intermodal transport facilities and especially restrict motorised private modes. Between 1981 and 1989, there was a 62% drop in the amount of automobile traffic in the city centre and while public transit ridership has not increased significantly, the combination of push and pull measures have stopped sinking ridership. Also, favourable traffic and reduced pollution levels have resulted in a lower rate of residents loss (-10% in the centre vs. 12% in peripheral areas over a ten year period).

The access restriction to the historical centre of Bologna is currently still operative despite the election of a new mayor in June 1999 who had advocated the return to a free downtown area. Besides, some changes in the project took place: in October 1999 a few streets have experimentally been reopened to all traffic, but at the same time the number of access passes to the centre was reduced to 50.000 holders (currently 70.000). Although the reopening of streets was initially welcomed by a segment of population it is now criticised as creating distress for the city. Reopening is also opposed by local retail associations.

One point that could be criticised concerning the project Bologna refers to the fact that measures to decrease car traffic are only implemented in the historic centre. The area around the historic centre must already cope with the negative impacts of motorised private modes.

Elements

Restrictive Measures: In July 1989, the entire historical centre of Bologna was designated a controlled access area to automobiles. A traffic restriction is enforced from 7 a.m. to 8 p.m. for all private cars except buses for public transit operations, taxis and emergency services, hotel guests, delivery vehicles (only a set times), and cars belonging to residences.

Public Transport: Bus services were extended and connected from the city centre to park and ride facilities in the periphery. Public transport has been promoted since the vehicle fleet has been updated, the public transit circulation has been designed to completely reserve some streets for bus traffic, information concerning prices and services and intermodal opportunities have been improved such as placing bus lines to serve peripheral Park and Ride facilities.

Transferability

The advantage of restrictive car access into the city centre is that it does not require expensive infrastructure investments and could therefore be readily transferred. The majority of expenditures is towards the development of P+R facilities and the addition of bus lines. The combination of such push and pull measures could be applied anywhere, provided there is enough public support to restrict automobile access to city centres and provide funding for public transport expenditures. The concept was currently adopted by the city of Genoa which is undertaking a historical centre access restriction demonstration, part of the European Project PROGRESS (DGVII – FP5).

Euralille

The new Euralille district is located close to Lille city centre between two railway stations which have excellent international railway connections with London (2 hours) and Paris (1 hour) and access to high speed rail networks in northern Europe. The development includes housing, offices, a huge shopping mall, leisure facilities and two schools. The integrated shopping centre Euralille and shopping facilities in Lille centre are highly accepted by customers according to their high quality. The integrated shopping centre and shopping facilities with good accessibility by public transport helps to reduce car dependency for supply, non-motorised mode walking is promoted, too. The accessibility to public transport and the dense urban structure of the development allowed for a reduction in car use as evident in a household mobility survey carried out in 1998 which examined people's mobility behaviour in the district Euralille: 53% walked, 17% used public transport and 28% drove cars.

Elements

Transport: The Euralille district is located between two major railway stations, one in which the Eurostar passes through to London and Paris, another which is connected with the French high-speed rail system (TGV). Two metro lines pass through the district, a central tram line is located in one of the stations and the district is also accessed by urban and suburban busses.

Land use: The municipal government of Lille took an active part in developing the district as it owned 95% of the land and designated the area as an urban development zone in the land use plan. Integration of a commercial centre in the centre of an urban area was an important part of the project to offer customers and employees short distances and good accessibility to public transport. Location of specific businesses at transport nodes promotes transport intermodality and usage of public transport.

Transferability

This case study is a good example of how a city can take advantage of an existing transport hub by engaging in lucrative property development which can have elements of land use and transport planning. During the planning and development of the project, the city was able to influence integrated land use measures due to the public-private partnership. Integration of a commercial centre in an urban area instead of location in the suburbs is transferable to other cities, for instance redevelopment of areas (e. g. former industrial or military areas) inside the cities.

ABC location policy – the right business at the right place

This national policy has met the requirements of reaching the objectives of Transland as well as meeting the goals of the policy itself. Introduced in the Netherlands in 1989, the ABC Location Policy seeks to match the location of companies according to their accessibility needs. Companies are graded according to their accessibility by public and private transport modes and are then categorised according to their “accessibility profiles”. Their accessibility profiles are graded A, B or C, with A locations being very accessible by public transport due to their proximity with major public transport nodes, B locations reasonably accessible by both public transport and cars, and C locations only accessible by cars. R or rest locations have bad access to both the road system and the public transport system. A mobility profile is determined for each company which takes into account the number of employees by surface unit, mobility of employees, the visitors’ intensity and the dependency on the transfer of goods. The policy then aims to match both profiles and then locate each company on a location with an accessibility profile in accordance with its mobility characteristics.

ABC location policy asks for vertical co-ordination between transport planning, spatial planning and environmental planning sectors. In addition horizontal co-ordination between all levels of government and between municipalities is necessary. Various actors have various roles in this policy: the national level, provinces, the regional level, the local level as well as local actors. The instruments for this policy can mainly be found in spatial planning, based on the Physical Planning Act.

Success

The implementation of the ABC location policy is still in progress and until now little evidence on the success of the implementation is available. Studies have shown that the policy has had some effect since in 1991, 30.6% of the companies were located at the right place while 43.3% were located in the wrong place. However, in 1996 these percentages were 31.9% and 39.9% respectively. One example of successful implementation can be given by

the Dutch Ministry of Housing, Physical Planning and the Environment itself which moved to an A-location in 1992. 70% of employees changed the traffic mode: use of car decreased by 12%, use of public transport grew from 30% to 65%. Besides success, the implementation of ABC location policy offers some critical points, too. For instance parking restrictions are ignored in some A-locations, A-locations are often also as well accessible by car as by public transport. In addition it is criticised that ABC location policy gives too much attention to the destination instead of the origin of employees and visitors.

As the ABC policy mainly refers to location of new businesses, the total effects are relatively low at the moment. Scenarios show that on the long run ABC location policy is a promising instrument to change the mode choice towards environmental friendly modes.

Transferability

While the location policy is mandated by the central government, it is the responsibility of local planning authorities to apply the policy to any new business developments as they have included mobility and accessibility profiles in their legally binding local land use plans. This kind of planning mechanism is only possible in countries which have institutionalised regional planning with regional plans. Besides, the acceptance of and willingness to implement such a restrictive policy as the ABC location policy (including parking policy) might be less in other countries than in the Netherlands.

Groningen

The City of Groningen has a high density and is believed to have one of the highest levels of bicycle use in Europe, with up to half of all journeys of residences made by bicycle. Since the bicycle has traditionally been the most important transport mode in the city, it is seen as one of the main instruments in promoting integrated land use and transport planning in Groningen. But the high density and the reduction of distances which has led to high pedestrian and bicycle use is partly responsible for low public transport ridership. Strengthening public transport and guiding the functional development and the urban design of the city while stressing an integrated transport and land use approach is the reason why the city council adopted what is known as a structure plan, a comprehensive framework for future development.

A structure plan serves a strategic function from which to develop detailed land use plans. A structure plan is not legally binding but rather serves as a development programme for future (15 to 20 years) policy which has three functions or objectives; the Planning function to coordinate different policy sectors, the Regulation function to serve as a normative and administrative framework for local land use plans and decision making process, and the Elaboration function which outlines the investment policies needed for implementation.

The Structure Plan in Groningen has three main traffic policy elements; improving accessibility to the city centre, intensify densities in certain areas and optimise the ring road structure around the centre. The “intensification areas” are located near public transport junctions and cycle routes and are districts within the city where the integration of land use and transport will take special precedence. The Structure Plan also has measures limiting long-term parking and improving public transport and bicycle facilities.

The increased use of bicycles and the reduction of cars in the city centre has made the centre more attractive. The number of visitors and the turnover in retail in the centre raised to 5% per year.

Transferability

Elements of the case study of Groningen and especially the use of the Structure Plan may be transferable to other countries since the Structure Plan is not legally binding and serves as a guideline for all spatial policies of a municipality. The advantage of the Structure Plan is that since it is not directly binding and that most of the financial burden towards implementation is on private interests, it must stimulate co-operation between public and private actors which requires early involvement in the participation and planning process and can eventually lead to wider acceptance of the plan.

Of course the existing modal split which favours bicycles and the dense urban fabric of the city of Groningen must be considered when determining transferability. Other cities which have relatively flat terrain and similarities to the above mentioned characteristics could make use of the planning measures to further strengthen bicycle use through flanking land use planning measures which promote integration.

3.4.6 Promising practice

To appreciate promising land use elements which are important parts of integrated projects examined in the case studies, the category “promising practice” was included in the framework. These case studies are based on an innovative, integrated concept with large share in land use planning which was (partly) implemented. According to long term effects of land use elements success in relation to defined goals, sustainability cannot be evaluated yet. Estimation of success is possible when modelling these projects but they are not proven in real life. The following case studies are estimated as promising practice: VINEX dwelling location, the new districts Messestadt Riem, Potsdam Kirchsteigfeld, Freiburg-Rieselfeld and the urban redevelopment area Tübingen-Südstadt.

3.4.6.1 Avoidance of urban sprawl

VINEX dwelling location

In the Fourth Report on Physical Planning Extra or VINEX, the national government of the Netherlands mandates the choice of locations for large scale residential settlements to be based on a criteria favouring sustainable mobility. It concerns criteria like high-density settlements, located within urban agglomerations to limit urban sprawl and public transport accessibility. The priority of locating new large scale housing developments is in existing areas or “infill locations” and if possible in locations near the city centre and around public transport. If infilling locations are not available, then “expansion locations” must be clustered and situated near city centres. The state gives a fixed subsidy per dwelling at infill locations to promote densification while subsidies are not fixed at expansion locations, rather they are location specific.

An interesting legal tool used to implement the VINEX location policy is through *covenants*; non-obligatory agreements between all levels of the government and developers. The central

government makes voluntary agreements with the municipalities and provinces as to the exact locations of new dwellings, the procedural and financial conditions for their development (such as the number of units to be built) and the provision of infrastructure and soil decontamination. Although some VINEX dwelling locations were already implemented the overall success of project VINEX cannot yet be evaluated. At all, transferability of VINEX to other countries could be difficult referring to the special spatial and sectoral planning conditions in the Netherlands being a precondition for the implementation of VINEX.

3.4.6.2 Building of new districts based on an integrated concept

Messestadt Riem

Located 7 km from the city centre at the new trade fair Riem and already connected by a subway, this new mixed use district of 243 ha will provide 6,000 dwellings for 16,000 inhabitants, 13,000 work places and a large recreational area. The goal of the new development is to create a mostly independent district in order to reduce daily mobility distances by providing necessary services. There will be a large offer for service and supply to inhabitants and employees. The first building stage is already finished. The already implemented concept to reduce the number of parking lots per housing unit (0,75 instead of 1) was cancelled due to missing acceptance of inhabitants: Inhabitants did not accept to do without a parking lot of their own though the concept of reduced number of parking lots was cheaper for them.

The concept of Messestadt Riem includes many ecological aspects, for instance car use should be minimised by offering short distances inside the district. The underground to the city centre was already extended to this district when the first inhabitants moved in. This project is a product of a Local Agenda 21 process adopted by the City of Munich in which new building projects must integrate a housing area of 25% in order to reduce mobility needs. The project is realised by a public-private partnership between a private development corporation and the City of München. The concept of Messestadt Riem was honoured in several congresses for its sustainable aspects.

Freiburg-Rieselfeld

Innovative planning procedures were the background for building the new district Freiburg-Rieselfeld, including 4.800 residential units and 1.000 new work places. An important aim in the concept was to offer attractive public transport (tramway) as well as traffic calming zones even to the first residents in order to reduce car traffic (push and pull-strategy). Mixed use infrastructure was planned to be integrated in the district, mainly supply and services as well as schools and kindergartens. Social activities for the residents were strongly promoted. Open space was planned and designed under participation of residents, including special projects for children living in the district. In addition zones restricting car traffic but including cycle and foot paths and traffic calming zones were implemented. A car sharing project was offered only a few months after residents moved into Rieselfeld.

One very important success of Freiburg Rieselfeld was the building of attractive dense structures for different social groups (about 50% of dwellings were financed by public) in order to promote connection to public transport. Another success was the opening of a tram line with three stations in Rieselfeld, connecting Rieselfeld with the city center of Freiburg in a short travelling time. As some parts of infrastructure, mainly supply, are not integrated yet in

the district, less car dependency of inhabitants cannot be estimated at the moment.

Potsdam Kirchsteigfeld

Potsdam Kirchsteigfeld is one of the first examples of new mixed use residential and working areas in east Germany since German re-unification. The new development is based on a comprehensive concept of urban sustainability which takes into account social, economic and ecological aspects. The 60 ha of the site are divided into different patterns of land use for residential, commercial businesses and services, roads and public transport and for open spaces. Average developments are 3-4 storey apartment houses. Four months after completing the majority of the residential buildings, a tram line with high travel frequency to Potsdam centre was built into the new quarter. A marketing concept was developed to promote the use of public transport by allowing for a 35% fare reduction for residences commuting to work. A public workshop was carried out in order to promote communicative and integrative activities with the purpose of helping the residences identify themselves with their new home. One critical point of this project was that infrastructure for inhabitants, supply and services, was not implemented in the way it was planned.

Development of the new district was made possible through a public-private partnership in which the City of Potsdam and the State of Brandenburg made public funds available. The modal-split of Potsdam-Kirchsteigfeld in 1999 shows that the transport concept has had first good results with walking having a 44% share, car use 27%, public transport with 20% and bicycle use with a 9% share of the modal-split. But according to the short time since implementation durable success of Potsdam-Kirchsteigfeld cannot be seen yet.

3.4.6.3 Redevelopment of urban areas

Tübingen-Südstadt

This case study is an example of a redevelopment project in which mixed use structures aim to reduce travelling distances. The concept of Tübingen-Südstadt was to redevelop a former military area in a mixed use and compact way, including measures to reduce car traffic and promote walking and cycling. Several innovative planning tools were used to rebuild this area: the planning tool “Städtebauliche Entwicklungsmaßnahme” which allows “experiments” in urban planning, establishing the redevelopment area as a mixed use area in the legally binding development plan and the possibilities to reduce the number of parking lots according to German planning law. Parking lots in open space are offered to disabled car drivers, persons joining the car sharing projects and to deliveries. Another important aim was to attract mainly private investors for redeveloping Tübingen Südstadt, offering cheap conditions of estate.

Although not fully implemented, the project has succeeded in offering urban structures promoting a high quality of life. Short distances between housing, working, supply, services and leisure caused by mixed use promotes inhabitants walking and cycling in attractive open space. Some of the inhabitants live and work in the same building- most of the first floors of the buildings are used by offices, shops, services. Reduction of parking lots in open space promotes its attraction – residents participated in building their open space. Parking lots are offered in electronic multi-storey car parks at the edges of the district. Bus stations, connecting Südstadt with Tübingen city centre in a travelling time of about 10 minutes, are available for every resident in a distance of 300 meters. The new district is highly accepted by

residents and financing was ensured by very interested private investors who support the experiment known as the “city with short distances”.

3.5 Framework of transferability

After examining the twenty-six case studies and their measures towards integration, a number of similar measures occur in case studies located in different countries. An examination of these similar measures and the political and legal context in which they are located in can help to identify the level of transferability of these measures to other countries. The following is an overview discussion of those recurring measures and a discussion as to their level of transferability.

3.5.1 Measures of high transferability

The following measures are easily transferable since they are not dependant on legal or institutional frameworks which may vary greatly in different countries (see Deliverable 2b). Important for the successful implementation of the following measures is often the need for supportive measures which are not dependant on legal or policy frameworks, rather they are dependant on political will and public infrastructure investment and in some cases private financial support. While such support is not always easy to obtain, it is considered easier to transfer practices which are dependant on infrastructure investments rather than changing behaviour, as mentioned in the proceeding measures. Measures are identified as well as their supportive measures.

Investment Measures (hard policies):

- Expanding bicycle paths (Gävle, Strasbourg and Groningen).
- Promoting walking by building attractive footpaths (Tübingen-Südstadt, Potsdam Kirchsteigfeld, Freiburg-Rieselfeld, Euralille)
- Extending light rail, tram and underground lines (Manchester, Strasbourg, Rennes, Munich, Freiburg-Rieselfeld).
- Extending bus lines (Strasbourg, Bologna, Tübingen-Südstadt, Potsdam, Messestadt Riem, Freiburg-Rieselfeld)
- Increasing public transport stations (Euralille, Tübingen-Südstadt, Freiburg-Rieselfeld, Potsdam Kirchsteigfeld, Rennes).
- Intermodality- public transport modes linked at intermodal transport nodes (Euralille).

Supportive Measures (soft policies):

- Marketing / information campaigns (Gävle: marketing campaigns to increase citizens attitude towards cycling).
- Public participation in planning and implementation process (Tübingen-Südstadt, Freiburg-Rieselfeld, Manchester, Madrid).
- Communication between decision-makers, investors and citizens (Tübingen-Südstadt, Freiburg-Rieselfeld, Gävle, Manchester).
- Public-Private partnerships to complete construction of projects in a timely and less expensive manner (Manchester Metrolink, Messestadt Riem, Euralille, Freiburg-Rieselfeld).

- Mobility Management, for instance car-sharing projects (Tübingen-Südstadt, Freiburg-Rieselfeld, Messestadt Riem)

3.5.2 Measures of good transferability

The following are mainly restrictive measures to reduce car traffic. These measures can be applied to any country, but are considered a bit more difficult to transfer since restrictive measures are not always accepted by the public and investors and require the right political environment:

- Restricting car use in city centres (Bologna, Strasbourg).
- Traffic calming zones / speed limits (Tübingen-Südstadt, Bologna, Potsdam Kirchsteigfeld, Freiburg-Rieselfeld, Poundbury).
- Small-scale car free zones (Tübingen-Südstadt, Freiburg-Rieselfeld, Messestadt Riem).
- Car free areas (Camden, Edinburgh).
- Car free housing (Messestadt Riem, Freiburg-Rieselfeld)
- Supplying Park and Ride facilities (Strasbourg, Tübingen, Bologna).

3.5.3 Transferable measures requiring certain political instruments

Land use measures which can promote the integration of transport and land use often require certain political and legal instruments which are not always present in many countries. As opposed to the above mentioned measures, the following are not always present at the local level but rather on a regional level which reduces the level of transferability:

- Mixed use developments in existing structures / redevelopment projects: Implementing such measures in existing structures is much more difficult compared with new districts developed on open spaces since local residences often believe that such measures could possibly reduce their quality of life. Therefore, legal planning measures such as redevelopment acts (Tübingen-Südstadt) can be used to grant planning authorities more power and flexibility. The case studies have also shown that public involvement in the planning process can improve the success of such measures (Madrid neighbourhood associations and regional planning authority and Tübingen-Südstadt public workshops).
- Increasing densities in existing structures: The same problem exists as mentioned above with mixed use measures and often require regional involvement (VINEX dwelling location policy, Madrid, Tübingen-Südstadt). Such measures are often supported by agreements between public and private parties (VINEX covenants and Madrid convenios).
- Institutional co-operativism: When land use and transport planning authorities work together during the planning and implementation phase of municipal development or redevelopment plans (Rome Mobility Agency STA, Copenhagen Finger Plan, Groningen Structure Plan) or region wide planning (Madrid Consejería, joint Research Union for the Greater Toulouse Agglomeration, Association for the Revitalisation of Metropolitan Bilbao, District of Rennes, Canton de Vaud), the success rate of reaching goals increases in most cases.

3.5.4 Measures which might be difficult to transfer

A number of case studies seem to be effective in promoting sustainable transport and urban development by efficiently locating urban developments which support decentralised concentrations. As previously mentioned in Deliverable 2b, the higher a level of government is responsible for implementing a planning policy, the less transferable such a policy is to other countries. This is in part due to the need for the central government to dictate policy to local planning authorities of national spatial policies (VINEX and the ABC Location Policy in the Netherlands) in a time in which most countries in the EU have protected the planning sovereignty of local governments in a bottom-up rather than a top-down approach. Reorganising the spatial structure of cities in favour of sustainable transport can be difficult and dependant on several factors. The siting of the right land use at the right location with respect to sustainable mobility may conflict with the location needs of businesses and industries and restrictions in site locations may heighten fears by investors.

The temporal factor may also reduce the ability for measures to be transferred to other countries. There is evidence that adherence to a long-term development vision (Finger Plan of Copenhagen) can promote the integration of transport and land use planning by encouraging decentralised urban development. Allowing for a development vision to be flexible but at the same time adhering to the concepts of the vision regardless of temporary economic or demographic conditions may require decades and a good amount of patience until success can be measured.

3.6 Summary of the findings

The results of the project Transland according to best practice must be seen in relation to the twenty-six chosen case studies. Referring to the scope of Transland, innovative policies in integrated planning are mainly new projects which were implemented in recent years or are still in an implementation phase.

The choice of case studies influences the number of best practice case studies as well as results according to their transport and land use planning policies. Elements of transport planning could be realised and proven as successful in the short run while land use planning is more persistent and its implementation is more difficult. Considering the long term scale of land use planning effects both categories best practice and promising practice (potential best practice) are identified.

The Transland results clarifies the need for further research about the interaction between transport and land use. Success of case studies was mainly evaluated referring to the spatial level the projects are implemented in. Examination of direct and indirect impacts of integrated projects to higher and lower spatial levels would be important, too. Further interest should be given to examination of additional case studies in existing spatial and transport structures which promote sustainability.

The results of case studies examination shows that most successful elements are transferable. Four levels of transferability are examined: Measures of high transferability (investment measures and supportive measures), measures of good transferability (mainly restrictive measures), transferable measures requiring certain political instruments (mainly in the field of land use planning / integrated planning), measures which might be difficult to transfer (mainly

specific political frameworks). No project / planning approach is completely transferable however transferability does include "learning from each other".

Precondition for transferability are in some cases the structure of locations: some elements of best practice are mainly transferable to the same structures as shown in the case study (for example connection to attractive public transport depends on a nearby existing network of public transportation; development of a new district with compact dense structures is mainly possible in open space / redevelopment areas) and some elements of best practice can be implemented elsewhere (for example, implementation of an infrastructure which promotes cycling could be implemented in existing structures as well as in structures newly developed). Most of the elements are transferable to other EU-countries, mainly to countries of category A and B according to their planning framework.

Another important finding is the role of soft policies for success of integrated transport and land use planning. Most of the examined innovative planning approaches already include soft policies to ensure the acceptance of measures and influence citizen's behaviour. The identified best practices show, that a good spatial organisation linked by a well balanced transport network can be considered as one precondition for enabling sustainable mobility. But success of these structures is highly related to soft policies targeting people's behaviour when using these structures.

4 RESEARCH AGENDA

4.1 Introduction

4.1.1 Objectives

This chapter aims to develop a research agenda for the EU in the field of integrated transport and land use planning. As mentioned earlier, the research agenda should be related to the ‘what’ question, i.e. the interaction between land use and transport (system analysis, concepts, tools), and the ‘how’ question, i.e. the institutional and organisational issues related to integrated planning approaches.

Former experiences, and the state of the art and practice review outlined in Chapter 2, have underlined the importance of integrated land use and transport planning to enhance sustainable urban development. The objective of the research agenda is to support the improvement of the efficiency and effectiveness of these integrated planning approaches. The agenda should also address the possible role of the EC in this field. The EC has its own responsibility in policy development and legislation on some aspects of integrated urban land use and transport planning, and can play a role in stimulating research and development activities and the exchange of knowledge and experiences in this field. The objectives of the 5th Framework Program⁴ provide an important reference in this perspective.

Given these objectives of the research agenda, some criteria have been formulated which are used as a reference for generating and selecting research suggestions. The consulted experts were asked to keep these criteria in mind when providing their input to the discussion. These criteria can be described as follows:

- Lack of understanding (lack of explanatory and forecasting capabilities, scientific relevance)
- Needs for resolving (strategic and operational policy relevance, political actuality)
- Rational for EC involvement (contribution to objectives, need for community involvement, e.g. in relationship with the structural funds)
- Research investment effectiveness (return on investment from a policy point of view, short-term benefits, dissemination spin off, improvement of effectiveness and acceptance of policies, potentials for policy innovation and new win/win opportunities).

4.1.2 Approach

The development of the research agenda in the Transland project is carried out in a number of steps:

1. inventory of the state of the art in land-use transport interaction and integrated policy making (Section 2.1);
2. international expert workshop to discuss the scope and outline of the research agenda
3. consultation by e-mail and face to face interviews of various experts in the field

⁴ Especially within the thematic programs of Preserving the Ecosystem’ (key action ‘City of Tomorrow’) and ‘Competitive and Sustainable Growth’ (key action ‘Sustainable Mobility and Intermodality’)

4. inventory of research suggestions from various national and international research programs and the EC framework programs
5. composition of a gross list of research suggestions related to the 'what' and 'how' issues
6. construction of a short list of preferred research themes, by setting out priorities in the research themes and topics, given the suggestions gathered among the consulted experts
7. formatted description of the selected research themes (description, problem statement, objectives, approach/research methods, role of the EC, expected results)
8. assessment of the selected research themes, given the criteria chosen for the research agenda
9. reporting the results and conclusions

4.1.3 Contents

This chapter describes the proposed research agenda. It starts with a short problem statement in Section 4.2, describing the needs and opportunities for research in the field of integrated Land Use and Transport planning. Section 4.3 presents the gross list of the research suggestions gathered related to the 'what' and 'how' issues, and the selected items for the short list for the finally proposed research agenda. Section 4.4 provides a further clustering and systematic description of the selected research themes. Finally, in Section 4.5, the selected research themes are assessed, given the criteria related to scientific and policy relevance, and expected research outcomes.

4.2 Needs and opportunities for research in the field of integrated Land Use and Transport planning

Daily human activities are performed at different locations, at different moments in time. Urban systems facilitate these activity patterns. Urban systems consist of different activity places, spread out in space, but spatially concentrated in a relatively dense area, and linked together by a transport system. Transport and land use form a natural alliance. Together they determine the spatial organisation of an urban area. Optimising this spatial organisation is, by nature, an issue of well-balanced land use and transport planning.

