EMPLOYMENT RESEARCH CENTRE
Department of Sociology, Trinity College Dublin, Dublin 2, Ireland
http://www.tcd.ie/erc/

Scenarios for a sustainable society:

Car transport systems and
the sociology of embedded technologies
Project 'SceneSusTech'

January 1998- December 2000

Final report of project SOE1-CT97-1071
(Deliverable number: 5.3)

Funded under the Targeted Socio-Economic Research Programme (TSER)

Directorate General for Science, Research and Development

EUROPEAN COMMISSION

Project co-ordinator: James Wickham
Employment Research Centre (ERC)
Trinity College Dublin, Ireland

Partners:

Institute of Urban and Rural Sociology, National Centre for Social Research (IURS)
Athens, Greece

Istituto Ricerche Economiche e Sociali (IRES)
Rome, Italy

Unit of Social Policy (USP)
University of Jyväsklylä, Finland

Subcontractor:
Centre for the Study of Environmental Change (CSEC), University of Lancaster, UK.

Project duration: 2 years

Date of issue of this report
20 September, 2002

The research team

Athens (National Centre for Social Research, Athens):
D. Balourdos, A. Mouriki, K. Sakellaropoulos*, E. Theodoropolos, K. Tsakiris

Bologna (IRES, Rome):
E. Battalgini*, F. Farina

Dublin (ERC, Trinity College Dublin):
M. Lohan, J. Wickham*

Helsinki (USP, University of Jyväskylä):
M. Javela*, T. Rajanti

* Team manager

Abstract

It is clear that the continued expansion of car usage in European cities is environmentally unsustainable. If this is so, it is important to discover to what extent and in what way the car has become essential to life in European cities, and to develop policies for reducing such 'car dependency'.

The project took four European cities as case studies. Two are car dominated and 'bad practice' cities: Athens and Dublin. Two have restrained car travel and are 'best practice' cities: Bologna and Helsinki. Within each of these four cities three local areas were selected for detailed study: an inner city 'yuppified' area, a low income or working class suburban area, a middle class suburban area.

The research began by using aggregate statistics to compare the case study cities with other cities in Europe and the world. This showed a substantial variation in car usage between cities. Within Europe rich cities have lower levels of car usage.

The first fieldwork stage of the research explained how Athens and Dublin have become car dependent, and conversely how Bologna and Helsinki have become cities that constrain car dependency. This involved a historical analysis of the 'technological trajectory' of the car system in each city, and a political sociology of contemporary decision-making. This showed that a necessary (but hardly sufficient) condition for tackling car dependency is an effective city level government.

Fieldwork in each locality involved three separate methods: ethnographic research, a questionnaire based sample survey, and focus groups. This research showed that car usage is doubly contextualised by the immediate locality and by the city itself.

Thus the study of working class peripheral housing areas showed that in car dependent cities those without access to car transport are often socially isolated and lack access to employment and facilities. This is not the case in cities which have controlled car dependency.

The study of affluent inner city areas showed that only in cities where car dependency is controlled can re-urbanisation substantially reduce car ownership and car usage.

Finally in middle class suburbs higher density building does not of itself reduce car dependency, while a good city wide public transport system reduces car usage even in 'car based' suburbs.

The research ended with a scenario-building exercise with transport experts and policy makers in each city. Experts were clear as to the measures needed to reduce car dependency, but in most cities were sceptical whether they would be introduced.

Car usage in cities can be reduced, but this requires an integrated public transport system which only city governments with real power seem able to develop. Such a system can contribute to social inclusion and indeed to urban citizenship. Developing alternatives to the private car (public transport, walking, cycling) involves enhancing people's trust in and knowledge of these alternatives.

Preface

The research which is reported here was completed in early 2000. This final report was delayed partly because of an over-ambitious delivery schedule (a problem discussed in more detail in Chapter 2), but largely because of a long illness on my part. The delay has also meant that the writing of this report has been more of an individual process than originally planned. However, the research project itself was very much a team effort, with the concepts and methodologies continually refined in ongoing discussions, formal and informal, face-to-face and by e-mail. Hopefully this final report does some justice to the enthusiasm, commitment and professionalism with which the team as a whole carried out its work.

James Wickham
20 September, 2002

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Executive Summary

Introduction

This executive summary presents the report in summary form. It is divided into four main sections based on the different chapters of the report: Research Methodology (chapters 1 and 2 of the report), Research Results (Chapters 3 through 8 of the report), Conclusions (Chapter 9) and Policy Implications (Chapter 10).

Research methodology

Social Research on Cars

Sustainability and car transport

The continuous expansion in car transport is *environmentally unsustainable.* Cars are a major contributor to environmental damage in terms of global warming and global resource depletion, to say nothing of more local impacts including those which directly impact on public health. The private car is a resource-intensive form of consumption which will remain problematic despite improvements in engine and exhaust technology.

Cars in social context

Even if the private car were to be environmentally benign, the manner in which it has become central to the lives of European citizens would be a valid topic for social research. There remains very little social analysis of the car compared to other crucial technologies such as the railway in the 19th century or information technology today.

Despite the apparent universality of the car, there is in fact a wide variety in the level of 'car dependency' in different cities, especially between US and European cities. Existing studies equate 'car dependency' with high car usage, yet the concept of car dependency implies that users have no choice but to use their cars. A key research issue is whether this is so, and if so, how it has come about. Tackling such issues involves researching not just the private car as a distinct commodity, but the wider *car system* of which it is a part (roads, facilities, etc.). The overall type and form of journeys we term a mobility regime, generated by the interaction between the car system, the public transport system and the pattern of land use. A car dependent regime occurs when many people's activities depend on journeys that can only be made by private car.

Social implications of mobility regimes

The form of mobility regime depends on socio-political choices, but may also have social consequences. Thus it is argued that extensive private car usage undermines the public sphere by replacing public spaces with private spaces (the world outside the home and the private car become less and less an area for public sociability) and contributes to the decline of social interaction and social capital. It is also claimed that car dependency reduces the access of those without cars to employment and social facilities. Both of these claims need empirical investigation.

Political choice and the car system

It is now widely argued that provision of more car facilities merely increases car travel. It can be argued that such 'infra-structure generated mobility' increases social

exclusion. More car journeys mean the atrophy of facilities and skills for those who do not have or do not use cars.

The private car came to dominance in the USA before Europe, and in the UK earlier than on the Continent. Automobility was first challenged in the 1970s. In the UK concern focused on the destruction of the countryside, whereas in Continental Europe the issue was more the survival of historic city cores. The private car was central to the conservative counter-revolution in the UK in the 1980s. At EU level policy is contradictory, with support for sustainable mobility (and even car free cities) probably outweighed by the effects of regional and competition policy.

The importance of political choices at the city level leads to the research strategy of the project.

Research Strategy and Methodology

Levels of research

The research project focuses on the car system in the city and operates at different and interconnected levels of analysis. It is a comparison of four European cities. Two are chosen as apparently car dominated and 'bad practice' cities: Athens and Dublin. Two appear to have restrained car travel and are 'best practice' cities: Bologna and Helsinki. Within each of these four cities three local areas were selected for detailed study: an inner city 'yuppified' area, a low income or working class suburban area, a middle class suburban area. These areas were not intended to be statistically representative, but to exemplify key examples of social and spatial structure in European cities today.

Plans and realities

The research began with a literature review. The final report unfortunately remains based largely on Anglophone literature, despite a briefing document provided by the Italian team on French and Italian writing; the Finnish and Greek teams also reviewed their national literature.

Research began by collecting statistical data on car usage in the four case study cities and comparing this to material on 37 other cities in the world compiled by an Australian research team; it proved to be impossible to gather similar data on a wider range of European cities as had originally been planned. Nonetheless this research stage yielded an analysis of the overall level of car usage in our four cities in a comparative context.

The next stage of the research attempted to explain the variation in overall car usage in the case studies. Firstly, we carried out a historical analysis of the development of the car system in the four cities in relation to both public transport and land use. Secondly, we analysed the political processes involved in 'car decisions' in the case study cities, using a methodology developed by the Italian team. In each city we carried out a case study of a political decision which reduced car dependency (e.g. the expansion of the metro system) and a decision which increased car dependency (e.g. planning permission for an out of town shopping centre). Both elements of this stage of the research were completed successfully.

The next and central stage of the research moved to the level of the case study localities within each city. It therefore collected data on a total of 12 areas. In each area this stage comprised three elements: an ethnographic study of car use and mobility, a questionnaire-based sample survey, a series of focus groups. The

sampling methodology for the survey was developed by the Greek team; the focus group element was designed and co-ordinated by the Finnish team. This triangulation of methods ensured that in each area we had usually two and often three sources of information on different issues. The data and the choice of localities allows the *double contextualisation* of mobility in general (and of car usage in particular) in terms of both the city and the locality.