Travel demand is determined by individual needs to perform different activities on different places. The transport system is designed to fulfil these needs. However, external conditions put constraints to the possibilities to facilitate these demands. Transport is a form of consumption of scarce goods such as money, space and our environmental 'stocks'. There is a constant need to balance out the costs and benefits within the system, both on an individual and a system level. This balance is constantly shifting, among others due to increasing welfare, car ownership and urban sprawl. This calls for the permanent adaptation of good and efficient transport systems in urban areas, and for comprehensive and well-balanced land use developments, minimising necessary trip distances, maximising accessibility, and providing optimal conditions for a liveable urban environment and a competitive position of sustainable modes of transport.

So far, so good, but daily practice is not that straightforward. In fact, we face many thresholds in our modern urbanised areas in trying to achieve an optimal spatial organisation by means of integrated land use and transport planning:

1. The system is very complex. Desired policy interventions are difficult to identify and to implement, and can cause numerous undesired side effects.
2. The institutional planning field is also very complex. Many stakeholders are active in various interfering spatial levels of decision making. Recent trends towards decentralisation of governmental competencies and budgets, growing importance of the supra urban, regional scale of network cities and global economies, privatisation, and growing importance of citizens participation have reinforced this complexity, but also tend to raise new possibilities for planning approaches and coalitions (like PPS)
3. Many components of the urban system are facing revolutionary developments that can strongly change the urban scene. Examples are new automated and very environmental friendly transport system, developments in Information and Communication Technology and Telematics, and new concepts and constructions for the building stock, such as multiple land use. For most of these developments, the long term perspectives are uncertain by nature. This puts a heavy claim on the flexibility of the urban system.
4. Finally, the driving forces in the various economic and social sub markets within the urban system tend to diverge more and more, enhancing growing differences between individual and collective or system needs.

To overcome these thresholds, and to benefit from the potential high contribution of integrated land use and transport planning to sustainable urban development, the EU member states are facing a massive challenge. This challenge can only be dealt with by constant innovation in policies, institutional building and sharing experiences. This calls for a solid framework, in which knowledge and experiences are brought together. Of course we don't have to start at level zero, but further research and policy development is strongly needed on various levels of scale to further elaborate this framework. The EC, as an important vehicle for trans-European collaboration, can and should play a vital role in this process.

In the Transland project, the quest for high priority research themes has yielded a whole range of interesting land-use transport research topics, varying from very fundamental to very practical issues, both in the field of the what and the how questions. A first attempt to prioritise these topics is carried out, resulting in a list of 16 research themes which tend to be suitable to be addressed in EC research programs. The next sections describe the process of generating and selecting research ideas.

4.3 Research suggestions and priorities

4.3.1 'What' questions

4.3.1.1 Thematic structure

In Section 2.1.1, a comprehensive representation of the Land Use Transport (LUT) feedback circle has been presented and discussed (figures 2.1 and 4.1). The circle illustrates some of the basic dynamics between land use and transport. These dynamics are influenced by external developments in society outside the system itself (such as economy, lifestyles, ICT etc). On the other hand, the dynamics in the LUT system will have a major impact on city life and the social, environmental and economic development of urban areas. Understanding the dynamics in the LUT system, its interaction with external conditions, and its impacts on the (urban) society will be the key challenge for the research agenda. Theories, concepts, scenarios, empirical research and analysing tools will all have to contribute to these insights and the way

they can contribute to a better integration of land use and transport planning. There is a need for a balance between applied, policy-oriented research and independent, more fundamental research.

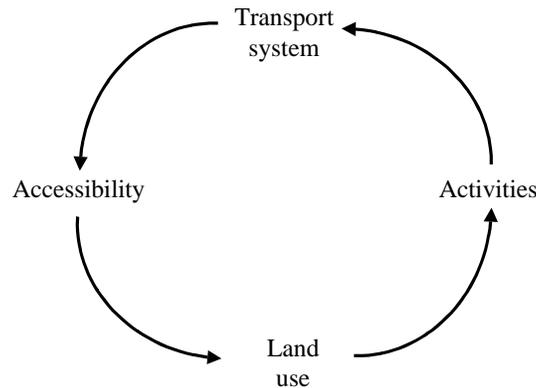


Figure 4.1: The basic Land Use Transport feedback circle

To address these different aspects of the ‘what’ research questions, the research agenda is generated using a classification of six main issues (figure 4.2):

1. External conditions effecting the LUT system
2. The analysis of the LUT system (system definition, system design, steering concepts)
3. The effects of Land Use on Transport
4. The effects of Transport on Land Use
5. Impact assessment: the way processes in the LUT system have an impact on policy objectives related to sustainability, such as environment, liveability, equity, accessibility and safety
6. Tools for modelling the LUT system and to support integrated LUT policy development

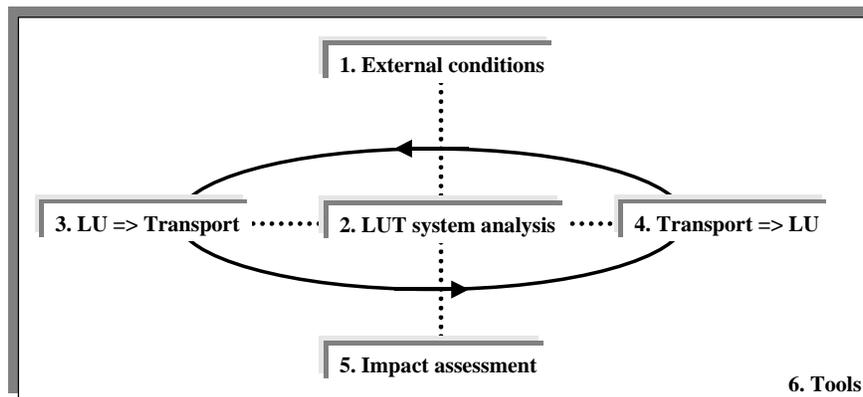


Figure 4.2: Key research issues for the LUT system

4.3.1.2 Gross list of research topics

The starting point for the identification of the ‘what’ research topics within Transland was the state of the art overview, outlined in Section 2.1. The overview indicated current gaps in

knowledge and suggestions for further research. These suggestions are summarised in Annex 6.

On the basis of this overview, and given the research criteria described Section 4.1.1, a group of experts discussed the contents of the research agenda on an international workshop in Reading. The resulting gross list of research themes is further elaborated and refined by interviews, e-mail consultations and an inventory of research recommendations from various national and international research programs⁵. Table 4.1 presents the resulting gross list of ‘what’ research topics, grouped by the six issues distinguished in figure 4.2. This table also shows how the priorities in the gross list are set. The last two columns indicate:

- the research priorities, as stated by the workshop participants, the experts consulted by e-mail and interviews, and/or on the recommendations from international research programs; and
- the theme numbers for those topics which are included by the Transland consortium in the final short list of research themes.

⁵ Including the Fourth Framework program of the EU

Table 4.1: Gross list of 'what' research topics

'What' Issues	'What' Key Research Topics	Experts priorities ⁶	Selected theme number.
1. External conditions	<ul style="list-style-type: none"> ✓ Effects of ICT developments on urban activity patterns, the allocation behaviour and spatial organisation in urban areas, and on cities logistics (a.o. e-commerce) ✓ Scenarios for the 'city of tomorrow' and its role in future society (based on social and technological trends, addressing demands, risks, inherent uncertainties, flexibility/robustness) ✓ Trends in (urban) life styles and activity spaces, and resulting demands for the urban economy and the urban environment 	<ul style="list-style-type: none"> ** ** * 	<ul style="list-style-type: none"> 1, 5 1 1
2. LUT system analysis	<ul style="list-style-type: none"> ✓ Allocation behaviour of companies and households (preferences, relevant attributes, choice behaviour) ✓ The role of accessibility, taxes and fiscal measures in allocation decisions ✓ Investment behaviour of large investors ✓ Trade offs between transport costs and land use costs ✓ How to improve residential attractiveness of cities ✓ Interactions between cities and their hinterland ✓ Effects of time and money budgets on activity patterns / daily urban space ✓ New analogies to understand the urban system and its reactions to interference's (e.g. self regulating systems etc.) ✓ Effects of transport qualities on spatial segregation ✓ Time dynamics in urban systems: short term and long term effects within and between different sub systems ✓ Boundary scenarios for urban design in a future without the car, PT or even cities ✓ Trend break scenarios (energy use and emissions) ✓ Design of integrated local and regional concepts for sustainable spatial organisation of urban areas (comprehensive urbanisation patterns and transport systems) ✓ Concepts for integrated area development (and their costs and benefits) 	<ul style="list-style-type: none"> ** ** * ** * ** * ** * * * * * 	<ul style="list-style-type: none"> 2 2, 12 4 4 3 6
3. Effects of Land Use on Transport	<ul style="list-style-type: none"> ✓ Impacts of urban design on travel patterns (mixing, density etc.) ✓ Impacts of land use patterns on the accessibility and the economic performance of urban areas ✓ Effects of land use characteristics on trip chaining, e.g. non home based trips ✓ Design of urbanisation patterns stimulating the use of PT and Non Motorised Modes ✓ Group specific effects between and within homogeneous groups ✓ Effects of developments in logistical organisation (production, inventory, distribution) on urban freight transport ✓ Developments in, and mobility characteristics of recreational activities and large scale trade, entertainment and shopping facilities ✓ Effects of 'big events' on travel demand ✓ Best practice: assessment of successful transport measures affecting land use 	<ul style="list-style-type: none"> ** ** * * * ** ** ** ** 	<ul style="list-style-type: none"> 6 6 6 6 5 6 9
4. Effects of	<ul style="list-style-type: none"> ✓ LU implications of new concepts for urban transport in the field of 	<ul style="list-style-type: none"> * 	<ul style="list-style-type: none"> 7

⁶ ** = high priority; * = medium priority; blank = low priority

<i>Transport on Land Use</i>	<p>traffic information, traffic management, vehicle technology (urban car, collective car etc.), transport concepts (new PT systems with P&R and P&K facilities) and infrastructure (tunnelling, traffic separation etc.)</p> <ul style="list-style-type: none"> ✓ Trends in travel behaviour and their consequences for urban organisation ✓ Effects of PT improvements (transit, HST) on LU and activity patterns ✓ Potential role of parking policies in integrated land use and transport planning ✓ Impacts of TEN and mainports on urban development (within urban areas, between urban areas, interactions between urbanised and non urbanised areas) ✓ Effects of (upgraded) infrastructure nodes on LU patterns (spatial structuring effects) ✓ Potentials and needs for intermodality in urban areas ✓ Effects of travelling costs developments (e.g. fuel price scenarios) on urban organisation and land use patterns ✓ Best practice: assessment of successful urban land use measures affecting transport 	<p>* * * ** ** ** * **</p>	<p>1 7 7 7 7 12 9</p>
<i>5. Impact assessment</i>	<ul style="list-style-type: none"> ✓ Definition of policy objectives related to sustainable urban LU and transport development and development of operational (quantified) criteria ✓ Measurement of life quality in urban areas (also non transport aspects) on different levels of scale (and positive and negative interactions between levels of scale such as neighbourhood, city urban area, region, nation wide) ✓ Methodologies for integrated impact analysis of GTI policies (environment, economy, social) ✓ Methodologies for package evaluation (synergetic effects of set of measures) ✓ Methodologies for analysing differences in short and long term effects 	<p>** * * **</p>	<p>10 10</p>
<i>6. Tools</i>	<ul style="list-style-type: none"> ✓ Innovations in LUT system modelling: Activity Based Modelling, GIS, (Dynamic) Micro Simulation, Time and Money Budgets, Modelling of location behaviour and land use competition ✓ Decision Support Systems for urban design (best practices, simulation, design cycles support) ✓ Development of impact assessment tools (group, aspect and area specific) ✓ Development of benchmarking tools, comparing Land Use and transport characteristics and policies between urban areas in Europe ✓ Validation issues with respect to Land use transportation interaction (data, methods) ✓ Tools to communicate research suggestions, needs and findings among researcher and policy makers ✓ Further development of robust and transferable 'state of the practice' Land Use Transport Interaction models, based on a modular approach 	<p>** * * * * *</p>	<p>8 11 10 11 8</p>

4.3.1.3 Research priorities: from gross list to short list

Table 4.1 has given an overview of the research priorities indicated by the consulted experts and practitioners (column ‘expert priorities’). Based on this feedback, and given the criteria for the research agenda as indicated earlier in this chapter, the Transland consortium members discussed the research themes, which deserve a high priority within the EC and the EU member states. The resulting selection of 12 ‘what’ themes is listed in table 4.2. In table 4.1 it is also indicated to which research topics of the gross list these 12 selected themes refer to (column ‘selected theme number.’). The 12 selected research themes are worked out in more detail in the next section.

Table 4.2: *Selected high priority research themes related to the what questions of integrated urban land use and transport planning*

1.	The future of our cities
2.	Driving forces in allocation behaviour
3.	Time dynamics of land use and transport
4.	Linkage between inter-urban and intra-urban relationships of cities
5.	City logistics and freight transport in urban areas
6.	Impact of urban form and organisation on travel patterns and transport needs
7.	New transport systems and their effect on Land Use
8.	Innovations in LTI modelling
9.	Best practice assessment (efficiency, effectiveness, and transferability)
10.	Harmonisation of definitions and indicators in the context of sustainable land use and transport
11.	Communication and dissemination tools (benchmarking, databases, expertise networks, knowledge management etc.)
12.	Financial interventions: the effects of pricing in interrelated land use and transport developments

4.3.2 ‘How’ questions

4.3.2.1 Thematic structure

Better balanced LUT solutions require a better integrated planning approach. In the state of the art overview, Transland has identified several opportunities and barriers for integrated planning, related to the complexity of the institutional and organisational frameworks in the member states. The innovations required in the planning process can be clustered in two main issues: ‘new relations in planning’, and ‘growth management / managed growth’.

New relations in planning

Kreukels (1994, 1997) states that the traditional notions of hierarchical governmental planning relations are outdated. New governmental planning relations show us a mix in level of operation and temporal horizons. Next to this there is a development towards more and more coherent relations between public partners, private partners and (community) interest groups. The traditional planning scheme is based on horizontal and vertical co-ordination mechanisms. The modern planning scheme needs other co-ordination mechanisms in order to allow for coherent planning. In the Netherlands for instance, there have been several experiences with diagonal planning/diagonal co-ordination: a combination of co-operation between several governmental levels and between relevant governmental agents on one specific governmental level (and sometimes with private partners as well). This leads to one

planning and implementation process in which all relevant governmental agents co-operate in a project team. In this type of planning the governmental role shifts towards a role as project- and process manager. A more recent development is towards public and private agents participating within the same project team. Figure 4.3 shows the basic elements of the modern planning scheme.

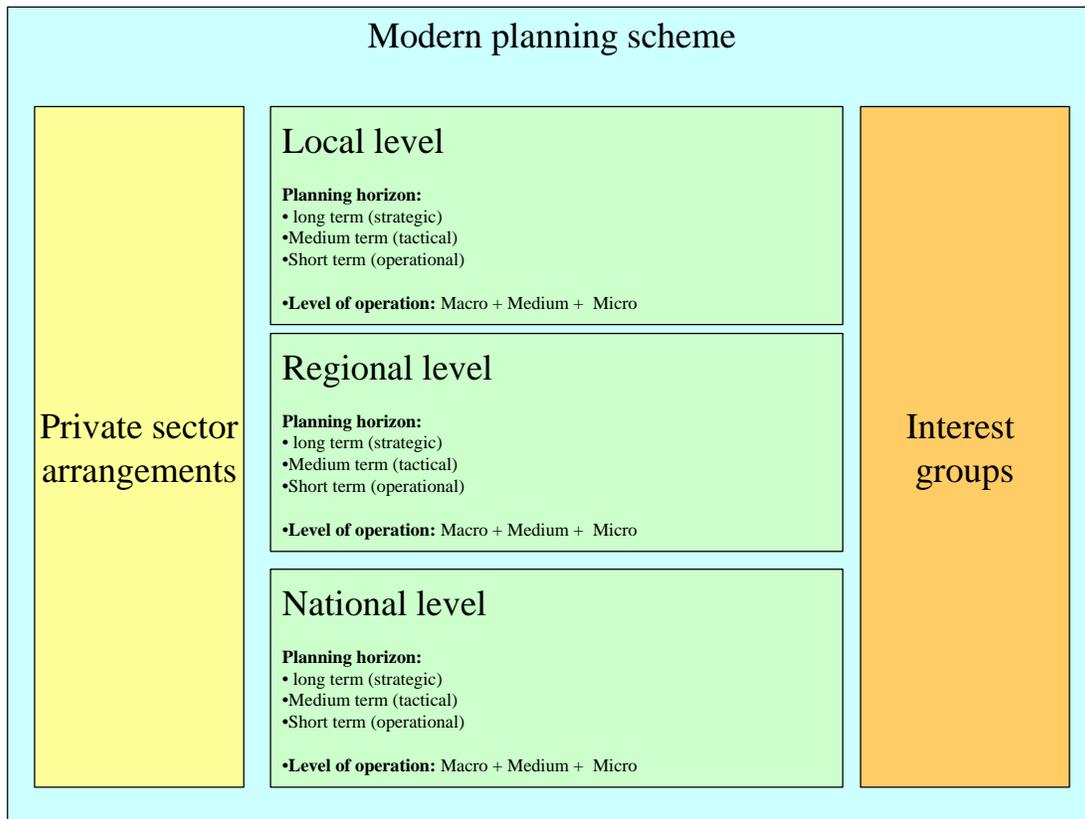


Figure 4.3: Basic elements of modern planning scheme

Growth management / managing growth

Integration of policies can take place on any level of scale, but in practice somehow seems to focus on a (sub)regional level. This seems to be the level on which means, opportunities and goals can be logically tied together. The (sub)regional level of scale however is not a fixed one, but it can be adapted depending on the topic that is tackled. In general a focus on the following levels can be expected:

- The city and the surrounding area;
- Parts of countries (e.g. Randstad in the Netherlands);
- Cross-border regions.

The idea of regional-scale planning can also be traced in the Growth Management / Managed Growth Approach. The results of the integration process should be seen as the results of a negotiation process between relevant (national, regional and local) agents. These agents can be private parties or can be governmental parties, but can also be representatives of local

communities or intermediate organisations / pressure groups. The negotiation process usually results in ‘trade-offs’ between the different interests (figure 4.4). This means that the outcomes of policy shifts from ‘fixed targets’ towards ‘trade-offs’.

This shift towards negotiated planning between public and private sector also means a shift towards other planning mechanisms like public private partnerships, but also towards other (financially based) means of intervention. Policy becomes more and more flexible, interactive and dynamic instead of fixed and static. Governance (dynamic relations) is the leading principle instead of government (fixed structures).

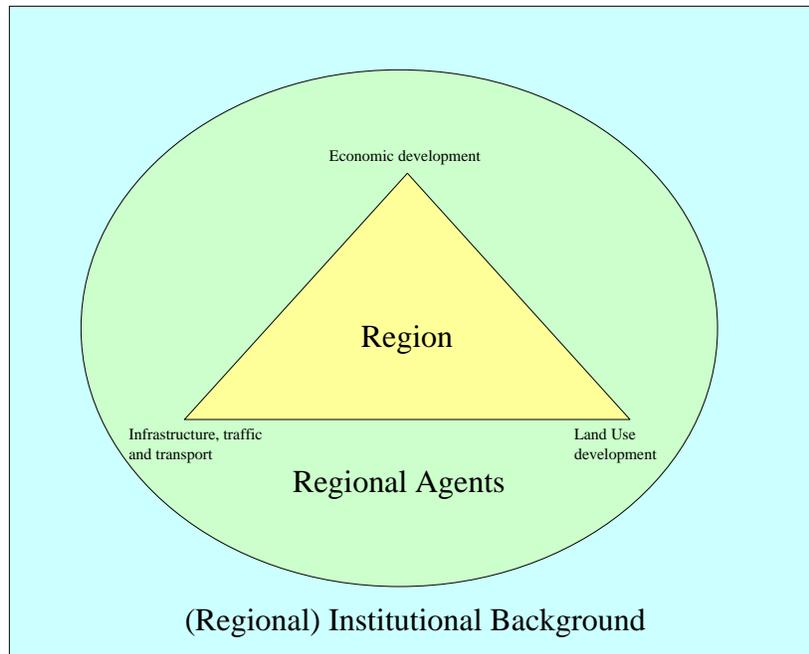


Figure 4.4: Principles of urban growth management

‘How’ issues

To address these two innovation issues of the ‘how’ research questions, the ‘how’ research agenda is structured around four main themes:

1. Institutional background (insights in operational planning frameworks and efficient planning instruments in EU member states)
2. New coalitions in integrated planning
3. New intervention mechanisms
4. Tools and methods to support integrated planning processes

4.3.2.1 Gross list of research topics

Just as with the ‘what’ research questions, the starting point for the identification of the ‘how’ research topics within Transland was the state of the art overview in Deliverable 2b, outlined in Section 2.1. The overview indicated current gaps in knowledge and suggestions for further research. These suggestions are summarised in Annex 6.

On the basis of this overview, and given the research criteria, a group of experts discussed the contents of the research agenda at the international workshop in Reading. The resulting gross list of research themes is further elaborated and refined by interviews, e-mail consultations and an inventory of research recommendations from various national and international research programs⁷. Table 4.3 presents the resulting gross list of ‘how’ research topics, grouped by the four issues distinguished in paragraph 4.3.2.1. This table also shows how the priorities in the gross list are set. The last two columns indicate:

- the research priorities, as stated by the workshop participants, the experts consulted by e-mail and interviews, and/or on the recommendations from international research programs; and
- the theme numbers for those topics which are included by the Transland consortium in the final short list of research themes.

⁷ Including the Fourth Framework program of the EU

Table 4.3: Gross list of 'how' research topics

Issues	'How' Key Research Topics	Experts priorities ⁸	Selected theme nr.
1. Institutional background	✓ Comparison of 'effectiveness' of different planning systems of several EC partners. Identification of policy measures that have succeeded in substantially affecting land use planning (in a pro-sustainable way). Additional research to agree on how to measure 'effectiveness' is needed.	**	1
	✓ Implications of implementation theory for likely practical outcomes of contra-market planning policies	*	6
	✓ Political acceptability of major changes in behavioural patterns; in what ways can we contribute to this political acceptability → chances and threats, pros and cons of several intervention mechanisms in the light of the emerging practice of negotiated planning.		
	✓ Mixed Land Use as a new land use/transport integrator: chances and threats, pros and cons	**	4, 8
	✓ The role of spatial investment strategies (growth management / managed growth) of private (and sometimes public) partners as a means of stimulating integrated development	*	2, 5
	✓ Evolution of legal and political frameworks based on EU wide concepts and criteria (decentralisation, subsidiarity, sharing of financial responsibilities, authorisation and control powers between level of governments etc) focusing on the public policy administration reforms going on in the EU countries.	*	2, 5
	✓ Relations between necessary flexibility in scale of 'problem solving' and stable institutional background.		
✓ Harmonisation of land use and transport legislation and policy in EU member states			
2. New coalitions	<u>a. Roles and functions of public and private agents</u>		
	✓ Decision making by investors / role of landowners / public transport organisations etc and their impact on actual land use	**	6
	✓ New roles for governmental agents: negotiator, process manager, project manager, stimulator, knowledge broker: what new roles are there, what new roles are efficient, what do new roles mean for governmental organisations, their skills and their influence on land use	*	6
	✓ Local/ community involvement in land use and transport planning	*	7
	<u>b. Organisational structures</u>		
✓ Comparisons of several new organisational structures (project based planning, functional regional organisations, integral regional organisation): strengths and weaknesses / pros and cons			
✓ Relations between new organisational structures in planning and policy implementation and institutional background → preconditions for success in different countries, lessons learned	*	1, 6	
	<u>c. Relations in co-ordination</u>		
✓ Diagonal planning/co-ordination			
✓ Role of regional planning in co-ordination in EU perspective			
✓ Appropriate spatial scale for policies in context of spatial externalities			

⁸ ** = high priority; * = medium priority; blank = low priority

3. New intervention mechanisms	<u>a. Legally based</u> ✓ Impact of upper governmental level legislation as a framework (or barrier) for regional and local government action ✓ Possibilities for mitigation and compensation under current legislation ✓ Development of Mixed Land Use planning standards (density, third dimension)	**	2, 5
3. New intervention mechanisms cont'd	<u>b. Financially based</u> ✓ Comparison of land policy mechanisms: strengths and weaknesses / pros and cons. ✓ Fiscal powers and taxing → How can they be used to shape land use and transport choices (how are they used and with what effects?) ✓ The role of EU structural funds, central/regional grants and development subsidies to support local land use and transport policies. ✓ Economic valuation of f.i. the existence of infrastructure or accessibility in terms of opportunities ✓ Possible effects of public (pre) investments policies	**	1 4
	<u>c. Negotiation based</u> ✓ The development of new communicative /interactive /participatory approaches of decision making instead of top down concepts or models → preconditions for success, manual/instructions for successful implementation of communicative processes ✓ Public private partnerships → preconditions for success ✓ Relation between negotiated planning and legal frameworks and enforcement ✓ Mechanisms for mitigation and compensation	** ** *	7 8 7
4. Tools	✓ Methods for organising and facilitating planning decision processes and citizen participation ✓ The role of new media in decision making processes (Group Decision Instruments, GIS-based DSS systems, interactive design tools) ✓ Benchmarking systems ✓ Monitoring systems	* * *	3 1 3

4.3.2.2 Research priorities: from gross list to short list

Table 4.3 has given an overview of the research priorities indicated by the consulted experts and practitioners (column ‘expert priorities’). It turned out that most of these priorities relate to issues in the field of institutional backgrounds (recent changes, comparison of different systems, etc.), new coalitions (roles and functions of public and private agents, organisational structures), and new intervention mechanisms (financially and negotiation based).