The final stage of the research returned to the level of the case study city. In each city we invited city policy makers and transport experts to a scenario-building exercise. We asked participants to discuss how they would *like* the city to be ('desired scenario') in the future and how they would *expect* the city to be ('expected scenario'). Similarly, we asked them which transport technologies (e.g. trams, road pricing) they hoped to see used in their city in the future, and which technologies they expected to see used. On this basis, we drew up plausible mobility scenarios for each city.

In retrospect the project was seriously under-resourced (only the Irish team had a full-time researcher for the duration of the project). Partly for this reason, not enough data was analysed during the course of the project and the final report was very delayed. Realistically, the ambitious plans for active involvement of city level policy makers during the project were not realised. Nonetheless, after the project was completed, results did attract attention from policy makers in each city and in several cases led to requests for further reports and analysis. Furthermore, in particular in Dublin the project results generated considerable media attention.

Research results

Four cities in European context

The case study cities

The case study cities are extreme cases. Athens and Dublin are two European 'worst case' cities and Bologna and Helsinki are two examples of European 'best practice'.

- **Athens** is dominated by the private car. This is self-defeating, since the flood of cars causes continual traffic jams, and appears to contribute to a low quality of urban life. A new metro was being constructed during our research, but it appears to be an isolated intervention.
- **Dublin** appears like Athens in the self-defeating dominance of the private car. It is a low density city, but there are significant attempts to move transport policy to a more sustainable direction.
- By contrast **Bologna** and **Helsinki** seem good examples of European best practice. They have well preserved historic centres where car use is severely restricted, and they have good public transport systems.

Aggregate statistical data: levels of car usage

These differences are reflected in the results of the aggregate (city) level data analysis:

- In a global context European cities do form a distinct cluster in terms of the usage of the car for journey to work.
- Within the European cluster the richer cities (including Bologna and Helsinki) tend to have the **lower** use of private transport for travel to work.
- Within the European subgroup in the dataset there is no relationship between population density and travel to work by private car. Thus amongst our four

cities, both Helsinki and Dublin have low population densities, but in Dublin people are far more likely to use the car to travel to work than are people in Helsinki.

Historical accounts: technological trajectories

In the four cities there has been a very different relationship between the rise of the private car, the decline of public transport and the nature of land planning. We argue that the car system has a different *technological trajectory* in the four cities. Key issues here are:

- **Conceptions of the city:** in Bologna and Helsinki the city itself (its architecture, its physical layout) has great cultural importance; this is less so in Dublin or Athens.
- **Public transport legacy systems:** Helsinki maintained its publicly owned rail systems (suburban rail, and above all, trams) into the 1970s, so they provided the basis of a revival of public transport. At the other extreme, and as in most US cities, Dublin's once extensive tram system had been completely destroyed by 1960.
- **Capacity of local government:** in Dublin and Athens city government has little power, whereas in Bologna and Helsinki there is *effective* city government integrated into a broader regional or metropolitan governance system. Especially in Helsinki, this ensures coherent transport and land use planning.
- **Switching points:** in the 1960s all four cities were moving towards greater dependence on the private car. In Bologna and Helsinki, but not elsewhere, political movements in the late 1960s and 1970s forced a re-alignment of policy which remained effective at least until recently.

Car decisions in cities

The next stage of the research aimed to open up to analysis the political decisions which ensured that the four cities remain on their existing trajectories. In each city we analysed decisions which reduced car dependency by expanding public transport, and decisions which accentuated car dependency by creating new traffic generators (out of town shopping centres etc.).

The case study decisions

For case studies we took: in Athens, the new metro and a new city centre car park; in Bologna, the car parking plan, the new tramway, an out of town shopping mall; in Dublin the new light rail system, an out of town shopping mall; in Helsinki an extension of the metro and a different decision *not* to expand the metro into a car dependent area.

The actors in the decisions

The methodology involved tracing the course of each decision and locating the key actors involved. The results were:

- **Central government dominates decisions in car dependent cities.** Central government plays a far more important role in Athens and Dublin than elsewhere. Conversely major decisions have been made in Dublin and Athens with only minimal involvement of local elected representatives.

- **Transport professionals usually supported measures that reduce car dependency**. However, we made no analysis of the role of civil engineers involved in road construction projects.
- **Business representatives take many different stances.** The case studies show no tendency for business organisations to consistently support measures that would increase car dependency.
- **Individual business enterprises are sometimes directly involved in decision-making.** Individual businesses were strongly involved in the creation of shopping malls and seem to play a more important role in Athens and Dublin. However, especially in Helsinki business enterprises, including land developers, have supported measures that would reduce car dependency.
- **Rail technologies** are usually important in creating alternatives to the car, but at least in the Dublin case, some forms of rail can reduce social cohesion (in these terms a metro is less attractive than on street rail).
- The **road construction industry** did not play an overt role in our case studies; it would have been useful to also examine directly decisions to extend the road system in and around our cities.

The form of decision-making

Our original proposal suggested that cities which reduced car dependency had a different form of decision-making to cities which opted for car dependency. Our results in part confirm this argument:

- **In car dependent cities decisions lack transparency**, even though they are made by central government.
- **The extent of public involvement in political debate seems unrelated to the type of decision finally reached**. Thus the broadest political debate occurred in the decision in Helsinki *not* to expand the metro. In Bologna much local political debate now involves *opposition* to traffic restrictions in the city centre.
- **Urban coalitions** of very diverse interests seem to have been crucial in pushing through the measures to reduce car dependency.

Ethnographies of localities

For the first stage of research in each locality, the researchers visited the area, made systematic observations and held interviews with key informants. Overall the comparative ethnographies show that the quality of public transport creates major differences between apparently similar areas of different cities. The findings can be grouped under the different type of area:

- **Northern middle class suburban areas vary in car usage and the extent to which their physical layout encourages walking and cycling.** Although the middle class single family suburbs of Dublin and Helsinki appear similar, the Helsinki suburb facilitates mobility that does not involve the private car (paths for walking and cycling, better access to public transport, more localised facilities). In Dublin everything militates in favour of the car.
- **High density housing by itself does not restrain car ownership or car usage.** The two Southern middle class suburbs are built to high densities but still appear dominated by the private car.

- **Segregated suburban public housing can only be socially integrated to the city by adequate public transport**. In Helsinki good public transport and good land use planning reduce the disadvantages of those on low income. At the other extreme in Dublin bad public transport and bad planning exacerbate the risks of social exclusion for inhabitants of low income suburban housing areas.
- **Inhabitants of inner city high income areas appear less car dependent, but these areas need good local public transport and local facilities to achieve their full potential.** While all our inner city areas had low private car usage, it is lowest in Helsinki where there is a rich transport network centred on the tram.

Individual mobility

The questionnaire-based sample survey was carried out in all twelve areas, allowing comparisons between types of area and between cities.

Car ownership and public transport use

Car ownership is the norm in European cities, but there are substantial variations. Across all types of area, Athens tends to have the highest levels of car ownership and Helsinki the lowest. More detailed results were:

- **Car ownership is not universal**, and even in suburban areas some people have chosen not to own a car.
- **The extent to which car owners use public transport depends both on the area and on the city in which they live.** The extreme case is inner city Helsinki, where 38% of all car drivers reported using public transport in the last two days.
- **The quality of public transport is judged worst in Dublin and best in Helsinki.** Although there are variations between areas, the key division here is between the different cities. In all three Dublin localities, those who used public transport had a more negative perception of it than those who did not use it. Almost everywhere else, public transport users had a more positive perception than non-users.

Journeys

There are wide variations in the extent to which people use the car for specific journeys. In particular:

- **Middle class Dublin has the highest usage of the private car.** This applies both to journeys to work and to non-work journeys.
- **In car dependent cities car ownership substantially improves access to employment.** The working class Dublin area has a very low level of car ownership, but the highest proportion of car owners who use their car to travel to work. Such car owners probably have no alternative way to reach the jobs they want.
- **Overall the car is not the only form of mobility.** Even in the middle class suburban areas, other means of transport, including walking and cycling, remain important.

Choice and car dependency

High levels of car usage do not necessarily mean that people have no alternative to the car for the journeys they wish to make. Analysis of the extent to which people can choose their mode of transport for different journeys showed:

- **Car dependency for the journey to work is lower than might be expected.** Most car users believed that they could use alternative means if this was necessary.
- **People travel to work by car for utilitarian reasons.** Car owners used their car to travel to work because they considered it more practical than any alternative mode. Car owners did not particularly enjoy using their cars to travel to work. Those who walked or used public transport for this journey were marginally more likely to enjoy it than car drivers.
- **Not having a car would make it difficult for many people to reach their current jobs**. This is particularly so in Dublin. However, this car dependency is highest in the working class area, suggesting that despite its high levels of car usage, the middle class area actually has better transport choices.
- In less car dependent Helsinki, cars are especially important for leaving the city. People depend on their cars for visiting the countryside.