Based on this experts feedbacks, and given the criteria for the research agenda as indicated in the introduction of this working paper, the Transland consortium members discussed the research themes, which deserve a high priority within the EC and the EU member states. The resulting selection of 8 ‘how’ themes is listed in table 4.4. In table 4.3 it is also indicated to which research topics of the gross list these 8 selected themes refer to (column ‘selected theme nr.’). The 8 selected ‘how’ research themes are worked out in more detail in the next section.

Table 4.4: Selected high priority research themes related to the how questions of integrated urban land use and transport planning

1.	Comparative assessment of effectiveness of land use transport policies in relation to the institutional background of the different EC partners (best practices)
2.	Harmonisation of legislation
3.	Systematic monitoring and communication of effects
4.	Financial intervention mechanisms
5.	Regional Level and institutional frameworks
6.	New governance mechanisms
7.	New negotiation based intervention mechanisms: participatory / interactive methods to involve citizens and other stakeholders
8.	Public Private Partnerships

4.4 Formatted description of selected research themes

4.4.1 Introduction

In this section the selected ‘what’ and ‘how’ research themes are listed together and generally described. Annex 7 contains more detailed descriptions. The ‘what’ issues provided 12 themes, the ‘how’ issues 8 themes. It appeared that four ‘what’ themes dealt with comparable topics as 4 of the 8 ‘how’ themes. These four common themes are:

- Best practice assessment
- Harmonisation (definitions, indicators, legislation)
- Monitoring, communication and dissemination tools
- Financial interventions

Combining these four common themes has resulted in a final list of 16 recommended research themes, as indicated in table 4.5.

The aim of the Transland project is not to provide extensive project proposals. The 16 theme descriptions in this chapter aim to guide future research efforts, to demarcate research themes and to indicate promising research leads. Consequently, the descriptions do contain choices while at the same time they are kept fairly general. All themes are described using a fixed format with the following content:

- Theme description
- Problems
- Objectives
- Research method
- Possible role for the EC
- Expected results

Table 4.5: Final list of the 16 ‘what’ and ‘how’ research themes

<i>Type</i>	<i>Theme title</i>
What	<ol style="list-style-type: none"> 1. The future spatial organisation of our cities 2. Driving forces in location choice behaviour 3. Short and long term dynamics in the Land-Use Transport system

	4. External relationships of cities 5. City logistics, freight transport and land use patterns in urban areas 6. Impact of urban form and spatial organisation on transport needs 7. New Transport Systems and their effects on urban travel and land use patterns 8. Innovations in land-use transport interaction modelling
What & How	9. Best practice assessment of integrative urban policies 10. Harmonisation issues in sustainable land use and transport 11. Communication, and dissemination tools for integrated LUT-planning 12. Financial intervention mechanism
How	13. Integrated Regional Policy Development and Institutional Frameworks 14. New governance mechanisms enabling integration of land use and transport policies 15. Public private partnerships 16. Developing integrated land use transport policies with the use of participatory approaches

This section contains the first part of the format: the theme descriptions. The full formatted descriptions can be found in Annex 7.

4.4.2 Theme descriptions

Theme 1: *The future spatial organisation of our cities*

Many current trends in society (demographic, economical, social, cultural, environmental, political, ICT, other technology) will shape the future of our cities. There is the need to understand the consequences for spatial organisation (allocation and land use of activities and their interaction in space and time) in urbanised areas in the future (10 to 30 years ahead), the resulting demands for LUT system, and the trends and opportunities for sustainable urban development.

Theme 2: *Driving forces in location choice behaviour*

Investigations into the location choice behaviour of companies, households and public facilities, establishing the factors governing location choice and the role of transport facilities. Key issues include identifying the main driving forces, especially the role of market forces and institutional opportunities and constraints.

Theme 3: *Short and long term dynamics in the Land-Use Transport system*

Cities are complex dynamic systems with many interrelated processes operating with different speeds, response times and duration. Physical transport infrastructure and land-use patterns are very stable and change only incrementally, buildings have a life span of up to hundred years or more, whereas firms and households move every few years. The locations of human activities change even faster and transport movements adjust in a matter of days or even hours. The understanding of the different but interrelated time scales of land use and transport, is crucial for the design of coherent and integrated urban land-use transport policies, which will yield sustainable effects in both the short and long run.

Theme 4: *External relationships of cities*

Cities are no longer only centres of isolated regions but more and more becoming nodes in regional, national, international and global networks. In these networks, cities interact with other cities, and with other suburban and rural centres. Traditional commuter catchment and

delivery areas are being superimposed by overlapping domains of commuting by high-speed rail and air, teleworking and electronic commerce and long-distance freight transport. Interurban exchanges and travel grow much faster than intraurban movements, and intermodal nodes of long-distance travel and goods transport (airports, high-speed rail stations and freight terminals) are becoming new focal points of urban land-use development but also of congestion and negative environmental impacts. Understanding the new interface between cities and their external relationships is crucial for integrated land-use and transport planning on different levels of scale.

Theme 5: *City logistics, freight transport and land use patterns in urban areas*

Analysis of the organisation of freight transport inside cities and towns. Although road transport is the modality mostly used in urban freight transport, several cities experiment with other modes like waterway transport and transit rail lines.

Theme 6: *Impact of urban form and spatial organisation on transport needs*

The spatial organisation of activities influences the travel needs of people and goods. Also, land use and transport densities can influence the mode choice. Research in the past has proven that these relationships are seldom straight forward. Further insights in the factors determining the effects of LU on Transport is crucial for system understanding and integrated LUT policy development.

Theme 7: *New Transport Systems and their effects on urban travel and land use patterns*

Technological developments are opening up many new opportunities for the provision of transport systems. These include the provision of travel information improved vehicle technology, infrastructure, traffic management, public, environmental monitoring, and fee collection. These systems may provide benefits and solutions in the short term, but their longer-term effects on travel and land use patterns are less clear. The theme is concerned with a better understanding of the longer-term opportunities and drawbacks of new transport systems, since these are crucial for the development of successful integrated LUT policies

Theme 8: *Innovations in land-use transport interaction modelling*

Today there is a new interest in integrated models of urban land use and transport provoked by growing congestion and livability problems in urban areas. However, new issues, driving forces, behavioural patterns, technological developments and policy options present new challenges to urban modelling. At the same time there are new theoretical developments, methodological advances and more powerful computers available to develop a new generation of more disaggregate, policy-sensitive and transferable models to guide integrated land-use transport planning for sustainable urban development.

Theme 9: *Best practice assessment of integrative urban policies*

According to the integration of transport- and land-use planning, cities across Europe should be able to learn from each others experiences. Case study analysis is needed to shift good from bad practices and to provide benchmarks for city practitioners. To enable the assessment of case studies, a harmonised method and set of indicators are needed and, to facilitate a learning process between cities, the applicability ('what') and transferability ('how') of best practice elements to other urban areas has to be assessed. Procedures and instruments to actually transfer Best Practice need to be developed.

Theme 10: *Harmonisation issues in sustainable land use and transport*

Policy development across Europe aiming towards sustainability needs a common basis. In the Fourth Framework a number of studies has started to define sustainability, indicators, methods and legislation. Also other institutions like the OECD have taken up this task. For learning processes across Europe, a different understanding of the above mentioned terms can be a major barrier for successful policy development. Harmonisation of definitions, indicators, methods, and planning instruments and processes in the context of sustainable land-use and transport planning, supports transferability of cases and lessons to learn.

Theme 11: *Communication, and dissemination tools for integrated LUT-planning*

Policy development in the field of LUT planning needs a solid basis. Therefore the input of research is needed. However, a lot of usefull LUT-research will never find its way to the table of the policy maker due to a number of reasons. New methods and tools are needed to guarantee a smooth interaction between available knowledge and policy needs. Efforts need to be directed on ICT-applications which enable the policy developer to monitoring and assess the surrounding (benchmark systems, including the position of stakeholders, socio-economic trends, new technologies, etc.), on tools which reduce complexity (improved interfaces, simplified system dynamic approaches etc) and on tools which make impact assessments more transparent (interactive model development approaches).

Theme 12: *Financial intervention mechanism*

Financially based instruments and intervention mechanisms can be used for LUT planning. A large toolbox of measures both in the field of land use as well as in the field of transport are available. The effects of financial measures often cross sectoral borders, transport pricing will influence land use patterns and land use pricing will influence transport patterns. Integrative planning approaches are therefore necessary.

Theme 13: *Integrated Regional Policy Development and Institutional Frameworks*

The environment of towns and cities becomes increasingly competitive and complex. The city governments develop policy measures to meet the challenges, but at the same time their action is embedded into national institutional frameworks in which higher levels of governments (Region, State) pursue policies that influence the position of the cities. LUT policies are at the cross -road of these influences coming from decision making activities of different layers of governments. There is the need to understand how the national institutional frameworks of EU member countries are evolving or might evolve in the near future to cope with the growing necessity for flexibility in problem solving at different spatial scales (regional or sub-regional) versus stability in institutional background.

Theme 14: *New governance mechanisms enabling integration of land use and transport policies*

It is increasingly evident that problem solving in LUT policies should take place under versatile conditions. This asks for new stable regional institutional frames (theme 13), but also asks for new governance mechanisms. Governance mechanisms are concerned with new – dynamic and flexible - ways of co-ordination in LUT-plannning. This theme combines aspects of new coalitions, roles and functions of public and private agents and the organisational structures that are needed to sustain these new coalitions.

Theme 15: *Public private partnerships*

Throughout Europe there are experiments with forms of public private partnerships on project and area level. These projects are often of an integrative nature, they include both land use and transport components. Some countries have a long lasting experience with public private

partnerships in LUT planning. Other countries are just beginning to experiment with public private partnerships. A lot can be learned from these experiences for future projects.

Theme 16: *Developing integrated land use transport policies with the use of participatory approaches*

The outcomes of transport and land use planning processes are more and more becoming the result of a negotiation process between relevant agents. The negotiation process usually results in ‘trade offs’ between the different interests. This means that the outcomes of policy shifts from ‘fixed targets’ towards ‘trade offs’. This shift towards negotiated planning between public and private sector also means a shift towards other planning mechanisms like participatory / interactive methods to involve citizens, stakeholders in LUT planning. Basically two main reasons for introducing participatory approaches can be distinguished. The first is aiming for public support for decisions. The other reason is the notion that knowledge from a broad range of backgrounds (not just expert knowledge) is needed to reach coherent and qualitatively good decisions on complex matter like LUT-planning. Both these reasons lead to a different type of planning process.

4.4.3 Interdependencies between the themes

Future research into the 16 themes selected can be organised in many different research projects and programs. However, there are several interdependencies between the different themes. This can make it worthwhile to somehow co-ordinate and cluster the research activities, because of causalities between themes (solving question a is needed to solve question b), or because of level of scale benefits (combining data, expertise and cases information). These programming issues can not be worked in full detail in this stage of the research agenda. Instead, a first clustering of related research themes is worked, distinguishing research questions related to:

1. understanding and assessing the LUT system
2. developing comprehensive concepts and tactics for integrated land-use transportation planning
3. organising integrated land-use and transport planning.

Figure 4.5 shows the results. The figure indicates that the 16 selected research topics can be clustered into five subjects, which deal with different aspects of integrated land-use transport planning:

Subjects:	Research themes
1. Understanding the system (describing, explaining and modelling relationships)	2. Driving forces in location choice behaviour, 3. Short and long term dynamics in the land-use transport system, 8. Innovations in land-use transport interaction modelling
2. Strategic issues related to goal setting, strategy development and planning	1. The future spatial organisation of our cities, 4. External relationships of cities, 10. Harmonisation issues in sustainable land use and transport, 12. Financial intervention mechanism
3. Planning process redesign	14. New governance mechanisms enabling integration of land use and transport policies, 15. Public private partnerships, 16. Developing integrated land use transport policies with the use of participatory approaches
4. Concepts for planning and organisation	5. City logistics, freight transport and land use patterns in urban areas, 9. Best practice assessment of integrative urban policies, 11. Communication, and dissemination tools for integrated LUT-planning, 13. Integrated regional policy development and institutional frameworks
5. Tactics for integrated land-use and transport planning	6. Impact of urban form and spatial organisation on transport needs, 7. New transport systems and their effects on urban travel and land use patterns

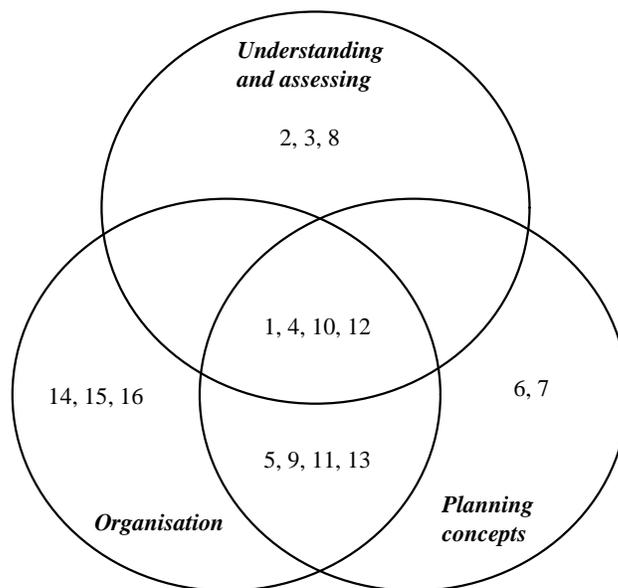


Figure 4.5: Clustering of research themes

4.5 Assessment of selected research themes

In this section a first assessment is given of the selected research themes. This assessment should not be seen as an aim to further prioritise the selected research themes. The assessment rather aims to characterise the different themes in the context of the four objectives formulated for the research agenda (see section 4.1):

- Lack of understanding (scientific need)
- Need for resolving (policy need)
- EC-involvement (European need)
- Return on investment

The lack of understanding clearly is an assessment from a ‘scientists’ perspective. The need for resolving the problem is an assessment from the ‘policy’ perspective. The EC-involvement is an assessment based on the ‘rationale’ for EC-involvement. The last objective describes the ‘return on investment’, the extent to which research efforts are expected to lead to useful results. In table 4.6 the themes are valued for each objective. The assessment is based on expert judgement by the Transland partners.

A fifth type of assessment is the core/non-core question: does the research theme specifically and solely addresses the LUT integration theme, or has it a wider relevance? On the “what” side themes such as the ‘The future spatial organisation of our cities’, ‘city logistics, freight transport and land use patterns in urban areas’, ‘external relationships of cities’ and ‘New transport systems and their effects on urban travel and land use patterns’ have a clear relation with other EC programs, but do not belong to the core-research themes of Transland. The same counts for all the themes from the “how” side because they all have a wider relevance than integrated land use and transport planning solely.

Most research themes included do have scientific urgency. But the lack of understanding is particular clear in the field of the setting of objectives (the future spatial organisation of our cities) and with concern to new developments (new technology, external relationships). Besides, special attention remains to be needed for analysis of the core relationships within the land use and transport system. This includes general approaches investigating both directions of the interaction circle (impact of transport on location choice, impact of urban form/organisation on transport) as well as evaluation of current practices (best practice assessment). Both from the planning- and the implementation perspective there seems to be a special need to enlarge our understanding of economic mechanisms in the land use transport system. Policies based on financial interventions are becoming into use more and more. On other themes there is a considerable amount of literature available but new promising research aspects remain.

Quite a few of the research themes on the “how” side are important for policy makers because of their direct relation with every-day implementation problems of practitioners (especially integrated regional policy development issues, communication tools and participatory approaches). Some themes on the “what” side have clear and direct links to the development of LUT-policies (impact of urban form and spatial organisation on transport needs, driving forces in location choice behaviour and the future spatial organisation of our cities). Other themes on the what side are more scientific oriented and need an extra translation step before results are made useful for local policy makers (Short and long term dynamics in the Land-Use Transport system, innovations in land-use transport interaction modelling). Nevertheless, on the long run they can substantially influence the effectiveness en efficiency of LUT-policies

Table 4.6: Assessment of priorities

		Lack of understanding	Need for Resolving	EC-involvement	Return on investment	Core / Non-core
1	The future spatial organisation of our cities	High	High	High	Low	N
2	Driving forces in location choice behaviour	High	High	Medium	Low	Y
3	Short and long term dynamics in the Land-Use Transport system	Medium	Low	Low	Low	Y
4	External relationships of cities	High	Medium	Medium	Medium	N
5	City logistics, freight transport and land use patterns in urban areas	Medium	Medium	Medium	Low	N
6	Impact of urban form and spatial organisation on transport needs	High	High	High	Medium	Y
7	New Transport Systems and their effects on urban travel and land use patterns	High	Medium	Low	Medium	N
8	Innovations in land-use transport interaction modelling	Medium	Low	Medium	Medium	Y
9	Best practice assessment of integrative urban policies	High	Medium	High	High	Y
10	Harmonisation issues in sustainable land use and transport	Medium	High	High	Medium	N
11	Communication, and dissemination tools for integrated LUT-planning	Medium	High	High	Medium	N
12	Financial intervention mechanism	High	High	High	High	N
13	Integrated Regional Policy Development and Institutional Frameworks	Medium	High	Medium	Medium	N
14	New governance mechanisms enabling integration of land use and transport	Medium	Medium	Low	Medium	N
15	Public private partnerships	Medium	Medium	Low	Medium	N
16	Developing integrated land use transport policies with the use of participatory approaches	Medium	High	Medium	Medium	N

Colour Priority

High
 Medium
 Low

The EC has initiated the ‘City of Tomorrow’ program in the fifth framework. This program contains most of the research in the field of land use and transportation interaction. The objectives of this program are therefore guiding for EC-interest. One of the priority areas of this program is “comparative assessment and cost-effective implementation of strategies for sustainable transport systems in an urban environment”. Furthermore, more emphasis is given to the use of research in the selection process for the structural funds (European Regional Development Fund). The principle ‘EC research should focus on relevant research areas which are not addressed by individual national or local governments’ is to be used. Therefore research themes on the European scale like ‘harmonisation issues in sustainable land use and transport’ and ‘The future spatial organisation of our cities’ do easily qualify for EC-funding. The same can be said for research based on comparative analysis like ‘best practice assessment of integrative urban policies’ and ‘the impact of urban form and spatial organisation on transport needs’. Themes which enable the social goals of the EC also have a

high priority (communication, and dissemination tools for integrated LUT-planning). Looking at the high priority EC-level projects in general, it is seen that quite a lot of them are concerned with both the 'what' and the 'how' side of integrated land use and transport planning.

Effectiveness of the effort put into the research themes is measured by the short term market potential and the expected dissemination spin-offs. Themes which produce instruments or knowledge which can instantly be used in policy development processes like best practice assessment and themes which have a high political actuality like financial intervention mechanisms deserve priority from this perspective.

5 CONCLUSIONS AND RECOMMENDATIONS

The objectives of Transland were firstly to examine examples of good planning practice, review insights from conducted research in the field of integrated land use and transport planning and identify institutional conditions and barriers for integrated policy making. Secondly, Transland advises on best planning practice and recommends future research and policy development.

State of the Art

An extensive review exercise considered the 'What' question and identified successful land use and transport policies based on theories, empirical and modelling studies. The review concluded that:

- Land-use and transport policies are only successful with respect to criteria essential for sustainable urban transport (reduction of travel distances and travel time and reduction of share of car travel) if they make car travel less attractive (i.e. more expensive or slower).
- Land-use policies to increase urban density or mixed land-use without accompanying measures to make car travel more expensive or slower have only little effect as people will continue to make long trips to maximise opportunities within their travel cost and travel time budgets. However, these policies are important in the long run as they provide the preconditions for a less car-dependent urban way of life in the future.
- Transport policies making car travel less attractive (more expensive or slower) are very effective in achieving the goals of reduction of travel distance and share of car travel. However, they depend on a spatial organisation that is not too dispersed. In addition, highly diversified labour markets and different work places of workers in multiple-worker households set limits to a optimum co-ordination of work places and residences.
- Large spatially not integrated retail and leisure facilities increase the distance travelled by car and the share of car travel. Land-use policies to *prevent* the development of such facilities ('push') are more effective than land-use policies aimed at *promoting* high-density, mixed-use development ('pull').
- Fears that land-use and transport policies designed to constrain the use of cars in city centres are detrimental to the economic viability of city centres have in no case been

confirmed by reality (except in cases where at the same time massive retail developments at peripheral greenfield locations have been approved).

- Transport policies to improve the attractiveness of public transport have in general not led to a major reduction of car travel, attracted only little development at public transport stations, but contributed to further suburbanisation of population.

In summary, if land-use and transport policies are compared, transport policies are by far more direct and efficient in achieving sustainable urban transport. However, accompanying and in the long run supporting land-use policies are essential for creating less car-dependent cities.

The identification of promising policies was one necessary precondition for identifying how sustainable urban transport could be achieved but this does not tackle the question of implementation of such policies. The second part of the review exercise considered the 'how' questions, i.e. the institutional possibilities for the co-ordination of land use and transport policies at the urban-regional level in the different institutional settings of the Member States and the potential barriers to such co-ordination.

Member states were grouped into one of three categories according to their degree of co-ordination and integration of transport and land use planning:

- Category A** Countries with institutionalised regional planning with binding regional plans or other forms of binding effects. (10 countries)
- Category B** Countries with institutionalised regional planning without binding effects. (3 countries)
- Category C** Countries without regional planning and/or regional plans, with co-ordination just on the local level. (2 countries)

Category A shows the highest potential of formal and material co-ordination with respect to the institutionalised regional planning level due to the binding effect of regional plans. Countries of category B also show a high potential for formal co-ordination but because of the missing binding effect, vertical co-ordination between local and regional levels is weak. In countries of category C, where regional planning is not institutionalised, local binding planning nevertheless plays an important role in the process of policy implementation. The assignment of the different countries into these categories showed that in most EU countries regional planning is institutionalised and includes binding regional plans.

The leading objective of land-use and transport planning is to reduce the need for travel and to promote sustainable transport. Different policies in the area of land-use and transport were assigned to the following policy types: investment and services, planning, regulation, pricing and information and informal policies. Due to their interdependent effects policies of land-use and transport need to be combined to reach the sustainable objectives. This mainly refers to the relationship of investment and services and planning on the one hand and regulation, pricing and to a certain extent information on the other hand. Most policies relating to planning and investment, while necessary, are not adequate by themselves to reduce the need for travel and to reach sustainable transport. Their successful implementation is only possible if additional pricing and regulatory policies create the necessary frameworks. Planning and investment policies are nevertheless the most important means to reduce the need for travel because they influence land-use, traffic infrastructure and travel behaviour (i.e. a pull effect). However, they often must be coupled with pricing and regulatory policies which not only support the planning and investment policies but also promote a change in the settlement

behaviour, a reduction of land-consumption and support an efficient use of the transport network (i.e. a push effect). It can be concluded that all policies are important and they can be used in combination to lead to successful implementation.

The realisation of the policies can be restricted or prevented by different types of barriers, including resource barriers, social/political, legal and institutional barriers, as well as side effects. These barriers determine the feasibility and transferability of policies. It can be concluded that all policy types, except information policies, face several barriers, with planning and investment mainly being restricted by institutional barriers and pricing and regulatory policies mainly facing social barriers. Information policies, which are limited in their effects on reducing the need to travel, hardly face any barriers.

Transferability of policies depends on the country-related barrier effects with respect to the legal, institutional, social/political, resource barriers and side effects. Transferability becomes more difficult if policies are implemented in combination with other policies. According to the categories of countries mentioned above, it can be said that, in general, policies can be transferred between countries of the same category. In addition, policies which have been successfully implemented in a country of category C can also be implemented in countries of category B and A. Altogether, most policies are transferable, with category A showing the highest degree of success related to the aspect of institutional regional planning. Policies that depend on institutional forms of co-ordination at a regional level cannot be transferred to countries of category C. However, even if the institutional, legal, political, legal and social framework of different countries is similar, the implementation of a certain policy, which has successfully been implemented in one country, does not guarantee a successful implementation in another country. This is because this process also depends on special conditions in the respective region or municipality regarding the interest or willingness to act by the responsible actors. Nevertheless, the most important issue for the transferability of policies is to analyse the institutional, legal and social framework for the implementation of a policy timely enough either to adjust the policies to the given framework or to adjust the framework to enable implementation of the designed policy.

Best Practice

“Best practices” are “good practices” that have worked successfully in a wide range of situations and have been shown to produce results satisfying integration and sustainability objectives. An important dimension to best practice is that it should be transferable to other cities and countries, with differing geographic and institutional backgrounds. For the purposes of the Transland project, sustainability is mainly seen as the promotion of environmentally friendly modes, and their accessibility for different social groups, while reducing dependence on the private car.

Practical planning methods which have been successfully implemented elsewhere can promote the acceptance of an integrated approach by planners, decision makers and the public. The transfer of an integrated approach identified as best practice increases the chances of its success. Through the illustration of best practice, the public can see that integrated land use and transport planning can have a positive effect on their quality of life, leading to greater public support of innovative approaches. Planners, decision makers, investors and citizens can make use of best practice by learning how they can focus their efforts and see how they can benefit by participating in the planning process.

In order to give an overview of current planning practice in the field of transport and land use planning a number of possible case studies were identified in the Transland project. In total, twenty six case studies were selected as being particularly interesting with respect to the integration of transport and land-use planning; they also helped to illustrate best practice in this field. Projects examined in the case studies are implemented at different spatial levels (national, regional, local and district level).

Of the twenty six case studies examined, one case study has been considered to exhibit a good vision of integrated planning; three case studies have been considered to be best practice in the field of integrated land-use and transport planning; and three have been considered as best practice mainly with respect to their transport planning components. In addition five case studies show promising practice mainly with respect to their land use elements. However, not all the measures examined in the case studies were at the same stage of development. Some case studies are still at the planning stage, while others have been implemented but it is still too soon to assess their overall success. It was therefore necessary to devise a framework for best practice, including a time scale given in four levels, selecting promising practice as well as considering transferability of projects.

The results of case studies examination shows that most successful elements are transferable. Four levels of transferability have been examined: Measures of high transferability (investment measures and supportive measures), measures of good transferability (mainly restrictive measures), transferable measures requiring certain political instruments (mainly in the field of land use planning / integrated planning), measures which might be difficult to transfer (mainly specific political frameworks). No project/planning approach is completely transferable; however transferability does include "learning from each other".

A precondition for transferability is in some cases the structure of locations: some elements of best practice are mainly transferable to the same structures as shown in the case study (for example connection to attractive public transport depends on a nearby existing network of public transportation; development of a new district with compact dense structures is mainly possible in open space / redevelopment areas) and some elements of best practice can be implemented elsewhere (for example, implementation of an infrastructure which promotes cycling could be implemented in existing structures as well as in structures newly developed). Most of the elements are transferable to other EU-countries, mainly to countries of category A and B according to their planning framework.

Another important finding is the role of soft policies for success of integrated transport and land use planning. Most of the examined innovative planning approaches already include soft policies to ensure the acceptance of measures and influence citizen's behaviour. The identified best practices show, that a good spatial organisation linked by a well balanced transport network can be considered as one precondition for enabling sustainable mobility. But success of these structures is highly related to soft policies targeting people's behaviour when using these structures.

Research Agenda

Former experiences, and the state of the art and practice review, have underlined the importance of integrated land use and transport planning to enhance sustainable urban development. The objective of the research agenda is to support the improvement of the efficiency and effectiveness of these integrated planning approaches. The agenda should also

address the possible role of the EC in this field. The EC has its own responsibility in policy development and legislation on some aspects of integrated urban land use and transport planning, and can play a role in stimulating research and development activities and the exchange of knowledge and experiences in this field. The objectives of the 5th Framework Program provide an important reference in this perspective.

Given these objectives of the research agenda, some criteria have been formulated which have been used as a reference for generating and selecting research suggestions. These criteria can be described as follows:

- Lack of understanding (lack of explanatory and forecasting capabilities, scientific relevance)
- Needs for resolving (strategic and operational policy relevance, political actuality)
- Rational for EC involvement (contribution to objectives, need for community involvement, e.g. in relationship with the structural funds)
- Research investment effectiveness (return on investment from a policy point of view, short-term benefits, dissemination spin off, improvement of effectiveness and acceptance of policies, potentials for policy innovation and new win/win opportunities).

The following research areas and themes were identified in the research agenda:

Subjects:	Research themes
1. Understanding the system (describing, explaining and modelling relationships)	2. Driving forces in location choice behaviour, 3. Short and long term dynamics in the Land-Use Transport system, 8. Innovations in land-use transport interaction modelling
2. Strategic issues related to goal setting, strategy development and planning	1. The future spatial organisation of our cities, 4. External relationships of cities, 10. Harmonisation issues in sustainable land use and transport, 12. Financial intervention mechanism
3. Planning process redesign	14. New governance mechanisms enabling integration of land use and transport policies, 15. Public private partnerships, 16. Developing integrated land use transport policies with the use of participatory approaches
4. Concepts for planning and organisation	5. City logistics, freight transport and land use patterns in urban areas, 9. Best practice assessment of integrative urban policies, 11. Communication, and dissemination tools for integrated LUT-planning, 13. Integrated Regional Policy Development and Institutional Frameworks
5. Tactics for integrated land-use and transport planning	6. Impact of urban form and spatial organisation on transport needs, 7. New Transport Systems and their effects on urban travel and land use patterns

The aim of the Transland project was not to provide extensive project proposals, but the report does provide descriptions of the 16 themes. The aim has been to guide future research efforts, to demarcate research themes and to indicate promising research leads. Consequently, the descriptions contain choices while at the same time they are kept fairly general. The themes have been described using a fixed format with the following content: theme description;

problems; objectives; research method; possible role for the EC; expected results.

Most research themes included do have scientific urgency. But the lack of understanding is particular clear in the field of the setting of objectives (the future spatial organisation of our cities) and with concern to new developments (new technology, external relationships). Besides, special attention remains to be needed for analysis of the core relationships within the land use and transport system. This includes general approaches investigating both directions of the interaction circle (impact of transport on location choice, impact of urban form/organisation on transport) as well as evaluation of current practices (best practice assessment). Both from the planning- and the implementation perspective there seems to be a special need to enlarge our understanding of economic mechanisms in the land use transport system. Policies based on financial interventions are becoming into use more and more. On other themes there is a considerable amount of literature available but new promising research aspects remain.

Final Remarks

Transland has provided a comprehensive overview of the current state of the art and state of the practice in transport and land use planning in the EU. Some innovative policies and best practices have been highlighted through the evaluation of 26 case studies. Transland has also clarified the need for further research concerning the interaction between transport and land use. Key research areas identified include new technology, urban form strategies and travel behaviour. In addition, the field of integrated transport and land use planning would also benefit from increased knowledge about financial intervention, and new approaches such as public private partnerships.

6 ACKNOWLEDGEMENTS

Many experts and practitioners from various EU member states have contributed to the discussions about the research agenda and to best practices, either as workshop participant, as interviewed person, or by e-mail reaction (see Annex 2). The Transland consortium would like to thank them for their useful, stimulating comments and suggestions.

7 PROJECT PUBLICATIONS

Project reports

Sessa, C, Ricci, A and Gualdi, M (1999). Deliverable D1: Outline of concept

Wegener, M., Fürst, F. (1999): Deliverable D2a: Land-Use Transport Interaction: State of the Art

Greiving, S., Kemper, R. (1999). Deliverable D2b: Integration of Transport and Land Use Policies: State of the Art.

Noel, C (1999). Deliverable D2c: Integration of Transport and Land Use Planning: Review of Practice

Sessa, C, and Gualdi, M (1999). Deliverable D2d: structured overview

Paulley, N, Pedler, A (2000): Deliverable D4: Final report for publication

Brochure

Deliverable 3: Brochure: Best practice in integrated land-use and transport planning

Other publications:

Wegener, M., Fürst, F. (1999): Land-Use Transport Interaction: State of the Art. *Berichte aus dem Institut für Raumplanung 46. Dortmund: Institut für Raumplanung.*

Greiving, S., Kemper, R. (1999): Integration of Transport and Land Use Policies: State of the Art. *Berichte aus dem Institut für Raumplanung 47. Dortmund: Institut für Raumplanung*

Webpage

<http://www.inro.tno.nl/transland>

ANNEX 1

DETAILS OF THE CASE STUDIES

In-Depth Case Studies

ABC Policy

Policies	Co-ordination Arrangements	Results	Barriers
<p>The policy aims to match the mobility needs of businesses and amenities with the accessibility of different locations (<i>'The right business at the right place'</i>). The core element of the ABC location policy for companies is the classification of types of locations and types of companies. Companies are graded according to access needs and modal shift potential (mobility profile) while locations are graded according to their accessibility by public and private transport (accessibility profile).</p>	<p>The implementation and monitoring of the ABC policy was originally to be managed by newly set up regional bodies which included all local governments and non-governmental parties like public transport companies and real estate developers. Provinces and municipalities were to transfer some responsibilities to the new regional bodies. However, only seven of the largest urban areas did create such bodies.</p>	<p>The concepts of mobility and accessibility profiles and the basic principle of 'The right business at the right place' are broadly supported among local practitioners. Their simplicity is both their strength as well as their weakness. While the concepts are easy to communicate, the small number of accessibility profiles end in criticism asking for a more detailed segmentation.</p> <p>A more fundamental criticism concerns the fact that the type of company activity does not give enough explanation for the choice of travel mode by employees/visitors. The choice of travel mode seems to be mainly related with individual preferences of the employees: the starting point should therefore be the mobility profiles of individuals. By its nature, it must be acknowledged that the ABC location policy is only able to influence the choice of new settlements and not of existing ones. When evaluated on base of national figures the effects of the ABC location policy are limited due to the large amount of business areas, which remain unaffected by the policy. In fact, to get 'the right businesses on the right place' two things are needed: firstly, there should be enough 'right places' available (which has proved to be a problematic), secondly, companies should be willing to move to the 'right place' (studies show how companies have mostly chosen B and C locations, while already densely employed A sites are lagging behind). However, in the more urbanised areas there are some very interesting cases, and generally the policy has successfully regulated public and private investment in infrastructures and public transport particularly within the urban areas.</p> <p>Altogether, the ABC policy seems bound to improve its performance when implemented alongside a well balanced package of other transport and land use measures.</p>	<p>A strict institutional vertical co-ordination has left little space to regional initiatives and has been extensively criticised by local private and public parties. It is suggested that the different local authorities came to a contractual agreement with private parties in order to fulfil local needs, while the national government should only retain a monitoring power.</p>

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Gävle Cyclestadt

Policies	Co-ordination Arrangements	Results	Barriers
The city of Gävle sought to increase the bicycle modal share, change the attitude towards cycling, and lower the share of bicycle accidents by promoting an information/incentive campaign and improving the cycle-ways.	The plan was initiated by the Municipality and then co-managed by the National Road Administration and the Public Health Committee. The Municipality has been in charge with infrastructure, traffic and information planning, while the National Road Administration managed the road improvements.	Although no figure exists on modal shares, the number of cyclists has increased by 28% over a four years span (nearly matching the 30% increase goal), while the number of reported cycle-related accidents has considerably dropped. Altogether the plan has been proven successful in that it was able to boost cycling up to 20% of all trips in a low-density city. Other success indicators include the considerable improvements to the cycle-ways, and the active involvement of media, private companies, sponsors and citizens.	No barriers reported.

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Ståhlspets, A (1999). Vad vi gjort i Gävle för att få fler att cykla. Konkreta tips. Cyclec onfernce in Gävle 19-20 mai 1999.

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Madrid

Policies	Co-ordination Arrangements	Results	Barriers
<p>In order to recuperate the dormitory suburbs located at its southern periphery, the city of Madrid resorted to a twofold strategy. On the one hand it called for an overall regional vision which led to the adoption of a Regional Plan, while on the other hand it focused on the four metropolitan sectors (north, west, south and east) with medium-term (10-15 years) planning goals. Both levels were approached by means of innovative (as far as local planning was concerned) methods: regional infrastructure investments, public development projects, and realisation of <i>convenios</i>, signed agreements with legal force that specify obligations of the parties and seek to co-ordinate implementation of the zone strategies.</p> <p>This policy made it possible to accomplish the long sought institutional concertation in the fields of transport, land use, housing and environment. The scheme proved to be particularly successful in the targeted southern sector (Gran Sur) where the main objectives were to improve living conditions by achieving an adequate dwelling for the residents, in well designed suburbs, with adequate capacity and support for infrastructures.</p>	<p>The local territorial agency sought to implement a collaborative model and extensively resorted to the mentioned <i>convenios</i>. The agency was then complemented by the addition of the agency public works and transportation thus becoming an example of integrated land use and transport planning agency that today is accountable for half the region's budget.</p> <p>Together with the planning agencies, the other key actor involved in the Madrid metropolitan strategy was the net of neighbourhood organisations that acted as an instrumental partner in the process.</p>	<p>The renovation strategy can be seen as a success when matching results with initial objectives:</p> <ul style="list-style-type: none"> ▪ Eased institutional concertation; ▪ Promoted intense public participation; ▪ Developed social cohesion; ▪ Provided adequate housing; ▪ Located residents in the original land; ▪ Developed an urban centrality using criteria of urban quality; ▪ Improved the quality of lodging, education, health, culture, and leisure; ▪ Improved accessibility. 	<p>A worrisome aspect is related to the consideration that the high level of participation reached during the renovation has virtually dissolved after the process. Furthermore, although most of the objectives have been achieved, new problems for the residents could arise if comprehensive programs of social integration will not be realised.</p>

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Messestadt Riem

Policies	Co-ordination Arrangements	Results	Barriers
<p>The area of the old Munich airport, closed in 1992, is now being redeveloped into a new large district (556 ha) hosting fairs, housing, industry, leisure infrastructures and large green space. In so doing, a mixed-use planning approach has been adopted in order to develop a sustainable and ecological district with its own character and identity as opposed to the so called “dormitory towns”. Planning for Messestadt Riem contributed to the Local Agenda 21 process in Munich.</p> <p>Reducing travel distances and use of private modes while promoting non-motorised modes as well as public transport is the aim of this innovative urban development.</p>	<p>The implementation of the plan is entrusted to a public-private partnership between the City of Munich and a private company funded by a bank for the building of Messestadt Riem. This private company (MRG) is responsible for building the district while the Munich City administration is involved in the decision making process through an administrative body (Riem-Beirat) which has to give its consent to every decision.</p>	<p>Extension of metro line to Messestadt Riem with two new stations serving the residential and fair areas.</p> <p>Improved bus system.</p> <p>The mixed-use pattern made it possible to promote non-motorised modes and reduce car ownership thus lowering the parking space ratio to 0.75 per accommodation unit (1.00 in Munich).</p> <p>A pilot project, “living without a car”, involving 30 households (instead of the 200 estimated), has been launched: it calls for car-sharing programs and rent cuts.</p>	<p>Implementation stage not advanced enough yet.</p>

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Oberhausen CentrO

Policies	Co-ordination Arrangements	Results	Barriers
<p>The CentrO Oberhausen project, a megamall situated at the confluence of three major highways, has determined the establishment shopping and recreational facilities, industrial plants, and residential zones.</p> <p>Over 30 million visitors are expected to visit the CentrO every year and over 200,000 daily.</p> <p>The goal of the project was to integrate the CentrO with the existing townships, without creating a new township, rather establishing a link between the townships and the former steel plant site.</p>	<p>The Stadium-Group and the Peninsular & Oriental Steam Navigation Company were the main actors of a joint-venture. The former redeveloped the site, acquired the land, and designed the project., while the latter financed the project. The municipality of Oberhausen and the state of Northrhine-Westphalia, purchased the site for 20 million DM and invested 135 million DM in it.</p>	<p>Construction began in 1993 and the official opening of CentrO and the initiation of the public transport line for buses and light rail occurred in 1996. A former freight railway line was converted into light rail line coupled with a bus line leading from Oberhausen's central railway station to the suburban area in northern Oberhausen.</p> <p>Even though the investment has employed 10,000 people, there has been criticism concerning the mostly commercial and recreation oriented character of the project which has spurred competition between the traditional, smaller service suppliers in the three surrounding townships and the new, larger suppliers in the shopping mall. Also, the transport development concept has been mainly automobile-oriented. Because of its location, there is no reasonable possibility for pedestrians and cyclists to reach CentrO with other modes of transportation.</p> <p>The integration of the mall with the three existing townships in the city of Oberhausen has not been successful</p>	<p>No barriers reported.</p>

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Potsdam-Kirchsteigfeld

Policies	Co-ordination Arrangements	Results	Barriers
<p>Potsdam-Kirchsteigfeld is one of the first examples of new mixed-use residential and working areas in east Germany after the large-scale high-rise housing built in the former GDR. After the re-unification the city decided in fact to develop a new mixed-use district with high density. The project meant to:</p> <ul style="list-style-type: none"> - serve as a bridge between the 18th-century old town of Potsdam and the high-rise apartment blocks of Kirchsteigfeld; - establish a comprehensive concept of urban sustainability taking into account the social, economic and ecological aspects; - promote the use of public transport and reduce car use and ownership. 	<p>The City of Potsdam and a developer (which acquired the land) signed a legally-binding co-operation agreement. The agreement introduced in Germany the principle of public-private partnership into a legally binding form. In this process, private economic know-how as well as personal and financial resources were integrated into public projects in order to relieve the financial burden of local government and to enable the implementation of large-scale projects.</p> <p>Such Urban Development Contract regulated the rights and duties of two equal partners. The public side responsible for building law aspects and for making the requisite public funds available, the developer responsible for investments and for adhering to the construction deadlines.</p>	<p>By 1998 most residential buildings and the market centre and social facilities were completed. Today some 6,000 people live in Kirchsteigfeld, mostly relocated from Potsdam.</p> <p>The commercial development has only partly been implemented due to a lack of demand for floor space. Reasons for this may be the closeness of Berlin, which as the new capital of Germany attracts more developers, and the competition between the neighbouring communities of the Berlin hinterland, but probably also the initially missing access to the motorway and the strict design regulations for the business and service park, which kept some investors away.</p> <p>Kirchsteigfeld has become a full success with respect to its transport objectives. In a survey conducted in 1999 it was found that the already low percentage of car trips characteristic for Potsdam was further reduced in the new quarter to 27%, with three quarter of all trips being walking, cycling or public transport trips.been completed.</p> <p>The case study is altogether a good example of effective integration of land-use and transport planning. The public transport connection to the quarter was established almost simultaneously with the completion of the development of the quarter itself. The innovative public-private partnership established for the development of Potsdam-Kirchsteigfeld is in principle transferable to all European countries. However, the high level of co-operation between state and local governments and developer may not be easy to replicate. The partners have to bring in the willingness to negotiate and work towards a compromise. The land-use and transport concept of Kirchsteigfeld is transferable especially to suburban parts of cities with a demand for new dwelling and offices.</p>	<p>The failure to attract more investors demonstrates that local urban development cannot be planned without the context of developments in the whole region and without an early participation of future users, residents as well as investors.</p>

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Rennes

Policies	Co-ordination Arrangements	Results	Barriers
<p>The study outlines a case of desirable, even though needy of further improvement, co-operation between land use and transport planning. The long planning history of the Rennes urban area (three master plans adopted since the early seventies) has shown a remarkable capacity of including transport concerns into urban master schemes.</p>	<p>Town planning and transport planning have a long tradition in the urban area and have brought about beneficial effects especially on transport. Each Town Planning Agency is responsible for the overlapping of the two fields at the district scale. A large part of the outer suburbs have been included too. Therefore, close inter-communal co-operation has been achieved in the Rennes region, resulting in co-ordination at the “District” level. At the “Commune” level, the technical departments and town planning agencies ensure that transport plans are taken into account when planning new urban areas.</p>	<p>The Rennes urban area is an example of inter-communal co-operation and urban planning in France. However, such interaction has proven more capable to attain proper land management allowing for a future margin of action, than able to achieve a full integration between transport and town planning issues. Compared with other European urban areas, Rennes appears as a city where the car modal share is relatively lower (50%) and walking slightly higher.</p>	<p>Side effects have been registered outside of the District where lower taxes have attracted companies. Consequently, new developments have grown in the countryside.</p>

Rome

Policies	Co-ordination Arrangements	Results	Barriers
<p>The city of Rome is currently undertaking an innovating process of integrated land use and transport planning which will ultimately take the form of a new Master Plan and an Integrated Mobility Plan.</p> <p>Four main strategic policies will be pursued: a) creation of metro-railways network nodes, b) road network improvements, c) promotion of urban development alongside transport axis, c) promotion of a network of “peripheral centricities” intended as transport, service and business poles capable of attracting customers and acting as intermodal change locations.</p>	<p>Land use and transport planning in Rome is the result of the involvement of a variety of institutions which are competent according to the territorial administrative structure of the country:</p> <p>a) Municipality of Rome (Land Use Department, Transport Department, and STA, the Mobility Agency)</p> <p>b) Province of Rome</p> <p>c) Region of Lazio</p> <p>Arguably one of the most interesting and innovative endeavours of the city has been the decision to entrust S.T.A. with both relevant land use and transportation competencies.</p>	<p>Today the city appears to be successfully headed towards an effective co-operative land use and transport planning which could finally help to overcome the historical lack of integration between the two phases responsible for the irrational urban growth during the 1960s and 1970s. The first practical result of this newly achieved co-ordination will be the proposal of the new Master Plan and the production of the Integrated Mobility Plan (PRO.I.MO).</p> <p>To date, the administration has so far been able to live up to the expectations by undertaking the following steps: completion of park & ride lots, completion of multilevel downtown parking garages, extension of car free zones and increase of off street parking places, and completion of off-street motorcycle parking places.</p> <p>At the same time, a wide array of public transportation improvements have been accomplished. Among them, worth mentioning are the partial extension of one of the two metro lines, the realisation of a new light-rail line, and the implementation of an integrated public transportation fare system.</p>	<p>The realisation of an effective integration between land use and transport planning in Rome has encountered barriers of different nature, political and cultural, even though interrelated. As already pointed out, it is safe to argue that a strong political resistance has hampered the process of conjugating the two planning powers within one single agency. A long history of rigidly independent and hardly communicating planning activity contributed to creating a culture that could not be overcome without going through serious debate.</p>

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Strasbourg

Policies	Co-ordination Arrangements	Results	Barriers
<p>To achieve a projected modal share of 25% two-wheels, 25% public transport, and 50% private vehicles, the City of Strasbourg implemented a set of policies calling for hyper-centre traffic ban, pedestrian area extension, cycle-ways extension, public transport re-organisation, and parking policy modification. The plan has been accompanied by a strong political support.</p>	<p>A common technical pilot committee in charge with the Urban Mobility Master Plan and the Metropolitan Roadways Plan using the same tools and work hypotheses. Citizens were also consulted as to which new traffic measures should be adopted.</p>	<p>The use of public transport has increased with negative repercussions on walking and cycling. Furthermore, the car modal share has raised (slightly in the downtown area, significantly in the urban area as a whole). The tram service has brought about the renovation of the facade of 29% of the buildings located alongside the routes while the share raised at 40% in the downtown area. Park & ride facilities have been developed. Private dwelling rents raised at a faster rate in fringe areas well served by public transportation than in central areas. Downtown traffic has shown 17% reduction as compared to a 2-3% reduction over the past years. However, motorway traffic has increased in the whole urban area. In conclusion, the policy has been successful downtown, while the urban area as a whole has not benefit from it as it has experienced an increase of private modal share.</p>	<p>A general lack of co-ordination has been reported. Furthermore, uncontrolled and car-driven urban sprawls still exist.</p>

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Toulouse

Policies	Co-ordination Arrangements	Results	Barriers
<p>Over the last two decades the city of Toulouse has witnessed a booming growth of its urban area with a parallel stagnation of downtown population. Consequently, and despite considerable investments, the city has experienced greater mobility, increase in mass transit ridership, increase car use and decrease non-motorised trips. In order to tackle the planning needs of such a vast community, an inter-jurisdictional joint action sought to give an agglomeration imprint to the drafting of the new Master Plan for the greater Toulouse area.</p>	<p>The joint action was carried on by a large number of participating bodies, including communities within the perimeter of the master plan, communities within the urban transit perimeter, inter-community groups, the Region, the National Government, the Transit Union, and private parties.</p>	<p>Planning for the agglomeration brought about the implementation of a set of measures with impacts on the local land use and transport. The opening of the subway led to an increase of public transport and non-motorised modes downtown, while they remained unaltered in the urban area. Park & ride lots were everywhere extremely successful. As a whole, the public transport offer raised by 11.5% from 1990 to 1996 (downtown) even though its positive modal effects were counter-balanced by the road network improvements. The subway was also beneficial in narrowing by a 10% the gap between public and private transport speed, and halting the rate of downtown car ownership. Another innovation has been the introduction of toll expressways which have encourage frugal car uses. The opening of the subway has also positively influenced the land alongside the line as housing, business and infrastructures rapidly grew in those locations.</p>	<p>Car modal share is very high. The implementation of a toll highway is encountering difficulties.</p>

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Canton de Vaud and République et Canton de Genève

Policies	Co-ordination Arrangements	Results	Barriers
<p>A review of past land use and transport planning in the two cantons, and a parallel comparison with other Swiss cantons, shows a sharp differentiation of planning approaches that has resulted in opposite development patterns in French-speaking and German-speaking cities: the former present a dispersed pattern and approximate co-ordination between land use and planning authorities while the latter show a more compact form and ad hoc institutions for the co-ordination of planning activities.</p> <p>To reverse this trend, the two analysed cantons have undertaken a more co-operative planning process that should lead to a better integration of their land use and transport policies.</p> <p>The Canton de Vaud's Cantonal Plan 2015 is a good example of land use and transport policy integration in that it pursues a twofold objective:</p> <ol style="list-style-type: none"> 1. Promotion of multi-modality, that is a balanced, complementary and environment friendly system of different transport modes; 2. Promotion of inter-sectoral co-ordination, that is integrating land use and transport planning. <p>The prospective Canton de Genève's plan will abandon the "city built on top of the city" approach to promote a progressive urbanisation of the rural area. For the first time, the regional dimension will be integrated into the plan through a collaboration with the neighbouring regions</p>	<p>In the Swiss Confederation, transport planning is inspired to principles of centralisation, delegation and competence distribution as opposed to land use planning which is governed by the principles of federalism, subsidiarity and decentralisation.</p> <p>The "Guidelines for Swiss Territorial Organisation", approved in 1996 by the Federal Land Use Office, indicate the way for a conceptual and practical integration between land use and transport planning in Switzerland: co-ordination of confederate sectoral policies, concentrated decentralisation of regional multi-modal nodes, limitation to agglomeration extension by means of development poles and decongestion areas, promotion of urbanisation near railway nodes, promotion of mixed land uses, and prevention of competition among transport systems.</p> <p>Specifically, the Canton de Vaud has gathered a pool of cantonal institutions to co-ordinate the planning process: i) the Department of Land Use, ii) the Department of Transport, iii) the Road Department, and iv) the Department of Energy and the Environment.</p>	<p>As illustrated by the previous presentations, the two cantonal plans are still in an embryonic stage thus rendering an ex.-post assessment impossible. At the same time, an ex-ante assessment of the expected results appear equally problematic especially for the case of Geneva given the early stage of the planning process. The Canton de Vaud's plan is on the other hand in a slightly more advanced phase which allows a tentative evaluation.</p> <p>One of the pivotal elements of the plan is the intention to increase the modal transfer from private transport to public transport and alternative modes with special attention to two-wheels modes and walking. Specifically, the plan seeks to accomplish the following results by the year 2015:</p> <ul style="list-style-type: none"> - a 5% transportation modal transfer from private vehicles to public transportation (4%) and non-motorised modes (1%); - a 20% mobility improvement, since modal transfer must be assisted and enhanced by improved traffic conditions. 	<p>No barriers reported.</p>