Social cohesion and mobility

Amongst planners and architects cars are blamed for reducing the liveability of streets. A measure of perceived 'walking quality' challenges a simplistic application of this argument:

- **Inner city streets are seen as particularly unsafe and unpleasant.** In areas where cars are restricted, people also worry more about their personal safety.
- **Inner city streets are seen as the most unsafe for children**

Local mobility experience: focus group results

Understanding the opportunities and limitations of each area

The discussion in the focus groups was used to discover how residents in each locality perceived the resources and constraints of the area.

Possibilities of mobility depend on whether the area is in a car dependent city or a 'limited car dependency' city. In particular:

- In cities of limited car dependency residents of inner city areas see themselves as having almost unlimited possibilities of mobility within the area and within the whole city. Residents of similar areas in car dependent cities do not have this perception.
- At least in Helsinki residents of suburban working class areas have 'transport welfare' which makes their mobility independent of their socio-economic status.
- Residents of middle class suburban areas in car dependent cities seem to have better transport facilities than working class suburbs in these cities.

To use a form of transport people have to learn 'mobility skills':

- In working class areas of car dependent cities some women are excluded because they have not learnt to drive a car.
- In cities of limited car dependency the skill of using public transport is seen as a sign of being an adult citizen.

The car is linked to conceptions of time and purpose:

- People who do not live within strict time constraints (because of unemployment, retirement etc.) have different experiences of mobility: In car dependent cities people without a car have to be content with limited mobility, but in cities of controlled car dependency these people can use their freedom to create their own forms of mobility.
- In car dependent middle class suburbs the car is used to manage time by linking different tasks. In inner city areas people are also busy but time structures are more fluid.
- People justify owning a car by its value for multi-functional journeys, yet most journeys are in fact single purpose. Journeys on foot are multi-functional.
- The residents of middle class suburbs see their lives as depending on the car, but this is not the case for inner city residents or for residents of working class suburbs in cities of controlled car dependency.

The meaning of mobility

The focus groups discussed how people understood mobility.

For most car owners life without their car would be meaningless and restricted, especially because of its importance for their leisure pursuits.

For those without a car, their experience depended on the city in which they lived.

- The unemployed women in Kontula felt they could move around the city,
- Unemployed women in Dublin experienced life without a car as a series of restrictions.

Two meanings of mobility emerged in the focus groups:

- target oriented mobility, i.e. getting to a specific place for a specific purpose
- mobility as the appropriation of one's surroundings and as the ability to participate in a network of social relationships.

Restricting mobility therefore has two different meanings. It could mean:

- minimising target oriented mobility by travelling more efficiently, by bringing the target closer, or by meeting the need in other ways
- reducing people's choice and ability to move around.

Whereas people wanted to reduce their own mobility in the first sense, they feared restraint on cars would end up restricting it in the second sense.

Citizenship

The focus groups showed that some aspects of citizenship differ between car dependent cities and cities of constrained car dependency:

- In car dependent cities the dispersed urban structure lacks any focal points for all citizens.
- Car dependent cities lack any culture of public spaces.
- Car dependent cities create an individualism and a mistrust of public structures.

Scenario building

In the final stage of the research each team held a focus group discussion with experts and policy-makers in its city in order to develop scenarios of desired and expected developments in four policy areas: *institutional* structures for transport, *economic* basis of transport, *social* policy, and *spatial* planning.

As a preliminary each team developed its own scenarios. Across all four cities the teams:

- preferred public ownership, state subsidy and state regulation of public transport, but expected the opposite to occur
- expected the cities to become more exclusionary and more individualistic than they would prefer.

The experts hoped that in the future their cities would:

- develop as compact 'European' cities rather than as suburban 'American' cities
- maintain a key role for the state in public transport provision, especially to maintain public values
- subsidise public transport rather than develop it according to market principles
- remain part of socially inclusive and socially cohesive societies.

By contrast, the experts expected their cities to develop with:

- greater reliance on private provision of public transport
- more individualistic and less solidaristic social values
- growing social inequality.

The experts were also asked to evaluate various transport technologies and strategies. For the experts:

- Rail systems were the most desirable technologies.
- Parking charges were the measure most likely to be implemented.
- Parking controls and road pricing were also desirable but less likely to be implemented.
- Greek experts were more in favour of new roads than other experts.

In general in discussion:

Experts had little interest in the debate over privatisation and competitive tendering. Although these issues attract much attention at national and EU level, they appear to the experts as fairly irrelevant to actually tackling the transport issue in their cities.

Conclusions

Scenarios of mobility in four cities

The first stage of the project's conclusions involved drawing up our own scenarios for likely developments in the four cities. Combining the experts' views with our other results we suggest:

- **Helsinki will remain an example of controlled car dependency:** the integrated transport system will continue and is unlikely to be undermined by privatisation; public transport and urban citizenship remain linked.
- **Bologna is losing its best practice status**: attempts to control car usage are meeting increasing resistance as a 'top down' strategy encounters new forms of individualism.
- **Dublin may move towards controlling car dependency:** although researchers and experts were very pessimistic, there are new pressures for change. However suburbanisation and road building seem set to continue.

- **Athens will continue as a worst case amongst European cities**: the new metro is an isolated intervention. There are no political or social forces to promote change, and only limited cultural resources with which to conceptualise an alternative trajectory.

Generalising the results

The twelve localities and the four cities were chosen as strategic cases in order to generalise to European cities and their localities. Presentation of the results follows the levels of analysis identified at the start of the project.

1. European cities

Analysis of the aggregate city level data from cities worldwide showed that in cross-sectional terms:

- There is a distinctive European pattern of relatively low car usage
- In European cities car usage is not related to population density
- In European cities car usage is inversely related to the city's wealth

2. City level analysis

Analysis of the history and the decision-making processes in the case study cities showed that cities can be characterised as more or less car dependent.

In cities where car dependency is constrained there tends to be:

- a high cultural value on the role of the city
- legacy systems of public transport available
- effective city and regional government
- an urban coalition of diverse interests supporting the overall policy
- key historical moments which launched the current 'technological trajectory'

In cities with high car dependency there tends to be:

- ineffective city and regional government
- a disproportionate political role for individual business enterprises
- major decisions made by national government

3. Local level analysis

Our results showed that mobility and accessibility is doubly contextualised by the locality and the city.

The study of working class peripheral housing areas showed:

- **In car dependent cities those without access to car transport are more at risk of social exclusion than those without access to car transport in cities of controlled car dependency.**

The study of affluent inner city areas showed:

- **Only in cities where car dependency is controlled can re-urbanisation substantially reduce car ownership and car usage.**

The study of suburban middle class areas showed:

- **High density itself does not reduce car dependency**
- **A good city wide public transport system reduces car usage even in 'car based' suburbs**
- **Walking cultures are not restricted to inner city areas**
- **Even in the worst environments, car dependency is not absolute**

Policy implications

Policy measures to reduce car usage

Our results confirm again that car usage in cities can be reduced by:

- high quality public transport
- effective land use planning
- physical restrictions on cars especially in city centre areas

Implementing policy to reduce car dependency

To actually implement these measures is more difficult. Our results show that successful implementation requires:

- **Effective urban and regional authorities, with democratic legitimacy and their own tax base.** Such subsidiarity should be deliberately furthered at the European level.
- **Support from an 'urban coalition'** uniting diverse interest groups

Some basic principles of successful policy appear to be:

- Measures should target specific spatial contexts, rather than effect all 'motorists'.
- Measures should yield visible benefits rather than merely constrain car users.

Urban mobility and citizenship

An alternative to car dependency is to establish the right of citizens to move around their city. There is no simple relationship between the form of ownership of public transport and the quality of service. Thus much of the debate over Public Private Partnerships (PPPs) is simply irrelevant to improving pubic transport quality. Our results however show some important benefits of public ownership:

- public ownership tends to ensure a more integrated public transport system
- public ownership can stimulate public support for a public service

Although neither of these are automatic, they suggest that privatisation of public transport provision should not be seen as a 'magic bullet' and may have negative consequences.

Public transport delivers social benefits when it forms an integrated network for a city. Social cost evaluation exercises that focus on particular routes usually do not take this into account.

An effective public transport system reduces the risk of social exclusion. However, public spaces can only be genuinely public if they are safe for all citizens – public transport requires adequate policing and public order.

Alternatives to the private car

To tackle car dependency public policy has to move beyond simply providing public transport on radial routes for the journey to work. Such journeys are becoming relatively less important. Our results suggest car dependency can be reduced by:

- Encouraging walking and cycling in low density areas
- Using public transport to enhance local mobility
- Using public transport to enhance urban design
- Maintaining and developing users' trust in public transport

- Maintaining and developing people's abilities to use public transport, cycling and walking
- Ensuring that car ownership is not essential for young adults

Future research

Public transport has been cited as part of the European public realm. Empirical research into public transport from this perspective would illuminate an aspect of the European social model that is usually ignored.