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VINEX Policy

Policies	Co-ordination Arrangements	Results	Barriers
<p>The VINEX dwelling location policy aims at locating and developing new areas taking into account sustainability considerations. The goal is to increase mobility by reducing unnecessary car traffic and limiting the urban sprawl.</p> <p>The policy makes a distinction between: Infilling locations – aimed at locating dwellings within the urban area and near transport stations; Expansion locations – aimed at clustering dwellings nearby cities.</p> <p>Both types of locations are inspired by the principles of densification and proximity. Around 1994 the VINEX policy was severely criticised, and in particular the concept of proximity was deemed inadequate in the presence of multi-core urban centres. Multi-dimensional accessibility was proposed instead.</p>	<p>All ministries signed the VINEX document while the seven largest Dutch regions signed covenants with various ministries. The national planning agency of the Ministry of Housing has installed a commission to guide the monitoring and the horizontal co-ordination</p> <p>The municipalities of the seven regions set up regional bodies enabled to seal unbinding agreements (covenants) with private partners and other levels of government.</p>	<p>Even though the policy has just started, a first analysis shows a location distribution of 26% infilling, 46% expansion, and 28% of other locations. The density standards are lower than planned (26.8 instead 34.3 dwellings x hectare) especially in the north. Average travel time from new expansion dwellings is in line with expectations (25 min. by public transport). These results are deemed positive.</p> <p>The inter-departmental co-ordination at the national level is functioning although friction has risen at the municipal level because local interests are often conflicting with national ones. Therefore, the implementation of the promptly signed covenants has often been slow. An unforeseen event has been land speculation, which has led to the acquisition of prime land by private developers while the less attractive lots have been landed by the public authorities. Main criticism regarded the very high land price and the lower than expected public transport service quality. The effects on mobility are still unclear despite some positive comments resulting from ex-ante evaluations.</p>	<p>The implementation of the covenants has been hampered by conflicts between local and national interests. The development of the largest expansion locations has been prone to organisational and financial problems. In particular, financial constraints have impeded to deliver high quality public transport to the new expansion locations. This is partly caused by to less horizontal communication on a national level (between transport and planning department).</p>

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Not In-Depth Case Studies

Basel

Policies	Co-ordination Arrangements	Results	Barriers
<p>The urbanisation of Basel has been characterised by a typical urban sprawl, which has given rise to traffic, loss of open space and depletion of mixed use settlements. To tackle the problem, the City of Basel sought to improve the traffic situation with a new transport development plan calling for the extension of transport infrastructure and the promotion of pedestrian and bicycle traffic systems through measures such as traffic calming, speed limits, car-free zones. At the same time, the local Masterplan laid out the basis for the improvement of the local public transport system, even though it proposed the construction of a direct freeway connection to the station and several multi-story car parks and underground parking garages in combination with Park and Ride facilities. Another essential part of the “Masterplan” was the creation of a large service and commercial centre on three different sites, supplying 4,200 new places of employment.</p> <p>Further transport measures include the removal of a tramline and replace it on an existing freight railway station for the public passenger transport, setting speed limits inside the community (30 km/h), and reducing parking facilities.</p>	<p>Assessment not available.</p>	<p>Criticism has been raised due to the large number of parking lots called for by the “Masterplan”. Furthermore, the extensive establishment of new businesses was deemed potentially risky as it involved a significant rise of housing demand inside the surrounding communities even though the Masterplan itself did not point at any specific measure to increase housing supply. Ultimately critics believe that modal share will not change and that indeed, traffic volumes will increase.</p>	<p>Assessment not available.</p>

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Bilbao

Policies	Co-ordination Arrangements	Results	Barriers
<p>In the late 80s, the municipality of Bilbao decided to undertake a massive planning action to tackle the economic and social difficulties afflicting the city. The result was the drafting of a Strategic Plan, initiated in 1989 and launched in 1992 that was meant to be an ongoing planning process without a predetermined deadline. The approach embraced the crucial notion that urban expansion is closely related to transport priorities and identified a set of critical issues that the plan should address: 1) invest in human resources, 2) organise a service metropolis in a modern industrial region, 3) promote mobility and accessibility, 4) carry out an environmental and urban regeneration, 5) promote the city's cultural centrality, 6) promote a co-ordinated management between the public administration and private sector, 7) support an extensive social action to gradually remove the structural causes of exclusion</p>	<p>The Association for the Revitalisation of Metropolitan Bilbao, recognised as "Public Utility Entity" by the Basque Government, involves a variety of private and public actors association and is responsible for:</p> <ul style="list-style-type: none"> ▪ implementing the Strategic Plan for the Revitalisation of the Metropolitan Bilbao. ▪ carrying out study and research projects related to Metropolitan Bilbao, as well as other metropolis that, due to its circumstances, can provide useful knowledge. ▪ fostering the co-operation between public sector and private sector with the aim of finding joint solutions to problems of mutual interest that affect Metropolitan Bilbao. 	<p>The open-ended character of the Plan only allows a partial assessment of the results based upon ex-post considerations on the interventions implemented. Transport related results include the extension of the airport, the extension of the port, the opening of the line I of the underground system (which has reduced total travel time by 22 million hours and cut the daily number of cars entering the city by 9.000), and a thorough road network improvement. The intermodality and highway projects have on the other hand been postponed due to budgetary constraints. Land use related results include the launching of a housing plan, the re-qualification of 13 former industrial sites (now housing businesses), and the revitalisation of downtown and fringe areas. Furthermore, notable advances in public-private collaboration in Metropolitan Bilbao have been attained through the development of initiatives such as the Biscay Compact Steelworks Company, the integration of Uniport and the Port Community of Bilbao, the transformation of technological centres in private foundations and the creation of the BIDEAK organisation, which will foment private participation in the management and financing of infrastructures. Similarly, in relation to industrial policies, public-private collaboration is being successfully promoted through a Basque Government's Competitive Program</p>	<p>A major barrier faced off by the Bilbao authorities has been the chronic lack of funding which has hampered or at least delayed the implementation of several planned interventions. Considering that one of the distinguishing aspects of the Plan was the ambition of accomplishing an administrative and financial co-ordination between public and private actors involved in common projects, the budgetary burden proved to be a difficult hurdle on the way of such cohesion.</p>

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Bologna

Policies	Co-ordination Arrangements	Results	Barriers
<p>In 1989, to tackle the surging car traffic, the city government decided to adopt a radical access restriction to the historical district. The measure, approved by popular referendum, was meant as a way to increase mobility (fewer cars and more public transport, cycling, and walking) and to raise the quality of life and livelihood of the urban centre for visitors and residents. Aside from access restrictions, the following measures were implemented:</p> <ul style="list-style-type: none"> • reservation of public parking spaces for residents and businesses; the residents however are only allowed to park in their own quarter; • introduction of a 30 kilometre per hour speed limit in the entire access restricted area; • re-organisation of the municipal bus transit services; • establishment of park and ride lots on the periphery (free for transit pass holders or bicycle owners); • extension of the short term parking zones on the edge of the historical centre; • strict surveillance of access through parking control; • extension of the pedestrian zone at the expense of an arterial road; • operation of bus lines running from restricted streets to outer park & ride lots. 	<p>Bologna is one example of early transport and land use planning integration, which dates back to the 1950s. Overtime, the municipality, the county and adjoining townships has striven to reach policy co-ordination despite a lack of legislative support. Since the 1980s, the public authorities have been working on a project that will eventually lead to the establishment of a Metropolitan City. An intermediate step has so far been the undersigning (by most municipalities belonging to the County of Bologna) of the Agreement for the Metropolitan City with the goal of providing the participants with effective tools for the co-ordination of land use and transport planning.</p>	<p>Notwithstanding an increasing car ownership, the number of cars driving daily into the city centre has been reduced from 152,000 in 1981 to only 58,000 in 1989. This equals to a drop of 62%. At the same time bicycle, taxi and motorcycle use has grown. In addition, sinking ridership on public buses was stopped. Moreover, the 30 kilometre per hour speed limit (even though it is rarely possible to exceed 15 km) increased safety for pedestrians, cyclists, and cars without the necessity of expensive construction measures. The bus system profited from the access restriction in that service has become faster and more punctual in the inner city and the number of vehicles has decreased due to a more efficient service management. Unlike the rest of the city streets, clogged by an ever rising number of vehicles, the historical centre has experienced a reversed pattern which has led to a better quality of life: fewer cars, more non-motorised vehicles, less pollution emissions and increased safety for pedestrians. These favourable conditions brought about a lower rate of residents loss (over a ten year span, 1986-1996, -10% as opposed to -12% in peripheral areas) and a sensible increment in dwelling and parking lot projects and construction localised in the immediate vicinity (quarters neighbouring the historical centre). On a more negative note, it must be noted that, despite a lack of short term parking spaces, the park and ride lots have not been sufficiently utilised.</p>	<p>This situation proves how planning policies aimed at promoting the use of public transit and alternative modes of transportation must face the cultural barrier posed by a die-hard car dependency.</p>

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Camden

Policies	Co-ordination Arrangements	Results	Barriers
<p>Britain's first car free housing development, opened in Camden in 1998, sought to contribute to sustainability by promoting better use of land and living space by removing on-site car parking space and not increasing existing pressure for on-street parking. According to the expectations, the car free sites would result in higher density residential development thus promoting environmentally sustainable travel.</p> <p>The car free dwellings in Camden, located in central London, were flats or small houses with one or two bedrooms that were sold on the housing market. The scheme provided no on-site parking except for people with disabilities and no on-street parking permits were made available to the residents.</p>	<p>Car free housing forms part of Camden's new Green Transport Strategy which was adopted in 1997 and contained many of the initiatives outlined in the government's integrated transport policy White Paper in 1998.</p> <p>Camden's green transport strategy includes five co-operation driven themes:</p> <p>Motivation : Camden will lead by example and work with other organisations to show the benefits of encouraging more people to walk, cycle and use public transport.</p> <p>Promotion : Camden will work with other organisations and develop initiatives to encourage greener travel and reduce car use to protect the environment and people's health.</p> <p>Research : Camden will work to reshape the policy 'agenda' in favour of green transport by linking London-wide, national and Europe-wide networks and universities.</p> <p>Restraint : Camden will act as a test for new pilot green transport initiatives.</p> <p>Urban design : Camden will continue to use its planning policies to create a more people friendly borough with better air quality and less traffic that is easier to get around by walking, cycling or by public transport.</p>	<p>As the development is still ongoing and residents just moved in, any assessment of results would prove premature. However, first reports show how the car free dwellings are selling at just below the normal market price and, due to their central location, they will likely be occupied by young professional people.</p> <p>By April 1999, Camden had approved 18 car free housing schemes (representing 242 housing units) in the borough.</p>	<p>No barriers reported.</p>

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Copenhagen

Policies	Co-ordination Arrangements	Results	Barriers
<p>The concept of the Finger Plan, inspired by the Greater London Plan of 1944, was initiated back in 1947 and aimed at reinforcing and regulating development trends of the finger-like pattern along the radial S-train lines (which came in use in the 1930s). The plan further recommended that the suburbs should grow into small independent communities which would of course be connected to the city core by the S-train lines.</p> <p>To achieve this, housing for 10.000 inhabitants were to be built around the suburban railway stations. The major highways were to be built alongside the "fingers". Large service and production centres were planned in the junctions between the "fingers" and a proposed inner ring road. The space between the "fingers" would remain undeveloped in favour of green patches of land.</p> <p>This land use policy along with the conviction that future urban development had to take place in the vicinity of the public transportation net are the cornerstones of the "Finger Plan".</p> <p>Today, the latest Finger Plan (1989) has slightly differentiated its strategy as it recommended central focus on particularly city-oriented activities as well as a de-central focus on "traffic nodal points" for other forms of activities. The plan further underlines the importance of co-ordinating traffic and local planning. Special consideration must be given to public transportation which should play an important role in this context. The plan gave on the whole a very important place to environmental and ecological problems.</p>	<p>The actual planning, in the hands of the Greater Copenhagen Council until 1990, was transferred to the counties of Copenhagen, Fredriksborg and Rockslide as well as the municipalities of Copenhagen and Fredriksberg. Therefore, to guarantee the essential co-ordination among the five regional planning authorities, the Act that abolished the Greater Copenhagen Council expressly stated that the five planning bodies should, as far as possible, mutually co-ordinate and find joint solutions to problems without the assistance of the Ministry of the Environment.</p>	<p>Today the metropolitan area has a well designed public transport system, including a uniform tariff system on all buses and trains. There are extensive areas of forests and the recreational planning includes protection of the green zones. Between the western "fingers" the green zones were made more attractive by the addition of artificial lakes and hills. The government has purchased land for cattle breeding to be able to sustain old farmland.</p> <p>Even though these were the main objectives of the original "Finger Plan", and so far they have been satisfied it is worth noticing how most the planning authorities' projections (which were the basis for future planning) proved to be wrong. Such an evident incongruent event can only be explained with the mobility patterns established in the region throughout the history of the kingdom, the construction of the S-railways that further cemented the spatial pattern and provided a skeleton for future development of public transportation. The belief that urban development must be co-ordinated with the public transport system naturally led to a finger like structure which allowed the land in between the "fingers" to remain undeveloped. Hence, along with the mutual agreement of the location of new urban settlements, land-use was also deeply rooted in a historical context.</p>	<p>No barriers reported.</p>

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Edinburgh

Policies	Co-ordination Arrangements	Results	Barriers
<p>In 1996 the Edinburgh City Council took responsibility for the 'Moving Forward' project. Within the project were a number of strategies aimed at reducing car travel. One strategy was the development of Car Free Residential Areas (CFRA's). Residents living in a CFRA were unable to own a car or park a car in or near the development. The aim of Edinburgh City Council in promoting CFRAs was to provide good examples to demonstrate that there was a market in the residential sector for an alternative approach that restricts the use of motor vehicles. The space normally used by parked vehicles would be used to enhance the environment and the inhabitant's quality of life.</p> <p>The Council stated the following benefits to residents living in a car free environment: safer environments for children, more green space instead of paved parking space and roads, better air quality, reduction in air and noise pollution, and savings in the cost of car ownership. Financial incentives to the Edinburgh residents and tenants in car free schemes may include: relief from the cost of creating parking spaces and their access roads, discounted public transport fares, savings via investment in car pooling/sharing on car hire schemes, and relief from local taxation.</p>	<p>The main actors involved in the Gorgie Railway Goods Yard development were Edinburgh City Council, Canmore Housing Association, Scottish Home Qu.A.N.G.O and Hackland and Dore Architects.</p> <p>Edinburgh City Council inherited the 'Moving Forward' strategy aimed at reducing car dependence from the former Lothian Regional Council and sought to implement measures to achieve this aim. Grant aid for part of the cost would come from the Scottish Homes Qu.A.N.G.O and the City. Edinburgh City Council was therefore providing political and economic support to CFRAs. In addition, Canmore Housing Association was committed to developing the scheme and the design of the development was the responsibility of architects.</p>	<p>Even though the stage is too early for results, a few considerations can be made. Criteria for identifying locations in Edinburgh suitable for CFRA's have been developed using German and Dutch case studies. The criteria for identifying locations included: close proximity and easy access to a wide range of local facilities, areas of low car ownership with good transport infrastructure and local shopping areas, areas with a good mix of residents, proximity to good public transport links, areas within the city centre controlled parking zone, and areas with a high population density.</p> <p>Before planning permission was granted for the Gorgie development, legal agreements between the developer and the planning authority were made that became conditions of the planning permission. Such agreements for the development were: each resident should be subject to a restriction on car ownership or the availability of a motor vehicle, full pedestrian and cycle route connections should be provided to link with surrounding areas, an access route should be provided for essential traffic including emergency, cleaning and delivery vehicles, such access to be controlled by a suitable physical barrier, location of access point into the development needs to be identified, parking to be provided on a ratio of 1/10 dwellings, at no time shall any resident permit the parking of any vehicle within the development or on a road within the defined area.</p>	<p>No barriers reported.</p>

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Euralille

Policies	Co-ordination Arrangements	Results	Barriers
<p>The new Euralille district, considered as the city of Lille's 11th district, was born from the political desire to grasp an exceptional opportunity resulting from the construction of the Channel Tunnel. The Euralille project, initiated at the end of the 1960s, aimed in fact to develop the Lille metropolis and render it attractive at the international level. Located between two stations in Lille city centre, Euralille was designed with the systematic integration of urban amenities:</p> <ul style="list-style-type: none"> - transport: Lille-Europe TGV station, underground station access, tram and bus services, taxi rank, motorway interchange, and car parks; - offices: a 63 395 m² surface area of new premises, through several construction programmes; - shops and services: the Euralille shopping centre and an international business centre; - leisure facilities: the Matisse urban park, the Aéronef centre or plays and musical events, the Lille - Grand Palais complex, including exhibition halls and conference rooms; - education: school for business studies, and international primary education school; - housing: a construction programme comprising 482 homes for sale and 204 homes for rental. 	<p>The implementation of the various projects called for initial agreements between public authorities and even the establishment of a joint public-private limited company for the preliminary studies of a TGV station.</p> <p>Then, in 1989 the Lille urban community started to manage the Euralille project. The operational phase was carried out by a newly set up public-private company named SAEM Euralille.</p>	<p>The initial development programme was reduced, due to difficulties with funding arrangements. Compare to the plan, fewer housing has been provided but it was quickly sold.</p> <p>After a slow start, the shopping centre is finally starting to lure shoppers from fringe areas to the Lille city centre. A survey demonstrated how 60% of the shoppers reached the shopping centre by public transport.</p> <p>By 1998, 80% of the businesses centre was occupied even though the overall development has not progressed as planned due to the fact that only a few companies with international business activities relocated in these premises.</p> <p>The TGV station has been a success as it continues to be used by an increasing number of passengers, 3 million passengers in 1997 (+ 29 % when compared with 1996), and a 25 % increase during the first seven months of 1998.</p> <p>Euralille residents also show travel habits that differ somewhat from the rest of Lille's inhabitants. In particular, they tend to walk more (53% vs 43%), use the car less (28% vs 43%), and use public transport more regularly (17% vs 12%).</p>	<p>The project experienced an initial funding shortage that slowed the implementation. Technical problems have hampered the smooth development of the business centre.</p> <p>The ability of the city's shopping centre to attract shoppers travelling by public transport was not immediate due to a cultural barrier. Additional services, such as home deliveries for those travelling without a car, helped in changing attitude.</p>

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Freiburg

Policies	Co-ordination Arrangements	Results	Barriers
<p>The project Freiburg-Rieselfeld is a counterpart to the Postdam-Kirchsteigfeld project in that it is an example of a new residential area developed with innovative planning procedures. The new area has a compact settlement structure with 4,800 residential units for 10,000 to 12,000 new residents and 1,000 new work places in the service sector. The emphasis was on the compact settlement structure in order to both save land and promote public transport. The main urban design principles were:</p> <ul style="list-style-type: none"> - to solve the conflict between landscape protection and the recreation demands of the residents; - to develop a biological concept for the area and integrate it into the regional biological network; - to meet high ecological standards (climate, soil, water, energy, etc.); - to create a residential area suitable for families, women and elderly people; - to plan a high-density, compact residential area; - to develop a forward-looking transport concept with the priority on public transport and non-motorised modes. <p>In developing the Rieselfeld project, the planners aimed at continuing the tradition of attention paid for pedestrian and cycling traffic. The proposals of three winning urban design teams were the basis for the urban design of the new residential area developed by the city planning department.</p>	<p>The project team consisted of representatives of several city departments (planning, real estate, civil engineering, education and social security) and other agencies. This organisation has proved to be very productive.</p> <p>For the implementation of the project the City Council created a public-private partnership between the city and the developers in the form of a development agency, which helped to integrate private economic know-how and the personal and financial resources of the private developers with those of the city. The City also decided to inform the public about the new project from the very beginning. The city planning department had many discussions with different citizen groups to get an idea of their visions and objections.</p> <p>Furthermore, a citizen council with local representatives was established by the City Council.</p>	<p>The settlement structure of Freiburg-Rieselfeld is characterised by a perimeter development of 4-5 storey apartment houses with a compact 'urban edge' is planned along the 300 m long main street of the new residential area. On the ground floor of the apartment houses along the main street supermarkets and smaller shops, doctors' offices, social infrastructure, and other services are located to prevent the development of a dormitory town. In order to provide an adequate connection, an existing tram line was extended into the area with an investment of 7 million Euro, and a new tram line was built along the main street to the terminal Maria-von-Rudloff-Platz.</p> <p>The Rieselfeld project well illustrates the benefit of close integration between urban development and municipal transport policy. On the one hand, compact urban expansion promotes the use of public transport. On the other hand, the orientation of the municipal transport policy on public transport is not possible without compact urban expansion. Important elements of this interaction are the measures to promote public transport not only by new lines but also by giving priority to non-car traffic in the area. The planners consistently followed both a push-and-pull strategy.</p> <p>Another significant aspect of the Rieselfeld project is the good balance between public and private investments, which created the framework for a successful co-operation between public and private actors and the integrated consideration of ecological, economic and social issues.</p>	<p>No barriers reported.</p>

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Groningen

Policies	Co-ordination Arrangements	Results	Barriers
<p>The traffic structure of Groningen presents three elements: a car system (main road network, urban and district connections), a bicycle system (cycling facilities at the urban level) and a bus system (separate bus routes). As the car system was functioning relatively well while it was argued that the bicycle and public transport system needed improvement, the city council felt the need to increase the efficiency of public transport in the city centre (hampered by the lack of co-operation between the various public transport companies) and to reduce the need of space typical of a compact city.</p> <p>The intention was to uphold the principles of the old traffic plan, but gradually to extend the area without car traffic and to reorganise the street. Further incentives are given for improvement of the accessibility and liveability of the city. The accent was placed not on the quantity but on the quality of the urban and functional structure. Considering integrated land-use and transport policy, the plan aimed to reduce the need for car trips, concentrate institutions and employment-intensive development near the station, locate new housing near the inner city, prevent further suburbanisation, and enhance the position of the city as the main centre of the north of Netherlands.</p>	<p>The municipality was mainly responsible for the structure plan, which determined the framework and future directions of local policy. It played a role of intermediary and initiator, retaining an active role in the implementation of the plan. Besides the local authority, the state, the province and the surrounding municipalities also played an important role in strengthening the central position of Groningen. Private actors (households, firms, developers, and investors) held an significant role in the elaboration of the policy, not only financially but also in regard to the risks taken. The division of costs, risks and profits between public and private parties was regulated by a project contract, a public-private partnership. At the level of development locations (intensification zones etc.), project teams were formed. Local interest groups did participate from the beginning in the decision-making about investments in their neighbourhoods.</p>	<p>The municipal council committed itself to the plan devoting to it considerable public sources and successfully stimulating private initiatives. It is argued that the structure plan has worked as a source of inspiration to private investors and canalised the interests of this group.</p> <p>Since the development of the structure plan, about 20 million guilders yearly have been invested in traffic measures, mainly for cycling and public transport. On the basis of counts of passers-by, the number of visitors increased by 20% between 1980 and 1989. A 1997 survey on the shopping area visitors showed how 26% come by public transport, 25% by foot, 24% by car, 23% by bicycle and 2% by other transport modes. It also appears that the car reduction in the city centre did not have a negative effect on the functioning of the city centre: the numbers of visitors and the turnovers of shops still increase by 5% annually.</p> <p>The bicycle use in Groningen has steadily increased during the years. It is however difficult to link the current modal split to the implemented policies. The compact city policy did limit the average travel distances and the traditional important role of cycling has been maintained. However, it can be argued that the relatively high proportions of students and young people are an equally important factor.</p> <p>The bus system, mainly concentrated in the city centre, is still in need of future intervention as it is placing pressure on the liveability of the area.</p>	<p>No barriers reported.</p>

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Manchester

Policies	Co-ordination Arrangements	Results	Barriers
<p>To make up for the fact that Manchester's heavy rail stations were located on the edge of the business district, the city approved a Metrolink system able to provide the necessary connections.</p> <p>Phase 1 of the Metrolink specifically sought to increase the overall effectiveness of the rail system as a form of public transport.</p> <p>The main objectives were to increase rail access to the city centre, provide the missing north-south link, connect the main city rail stations, and re-develop the old urban heavy rail lines.</p> <p>Since the implementation of Phase 1, Phase 2 of the Metrolink has been approved and is being developed. One part of the Phase 2 extensions is to Salford Quays. Salford Quays is a new development with offices, shops and residential land uses. As the land use of Salford Quays area was being redeveloped, planners safeguarded land for the development of the Metrolink line. The Salford Quays extension is therefore an example of integration between land use planning and transport.</p>	<p>Manchester's transport authority, the British Rail, and Manchester City Council co-ordinated the project proposal, approval, and financing.</p> <p>The winning consortium, which was also given a 15-year contract to operate Metrolink, carried out project design and realisation. Recently, Serco Metrolink has taken over the contract operation from GMML.</p>	<p>Phase 1</p> <p>Annual passenger figures (13 m) surpass the original forecasts while surveys suggest that 43% of Metrolink journeys would have otherwise happened by car. This translates into an estimated reduction of 1m vehicles.</p> <p>The converted heavy rail lines also enjoyed similar impacts.</p> <p>Modal switch has seen 40% of bus users and 13% of car users transferring.</p> <p>The project was also beneficial to the non-user community in that it increased economic activity (better access), developed vacant land alongside the light rail corridor, reduced congestion and air pollution, created jobs.</p> <p>Phase 2</p> <p>When the extension is completed in 1999 it is expected to bring about £60m worth of benefits to the area, including a reduction in congestion, shorter journey times and reduced pollution.</p>	<p>Integrating land use and transport can be difficult in a new development such as Salford Quays. During the land use development phase public transport may be approved but the money not available for development. Before money is available the land designated for the route may be developed for other reasons and therefore limit the effectiveness of the new public transport route especially if the route has to be changed.</p>

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Nantes

Policies	Co-ordination Arrangements	Results	Barriers
<p>In 1991 the District of Nantes adopted a global plan designed to improve transit conditions for a year 2000 time horizon.</p> <p>The plan had the following objectives:</p> <ul style="list-style-type: none"> - promote the use of the beltway thus rendering urban traffic safer and more fluid. - turn the thoroughways into boulevards so that inbound automobile traffic could coexist in harmony with other kinds of traffic. - create new river crossings over the Loire to reinforce the various routing alternatives. - increase the use of mass transit. The light rail system is the main cog in the system, which also includes reinforcing and modernising the bus network, harmonising urban and inter-urban networks, using heavy rail infrastructures and developing complementarity between private vehicles and mass transit by setting up Park & Ride lots. - develop pedestrian and two-wheeled transportation modes. 	<p>The plan was designed and managed by the District, a multi-vocational inter-community committee for the greater area of Nantes.</p>	<p>Although the overall figure for trips made in individual automobiles has continued to grow, the proportional share of individual automobiles as a mode of transportation has decreased while the shares of walking and mass transit have increased. The behaviour of the inhabitants of the urban area is beginning to change. The creation of Park & Ride lots close to streetcar lines has also contributed to increase ridership.</p> <p>The light rail system has contributed to improve the urban area. Thus, along the two light rail corridors in Nantes, 136 significant improvement operations have been counted. Generally speaking, integrating the two streetcar lines required reworking the urban space into which they were to be operated. The building of the light-rail system triggered or accelerated urban planning operations whose aim was to change the character of certain neighbourhoods and to re-create urban poles of attraction in close proximity to the streetcar lines.</p> <p>Socio-economic indicators observed that in the light rail corridor the population has increased less quickly than in the agglomeration overall, although the rise there is more substantial than in the three communities served by the streetcar. Also, households are smaller and the new constructions close to the streetcar line are essentially apartment buildings. The annual rate of turnover in subsidised housing neighbourhoods has tended to decrease more quickly than in the rest of the urban area.</p>	<p>No barriers reported.</p>

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Poundbury

Policies	Co-ordination Arrangements	Results	Barriers
<p>The extension to Poundbury of the city of Dorchester offered the opportunity to integrate land use with transport planning responding to business, housing and community needs. The aim was to avoid a conventional development by reviving the traditional character of an English town.</p> <p>Therefore Poundbury was given a mixed social and private housing as well as shops, offices and industry, irregular roads, landscaped courtyards and dwellings front directly onto the street. The leading idea was to encourage residents to grow dependent on living and working in close proximity reducing the need of car (although not actively fought).</p> <p>Interesting tools employed in Poundbury have been the shaping streets (for traffic control), sharp street corners (which encourage drivers to stop), and courtyard parking spaces (to render parked cars less obtrusive).</p>	<p>The Duchy of Cornwall has co-ordinated the whole development and has built roads and services.</p> <p>Housebuilders and individuals have been invited to purchase plots of land with roads and services provided.</p>	<p>Although the development is still very new, the first phase has been extremely promising. House and commercial sales have been successful, showing the great attractiveness of living in an environment such as Poundbury.</p> <p>On the other hand, a recent survey showed how the area is still rather isolated and not integrated with the rest of the town. The local socio-economics suggest a high car ownership and use while few are walking onto the Dorchester town centre.</p>	<p>No barriers reported.</p>

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Saale Park

Policies	Co-ordination Arrangements	Results	Barriers
<p>The Saale Park is an example of non-integrated shopping area located in a triangle formed by the cities of Leipzig, Halle and Merseburg in eastern Germany.</p> <p>The unruly development occurred as a result of the combined interest of the municipalities and investors after German Reunification in 1990. The former needed to get trade taxes and attract work places, the latter were drawn by the vast available areas were huge retail facilities could be developed. Another factor was the increasing car ownership in Eastern Germany after 1990 which promoted travelling huge distances to non-integrated locations. <i>As a consequence, the old mixed-use city centres lost their customers.</i></p> <p>The result of the “time without laws” was a wild race to get planning and building permissions before the implementation of Western Germany Federal Law. The same Government, in order to boost the number of work places, promoted the development of non-integrated shopping malls. The use of public transportation as well as non-motorised modes in Eastern German mixed-use cities were consequently sacrificed to the altar of private modes.</p>	<p>No co-ordination.</p>	<p>Saale Park is an enlightening bad practice in the field of integration between land-use and transportation planning. The main negative effects have been the overwhelming traffic congestion on the motorways, the inadequate public transport service, and the annihilation of non-motorised modes. Furthermore, such a development has had a negative impact on the businesses located in the surrounding cities, forcing some of them to close down.</p> <p>Shoppers have been willing to travel longer distances and times (up to 90-min.) to shop and spend leisure time in Saale Park.</p> <p>Today, due to the drop in turnover (cause by decreased attractiveness) and the new investments carried out by the nearby cities, Saale Park (expected to be renewed in the year 2000) has to face a fierce competition coming from the attractive and easily reachable businesses of downtown Leipzig and Halle where huge national investments took place in the last years.</p>	<p>No barriers.</p>

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Tübingen

Policies	Co-ordination Arrangements	Results	Barriers
<p>The re-development of a former military area at the south of Tübingen into an integrated district presented the city with a favourable occasion to cope with the need of additional dwellings. An important aim was to apply high-density and narrow mixed-use (even mixed-use buildings) concepts to this district – called “city with character”.</p> <p>The plan called for the development of both business facilities and housing unit projects, which would require the presentation of integrated infrastructure projects. The aim was to ensure reduced mobility needs, increased non-motorised modes, and increased public areas. Even though the new district was not meant to be a car-free area, the goal was to promote the non-motorised modes and increase mobility by reducing travel distances.</p> <p>Citizens, organised in interest groups, were actively involved in the planning of their districts, in particular when public areas were concerned. Accordingly, citizens were responsible with the realisation of structures and measures able to rise their quality of life (i.e. traffic calming measures).</p>	<p>The development of Tübingen Südstadt was based on a special planning tool called “urban development measure”. It was a specific tool for experiments in reusing areas (e.g. former military or industrial areas). The city’s Department for Redevelopment and the regional Development Department were responsible with the planning and implementation. Private parties and citizens were also heavily involved in the plan. Private individuals, developers and joint public-private partnerships provided financing.</p>	<p>By 1999, about 2,000 inhabitants had relocated into the new district while the number is projected to reach 7,000 residents plus some 2,500 working places when the plan is completed.</p> <p>Bus lines, available at a 300-m. distance from each housing unit, will be provided.</p> <p>Cycling paths have been built in central traffic calming zones and outer areas. Pedestrian and car access controlled areas have also been implemented.</p> <p>Parking places have been built at a 300-m. distance from the housing units while in central areas only parking places for handicapped people and retailers have been provided.</p> <p>Altogether, Tübingen is a very good example of application of “urban development measures” which are transferable to redevelopment areas.</p>	<p>Some of the residents did not accept the idea of multi-story parking lots at the edge of the housing area.</p>

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ANNEX 2

ATTENDEES AT THE TRANSLAND WORKSHOP

UNIVERSITY OF READING, UK

15/16 SEPTEMBER 1999

Workshop participants

Chris Smith	DETR, UK
Prof Peter Jones	University of Westminster, UK
Prof David Banister	Bartlett School of Planning, University College London, UK
Prof Ian Gordon	University of Reading, UK
Jan Peter Jonges	Ministry of Transport, The Netherlands
Bart van Bleek	National Planning Agency, The Netherlands
Patricia Gout	ILS, Dortmund, Germany
Enrico Buglione	Istituto di Studi sulle Regioni, Rome, Italy
Prof Felix Huber	Bergische Universitat-Gesamthochschule Wuppertal, Germany
Dominique Mignot	LET, France
Marc Ellenberg	CERTU, France
Gilles Gardet	ETAT, Switzerland
Malcolm Buchanan	Colin Buchanan and Partners, UK
Stephen Marshall	Bartlett School of Planning, University College London, UK
Michael Lehmbrock	Deutsches Institut fur Urbanistik
Cord. Soehlke	Stadtsanierungsamt Tuingen, Germany
Oscar Martijn	DS&V, Rotterdam, The Netherlands
Karst Geurs	RIVM, The Netherlands
Pierre Emangard	Directeur du Pole Transports-Deplacement du CNFPT, France
Marc Papinutti	Direction Regionale d'Equipement de de l'Ile de France
Therese Steenberghen	KU Leuven, Belgium

Consortium members

Neil Paulley	TRL, UK
Annette Pedler	TRL, UK
Carlo Sessa	ISIS, Italy
Mario Gualdi	ISIS, Italy
Prof Michael Wegener	University of Dortmund, Germany
Stefan	University of Dortmund, Germany
Raimund Kemper	University of Dortmund, Germany
Erhard Erl	Socialdata, Germany
Gabi Ferber	Socialdata, Germany
Erik Verroen	TNO, The Netherlands
Merijn Martens	TNO, The Netherlands
Claude Noel	CERTU, France
Sophie Nicolas	Cete Nord, France

Other experts consulted regarding the research agenda

Irma Doesbrug	Ministry of Transport, The Netherlands
Henk van Hoorn	Ministry of Transport, The Netherlands
John Weebers	Ministry of Transport, The Netherlands
Rich Kleiberg	National Planning Agency, The Netherlands
Paul Hodson	EC, DG VII (transport)
Remi Mayet	EC, DG VII (transport)
Prof. Ton Kreukels	University of Utrecht, The Netherlands

ANNEX 3

QUESTIONS FOR THE GROUP DISCUSSION AT THE WORKSHOP ADDRESSING BEST PRACTICES

Questions concerning the interview outline for a group discussion with professionals determining best practices in the field of integrated transport and land-use planning (including possible suggestions):

1. Definition / criteria for best practice

- A. How do you define best practice in the field of integrated land-use and transport planning?
- B. Which case studies examined in the TRANSLAND project are in your opinion best practice?
- C. Why do you define these case studies as 'best practice? *For example: "Where success of the project was dependent on co-operation within government agencies."*
- D. Which criteria are absolutely necessary for best practice within the field of integrated land-use and transport planning? *For example: "Reduction of car use"*
- E. Are there different criteria for best practice in non-developed urban areas versus already developed areas ? *For example: "Yes, perhaps non-developed urban areas must be located within a certain distance to the city centre, or be located near public transport system, or not located near any large highways or streets which could promote excessive car use."*

2. Implementation of best practice

What framework of conditions must exist in order to begin implementation of a best practice? For example: "A high degree of public participation and a spirit of regional co-operativism". Which instruments are necessary for implementing best practice which you have identified? For example: "A political structure allowing for necessary fiscal measures." Which best practice case studies can be effectively implemented in planning for developed areas? Which best practice case studies can be effectively implemented in planning for non-developed urban areas?

3. Transferability of best practice

- A. How do you estimate the transferability of your chosen best practice case studies in the same country? In other countries? *For Example: "Bad in other countries because of differences in the vertical structure/ an existing predominance in centralised urban concentrations exist."*
- B. What barriers could hinder the application of a best practice onto another project? What chances do you see for overcoming these barriers? *For Example: "Side-effects from implementation measures too great in the short term."*
- C. Do you see the possibility for harmonising integrated transport and land-use planning in all countries of the European Union?

ANNEX 4

QUESTIONNAIRE FOR EVALUATION OF CASE STUDIES

Evaluation of case studies – “Best Practice”

a) General questions to case studies

Name of case study _____

Partner in charge of the case study _____

Is this case study a project located in existing structures or in open space / redevelopment areas?

existing structures

open space / redevelopment areas

Beginning of implementation phase (year): _____

Estimated date of completion of implementation: _____

b) Evaluation of case study based on criteria

RANKING SCHEME

On the following page you will find different possible parts / criteria of a project “integration

Please evaluate the above mentioned case study referring to the parts of the concept on the basis of this ranking scheme:

Concept of project:

- Very important part of concept
- Important part of concept
- Less important part of concept
- Not important

Implementation:

- Successfully implemented
- Not successfully implemented
- Not yet implemented

Parts	Concept of project				Implementation		
	Very important	Important	Less important	Not important	Success fully	Not successfully	Not yet implemented
Promotion of public transport	<input type="checkbox"/>						
Improving accessibility of public transport	<input type="checkbox"/>						
Promotion of non-motorised mode “walking”	<input type="checkbox"/>						
Promotion of non-motorised mode “cycling”	<input type="checkbox"/>						
Promotion of transportation intermodality (eg. Park & Ride, intermodal transit stations)	<input type="checkbox"/>						
Restrictions MPM (Motorised Private Modes)	<input type="checkbox"/>						
Promotion of dense / compact structures	<input type="checkbox"/>						
Promotion of mixed used structures (mixed used of housing, working, supply + services, education, leisure)	<input type="checkbox"/>						
Reduction of social segregation / social inequities	<input type="checkbox"/>						
Communication between citizens, administration, politicians, investors (eg. Information-campaigns)	<input type="checkbox"/>						
Participation of public and decision-makers (active involvement in implementation process)	<input type="checkbox"/>						

c) General evaluation of the case study

Please evaluate the case study in general with regards to the integration of transport and land-use planning:

	Very useful	Useful	Partly useful	Not useful
Concept of the project (theoretical base for the integration of transport and land-use planning)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Reason: _____

	Very successful	Successful	Partly successful	Not successful
Implementation (excluding temporal factors)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Reason: _____

	Detailed documented	Documented	Partly documented	Not available
Documentation of planning and implementation procedures	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Short description of documentation _____

d) Evaluation of Transferability

Transferability of case study in **national** context to existing structures

Possible	Impossible
<input type="checkbox"/>	<input type="checkbox"/>

Reason: _____

Transferability of case study in **national** context to open space / redeveloped structures

Possible	Impossible
<input type="checkbox"/>	<input type="checkbox"/>

Reason: _____

Transferability of case study in **other EC-countries** to existing structures (considering categories A, B, C of Deliverable 2b)

Possible	Impossible
<input type="checkbox"/>	<input type="checkbox"/>

Reason: _____

Transferability of case study in **other EC-countries** to open space /redeveloped structures (considering categories A, B, C of Deliverable 2b)

Possible

Impossible

Reason: _____

ANNEX 5

PARTNER EVALUATION OF CASE STUDIES BASED ON QUESTIONNAIRE

General evaluation

Case study	Poundbury	Camden	Manchester Metrolink	Edinburgh
Partner	TRL	TRL	TRL	TRL
Spatial structures	Open space / redevelopment	Existing structures	Existing structures	Redevelopment
Beginning implementation	1989	1997	1985	1998
End of implementation	Phase 1 1998	first phase 1998	scheduled 1999	2000
Most important information included in evaluation of parts	Innovative measures are mainly design oriented. Case study does promote compact and mixed use structures as well as successfully implementing communication between different actors and participation.	Car free residential units available since 1998. While no studies of effectiveness made yet, it is known that there is successful implementation of compact structures, mix of uses and promotion of communication between actors.	Phase 1 of 2 completed in 1992 - mainly transport oriented. Second phase has some land use elements that have not yet been implemented. Case study ranked rather high in promoting public transport as well as communication and participation of different act	Like Camden project, Edinburgh project is a car free residential area whose estimated date of completion of implementation is the year 2000. While project states that promotion of public transport and mixed used structures are very important, no informati
Total sum evaluation parts	11	8	14	0
Number of parts "not yet implemented"	1	0	0	6
Number of parts "not important"	0	0	5	0
General evaluation concept	Very useful	Useful	Very useful	Very useful
General evaluation implementation	Partly successful	Successful	Successful	Not applicable
General evaluation documentation	Detailed documentation	Detailed documentation	Detailed documentation	Partly documented
Transferability of existing structures in national context	no	yes	yes	yes
Transferability of open space in national context	yes	yes	no	no
Transferability of redevelopment in national context	no	yes	PT possible to areas with high population	yes
Transferability to other EC countries in existing structures	no	mainly Cat. A	mainly Cat. A	yes
Transferability to other EC countries in open space	Cat. A, B, C	yes	no	no
Transferability to other EC countries in redevelopment areas	Cat. A, B, C	mainly Cat. A	Cat. A + B	Cat. A, B, C

Case study	CENTRO	Basel	Freiburg-Rieselfeld	Potsdam Kirchsteigfeld
Partner	IRPUD	IRPUD	IRPUD	IRPUD
Spatial structures	Open space redevelopment	Existing structures	Open space redevelopment	Open space redevelopment
Beginning implementation	1991	1970	1991	1994
End of implementation	1996	2010	1998 first building stage	2000
Most important information included in evaluation of parts	Auto-oriented regional shopping mall. While generally improving accessibility of public transport by providing a transport line to the city centre, efficiency of the line is questionable. Positive characteristics are promotion of mix uses within project a	While the estimated date of completion is 2010, case study has already shown positive results in guiding urban development along suburban rail lines mainly by plans to redevelop the main railway station and plans to guide urban development in residential	New district developed on former open space and located on fringe of the city. First phase completed in 1998. Strongly promotes public transport and accessibility to public transport along with promoting non-motorized modes. Promotion of dense compact str	Located near edge of the city and is currently being developed in an open space area. mixed use and compact suburban development rated highly and in promoting public transport and accessibility of public transport. Rated as "important" in land use plannin
Total sum evaluation parts	2	19	23	19
Number of parts "not yet implemented"	0	0	0	1
Number of parts "not important"	6	1	2	1
General evaluation concept	Partly useful	Very useful	Very useful	Very useful
General evaluation implementation	Partly successful	Successful	Very successful	Successful
General evaluation documentation	Detailed documentation	Partly documented	Detailed documentation	Detailed documentation
Transferability of existing structures in national context	yes	yes	no	no
Transferability of open space in national context	yes	no	yes	yes
Transferability of redevelopment in national context	yes	no	yes	yes
Transferability to other EC countries in existing structures	Cat. A, B, C	Cat. A + B	no	no
Transferability to other EC countries in open space	Cat. A, B, C	no	Cat. A - C	yes (?)
Transferability to other EC countries in redevelopment areas	Cat. A, B, C	Cat. A + B	Cat. A - C	yes (?)

Case study	Tübingen	Saalepark	Messestadt Riem	Gävle
Partner	SD	SD	SD	SD
Spatial structures	Open space / redevelopment	Open space / redevelopment	Open space / redevelopment	Existing structures
Beginning implementation	1991	1991	1992	1996
End of implementation	first phase is closed, end of project 2005	1992	2013	1999
Most important information included in evaluation of parts	Project taking place in a redevelopment area estimated to be completed in 2005- 2010. Mixed-use concept promoting alternative transport modes walking and cycling, restrictions for car use, communication between actors and public participation.	This non-integrated regional retail center was completed in 1992 in eastern Germany. Taking advantage of liberal permitting processes shortly after German reunification, the shopping center is completely auto oriented and therefore undesirable for replic	Current development taking place in open space/ redevelopment area with estimated date of completion in 2013. Successful in reducing social segregation/ social inequities, promotion of dense/compact structures and mixed-use, participation and communication	Primarily promoted cycling and increased communication and participation between actors. Slight promotion of transport intermodality. No impact on public transport or land use planning.
Total sum evaluation parts	21	0	9	9
Number of parts "not yet implemented"	2	0	5	1
Number of parts "not important"	1	11	0	7
General evaluation concept	Very useful	Not useful	Very useful	Very useful
General evaluation implementation	Successful	Not successful	Successful	Very successful
General evaluation documentation	Detailed documentation	Not available	Detailed documentation	Partly documented
Transferability of existing structures in national context	Area must be owned by city administration to ensure financing	yes	no	yes
Transferability of open space in national context	Area must be owned by city administration to ensure financing	yes	yes	yes
Transferability of redevelopment in national context	Area must be owned by city administration to ensure financing	yes	yes	yes
Transferability to other EC countries in existing structures	Area must be owned by city administration to ensure financing	yes	no	yes
Transferability to other EC countries in open space	Area must be owned by city administration to ensure financing	yes	yes	yes
Transferability to other EC countries in redevelopment areas	Area must be owned by city administration to ensure financing	yes	yes	yes

Case study	Greater Copenhagen	Euralille	Rennes	Toulouse
Partner	SD	CERTU	CERTU	CETE
Spatial structures	Existing structures	Open space / redevelopment	Existing structures	Existing structures
Beginning implementation	1947	1994	1992	not yet implemented (1999)
End of implementation	open	1998	ongoing process	2005
Most important information included in evaluation of parts	One of the oldest regional metropolitan plans in existence. While changing goals have strongly promoted public transport, there are average results in promoting intermodality, public participation and promoting mixed use structures. Failed in promoting al	Redevelopment project near international transport interchange and good example of promoting a more compact urban development. Study promotes public transport and accessibility to public transport. It did not promote the use of bicycles or walking as a t	A good example of regionally coordinated land use planning supported by a regional tax base sharing scheme. While this case study did promote dense compact structures and communication between actors, it received relatively low marks in other aspects	While this case study received rather unremarkable reviews, it was noted that this case did promote a regional planning scheme which favored horizontal coordination among land use and transport planning between local authorities
Total sum evaluation parts	5	15	7	5
Number of parts "not yet implemented"	0	0	3	1
Number of parts "not important"	0	3	2	1
General evaluation concept	Very useful	Useful	Useful	Partly useful
General evaluation implementation	Successful	Successful	Successful	Not applicable
General evaluation documentation	Documented	Documented	Partly documented	Detailed documentation
Transferability of existing structures in national context	Historical and geographical aspects are important / specific regional elements have to be taken into account	PT to location with high accessibility	yes	yes
Transferability of open space in national context	Historical and geographical aspects are important / specific regional elements have to be taken into account	yes	yes	out of the object
Transferability of redevelopment in national context	Historical and geographical aspects are important / specific regional elements have to be taken into account	yes	yes	out of the object
Transferability to other EC countries in existing structures	Historical and geographical aspects are important / specific regional elements have to be taken into account	PT to location with high accessibility	yes	yes
Transferability to other EC countries in open space	Historical and geographical aspects are important / specific regional elements have to be taken into account	no	out of object	out of the object
Transferability to other EC countries in redevelopment areas	Historical and geographical aspects are important / specific regional elements have to be taken into account	yes	out of object	out of the object

Case study	Greater Nantes	Strasbourg	Madrid	Metropolitan Bilbao
Partner	CETE	CERTU	ISIS	ISIS
Spatial structures	Existing structures	Existing structures	Open space / redevelopment	Existing structures/ open space, redevelopment
Beginning implementation	1985	1994 (PT supply); 2000 implementation of PDU	1985	1992
End of implementation	2005	2010	1997	ongoing
Most important information included in evaluation of parts	Since this is mainly a transport improvement measure, this case study ranks high in promoting and increasing accessibility to public transport as well as restricting motorised private modes by transferring road surface to public transit.	Since this is mainly a transport improvement measure, this case study ranks high in promoting and increasing accessibility to public transport and restricting motorised private modes. Average results in promoting alternative transport modes and communication	Did little in promoting public transport, but promotes dense, compact structures and was successful in reducing social segregation and social inequities. Received high marks in promoting participation of public and decision makers as well as communication	A large scale project whose efforts to integrate land use and transport planning is relatively small. While the promotion of public transport has been successfully implemented, dense compact and mixed use development has not yet been implemented
Total sum evaluation parts	8	13	12	4
Number of parts "not yet implemented"	1	0	0	3
Number of parts "not important"	3	3	6	5
General evaluation concept	Partly useful	Partly useful	Not applicable	Partly useful
General evaluation implementation	Successful	Successful	Very successful	Partly successful
General evaluation documentation	Documented	Documented	Partly documented	Not available
Transferability of existing structures in national context	yes	yes	Institutional concertation and capacity in promoting citizen participation	yes
Transferability of open space in national context	PT to high level of density	out of the object	Institutional concertation and capacity in promoting citizen participation	yes
Transferability of redevelopment in national context	PT only possible to high level of density	out of the object	Institutional concertation and capacity in promoting citizen participation	yes
Transferability to other EC countries in existing structures	yes	yes	Institutional concertation and capacity in promoting citizen participation	yes
Transferability to other EC countries in open space	PT to high level of density	out of the object	Institutional concertation and capacity in promoting citizen participation	yes
Transferability to other EC countries in redevelopment areas	PT only possible to high level of density	out of the object	Institutional concertation and capacity in promoting citizen participation	yes

Case study	Canton Vaud / Canton Geneve	Bologna	Rome	ABC location policy
Partner	ISIS	ISIS	ISIS	TNO
Spatial structures	Existing structures/ open space, redevelopment	Existing structures	Existing structures/ open space, redevelopment	Existing structures
Beginning implementation	not applicable	1989	1990	1991
End of implementation	not applicable	ongoing	ongoing	ongoing
Most important information included in evaluation of parts	While promotion of public transport and intermodality are important concepts, none have been implemented yet.	Very successful in promoting public transport and intermodality as well as restricting private car use. Alternative transport modes and the reduction of social inequities were less important concepts successfully implemented.	Successful in promoting public transport, intermodality and restricting private car use. Failed in communication between actors. Ongoing process.	Successful in promoting public transport / accessibility and transportation intermodality. Failed success in restrictions for motorised Private Modes. Promotion of dense structures and mixed used not important in the concept.
Total sum evaluation parts	0	15	4	3
Number of parts "not yet implemented"	8	0	5	0
Number of parts "not important"	3	4	2	5
General evaluation concept	Useful	Partly useful	Very useful	Very useful
General evaluation implementation	not applicable	Successful	Partly successful	Partly successful
General evaluation documentation	Documented	Partly documented	Partly documented	Documented
Transferability of existing structures in national context	not implemented yet	yes	Accommodates transport and land use planning within one entity	yes / national concept
Transferability of open space in national context	not implemented yet	not applicable	not applicable	yes / national concept
Transferability of redevelopment in national context	not implemented yet	not applicable	not applicable	yes / national concept
Transferability to other EC countries in existing structures	not implemented yet	yes	not applicable	Planning framework: regulation of business locations and parking policy; PT to larger urban regions (polynuclair)
Transferability to other EC countries in open space	not implemented yet	not applicable	not applicable	ABC location often redevelops open areas within cities (old harbours etc.)
Transferability to other EC countries in redevelopment areas	not implemented yet	not applicable	not applicable	ABC location often redevelops open areas within cities (old harbours etc.)