Introduction: Background and objectives of the project

Project 'SceneSusTech' began with the assumption that car usage in European cities is too high, is getting higher, and must be reduced. The continuous rise in car transport is *environmentally unsustainable.* Cars are a major contributor to environmental damage in terms of global warming and global resource depletion, to say nothing of more local impacts including those which directly impact on public health.

This much is known. The problem is what can be done about it? How can developed societies move away from their dependence on the car? The task seems politically unfeasible. The problem is not just the banal (but important) point that major economic interests and the livelihoods of millions of people depend upon rising car sales. The problem is also that the car is embedded in everyday life. Most adults use cars, but even more importantly, whether or not we own a car, cars are part of the way we all live.

This embeddedness of the car was the starting point for the project. The main objective of the project was to *draw out the social implications and political feasibility of a move towards 'sustainable mobility' in European cities.* The project also aimed to *communicate* these findings to policy makers and to relevant societal groups.

More precisely, the project set itself the following five objectives:

- If the car is part of everyday life, then presumably reducing car usage must mean other social changes. The project therefore aimed to ascertain whether, if the form (and perhaps the extent) of physical mobility is to change, does this have implications for the structure of society?
- Secondly, given that the private car has become deeply embedded or 'buried' in existing societies and cities, the project aimed to discover how this had come about. What political decisions and long-term socio-political choices have been involved?
- Next, if car usage is understood as part of a particular social structure, this may involve an unequal impact on different social groups and different social categories. The project aimed to ascertain whether transport systems based on the private car distribute environmental risks, accessibility and employment benefits unequally across different social groups.
- Fourthly, the project aimed to construct a number of scenarios showing the implications of changed transport technology systems for the social distribution of risks, costs and benefits in European cities.
- And finally, the aim was to inform policy makers of the implications for different social groups of alternative methods of reducing dependency on car transport in cities.

The project studied four European cities (Athens, Bologna, Dublin and Helsinki). Right at the start of our research it became clear that the differences between the cities were even greater than we had imagined. This was crucial for the overall argument. If car usage is variable in extent and form, then it is neither inevitable nor unchangeable. The priority therefore became to explore the causes and implications

of this variation - both between the cities, and then between different social groups in these cities. We aimed to show how the different cities have made different choices, and what the implications of these have been for different social groups within them. It also became increasingly important to see citizens not as passive recipients of political decisions, but as actors in their own right, creating their own solutions to their particular problems of transport and mobility.

In the first stages of the project it also became clear we were not able to undertake a systematic analysis of the environmental impact of the car at local level. Although the topic was raised in different workpackage reports, we were not able to gather enough comparable data and we did not really have appropriate expertise within the team to evaluate such material. Equally, at the end of the project we were not able to develop extensive alternative scenarios on the scale that we had hoped. This was partly for reasons of time, but also because the formal involvement of policy makers in the project at this stage was not as great as we had planned. This failure however should not be exaggerated. During the final stages of the project the researchers were increasingly interacting with policy makers in our four cities, and these dissemination activities continued after the end of the project. The wide interest that our results attracted showed that, if the project has achieved anything, it has brought the issue of sustainability in European cities away from rhetoric and discussions of abstract lifestyle to empirical analysis. In these terms, the results of the project have made an impact on policy and, more long-term, hopefully contributed to re-defining an agenda for this area of social research.

Chapter 1 Social research on cars

James Wickham and Maria Lohan

In Europe cars are part of our everyday life. We use cars to go to work, to go shopping, to go out for entertainment, to visit friends and relatives, even just for the pleasure of driving. At the same time cars are a major contributor to global warming, to global resource depletion and to more localised forms of pollution. It is no exaggeration to say that using cars is both intrinsic to the way we live, and shortens the life expectancy of humanity. Furthermore, cars increasingly appear to be a self-defeating technology – more cars means less mobility and more traffic jams. And finally cars are perhaps incompatible with European ideals of urbanism and the good life.

This first chapter briefly documents the threat that rising car usage poses to the environment and discusses how the issue of 'sustainability' has been formulated. This provides the basis for the second section, which shows that the car needs to be understood as the centre of what we term 'the car system' of artefacts and social institutions. As section three of the chapter argues, this car system has particular social implications and, as the final section claims, it is also based on particular socio-political choices.

1.1. Sustainability and car transport

Cars create environmental damage at a series of levels. In terms of global warming, road transport accounts for approximately 80% of the greenhouse gases from transport in Western Europe; of this two thirds is attributable to the car, primarily involving CO_2. Nearly all cars use oil as fuel (the only major fuel change, especially in Europe, has been a shift from gasoline to diesel). Since 1960 the identification of proven oil reserves has generally kept pace with extraction, meaning that the time horizon of available oil has been within 35-50 years for several decades, but this does not alter the fact that ultimately oil is a non-renewable resource.

At a local level cars produce several major pollutants with deleterious health consequences, ranging from cancer to asthma. In an overview, the OECD has concluded that in areas of high concentration, particularly in cities, motor vehicle emissions pose direct risks to human health (OECD 1996) Table 1.1 summarises the major vehicle emissions and the spatial scale on which their effects operate.

Table 1.1. Overview of air pollutants on different spatial scales

Spatial Scale	Pollutants
1. Urban scale	
Major air pollutants:	Nitrogen dioxide, particulate matter, carbon monoxide, lead
Carcinogenic pollutants:	Benzene, 1,3-butadiene, PAH (BaP)
2. Suburban/residential scale	
Major air pollutants:	Ozone, particulate matter, nitrogen dioxide, carbon monoxide
Carcinogenic pollutants:	Benzene, 1,3-butadiene, PAH (BaP)
3. Rural/remote scale	
Major air pollutants:	Ozone[1] Nitrogen deposition (eutrophication) Acid deposition (S- and N-compounds)
4. Global scale	
Greenhouse gases:	Carbon dioxide

Source**:** OECD, 1996: 66.

Finally, it is often ignored that cars contribute in other ways to the deterioration of our environment. Road traffic is the single most important source of noise in cities (ECMT, 1990: 21-22) Urban noise levels have risen so much that in some European countries less than 20% of the population enjoys a satisfactory outdoor noise environment (Whitelegg, 1993: 64). Cars consume land: directly and indirectly cars use up to 50% of the surface area of US cities (TEST, 1992). Roads decrease the ground's capacity to retain rainfall and so increases flooding (Freund & Martin, 1993: 27).

New car technologies (e.g. lead-free petrol, catalytic converters) have reduced some of these negative effects, but often have their own drawbacks. Electric and hybrid vehicles have, to date at least, never really moved beyond very narrow niches. However, new fuel cell technologies do seem to offer the possibility reducing the impact of cars on the atmosphere (dramatically lower pollutants) while also using far less non-renewable resources.

Some commentators are sceptical of such 'technological fixes'. Firstly, they suggest they only solve one problem by creating others. Thus catalytic converters substantially reduce NO_x and CO_2 emissions but introduce platinum and other rare metals which were previously not amongst the pollutants emitted from motor vehicles (Whitelegg, 1993; Freund and Martin, 1993). Secondly, they focus on specific aspects of car technology (above all its engine) rather than the car as a system of mobility. From this perspective, the car is an example of a resource-intensive form of consumption and it is at this systemic level that the problem needs to be addressed.

[1] Comment on the table. Ozone is lower in city centre areas. Typically, levels of ozone are higher in rural areas than in urban areas. This is because of the complex processes that balance the formation of ozone and the destruction of the air.

In fact, from the point of view of social analysis the car really becomes interesting when it is conceptualised as the key artefact within a wider system of mobility. Certainly, its environmental consequences do provide one stimulus for social research and do shape the policy conclusions that stem from that research. In other words, if the car in its current form has negative environmental consequences, then one obvious task for social science is to discover ways to reduce car usage. As we shall see, this does necessarily involve considering the car as a system of physical mobility. However, it is important to be clear that social analysis of the car is valid in its own right, irrespective of whether the car is considered 'good' or 'bad'. The car is arguably 'the artefact of the 20th. century' (Lefebvre, 1991). Yet it is astonishing how little social analysis of the car exists compared to, for example, that of the railways of the 19th century or of computing technologies today.

This approach involves a specific role for social science. Social science can explain the social origins of the car as a specific technology and also explore its social implications. Although the social implications of the car are interwoven with its environmental consequences, they are different to them. This delimitation of the area of social science assumes that social and environmental sustainability are different. Some current definitions of 'sustainability' link it to social equity (e.g. Haughton & Hunter, 1994: 17). This may make good propaganda, but is not very helpful. After all, most environmental damage has been done by advanced market societies which are, in historical terms, also relatively egalitarian societies (e.g. compared to societies of 18th. century Europe). It is not even clear why inequitable societies should be considered *socially* unsustainable: the relatively egalitarian societies of Western Europe have some of the lowest birth rates in the world and are now incapable of reproducing themselves. For this project therefore, the word 'sustainable' refers to *environmentally* sustainable. It is an issue of empirical research whether the apparently environmentally unsustainable technology of the car *also* has negative social implications, in particular relating to issues of 'social inclusion' and 'social cohesion'. Precisely such a delimitation of the purview of social science means however that we can open issues for investigation. The project starts from the policy concern of environmental sustainability, but it is also intended as a contribution to the study of technology and society.

1.2. The car in its social context

1.2.1. Varieties of car use

It is frequently assumed that rising car ownership and car usage are inherent in economic growth, the inevitable result of an interaction between the market, technology and geography. As living standards rise, people choose to switch from public to private transport because it is more convenient, more comfortable and allows them greater choice. This growth of private transport in turn stimulates the growth of suburban housing and then subsequently suburbanised shopping, recreation and even employment. Consequently, high car use is the automatic consequence of low population density. Furthermore, this situation is inevitable, the automatic consequence of rising living standards. From such a perspective, those who challenge the car are Don Quixotes, green fanatics doomed to defeat, because There Is No Alternative- apart from lowering the living standards of ordinary people.

There is a simple but crucial reply to this. Levels of car usage vary considerably between countries, regions and cities, and in ways that cannot be explained simply by economic growth or population density. Here the work of Kenworthy and his co-workers (Kenworthy et al, 1997) is crucial. Their evidence shows that 'automobile dependency' is not inevitable. Car usage is not directly related to (city) income, but rather has a curvilinear relationship. At a certain level of income car usage begins to level off as income continues to rise. They ascribe this to (a) the development of effective mass transit systems (especially heavy rail) in affluent cities for relatively affluent groups (b) a process of re-urbanisation as relatively affluent people move back into the inner city areas.

This macro-level data is an essential starting point, but leads to more questions. Kenworthy et al use their data to analyse what *they* term 'car dependency', but the term is not strictly true. Their measures are measures of car usage, but analysis of car dependency requires us to know whether people *have* to use cars (i.e. what alternative forms of transportation are available) and for which tasks. Thus people may have a choice of how they travel to work, but they may have to use the car to do the weekly shopping in the supermarket. Indeed, we also need to formulate clearly what is meant by 'having' to use a car given that definitions of necessity and convenience are likely to vary widely between people and over time. And pushing the question further back, we have to ask why the journey 'has' to be made in the first place. The question of car dependency becomes a question both about traffic generating lifestyles and the technologies that have facilitated them.

1.2.2. Conceptualising cars

The sociology of technology is one starting point for an analysis of car dependency. However, while the sociology of technology has become quite good at studying relatively isolatable phenomena such as information and communication technologies (ICTs), it is less good at studying technologies that have already become integral to the way we live. Such technologies have become deeply embedded in a way of life. Once this occurs they can become 'buried', that is to say, taken for granted, and assumed to be unproblematic. A buried technology is often not even researched by sociologists. In that sense, the sociology of the car is perhaps at the same stage of development as the sociology of gender thirty years ago! The distinctiveness of the car today is not that social life is dependent on it, but that this dependency is now seen as problematic. High car usage is seen to threaten the environment, traffic congestion is frustrating and expensive. These concerns have helped to open up the car to sociological analysis.

Most work here has concentrated on the design of the car itself, showing how what we have come to understand as the normal car came to be established in the early 20th century (Kline & Pinch, 1993). Studies in the 'social constitution of technology' tradition show how the design grammar of the car has stabilised thus limiting the scope for radical innovation (Hård & Knie, 1994). Yet once a technology is fixed in a determinate product which is sold - perhaps in large numbers - as a discrete commodity, then the technology itself becomes a 'black box'. A whole system of transport, marketing, distribution and sales is used to sell the product anywhere in the globe. The process of commodification is therefore not a process of ideology as in much Marxist writing, but a very concrete set of social institutions.

These turn the artefact into a commodity, thus disconnecting it from its origins and so freezing the technological choices it embodies. Commodification makes products independent of any social location; it is a process of *Verselbständigung*. Robin Williams has shown how the social choices in software products become reduced as the technology becomes 'black boxed'. The options involved in the product become hidden under the shrink wrapping. Users can certainly apply Windows in a multitude of ways[2], but they cannot influence its design. By contrast, bespoke software is relatively open to social choices as different potential users can directly influence the way it is developed (Williams, 1995). And of course the car is a global commodity. Cars are the same the world over.

However, cars are part of a wider system, which ranges from the roads to the many social institutions which car transport involves. What Sørensen and Sorgaard (1994) termed the *car system* is an assemblage of different entities, only some of which are commodified and only some of which are discrete physical products. Sørensen is more or less explicitly building on two sets of ideas. Firstly, historians of technology have used the notion of system to tackle the way in which a particular technology, such as electric light, operates as part of an inter-related set of social and technical components (Hughes, 1983). In this way, Sørensen argues we should analyse the car not just as the artefact per se, but as part of *networks* (roads, sports etc.). Secondly, writers within Actor-Network theory stress the constraining power of physical objects when they are part of a system of human and non-human components (Latour, 1992).

As such the car system displays a variation that is much more immediately socially shaped than the individual car. And arguably it is the car system, rather than the car itself, which really matters. To analyse the car by itself is as absurd or as limited as to analyse railways in terms of the steam engine alone.

All too often people's usage of cars is understood in terms of status symbols and consumption, rather than in the simple sense that without a car people cannot get to work, get their children to school, go shopping, etc. The car system enables people to do some things (take the children to school) and constrains them from doing other things (allowing their children to walk to school). It faces individual actors as a physical system (the layout of the roads) and a set of constraints and opportunities which is - in the short run - impossible to change. Like the freeway bridges that prevented inner city blacks from reaching the beaches of Long Island (Winner, 1980), the car system appears *obdurate*. It follows that the development of the car system is *path-dependent* – new developments occur in a specific and literally concrete context. Consequently it is at least plausible that different car systems have different *technological trajectories* which are relatively difficult to change.

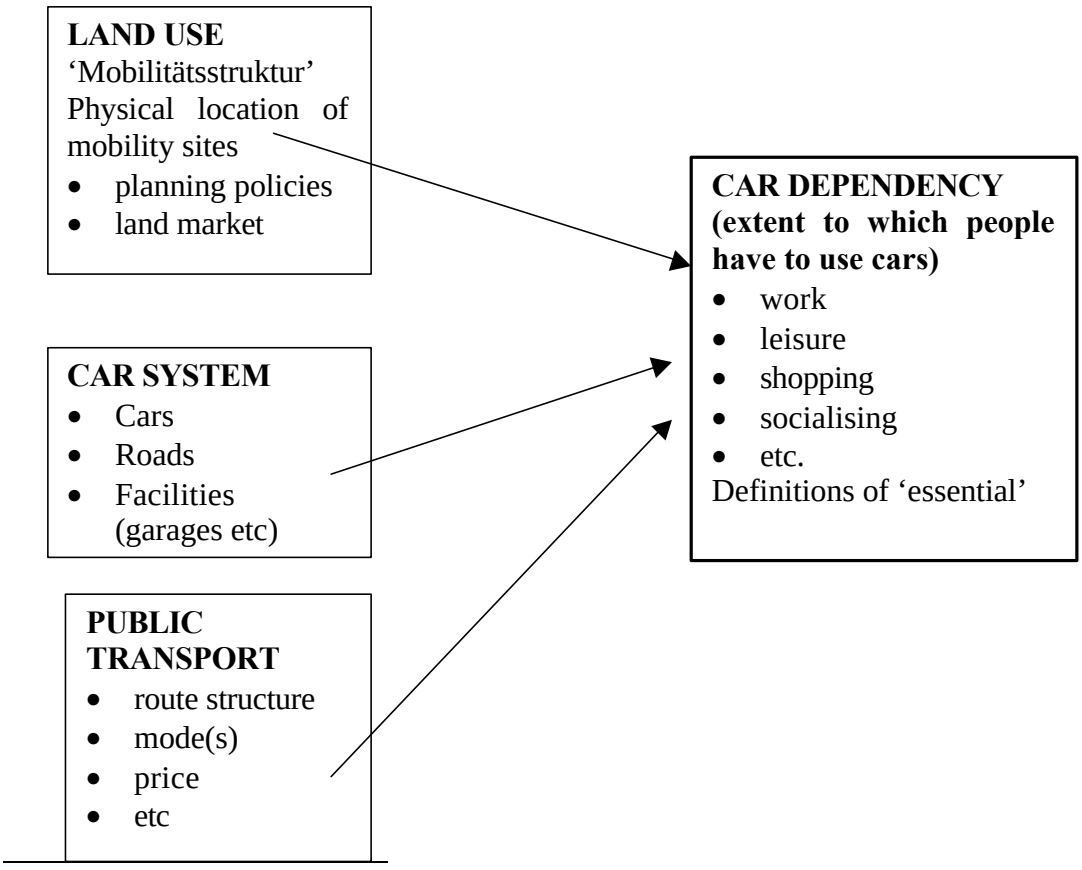
This focus on the system rather than the individual commodity ensures that we do not psychologise car dependency and under-estimate its social bases. Focusing on the car system raises the issue of network effects. As a technology becomes more widely adopted, the costs of using it fall, but the costs of **not** using it rise. Thus sometimes