Case study	Groningen	VINEX
Partner	TNO	TNO
Spatial structures	Existing structures	Open space / redevelopment
Beginning implementation	1987	1991
End of implementation	ongoing	ongoing
Most important information included in evaluation of parts	Successful in promotion of dense / compact structures and mixed use structures. Successful in improving accessibility to public transport and non-motorised mode cycling. Success of some measures (citizens participation etc.) not known.	Successful in promotion of dense / compact structures, partly successful in communication between citizens, politicians etc. Some measures are not implemented yet, success of some measures not known
Total sum evaluation parts	11	6
Number of parts "not yet implemented"	0	3
Number of parts "not important"	2	2
General evaluation concept	Useful	Very Useful
General evaluation implementation	Successful	Partly successful
General evaluation documentation	Partly documented	Detailed documented
Transferability of existing structures in national context	Done already : Groningen is one example of many	national policy
Transferability of open space in national context	not available	national policy
Transferability of redevelopment in national context	not available	national policy
Transferability to other EC countries in existing structures	All cities could perform such longer term planning	Planning framework: enables regional or national governments to restrict and regulate housing development
Transferability to other EC countries in open space	not available	Planning framework: enables regional or national governments to restrict and regulate housing development
Transferability to other EC countries in redevelopment areas	not available	Planning framework: enables regional or national governments to restrict and regulate housing development

Evaluation Parts

	Poundbury	Camden	Manchester Metrolink	Edinburgh
Promoting public transport	1	not known	3	Not yet implemented
Improving accessibility to PT	1	not known	3	Not yet implemented
Promoting non-motorised modes- "walking"	not known	not known	not important	Not yet implemented
Promoting non-motorised modes- "cycling"	not known	not known	not important	Not yet implemented
Promoting transport intermodality	-	not known	2	Not yet implemented
Restricting MPM	not known	not known	-	Not yet implemented
Promoting dense/compact structures	2	2	not important	-
Promoting mixed use structures	3	3	not important	-
Reducing of social segregation	-	not known	not important	-
Communication	2	3	3	-
Participation	2	not known	3	-
Total sum	11	8	14	0

	CENTRO	Basel	Freiburg-Rieselfeld	Potsdam Kirchsteigfeld
Promoting public transport	-3	3	3	3
Improving accessibility to PT	2	3	3	3
Promoting non-motorised modes- "walking"	not important	2	2	3
Promoting non-motorised modes- "cycling"	not important	2	3	2
Promoting transport intermodality	not important	Not yet implemented	not important	not important
Restricting MPM	not important	not important	3	2
Promoting dense/compact structures	1	3	2	2
Promoting mixed use structures	not important	3	1	-2
Reducing of social segregation	not important	-	not important	2
Communication	3	1	3	3
Participation	-1	2	3	1
Total sum	2	19	23	19

Legend:

3 = very important part of the concept / successfully implemented

2 = important part of the concept / successfully implemented

1 = Less important part of the concept / successfully implemented

-3 = very important part of the concept / not successfully implemented

-2 = important part of the concept / not successfully implemented

-1 = important part if the concept / not successfully implemented

- = missing ticks

	Tübingen	Saalepark	Messestadt Riem	Gävle
Promoting public transport	Not yet implemented	not important	2	not important
Improving accessibility to PT	Not yet implemented	not important	2	not important
Promoting non-motorised modes- "walking"	3	not important	Not yet implemented	not important
Promoting non-motorised modes- "cycling"	2	not important	Not yet implemented	3
Promoting transport intermodality	not important	not important	Not yet implemented	0
Restricting MPM	2	not important	-2	not important
Promoting dense/compact structures	3	not important	Not yet implemented	not important
Promoting mixed use structures	3	not important	Not yet implemented	not important
Reducing of social segregation	2	not important	3	not important
Communication	3	not important	2	3
Participation	3	not important	2	3
Total sum	21	0	9	9

	Greater Copenhagen	Euralille	Rennes	Toulouse
Promoting public transport	3	3	Not yet implemented	Not yet implemented
Improving accessibility to PT	3	3	Not yet implemented	-
Promoting non-motorised modes- "walking"	-2	1	not important	-
Promoting non-motorised modes- "cycling"	-2	not important	1	-
Promoting transport intermodality	2	2	Not yet implemented	-
Restricting MPM	-2	not important	not important	-
Promoting dense/compact structures	-1	2	3	not important
Promoting mixed use structures	2	2	1	1
Reducing of social segregation	-	not important	-2	1
Communication	-	1	3	3
Participation	2	1	1	-
Total sum	5	15	7	5

Legend:

3 = very important part of the concept / successfully implemented

2 = important part of the concept / successfully implemented

1 = Less important part of the concept / successfully implemented

-3 = very important part of the concept / not successfully implemented

-2 = important part of the concept / not successfully implemented

-1 = important part if the concept / not successfully implemented

- = missing ticks

	Greater Nantes	Strasbourg	Madrid	Bilbao
Promoting public transport	3	3	not important	2
Improving accessibility to PT	3	3	-	2
Promoting non-motorised modes- "walking"	not known	2	not important	not important
Promoting non-motorised modes- "cycling"	not known	2	not important	not important
Promoting transport intermodality	not known	3	not important	Not yet implemented
Restricting MPM	2	-3	not important	-
Promoting dense/compact structures	not important	not important	3	Not yet implemented
Promoting mixed use structures	not important	not important	not important	Not yet implemented
Reducing of social segregation	-	not important	3	not important
Communication	not known	2	3	not important
Participation	not important	1	3	not important
Total sum	8	13	12	4

	Canton Vaud / Canton Geneve	Bologna	Rome	ABC policy
Promoting public transport	Not yet implemented	3	3	2
Improving accessibility to PT	Not yet implemented	3	Not yet implemented	3
Promoting non-motorised modes- "walking"	Not yet implemented	1	Not yet implemented	not important
Promoting non-motorised modes- "cycling"	Not yet implemented	1	-1	not important
Promoting transport intermodality	Not yet implemented	3	Not yet implemented	2
Restricting MPM	Not yet implemented	3	3	-2
Promoting dense/compact structures	Not yet implemented	not important	Not yet implemented	not important
Promoting mixed use structures	Not yet implemented	not important	not important	not important
Reducing of social segregation	not important	1	Not yet implemented	not important
Communication	not important	not important	-1	-1
Participation	not important	not important	not important	-1
Total sum	0	15	4	3

Legend:

3 = very important part of the concept / successfully implemented

2 = important part of the concept / successfully implemented

1 = Less important part of the concept / successfully implemented

-3 = very important part of the concept / not successfully implemented

-2 = important part of the concept / not successfully implemented

-1 = important part if the concept / not successfully implemented

	Groningen	VINEX
Promoting public transport	-	Not yet implemented
Improving accessibility to PT	2	Not yet implemented
Promoting non-motorised modes- "walking"	-	-
Promoting non-motorised modes- "cycling"	2	-
Promoting transport intermodality	not important	Not yet implemented
Restrictioning MPM	1	not important
Promoting dense/compact structures	3	3
Promoting mixed use structures	3	-
Reducing of social segregation	not important	not important
Communication	-	3
Participation	-	-
Total sum	11	6

Legend:

3 = very important part of the concept / successfully implemented

2 = important part of the concept / successfully implemented

1 = Less important part of the concept / successfully implemented

-3 = very important part of the concept / not successfully implemented

-2 = important part of the concept / not successfully implemented

-1 = important part if the concept / not successfully implemented

Overview - successful elements in Transland case studies

Measures	Very important part of project / successfully implemented	Important part of project / successfully implemented
Measures of sustainable transport		
Promotion of Public Transport	Manchester Metrolink Basel Freiburg-Rieselfeld Potsdam Kirchsteigfeld Greater Copenhagen Euralille Greater Nantes Strasbourg Bologna Rome	Messestadt Riem Bilbao ABC policy
Improving Accessibility to Public Transport	Manchester Mertolink Basel Freiburg-Rieselfeld Potsdam Kirchsteigfeld Greater Copenhagen Euralille Greater Nantes Strasbourg Bologna ABC policy	Centro Messestadt Riem Bilbao Groningen
Promotion of "walking"	Potsdam Kirchsteigfeld Tübingen	Basel Freiburg-Rieselfeld Strasbourg
Promotion of "cycling"	Freiburg-Rieselfeld Gävle	Basel Potsdam Kirchsteigfeld Tübingen Strasbourg Groningen
Promotion of Transportation intermodality	Strasbourg Bologna	Manchester Metrolink Greater Copenhagen Euralille ABC policy
Restrictions MPM	Freiburg-Rieselfeld Bologna Rome	Potsdam-Kirchsteigfeld Tübingen Greater Nantes

Measures of sustainable land-use		
Promotion of dense / compact structures	Basel Tübingen Rennes Madrid Groningen Vinex	Poundbury Camden Freiburg-Rieselfeld Potsdam Kirchsteigfeld Euralille
Promotion of mixed-used structures	Poundbury Camden Basel Tübingen Groningen	Greater Copenhagen Euralille
Measures of social integration, comm./partic.		
reduction of social segregation	Messestadt Riem Madrid	Potsdam Kirchsteigfeld Tübingen
communication between citizens, administration, politicians, investors	Camden Manchester Metrolink CentrO Freiburg-Rieselfeld Potsdam Kirchsteigfeld Tübingen Gävle Rennes Toulouse Madrid VINEX	Poundbury Messestadt Riem Strasbourg
participation of public and decision-makers	Manchester Metrolink Freiburg-Rieselfeld Tübingen Gävle Madrid	Poundbury Basel Messestadt Riem Greater Copenhagen

ANNEX 6

SUMMARY OF RESEARCH TOPICS IDENTIFIED IN THE STATE OF THE ART REVIEW

What questions

1) LUT system analysis

- Disequilibrium between transport and location choices
- Effects of economies of scale on land use and transport system
- New spatial planning concepts for changing urban areas
- New concepts in urban and landscape design
- Temporal constraints and heuristics within the landuse and transport system
- Issues of spatial equity within emerging landuse and transport systems

2) Effects of Land Use on Transport

- Dynamics of urban subsystems
- Effects of land use on transport (density, design, location and size on trip length, frequency, modechoice and distribution)
- Trade-offs between location choice and transport costs
- Emerging polynuclear networks/ growth poles
- Activity patterns and spatial-temporal behaviour of urban households
- Transport within different types of urban sprawl
- The transport costs of Urban sprawl
- Transport and location behaviour in case of gentrification
- Land use patterns and departure times

3) Effects of Transport on Land Use

- Effects of new transport systems (HSL) on land use
- Effects of ICT on land use and transport system
- Effects of transport cost on land use
- Locational behaviour
- Effects of transport on land use (accessibility on residential, industrial, office and retail locations)
- Multimodality and location choices of households
- Multimodality and location choices of real estate
- Effects of road construction on land use
- Effects of rail construction on land use
- Effects of traffic regulations on land use
- Effects of parking policies on land use
- Effects of fuel taxes on land use
- Effects of public transport fares on land use

4) Tools

- Activity based modelling
- Microsimulation
- Data requirements of new theories and modelling approaches

- Geographical information systems
- Linking land use and transport models with environmental models
- Cellular dynamics modelling urban systems

How questions

1) Institutional background

- Resource barriers to implementation
- Institutional barriers to implementation
- Social/cultural barriers to implementation
- Legal barriers to implementation
- Regional planning and institutional development
- Case study research
- Best practice research within Europe
- Transferability of best practices across Europe

2) New coalitions

- Regionalisation of public transport organisation
- Organising multimodality
- Organising light rail development
- Integrating transport planning in land use planning
- Integrating land use planning in transport planning
- Development of transfer points and the area around
- European spatial planning
- Decentralisation of planning
- Integrating horizontal and vertical co-ordination
- Governance, new informal planning arrangements
- Side effects of land use and transport policies

3) New intervention mechanisms

- Integration of transport costs in land use prices
- Public investments to stimulate growth around public transport facilities
- Public private partnerships
- Development of policy packages
- Temporal feasibility of land use and transport measures
- Participative approaches

4) Tools

- Decision support tools

ANNEX 7

FORMATTED DESCRIPTION OF THE SELECTED RESEARCH THEMES

<p>Theme 1: <i>The future spatial organisation of our cities</i></p>
<p>Theme description: Many current trends in society (demographic, economical, social, cultural, environmental, political, Information and Communication Technology (ICT), etc.) will shape the future of our cities. There is a need to understand the consequences for spatial organisation (allocation and land use of activities and their interaction in space and time) in urbanised areas in the future (10 to 30 years ahead), the resulting demands for the land use and transport system, and the trends and opportunities for sustainable urban development.</p>
<p>Problems: Society is rapidly changing, and the current trends ultimate move towards decreasing densities of (urban) activities, increasing scale and dispersion of interaction patterns (network society), and increasing versatility of life styles and population groups. Cities are losing their hierarchical position in the spatial system. Mobility will continue to grow, esp. in individual (car)transport, due to dispersion of travel patterns in time and space and growing plurality of travellers, threatening social equity, liveability, air quality and safety. The land use and transport demands will change much more rapidly than the build up urban system, sharpening contrasts in growth and decline. Changes in urban and suburban density, in the relative importance and location of economic sectors, in the mechanisms of wealth production are about to continue, not only at a faster pace, but also following new patterns such as E-activities (E-commerce, E-mail, E-social interaction, E-administration, etc.). At the same time privatisation and deregulation are causing evolutions of current situations in ways often unrelated to each other. Integration appears as a vital goal - more and more difficult to achieve.</p>
<p>Objectives: The main objectives are the analysis of trends (esp. in ICT, life styles, activity patterns and space consumption), and their consequences for the spatial organisation of urban areas. This should be combined with the development of (LUT) scenarios for the urban areas in the EU, using explorative and comparative methods, taking into account leader/pace setting countries. Based on these explorations, future demands for the urban system and the urban economy should be identified, including the (group specific) consequences and options for future spatial organisation of urban areas through land use patterns and transport systems. The research should start with an extensive stated-preference study analysing the current ideas and wishes around the 'city of tomorrow'. Especially the views of the assumed future inhabitants need to be investigated.</p>
<p>Research methods: The appropriate research methods include trend analysis (Empirical, Descriptive, Forecasting), scenario building and analysing (incl. structured expert consultations and various modelling techniques), and other decision support tools usually applied in long-term forecasting, such f.i. SWOT (Strengths, Weaknesses, Opportunities and Trends) analysis.</p>
<p>Possible role for the EC: The EU can play a vital role in initiating research to obtain level of scale benefits, safeguarding the comparability of the studies and the integration of the results. This also includes enhancing the exchange of information and ideas among the planning and research community, and to add the supra-regional dimension of urban organisation (cross border and international). Final, EU policies should be incorporated in the SWOT analysis.</p>
<p>Expected results:</p> <ul style="list-style-type: none"> ✓ Overview of relevant trends ✓ Scenarios to support policy development ✓ Identification of short and long term strategic options for the spatial organisation of urban areas, esp. related to the Land-Use Transport field.

Theme 2: Driving forces in location choice behaviour	WHAT
<p>Theme description: Investigations into the location choice behaviour of companies, households and public facilities, establishing the factors governing location choice, and the role of transport facilities. Key issues include identifying the main driving forces, especially the role of market forces and institutional opportunities and constraints.</p>	
<p>Problems: Influencing land use patterns is a crucial element in integrated Land-Use Transport planning. This influencing is primarily based on affecting residential choices of space consumers, either directly or through intermediate land use developers. It is thus necessary to understand why people and firms locate where they do, how these relate to, and interact with, transport provision, and how these relationships will change in the future. Although the emphasis is more urgent at the urban level, the problem applies to all spatial levels - urban, regional, national and EU-wide. Although much is known about aspects of location behaviour, there are significant gaps in understanding. In particular, the effects of market regulations, institutional arrangements and policy interventions are not well understood. Behavioural mechanisms have been incorporated into modelling approaches, but there have limited successes in explaining either current or forecasted land-use patterns. Generally, these models have been shown to be reasonable reliable at a macro aggregate level, but their usefulness at a more micro level is less well proven.</p>	
<p>Objectives: The overall objective is to expand knowledge on location behaviour, especially but not exclusively, residential location behaviour, to provide a background of information leading to the improvement of planning and evaluation methodologies. This should be achieved through collecting data on choice behaviour and residential preferences in different countries and areas, identifying the influence that intervention measures (pricing, regulation etc.) have on this behaviour in the short and the long run and establishing promising intervention measures for the development of sustainable transport and land- use patterns.</p>	
<p>Research methods: Collection of data in different countries and areas to elicit the main determinant of location choice, and the role of external forces. This will include attitudinal and stated preference surveys, and structured interviews which can be used to establish and calibrate functions of locational choice, and to develop of generally applicable micro economic models of discrete choice behaviour. The methodology can be validated against observed outcomes across a range of cities and areas. A range of potential scenarios and policies can be evaluated.</p>	
<p>Possible role for the EC: The EC's objectives for the promotion of sustainable development will be facilitated by the provision of suitable techniques and tools. Key roles for the EC are therefore providing the funding opportunities for development of knowledge, providing the framework for the involvement of a wide cross-section of urban plans and policies and the background (country, type of area, institutional arrangements, etc) against which they are applied, dissemination of results and tools and contributing to effective legislation and guidelines at the EU level.</p>	
<p>Expected results:</p> <ul style="list-style-type: none"> ✓ Increased insights in location choice behaviour, operational and validated choice models. ✓ Assessment of a range of scenarios policy measures, selection of effective policy intervention measures to enhance desired urbanisation patterns through influencing location choices. 	

Theme 3: Short and long term dynamics in the Land-Use Transport system	WHAT
<p>Theme description: Cities are complex dynamic systems with many interrelated processes operating with different speeds, response times and duration. Physical transport infrastructure and land-use patterns are very stable and change only incrementally, buildings have a life span of up to hundred years or more, whereas firms and households move every few years. The locations of human activities change even faster and transport movements adjust in a matter of days or even hours. The understanding of the different but interrelated time scales of land use and transport, is crucial for the design of coherent and integrated urban land-use transport policies, which will yield sustainable effects in both the short and long run.</p>	
<p>Problems: There is little awareness of the different time scales of land use and transport among policy makers and even experts. Much confusion in discussions about land-use transport integration results from a lack of understanding of the different response times of land-use and transport policies, which leads to an overestimation of the short-term effects and underestimation of the long-term effects of land-use policies as compared with transport policies. Steady state equilibrium-based mathematical land-use transport models without explicit dynamics tend to reinforce this misunderstanding. The negative impact of this is that efforts to make cities more sustainable rely too much on land-use policies such as high-density and mixed-use development, which have only long-term effects, at the expense of less popular but immediately effective transport policies.</p>	
<p>Objectives: The main objective is to develop and test methods and models to analyse the spatial dynamics of land-use and transport policies in metropolitan areas and to examine the different response times and short/long term effects of land-use and transport policies and policy packages.</p>	
<p>Research methods: The project uses case studies of different metropolitan areas to analyse, in a retrospective way time series over a period of, say, the last fifty years, of dynamic behaviour of land-use and transport change processes and how they have responded to exogenous driving forces, such as national socio-economic trends, and to land-use and transport policies by national and regional authorities. These results should be incorporated in an overall System Dynamics framework. For selected case study cities these framework will be applied in order to predict dynamics. Existing GTI models with appropriate dynamic capabilities can be used in addition to forecast the impacts of future integrated land-use transport policy packages.</p>	
<p>Possible role for the EC: The role of the EC is to initiate and monitor this research and ensure its dissemination into a wide audience of urban and regional decision makers and experts. The EC benefits from the knowledge gained in the project by using it as guidance for its future urban and environmental policy.</p>	
<p>Expected results:</p> <ul style="list-style-type: none"> ✓ Better understanding of the different time scales of land use and transport in cities and of the different speeds and response times of land-use and transport policies. ✓ Designs for improved methods and models to analyse and forecast these spatial dynamics. ✓ Illustration of the findings retrospective case studies of land-use and transport development in a number of metropolitan areas. 	

Theme 4: External relationships of cities	WHAT
<p>Theme description: Cities are no longer only centres of isolated regions but more and more becoming nodes in regional, national, international and global networks. Traditional commuter catchment and delivery areas are being superimposed by overlapping domains of commuting by high-speed rail and air, teleworking and electronic commerce and long-distance freight transport. Interurban exchanges and travel grow much faster than intraurban movements, and intermodal nodes of long-distance travel and goods transport (airports, high-speed rail stations and freight terminals) are becoming new focal points of urban land-use development but also of congestion and negative environmental impacts. Understanding the new interface between cities and their external relationships is crucial for integrated land-use and transport planning on different levels of scale.</p>	
<p>Problems: However, little is known about the spatial dynamics at the interface between cities and their external relationships. Interurban and interregional (e.g. TEN) transport planning tends to ignore problems of intraurban feeder service, whereas urban transport models tend to ignore incoming and outgoing external traffic. The treatment of intermodality and the linkage between intraurban, interurban and intermediate networks in transport analysis and modelling is underdeveloped (despite efforts in that direction in the EUROSIL project). Major long-distance transport hubs at suburban or rural locations (airports, freight terminals) present serious problems in terms of road congestion, land take and environmental damage.</p>	
<p>Objectives: The main objective is to develop methods and models to improve the analyses and understanding of the characteristics and spatial dynamics of the external relationships of cities. On the basis of these insights, strategies for a better linkage between intraurban, interurban and urban-suburban-rural transport should be developed, including a better integration of transport nodes at the interface between interurban and intraurban transport into cities.</p>	
<p>Research methods: The approach consists of an empirical and a conceptual part. The empirical analysis examines and models external relationships and infrastructure use (cross section benchmarking and trends), and the dynamics of land-use development and movements at large intermodal nodes at the interface between interurban and intraurban transport using time-geographic and activity-analysis approaches. In the conceptual part the models developed are used to explore strategies for more efficiently link interurban and intraurban transport systems and minimise the harmful land-use and environmental effects of transport nodes, including strategies to develop alternatives to the increasing trend of long-distance transport.</p>	
<p>Possible role for the EC: The role of the EC is to initiate and monitor the research and ensure its linkage with 5th RTD Framework Programme on trans-European transport networks. The EC benefits from the research by gaining knowledge for a better linkage between its TEN and urban policy areas.</p>	
<p>Expected results:</p> <ul style="list-style-type: none"> ✓ Improved insights into the spatial dynamics of the external relationships of cities. ✓ Methods and models to develop strategies for a better linkage between intraurban, interurban and intermediate transport. ✓ Better integration of transport nodes at the interface between interurban and intraurban transport into cities. 	

Theme 5: City logistics, freight transport and land use patterns in urban areas	WHAT
<p>Theme description: Analysis of the organisation of freight transport inside cities and towns. Although road transport is the modality mostly used in urban freight transport, several cities experiment with other modes like waterway transport and transit rail lines.</p>	
<p>Problems: Congestion within cities is caused by a mix of increased freight and person transport, characteristics of the cities (like historical cores, narrow streets, bridges, one way lanes) and local authority policies (like for instance the imposition of time windows for freight delivery). The accessibility of urban areas because of the lack of manoeuvring room (primarily in historical city cores for large trucks) and an increase of perceived negative impacts from urban freight transport to the urban living conditions (primarily the perceived noise levels, air pollution, dissafety and visual disturbances are high) has put the problem on the agenda. This has led to the rise of new concepts for city logistics - like Just In Time (JIT), Efficient Consumer Response (ECR) and E-commerce services- based on improved use of information technology (IT), leading to the use of smaller vehicles, but also to more shipments and trips. However, there is a lack of clear problem ownership: not every party involved in city logistics or urban transport has the same awareness about the perceived problems related to urban freight transport. This remains to be an important problem as most potential, more structural and long term solutions to the perceived problems imply high investment costs (for instance transshipment terminals at the edges of the cities, underground logistic systems, traffic reducing systems, infrastructural measures).</p>	
<p>Objectives: Analysis of problems, demands and options, in field of city logistics and urban freight transport, related to Land Use patterns. Analysis of problem ownership and development of methods which bring awareness of perceived problems to the parties that may have caused them or that are at least involved with them. Researching for and possible development of new concepts for city logistics and related LU strategies.</p>	
<p>Research methods: The research approach should be based on empirical research, case studies, interviews etc., leading to a categorisation of cities related to their (perceived) problems of urban freight transport (benchmarking), and an inventory and development of system designs, models for simulation of urban transport and other impact assessment methods.</p>	
<p>Possible role for the EC: Enlarging awareness of urban freight transport problems and possible solutions, both in society and more special to parties involved. Sponsoring of technological, organisational and land use planning innovations. Enabling the fulfilment of EU regulations and policies.</p>	
<p>Expected results:</p> <ul style="list-style-type: none"> ✓ Analysis of trend, threads and opportunities resulting in an overview of potential innovations. ✓ Overview of problem ownership and categorisation of cities related to their Land Use characteristics and urban transport problems; ✓ Overall implementation concepts, related to LUT system of urban areas. 	