[2] Of course, compared to many other black boxed technologies, contemporary software has a very wider range of potential uses, many of which are unplanned by the actual designers.

all members of society have to own and use a car in order to carry out their normal activities. The importance of the right to own and use a car in all advanced societies is shown by the fact these rights are probably part of what adult members of advanced societies consider as citizenship (Albert, 1999): passing a driving test is a far more important social ritual today than exercising the vote for the first time![3]

The extent of car dependency is not just the result of the car system itself. It also depends on the public transport system and the form of land use (Chart 1). The extent to which people can, let alone will, use public transport instead of their car depends on the form and level of transport provision. Thus a public transport system that is simply a series of radial routes from the city centre provides a very different service to a system that where the network takes the form of a grid. Other obvious issues here include the extent to which the system is actually configured as a system for the individual user: how easy is interchange between modes, is there inter-ticketing, are there even clear route maps? The frequency, regularity and reliability of the service is important, as is of course the mix of the modes itself (users find buses less comfortable than heavy rail, light rail and trams). And last but not least, there is the issue of price and the extent to which cities subsidise their public transport.

Chart 1.1. Car dependency in context



[3] A recent study of British adolescents' accounts of growing up locates 50 'key moments' in their lives. Two of these involve cars (getting a driving licence, getting access to a car); none involve conventional politics or voting (Thomson et al, 2002).

Car dependency is also shaped by land use, for this above all determines the extent to which people need to be mobile at all. The simplest issue here is the extent to which housing and employment are separated and how they are located relative to each other. In early industrial cities, nearly all workers walked to work: the proletarian tenements surrounded the mines and factories. Today an increasing number of professionals choose to live within walking distance of their work in the city centre, a process which is part of the gentrification of the inner cities. And of course, information technology is enabling more people to work at home. For most people however, work requires a substantial journey. Planning laws and the nature of the housing market determine the extent to which housing is accessible only by car. Equally, the growth of office parks and out of town shopping malls generates car traffic for these places are usually unreachable in any other way. Other traffic generators include public facilities, above all hospitals but also educational institutions, as well as other transport nodes, above all airports. This understanding of land use is close to Bratzel's concept of *Mobilitätsstruktur*, the 'physical location of activity sites' (Bratzel, 1995: 14; see also Hanson, 1995). At any given point in time, if somebody carries out a specific activity, there are a determinate number of places where this can be done and a range of journeys which therefore must be made.

Car dependency thus depends on the way the car system proper is related to public transport provision and land use planning. All of these are socially and indeed politically shaped. Their form and their inter-relationship depend upon overt decisions and implicit ideologies which are extremely amenable to social analysis.

1.3. Social implications of automobility: cohesion and inclusion

Understanding car dependency means understanding car use in relation to other forms of mobility. Here we use the concept of *mobility regime*[4] – the overall ensemble of the journeys people make and the means they use to make them. In the first instance this is the result of how people use the car system, the land use system and the transport system. 'How people use' suggests that people make active choices, but within existing physical and social constraints. Over time of course these choices have effects back onto the car system, the land use system and public transport. If people start to use cars for journeys which they had previously made on foot or by public transport, 'mobility sites' may develop which are unreachable by public transport. Equally the causality can go from physical artefacts to mobility choices: new land uses (suburban housing or shopping malls) and new roads all open up the possibilities of new journeys as well as just a change in the mode of existing ones.

The mode of mobility is not simply the achievement by technical means of pre-given aims: which mode of mobility is 'chosen' by a society has important consequences. Most obviously, modes of mobility are more are less environmentally sustainable. Where the mobility mode involves many journeys, most of which are carried out by car, this is far less sustainable than, at the other extreme, a mode in which there are fewer and shorter journeys, and people move on foot or by public transport. This project does **not** research this relationship as such: we assume that in

[4] Our use of the term derives from the work of Stefan Bratzel and Knut Sørensen.

environmental terms a car-based mobility mode is environmentally undesirable. Taking that as given, we ask why are cars used more in some cities than in others, or put another way, **why do some cities have more environmentally sustainable mobility modes than others?**

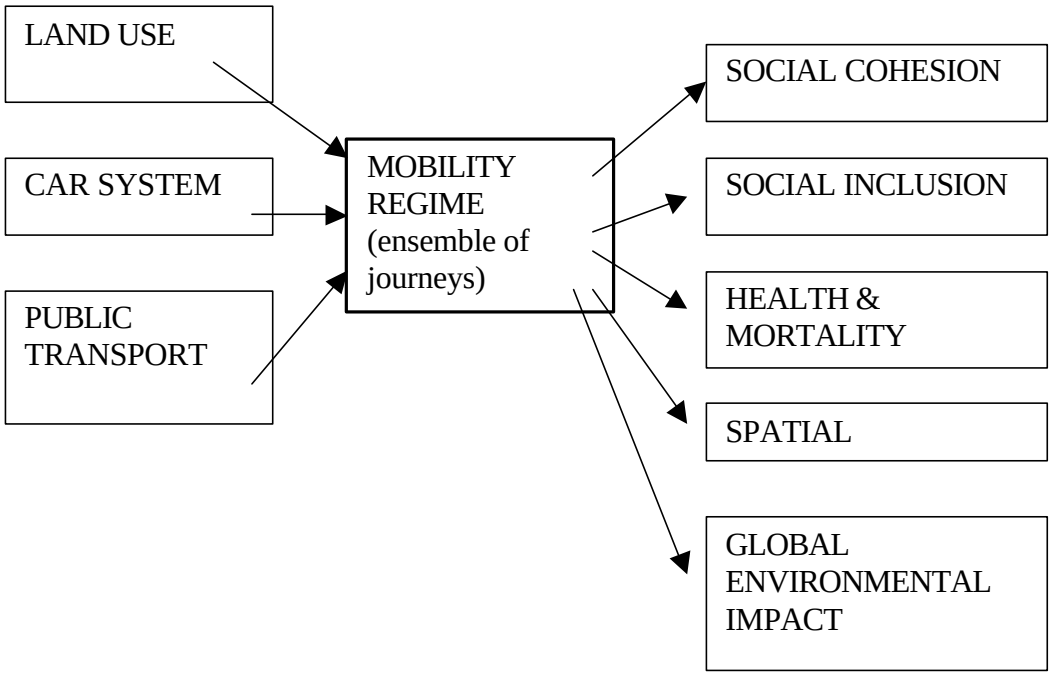
However, the 'social' aspect of mobility modes is not limited to explaining how these modes arise. Different mobility modes have different effects on society. Even global warming does not effect everyone equally. The natural disasters that it appears to cause threaten the lives of the poor of Bangladesh, but merely the comfort of the rich of California. Within the developed world, localised pollution and health impacts are also socially unevenly distributed at a more local level, though the relationship is by no means straightforward. Thus inner city poor are badly effected by automobile pollution, but especially in Northern Europe, the poor are more likely to live in suburban housing areas that, whatever their other problems, are less effected by this pollution. Equally, the deaths and injuries from car accidents are a major public health issue and absorb badly needed healthcare resources (even though the relative and absolute rate of fatalities has been declining in most countries). Such injuries are socially unevenly distributed, but age and gender are frequently more important than class (young males being the group most likely to die in car accidents). In this area the most direct relationship with social class appears to be amongst pedestrians: the unemployed and the poor are over-represented amongst pedestrians killed by car drivers, while the employed are over-represented amongst those who kill people with a car (Erskine, 1996).

As originally proposed, the project was planned to include these social aspects of the car. However, funding was only granted for a much narrower and more conventionally defined project. At its most general, we are concerned with the inter-relationship between the motor car as an embedded technology and people's ordinary lives. Understanding the possibility of society with reduced car use is to understand how and to what extent ordinary lives involve the car. In particular, we need to know to what extent activities necessarily involve the car, always remembering that such activities can be expressive as well as instrumental (Bratzel, 1995: 15). However, while cultural studies have focused on the general connection between contemporary life forms and the motor car (e.g. Urry, 2000; Urry, 2002), our concern is to locate this empirically – in different cities, for different activities, for different groups of people. Only mapping such variety can indicate realistic starting points for an alternative.

Within this framework car dependency becomes a situation where the mobility regime not only involves many car journeys, but involves many journeys and activities which could not be done any other way. Car dependency is best understood as a continuum, ranging from extreme car dependency, where almost all activities require a car, through controlled car dependency where the car is needed for some but not all activities, to minimal car dependency where vary few activities require a car. Understood in these terms, car dependency is social in several senses. Firstly, it derives from the accepted and socially valued journeys and style of life in a particular society – the 'normal' life of 'normal' people. Secondly, these journeys utilise socially produced facilities (mobility sites, the car system, public transport) which are the result of collective and usually explicitly political decisions. However

individualistic the driver, he or she uses a collective facility (the road) which has been built by some form of collective action, usually indeed by the state. Finally, although individuals are also more or less car dependent, car dependency is essentially a collective attribute, not least because people in a particular area face a common set of physical constraints and opportunities.

Chart 1.2. Mobility modes and social consequences



1.3.1. Defining cohesion and inclusion

Car dependency is socially produced. It has however two social *implications* which are important for understanding the role of the car in contemporary society. They show how car dependency is not neutral: it effects the type of society in which people live and it effects different people in different ways. And as we shall see later, these are important for the particular form car dependency takes in particular cities.

The argument that follows makes a distinction between social cohesion and social inclusion. Each of these can be thought of as one end of a continuum describing features of social structure. If social cohesion describes a situation where members of society feel mutual obligation and responsibility for each other, a situation where this does not apply is one of anomie, where people act in purely selfish and individualistic terms. By contrast, social inclusion describes a situation where all members of society have adequate resources to fully participate in the life of society. By contrast, social exclusion is that process whereby some people are kept out of the mainstream of society, in particular because they lack resources. Social inclusion / exclusion thus involves social inequality, while social cohesion / anomie does not.

1.3.2. Cohesion, hyper-individualism and the destruction of public space

In terms of social cohesion there is a clear argument that car dependency undermines the quality of social life. Universal car ownership was seen until recently as part of the achievements of contemporary consumer society. In fordist society 'universal' car ownership meant that every *family* had a car; in contemporary post-modern society it

means that every *individual* has a car[5]. But widespread car usage in cities destroys public space and facilitates the creation of privatised public space. As Rogers describes the world of American shopping malls: 'The car-choked streets are left to the poor and unemployed, while the wealthy workers shop and do business in air-conditioned comfort and security' (Rogers, 1997). What Apel and Pharaoh (1995) call 'carurbanity' is incompatible with urbanity. As cars take over the world outside the house, it less and less an area for public sociability - the key characteristic of city life. Hence radical architects and town planners have for decades tried to stem the advance of the car. Hence too the well developed tradition of aesthetic criticism of car dependency.

At a more general level, widespread car usage creates many situations where individuals can act irresponsibly without cognisance of social obligations - from explicit road rage through to the implicit anti-social behaviour of fast and noisy driving, where the individual is 'carcooned' from the consequences of his (less usually her) actions. Whereas Elias (1995) saw the long term decline of road accidents as an another example of the 'civilising process',[6] car usage now appears as part of a process whereby social bonds are loosened.[7] The 'great car society' promulgated by Mrs. Thatcher is an oxymoron. Where everyone uses a car, then social cohesion is undermined. From this perspective, widespread car usage is part of a general decline of social capital (Putnam, 2000: 204ff).

Such arguments are part of the general cultural criticism of car-based society. It is however striking that they have rarely, if ever, been subject to empirical assessment (the work of Putnam is an important exception). Such an assessment of necessity will mean comparing different areas and different cities.

1.3.3. Inclusion and exclusion

There is also the relationship between car dependency and social exclusion.. If all adults can own and use a car, then a completely car dependent society does not exclude anyone. Such a car society can be inclusive even if not cohesive. As far as the adult population is concerned, the only relevant aspect of the car for social inequality is that poorer income groups are constrained to spend a disproportionate share of their income on a capital asset in order to have any mobility. However, such complete universal car ownership is unlikely. Even in the most affluent societies, universal car ownership still means one car per household, so that in many poorer households adults are in competition for use of the car. In the USA, and increasingly in Europe, women and men are equally likely to have a driving licence. Although one might assume that even then men would win out in any competition for access to the car, the question of gender inequality in such a situation is probably best posed as an empirical issue. It is however clear that since carurbanity means that cities are designed for those with cars, those who are too young or too old to drive are excluded. For example, children cannot ride a bicycle to school or play on the street, since cars

[5] In a similar way, the mobile phone means that every individual can have their own phone: private phones are no only accessible through a households.

[6] We are grateful to Stephen Mennell for alerting us to this argument.

[7] Here we are distinguishing between social INCLUSION and social COHESION; much contemporary discussion conflates the two.

have made these activities too dangerous. Conventional policies in road safety of course exacerbate this situation by segregating cars and pedestrians and by training children to learn that cars are dangerous (Hillman, 1993).

The key connection between car dependency and social exclusion occurs through access. In many European cities, particularly in North West Europe, suburbanisation means that people have only the most basic facilities within walking distance. Shops, entertainment, even employment itself is located either in another suburb and as such almost impossible to reach except by car, or in the city centre which may be far away and only reachable by a rather limited public transport system. While this may not pose problems for car-owners, it does for everyone else. Suburbanisation has occurred as if everyone who lived in the suburbs had a car, yet this is manifestly not the case. While 'suburbanisation' initially meant the location of housing, it now includes shopping, entertainment, education and employment.

There is relatively little research on the relationship between car dependency and social exclusion; transport policy is not usually seen as part of social policy (but see Cahill, 1994; Social Exclusion Unit, 2002).[8] There is however some evidence that those without cars are excluded from employment opportunities. While in the USA this is particularly a problem for inner city residents unable to reach new employment in the suburbs (see Shen, 1998), in the UK it is more a problem of the difficulties of suburb to suburb commuting for those without cars (D. Webster 1997). Such findings highlight the need for comparative research to see whether cities which are more car dependent also generate social exclusion in this way compared to less car dependent cities.

1.4. Political choices and car systems

1.4.1. Self replicating congestion

'Gridlock is when a city dies. Killed in the name of oil and steel. Choked on carbon monoxide and strangled with a pair of fluffy dice. How did it come to this? How did the ultimate freedom machine end up paralysing us all? How did we end up driving to our funeral in somebody else's gravy train?' (From Ben Elton's novel Gridlock: back cover.)

Given a traffic jam and congestion, the obvious solution is to build a better road. This is the basis for the 'predict and provide' philosophy that has been at the centre of road-building for generations. However, this obvious solution is no solution at all.

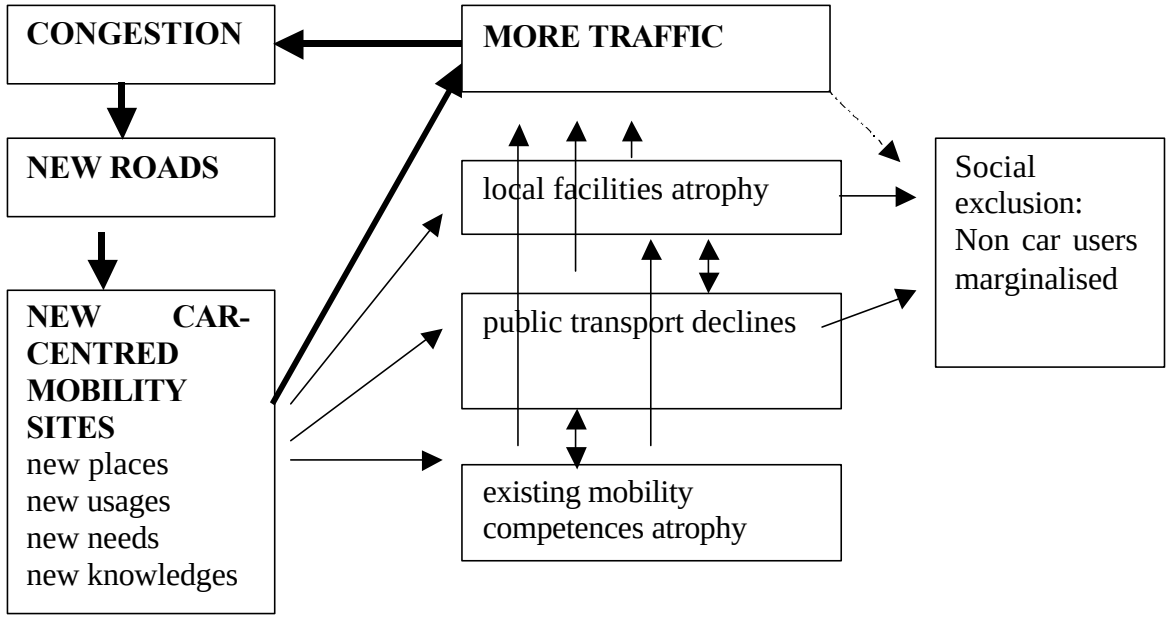
Long ago Le Corbusier termed the street 'a machine for producing traffic' (cited in Freund and Martin, 1993: 112). It is now well established that the provision of better roads tends to increase the overall amount of traffic, thus ensuring further congestion and the demand for even more roads. A summary of the evidence at an

[8] Of course, it can be argued that car usage counter-acts social exclusion since people use cars to maintain social networks and even 'social capital' (Urry, 2002). This ignores that not everyone does have access to a car, and that the environmental and social costs of high (but never complete) car ownership are very high; secondly it ignores that 'car dependency' occurs precisely when people have to use the 'cars system' to maintain their specific life style – including their social contacts.