Theme 6: Impact of urban form and spatial organisation on transport needs	WHAT
<p>Theme description: The spatial organisation of activities influences the travel needs of people and goods. Also, land use and transport densities can influence the mode choice. Research in the past has proven that these relationships are seldom straight forward. Further insights in the factors determining the effects of LU on Transport is crucial for system understanding and integrated LUT policy development.</p>	
<p>Problems: Although there are some indications, there are still considerable doubt about the effect of urban form characteristics like density, mixed use etc. on travel patterns. Even where associations are apparent, causality is not necessarily established. It is difficult to isolate particular physical factors of form and design from a whole range of other variables such as socio-economic variables (eg “car oriented” suburbs may feature both low density and high income; high car use may be a result of one or other or both variables). Many urban form and design variables are not well defined and many urban design qualities are also difficult to define such as ‘legibility’, ‘sense of place’ etc. Until there is adequate and consistent definition, comparison of effects across cases will be problematic.</p>	
<p>Objectives: Analysis of relationships between different types of urban form and associated travel patterns. Determination of crucial factors in urban design, which appear to have significance for travel behaviour, eg trip rates, trip distances and modal choice. Determination of effects of scale: local design features; neighbourhood scale; conurbation scale etc. Determination of spatial transferability: is it possible to “transplant” the urban form (and activities) of a compact city core to the periphery, and expect the same kind of travel behaviour. Determination of behavioural transferability: will the public adapt (back) to sustainable travel patterns? Formulation of design principles for urban form compatible with sustainable travel patterns</p>	
<p>Research methods: Further comparative studies of urban forms and hence definition of urban form and design parameters, by means of empirical analysis (cross section, in time) of relationships between urban form and travel, controlling for socio-economic and other variables, to establish significant variables or clusters of variables using multivariate explanatory modelling. Development of design methods to replicate favourable urban form characteristics. Collection of cases for which characteristic urban form-travel relationships are apparent. Mapping of existing empirical data to newly defined urban design parameters to test for significance.</p>	
<p>Possible role for the EC: Encourage exchange of information and ideas enabling sustainable urban planning. Develop instruments on EU level to support design principles. Take the lead in promoting institutional and professional integration: benchmarking, interdisciplinary research, design and implementation across professions of architecture, planning and transport planning.</p>	
<p>Expected results:</p> <ul style="list-style-type: none"> ✓ Overview of factors in urban design affecting activity and travel patterns, and mode choice ✓ Urban design principles supportive of sustainable travel patterns ✓ Examples of good practice and likely potential for transferability ✓ A more robust conceptual and empirical basis for “active integration” of urban form, land uses and transport 	

Theme 7: <i>New Transport Systems and their effects on urban travel and land use patterns</i>	WHAT
Theme description: Technological developments are opening up many new opportunities for the provision of transport systems. These include the provision of travel information improved vehicle technology, infrastructure, traffic management systems (real-time traffic control), public transport, environmental monitoring, and fee collection. These systems may provide benefits and solutions in the short term, but their longer-term effects on travel and land use patterns are less clear. The theme is concerned with a better understanding of the longer-term opportunities and drawbacks of new transport systems, since these are crucial for the development of successful integrated LUT policies	
Problems: New transport systems can contribute to more sustainable urban development, but they can also yield new travel demand and undesired land use effects. For instance, new technology will facilitate area-wide urban road user charging, but the imposition of charges may encourage suburbanisation. New traffic management systems may alleviate short-term congestion problems, but may encourage longer-term traffic growth. New concepts and technologies may therefore be either problem solvers or problem perpetrators. Some implementations of new technology, such as vehicle design, are inevitable and reflect market forces; others, such as user charging systems, are more at the control of the policy maker. In either case there are long-term implications for travel and land use patterns, which may not be well understood but which are central to the determination of sustainable transport and land use policies.	
Objectives: The objectives of the theme are to identify probable and possible technological developments in transport systems over (say) the next twenty years, to assess the likely or potential impact on travel and land-use patterns in the short and long term (taking into account the interactions between land use and transport), to identify promising strategies to mitigate any adverse affects of developments in transport system technology, and to identify how to harness technological improvements in pursuit of sustainable land use and transport goals.	
Research methods: Research methods will include four key elements: tracking of technological developments and most likely technological trends, assessment of the take-up / rate of implementation of new technologies or systems, longer-term impact assessment (esp. travel and land use feedbacks) of the most likely transport system futures, formulation of strategies and scenarios	
Possible role for the EC: The determination of possible transport and land-use ‘futures’ is central to the formulation of policy at the EC level. The evolution of new technologies is an important element of this. Key roles for the EC are therefore providing the funding opportunities, consolidating its various research initiatives on new technologies across the RTD programmes, providing the framework for the involvement of all players in the process – manufacturers, planners, engineers, policy makers - at all institutional levels and across countries.	
Expected results: <ul style="list-style-type: none"> ✓ Mapping of likely transport system futures and their impact on travel and land-use patterns. ✓ Identification of scenarios and strategies for the development of new transport systems, well tuned with land use patterns, contributing to long-term sustainable developments. 	

Theme 8: Innovations in land-use transport interaction modelling	WHAT
<p>Theme description: Today there is a new interest in integrated models of urban land use and transport provoked by growing congestion and livability problems in urban areas. However, new issues, driving forces, behavioural patterns, technological developments and policy options present new challenges to urban modelling. At the same time there are new theoretical developments, methodological advances and more powerful computers available to develop a new generation of more disaggregate, policy-sensitive and transferable models to guide integrated land-use transport planning for sustainable urban development.</p>	
<p>Problems: Existing urban land-use transport models are too aggregate in their spatial, temporal and substantive resolution to model new life styles and work patterns such as part-time work, telework and teleshopping, new neighbourhood-scale policies to promote public transport, walking and cycling, new intermodal travel alternatives such as park-and-ride and 'kiss-and-ride', new forms of paratransit such as car-sharing, shared taxis or busses on demand or new concepts of intermodal urban goods transport ('city logistics'). In addition the models are too aggregate to model local environmental impacts of transport such as traffic noise and exposure to air pollution and the feedback from environmental impacts to location behaviour of firms and households.</p>	
<p>Objectives: The main objective is to develop and test new types of integrated urban land-use/transport/environment (LTE) models. Innovations should be aimed at the improvement of (parts of) the existing GTI models, related to Activity Based Modelling, GIS, (Dynamic) Micro Simulation, Time and Money Budgets, Modelling of location behaviour and land use competition. Additional needs are the development of models based on microscopic simulation of activities of human actors, and the development of a modular toolbox of proven modelling techniques to be applicable in various urban areas.</p>	
<p>Research methods: An important task is to develop state-of-the art microsimulation models for the evolution of buildings, firms and households, industrial, retail, services location and labour and residential mobility, vehicle fleet and ownership, logistics goods transport, travel and the environment. These models should be integrated with a GIS-based common spatial micro database, to apply methods for estimating synthetic micro data from aggregate data, and to test the developed modelling framework in a number of case study cities. These innovations, combined with existing GTI models, will support the development of a robust and general urban GTI modelling system (toolbox), which can be easily applied in different EU member states.</p>	
<p>Possible role for the EC The EC benefits from the research by gaining better knowledge for its urban and transport policy areas, because of the economies of scale which can be reached by EU involvement, and by helping to close a gap between the state of the art in urban modelling in Europe and the US, where significant resources have been invested in this kind of research, f.i. in the TRANSIMS project..</p>	
<p>Expected results:</p> <ul style="list-style-type: none"> ✓ A new type of integrated urban land-use/transport/environment (LTE) model based on microscopic simulation and prototype applications in a number of case study cities. ✓ Recommendations for improvements in parts of existing GTI models ✓ A toolbox of GTI modules which can easily be applied in different EU member states. 	

Theme 9: Best practice assessment of integrative urban policies	WHAT& HOW
<p>Theme description: According to the integration of transport- and land-use planning, cities across Europe should be able to learn from each others experiences. Case study analysis is needed to shift good from bad practices and to provide benchmarks for city practitioners. To enable the assessment of case studies a harmonised method and set of indicators are needed and, to facilitate a learning process between cities, the applicability ('what') and transferability ('how') of best practice elements to other urban areas has to be assessed. Procedures and instruments to actually transfer Best Practice need to be developed.</p>	
<p>Problems: One of the main problems is the definition of Best Practice. Best Practices are successful practices, and therefore success has to be measured. But because the implementation of integrated LUT policies most often need time, ex-post evaluations are scarce and do easily become outdated. When the best practice are identified, the applicability and transferability is by no means obvious. The success of most practices is strongly dependent on all kinds of local peculiarities. Most policy elements will only be applicable for similar urban systems while they will only be transferable to similar institutional, cultural and political systems.</p>	
<p>Objectives: The objectives are to facilitate benchmarking across Europe by providing case study assessments identifying best practices of integrated LUT-planning, and by analysing opportunities and constraints for learning processes across Europe concerning best practice elements. The assessment of Best Practices should include planning (What) as well as implementation (How). The same counts for the assessment of the transferability.</p>	
<p>Research methods: In depth empirical research (ex post) and continuous observation of projects of integrated transport and land-use planning (for example panel analysis according to changes in modal share) to measure the success. For this an assessment method has to be developed which includes the definition of indicators for Best Practice. To facilitate transferability, it is needed to compare and analyse differences and similarities between urban system, transport system, institutional- and political system, social, economical and cultural context. City families can be identified. In the end, tools for information exchange, setting up knowledge networks and direct involvement of local practitioners is needed.</p>	
<p>Possible role for the EC: Setting the "benchmark" for success in integrated transport- and land-use planning. Guiding the EU member states towards the best practice examples realising sustainability. Distribution of lessons learnt form Best Practice to European countries. Promotion of exchange of experiences between actors involved in integrated projects.</p>	
<p>Expected results:</p> <ul style="list-style-type: none"> ✓ Generally accepted assessment method and definition of Best Practice ✓ Detailed ex-post evaluation studies. Improving the data availability for best practice cases ✓ Detailed analysis of applicability and transferability of best practices to other European cities, identification of problems and solutions ✓ Benchmarking guideline: how can cities learn from each other 	

Theme 10: <i>Harmonisation issues in sustainable land use and transport systems</i>	WHAT& HOW
<p>Theme description Policy development across Europe aiming towards sustainability needs a common basis. In the Fourth Framework a number of studies has started to define sustainability, indicators, methods and legislation. Also other institutions like the OECD have taken up this task. For learning processes across Europe, a different understanding of the above mentioned terms can be a major barrier for successful policy development. Harmonisation of definitions, indicators, methods, and planning instruments and processes in the context of sustainable land-use and transport planning, supports transferability of cases and lessons to learn.</p>	
<p>Problems The term ‘sustainability’ is often used as the “higher goal” but when one asks for a detailed definition it becomes clear that each stakeholder uses its own connotation. On top of these connotation differences, the use of badly comparable data enlarges the problem. Understanding is only possible when sustainability is elaborated into a framework of specialised social, environmental and economic indicators, when the methods to measure are harmonised and when the data sources do comply with minimum requirement for comparability. To warrant the use of the developed framework, the harmonised definitions, methods and institutional and legal conditions should be incorporated as much as possible in existing land-use and transport planning legislation.</p>	
<p>Objectives The objectives are to define sustainability developing a balanced framework of user friendly indicators (ranging from simple to advanced) being useful for a wide range of cases. A second, inseparable objective is to facilitate comparability in methods of data collection and measuring. Both the policy development (what) and the policy implementation (how) need to be included. Furthermore, the identification and validation of interdependencies between LUT policies in relation to sustainability need to be assessed. The framework can be tested by assessing and classifying a number of European projects.</p>	
<p>Research methods Collection and comparative analysis of existing definitions of sustainability, of relevant terms in relation to sustainability (for example “social equity”), of indicators and of relevant methods quantifying sustainability. Participatory approaches and network building aiming at agreement on harmonisation issues should be a central issue. In depth research about legal, cultural and social constraints within European countries will help to identify harmonisation opportunities. Reviewing modelling studies and ex-post evaluations will enlarge the understanding of interdependencies between components of sustainability. To improve and test the user friendliness of the developed framework case studies on European projects can be used.</p>	
<p>Possible role for the EC Harmonization across Europe is a task which can only be done by European organisations. The EC is particular equipped for this task. Financing and facilitating efforts around this theme could be a possible EC-role. Besides, the EC could contribute considerably by mobilizing European Institutions (Eurostat, City networks, etc.) to integrate their efforts.</p>	
<p>Expected results</p> <ul style="list-style-type: none"> ✓ Establishment of definitions, indicators, methods in relation to sustainability, including the acceptance by a wide range of experts and practitioners. ✓ Assessment of projects goals in relation to sustainability. 	

Theme 11: Communication, and dissemination tools for integrated LUT-planning	WHAT& HOW
<p>Theme description Policy development in the field of LUT planning needs a solid basis. Therefore the input of research is needed. However, a lot of useful LUT-research will never find its way to the table of the policy maker due to a number of reasons. New methods and tools are needed to guarantee a smooth interaction between available knowledge and policy needs. Efforts need to be directed on ICT-applications which enable the policy developer to monitoring and assess the surrounding (benchmark systems, including the position of stakeholders, socio-economic trends, new technologies, etc.), on tools which reduce complexity (improved interfaces, simplified system dynamic approaches etc) and on tools which make impact assessments more transparent (interactive model development approaches).</p>	
<p>Problems There are a number of reasons why policy makers do find it hard to make use of available research products. First, most research is scattered. This is particular manifest in the field of LUT planning because research exists in badly connected professional areas (planning, geography, economics, transport engineering). Second, research does not always directly fit to policy needs. Also this is particular manifest in the field of LUT planning because most research is initiated with sectoral aims. There is a need for translation and adaptation of existing knowledge towards useful input for integrative policy development processes. Third, policy developers find research often difficult to access. Four, there is sometimes distrust of the research results when users did not participate in the research project, the assumptions made are questioned. This counts especially for modelling results. More interactive and transparent modelling tools are needed.</p>	
<p>Objectives The aim is to formulate a standard which outlines guidelines which research has to fulfil and to facilitate policy development in the field of land use and transportation planning. A second objective is to develop communication tools which can bring policy and research more together.</p>	
<p>Research methods The identification of gabs between policy needs and research effort and the formulation of guidelines can be assessed using data gathering methods like in depth interviews and questionnaires. Case study analysis can also be an important knowledge source. Bringing practitioners and researchers from different professional fields together could be help. However, to ensure permanent links, the building up of networks connecting policy developers and policy researchers is at least as important. Opportunities can be found in the possible linkage of existing networks like the POLIS network and more scientific thematic networks.</p>	
<p>Possible role for the EC Establish a robust communication infrastructure between research activities and policy actions and implementation. The standard developed can facilitate the EC RTD program.</p>	
<p>Expected results</p> <ul style="list-style-type: none"> ✓ Identification of existing gabs between policy needs and reseach effort. ✓ Guidelines which can function as a standard for project development and evaluation ✓ Description of promising research directions, including tool development, to fill up the identified gabs between research and policy development 	

Theme 12: Financial intervention systems	WHAT& HOW
<p>Theme description Financially based instruments and intervention mechanisms can be used for LUT planning. A large toolbox of measures both in the field of land use as well as in the field of transport are available. The effects of financial measures often cross sectoral borders, transport pricing will influence land use patterns and land use pricing will influence transport patterns. Integrative planning approaches are therefore necessary.</p>	
<p>Problems First, human behaviour in case of price stimulus in the field of land use and transport is not fully known, on the short term as well as on the long term. Second, the relationships between different (pricing) measures need to be assessed in order to identify optimal policy packages of which include both LUT pricing policies. Third, implementation is hampered because of the sensitivity of the subject; controlling financial flows and political power are strongly interrelated. Financial flows need to be identified in order to answer questions about the effects on 'equity' and on institutional organisation. Fourth, questions about the institutional structures needed to implement pricing policies have to be assessed- primary legislation is required to implement pricing and to enforce the use of smartcard and other devices.</p>	
<p>Objectives Conceptual and empirical analysis which provide the scientific funding for local city authorities to introduce pricing policies as part of integrated LUT planning. Supporting local decision making by assessing the relationships between particular urban characteristics and pricing measures (policy packages) and by providing guidelines for implementation (including the identification of the primary and enabling legislation required).</p>	
<p>Research methods Best practice and comparative analysis, including research into the financial elasticities within the LUT system. Comprehensive impact assessment and feedback loops are a central issue. Monitoring of all key elements is essential – including the quality of public transport, the reactions of business/industry, the travel times by car, the use of revenues, the support or otherwise from the media, etc. An extension to current evaluation and assessment methods need developed which includes the benefits and costs of pricing measures to the payers, to public transport and other transport users and to the wider land use and development issues like the vitality and viability of the city, shop turnover, other businesses etc.</p>	
<p>Possible role for the EC There is a direct link with the white paper on 'fair and efficient pricing', which implies that EC should initiate efforts to guide Europe to a fair and efficient LUT system. Besides, there is a role for EU in the field of harmonisation of impact assessment methods and data.</p>	
<p>Expected results</p> <ul style="list-style-type: none"> ✓ Conceptual and empirically assessment of pricing measures within the LUT system, identification of comprehensive policy packages. ✓ Comparative analysis of relevant case studies including transferability of lessons learned. ✓ New empirical insights of the impacts of transport pricing on land use and of land use pricing on transport. ✓ Overview of institutional, legal and organisational measures to implement pricing measures in integrated LUT planning 	

Theme 13: <i>Integrated Regional Policy Development and Institutional Frameworks</i>	<i>HOW</i>
<p>Theme description The environment of towns and cities becomes increasingly competitive and complex. The city governments develop policy measures to meet the challenges, but at the same time their action is embedded into national institutional frameworks in which higher levels of governments (Region, State) pursue policies that influence the position of the cities. LUT policies are at the cross -road of these influences coming from decision making activities of different layers of governments. There is the need to understand how the national institutional frameworks of EU member countries are evolving or might evolve in the near future to cope with the growing necessity for flexibility in problem solving at different spatial scales (regional or sub-regional) versus stability in institutional background.</p>	
<p>Problems It is increasingly evident that problem solving in LUT policies should take place mainly on a regional level. The spatial scope of the public administration at the urban level is a critical issue. The growth of cities, the development of networks of industrial and service SMEs concentrated in regional or sub-regional areas (regional innovation systems) are creating functional urban regions all over Europe. Almost everywhere these functional urban regions cross administrative borders, which in turn raises the matter of competent authorities. New governance mechanisms can only partially solve the problem: more often it is necessary to create more formal and stable institutional frames, as f.i. metropolitan authorities. Developing political frameworks based on EU wide concepts and criteria (decentralisation, subsidiarity, sharing of financial responsibilities, authorisation and control powers between levels of government etc.) could help the process of institutionalizing the regional level. Besides, research is needed which do outline and validate the mechanism which ask for a regional solution of LUT-problems. The relations between scale, LUT problem's and LUT-solutions (typology) are one of the main questions.</p>	
<p>Objectives The overall objective is to develop comparative policy research in the field of institutional frameworks to cope with the necessary flexibility in planning and implementation of LUT policies at different spatial scales. This research should regard both the current situation and the prospective one, based on the reforms of the national administrative framework currently underway in several countries to adopt the EU concepts and criteria.</p>	
<p>Research methods Comparative analysis of institutional frameworks, with a special focus on those elements which allow a greater flexibility (e.g. inter-communal associations, metropolitan councils etc.). Case studies into processes of reform and the functioning of new institutional frames at regional and/or sub-regional levels. And finally the identification of best practices and conditions for their transferability across the EU countries and regions. To enable regional adjusted solutions, research should outline the relationships between characteristics of LUT-problems and characteristics of institutional frameworks.</p>	
<p>Possible role for the EU The research strengthens the European democracy on a local level. In will positively influence local decisionmaking and enable the development of sustainable European regions. Beside financing, the EC can disseminate the results of the comparative policy research and the best practices that are identified. A special role can be envisaged in financing more direct research and policy actions focusing on cross border regions.</p>	
<p>Expected results</p> <ul style="list-style-type: none"> ✓ Better understanding of how the institutional frameworks at the national and regional levels can be adapted to cope with LUT policies ✓ Dissemination of best practices across EU member countries and regions 	

Theme 14: <i>New governance mechanisms enabling integration of land use and transport policies</i>	HOW
<p>Theme description It is increasingly evident that problem solving in LUT policies should take place under versatile conditions. This asks for new stable regional institutional frames (theme 13), but also asks for new new governance mechanisms. Governance mechanisms are concerned with new – dynamic and flexible - ways of co-ordination in LUT-planning. This theme combines aspects of new coalitions, roles and functions of public and private agents and the organisational structures that are needed to sustain these new coalitions.</p>	
<p>Problems The new relations in LUT planning and decision making leads to a need of new ‘arrangements’ between agents concerned with planning. These ‘arrangements’ can be found on several levels of scale, and between several partners. There are a few striking examples of new governance mechanisms. For example in the Netherlands the Dutch government has taken the initiative to organise the ‘green polder’, which stands for regular consultation between representatives of the national government and representatives of the business community, intermediate organisations and pressure groups on themes of LUT-planning, related to new developments in national policies. The approach is based on the success of the ‘poldermodel’ in social-economic planning. Lessons can be learned from studying and comparing these and other cases of new governance mechanisms / policy arrangements throughout the EC. Relevant questions are: how are ‘trade-offs’ reached, between which interests and which agents, how are these processes organised and what will it mean for the role and function of relevant agents. Learning processes are hampered because most governance mechanism have informal components which are badly documented.</p>	
<p>Objectives The overall aim is to identify new governance mechanisms and policy arrangements that seem to be effective ways of defining and implementing new policies. Detailed descriptive and explanatory analysis will have to be performed. Ex-post evaluation of implemented arrangements is a central issue. In the end, guidelines and preconditions for successful policy arrangements have to outlined.</p>	
<p>Research methods Developing and validating theoretical explanatory frameworks. Process evaluation using in depth empirical studies and methods to describe and analyse qualitative data. Comparative case study analysis. Analysis of urban, cultural and institutional characteristics explaining the success of failure of new governance mechanisms.</p>	
<p>Possible role for the EC Dissemination of local know how, enabling a learning process between local policy makers and researchers on a European level. Improving the quality of local decision making. Besides, the knowledge gained can be used in cross-border projects funded by the EC.</p>	
<p>Expected results</p> <ul style="list-style-type: none"> ✓ An overview of new policy arrangements throughout the EC ✓ An overview of theoretical frameworks which can guide practitioners ✓ In depth case study analysis validating theory and identifying best practices ✓ Outlining the strong, weak, opportunities and threats, drawing lessons to be learned ✓ Programmes for the development of knowledge and skills for public and private partners 	

Theme 15: Public private partnerships	HOW
<p>Theme Description Throughout Europe there are experiments with forms of public private partnerships on project and area level. These projects are often of an integrative nature, they include both land use and transport components. Some countries have a long lasting experience with public private partnerships in LUT planning. Other countries are just beginning to experiment with public private partnerships. A lot can be learned from these experiences for future projects.</p>	
<p>Problems Public and private partners have different goals, have different values, use other mechanisms to influence the implementation of policies etc. Public and private partners are coming together increasingly often to realise large capital-intensive projects in an efficient way. The aim of a PPP is to achieve added value and improved efficiency. Beside aims related to economic efficiency PPP can also be used to achieve sustainability goals. This is only possible if government and business community concentrate on what they do best. This has to be identified and translated into preconditions and guidelines for successful PPP. In general there seem to be three important fields of interest. Firstly, governments should not yield to the temptation to lay down all the details of the project in advance. Performance or output indicators need to be developed in advance to be able to judge the results. Democratic accountability of spending public funds should be assessed. Secondly, projects should have a broad scope, to be able to define a common basis, attracting funding etc. Thirdly, collaboration should be based on clear agreements about f.i. process architecture, contract management, risk management, financial instruments. Tight contract management and risk management are essential, but contracts and arrangements can take many forms. Financial arrangements must be attuned to the nature and size of the project.</p>	
<p>Objectives Objectives of the research are to identify preconditions for success that can be translated into guidelines to successfully use PPP within LUT-projects aiming at sustainability. Another important topic of research is to define performance or output indicators for PPP projects in such a way that beside economic achievements also the social and environmental goals are assessed.</p>	
<p>Research methods Comparative case study analysis, based on literature, analysis of policy and decision making documents, interviews etc. Developing and validating process architectures suited for each individual project. Identifying opportunities to integrate social and environmental goals into PPP's. Assessing which governmental instruments (subsidy, availability fees, usage fees, guarantees, loans, shares) are best used in what circumstances. Analysis of the mechanisms in PPP and development of successful performance indicators.</p>	
<p>Possible role for the EC Dissemination of regional know-how, enabling a learning process between stakeholders. The research can also help to include knowledge about PPP into the assessment procedure of applications for the structural funds.</p>	
<p>Expected results</p> <ul style="list-style-type: none"> ✓ An overview of PPP constructions in the field of LUT-projects throughout the EC ✓ Outlining the opportunities to stimulate integrative LUT-policy development through PPP ✓ An overview of best practices and lessons to be learned ✓ Programmes for the development of knowledge and skills 	

Theme 16: *Developing integrated land use transport policies with the use of participatory approaches* *HOW*

Theme description

The outcomes of transport and land use planning processes are more and more becoming the result of a negotiation process between relevant agents. The negotiation process usually results in ‘trade-offs’ between the different interests. This means that the outcomes of policy shifts from ‘fixed targets’ towards ‘trade-offs’. This shift towards negotiated planning between public and private sector also means a shift towards other planning mechanisms like participatory / interactive methods to involve citizens, stakeholders in LUT planning. Basically two main reasons for introducing participatory approaches can be distinguished. The first is aiming for public support for decisions. The other reason is the notion that knowledge from a broad range of backgrounds (not just expert knowledge) is needed to reach coherent and qualitatively good decisions on complex matter like LUT-planning. Both these reasons lead to a different type of planning process.

Problems

Participatory approaches are not always the best solution for finding an answer to a policy problem. First of all we need to be able to better distinguish policy situations in which a participatory approach can be successful from policy situations in which a participatory approach will be counterproductive. When choosing for a participatory approaches there is a need of a clear definition of the goal you want to reach: is the process aimed at public support, or is the process aimed at stimulating creative and innovative ideas? Especially in the first case there is a need for carefully structuring the decision making process. There is a lot we can learn from past experiences in this field.

Objectives

The main objective of the study is to develop participatory intervention mechanisms and tools in the field of integrated land use and transportation planning, based on what we can learn from experiences from the past. This includes the determination of preconditions for success, pitfalls and risks, best practices and guidelines for successful implementation of participatory processes.

Research methods

Case study analysis into the performance of new methods of participatory approaches, including focus groups and communicative processes. Exploring methods that relate outcomes with processes by which they have been achieved. Development of new methods of risk and return and “prisoner dilemma” type approaches. Development of methods of evaluation that combine the conventional methods with those that permit more qualitative elements – including clearly specified and implemented distributional analysis so that winners and losers can be identified. Outlining trade-off and compensation mechanism.

Possible role for the EC

Facilitator of comparative best practice research in the member states. Some case studies of controversial transport schemes could be monitored by the EU, not just in terms of their outcomes, but also in terms of their implementation processes. The EU could take the lead where projects are transnational– it is here (e.g. the TENs and PENs) that the full importance of negotiated solutions can be assessed

Expected Results

- ✓ Setting up guidelines to improve interactive decisions making, particularly on controversial transport schemes involving actors and agents from the EU and several member states.
- ✓ The development of participatory decision making processes and enabling tools.

ANNEX 8

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(See also the case studies in Annex 1)

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