ECMT (European Conference of Ministers of Transport) conference on *infrastructure-induced mobility* stated:

> The general case is that new infrastructure capacity can be expected to increase the total volume of traffic, hence increasing those aspects of environmental damage that are proportional to the volume of traffic. This increase in traffic, which in the long term can range from zero to 40 per cent, may be due to a variety of factors; i.e.: to take advantage of the new infrastructure people may change their route, mode of travel, travel times or move home. At the strategic level, the main effect of road construction is to influence the pace at which both congestion and environmental damage from traffic get worse, rather than offering potential for it to improve. However, it is apparent that individuals' responses to new capacity also evolve over time and there are some indications that changes in traffic patterns in response to a new road are still evolving after several years (ECMT, 1996:1).

Chart 1.3. Infrastructure-induced mobility



The general process involved is diagrammed in Chart 1.3. New roads create access to what are termed here 'car-centred activity sites': physical locations which are best reached or even only reached by car. Such new places may involve new usages and new forms of consumption (the out of town hypermarket or the suburban cinema complex). Rather less obviously, they also involve new 'knowledges' about what is available and how it can be accessed and consumed. This in turn creates more traffic, hence more congestion, and hence a demand for new roads. The heavy arrows in the chart plot this self-replicating loop.

The chart also shows a secondary process. As people use more distant facilities, local facilities are used less and atrophy. People's knowledge of these facilities declines, so although near, they actually become less visible. Because these new

facilities are reached primarily by car, public transport usage declines. Finally, existing 'mobility competences' decline: people becomes less willing and soon less able to use alternative modes of mobility – to walk, to cycle and use public transport. All of these feed into greater use of the motor car and hence to more traffic, more congestion and eventually, more roads[9].

Finally the chart indicates the process of social exclusion. While car users' choices have expanded (or at least altered), the decline in public transport and the atrophy of local facilities ensure that the mobility chances of non-car users have actually declined. Their ability to move around is reduced, while what they can reach also atrophies. The dotted arrow shows that the growth in traffic itself may also have social impacts on these groups: new fast roads create new physical barriers and divide communities, while poorer people may be disproportionately exposed to localised pollution and new health risks.

The chart also suggests how 'car dependence' can be understood through the metaphor of drug dependency. Heroin or even nicotine addiction is in part a matter of choice. I choose to shoot up, I choose to smoke a cigarette. But as I continue to do this, my body changes, it becomes restructured, it needs the drug, it cannot do without it. Furthermore, the 'need' escalates – the body requires more and more of the drug, while withdrawal becomes more and more difficult with greater physiological as well as psychological problems. The same applies to car dependency. Driving cars gives many people pleasure, a pleasure they would be very unwilling to give up. Yet to concentrate on the pleasure of owning and driving a car is to ignore the way in which many people's existing life style has become impossible without the use of the car. Especially in the suburbs, a car is essential for people to carry out what have become their normal lives. For such people reducing car dependency means changing life styles – and/or changing the physical construction of the city. Sometimes drug addiction can only be solved by tough love – and solving car dependency usually requires hard political choices.

The growing importance of individual mobility has been discussed in academic sociology in the context of a general process of individualisation. O'Mahony draws on this when he states:

> Mobility is a term which reflects the nature of contemporary expectations as well as actual changes...Mobility signifies the desire to expand the possibilities of movement from place to place to match more individuated disaggregated senses of self and correspondingly different needs (O'Mahony, 1997)

However, these expectations are not in fact particularly contemporary. Expanded individual possibilities of movement were one hallmark of the railway age of the **19th** century (Schivelbusch, 1977). And while the car now appears as a particularly individual form of transport, as opposed to the world of public transport with its collective movement and fixed timetables, 'fordist' public transport shares these

[9] It has been claimed (Lave, 1992) that as car ownership becomes universal, demand for road space will level off: predict and provide is therefore a reasonable strategy. The chart however suggests that **existing** road users will tend to increase their road needs over time.

features with the most rapidly expanding form of transport of our epoch, the aeroplane. Equally, the car first entered mass use not as an individual form of transport but as a **family** mode of transport (the normal car soon was defined as seating four or five people). In this spirit Bratzel challenges the idea that the car is inherently bad and rail inherently good, pointing out that the hyper-suburbanisation of Los Angeles originated not with the car, but with the city's (now completely destroyed) suburban **rail** system (Bratzel, 1995; Yago, 1984). Other forms of transport therefore do tend to have the same self-fulfilling characteristics as the car: the solution to congestion in airports is to build more airports, which in turn increases air traffic.

Nonetheless, the car does have some specific features quite apart from its particularly negative environmental impact (the artefact is partly an actant). Because it is so flexible it appears particularly suited to short, multi-purpose and unpremeditated local journeys[10]. This is partly the reason why urban motorways, built to facilitate long distance traffic, soon become blocked with greater local traffic. We could designate the daily commuter traffic jam at relatively predictable times as a 'fordist' traffic jam, since it is the result of large numbers of people trying to do the same thing at the same time. While this has much similarity with overcrowding on public transport, the disaggregation of individual time schedules and locations which characterises the contemporary city produces jams which can occur at any time of the day or night, and have no parallels outside the world of the motor car.

Because the car is an individual form of transport, one solution to congestion is to attempt to use the existing infrastructure more efficiently through improved traffic management and technological developments such as the smart car and the smart street. Because such solutions make car usage easier, by themselves they probably have some of the same traffic inducing effects as building new roads. Road pricing is another possible solution to traffic congestion which is increasingly being discussed. Unlike traffic management, it does not increase the capacity of the existing infrastructure but it has the major problem that it falls disproportionately on the relatively poor.

1.4.2. An outline poxlitical history of the car

> 'The time will not be far when our very own workers will buy automobiles from us...I'm not saying our workers will sing Caruso or govern the state. No, we can leave such ravings to the European socialists. But the workers *will* buy automobiles.' (Henry Ford cited in Wolf, 1996: 72)

The self-replicating process sketched in the previous section does not operate to the same extent in all countries and all cities. Comparative research shows that some countries are far more dominated by car transport than others. These differences are at least partly the result of different political decisions.

[10] However, our ethnographic research reported in Chapter 7 challenges the common belief that local car journeys are usually multi-functional.

The US represents an extreme case of car usage and probably of car dependency. It is also an extreme case of pro-car policies. Freund and Martin argue:

> While pro-auto public policies are not unique to the US, the high level of Government support for the auto coupled with its low level of support for alternatives is unique (Freund and Martin, 1993: 134).

The strength of the contemporary US car lobby is clear, but that does not explain why the car has such remarkable predominance in the USA. While critical histories of the car link it to 'capitalism' (Wolf, 1996), it is necessary to differentiate between different societies in order to indicate possible points of change. This section sketches such a history not so much of the car but of the car system. It traces the emergence of an artefact (the car) and the other components of the car system (the physical and social infrastructure) as well as of the policies and pressure groups clustered around them.

The key to the US pre-eminence appears to be the prior US lead in mass production techniques which goes back to the 'American system' of manufacture in the mid 19th century (Nelson, 1975). Starting with the mass production of small arms (rifles and revolvers), the American system involved 'working to gauge' – producing components that were interchangeable and so could be assembled into complete products by semi-skilled labour. Henry Ford is known for his introduction of the assembly line borrowed in turn from the industrialised butchering of cattle in the Chicago meat plants. However, even before this Ford had applied existing mass production techniques to car manufacture, cutting cycle times and enabling the employment of semi-skilled labour. The car was no longer produced as a luxury good. By 1917 the US auto industry was already producing 2 million vehicles per year (Womack et al, 1990; Piore and Sabel, 1984).

As Gramsci realised, Ford's social engineering was as important as his industrial engineering, for Ford ensured that the mass produced car created a mass consumer market, even a new way of life. Here the notion of the people's car could link to US democratic values (for the urban progressive movement the car was part of the democratisation of US cities (Flink, 1970)) and to the new mass consumer markets for products ranging from mass produced food to pianos. Finally. at General Motors Albert Sloan broke Ford's antiquarian utilitarianism ('any colour so long as it's black') with the annual model change, thus ensuring that mass consumption was also mass pleasure.

Achieving this breakthrough required social innovation but also the 'creative destruction' (Schumpeter) of the existing transport system. Compared to anywhere else in the world, the USA has been remarkable for the speed and thoroughness with which its pre-existing urban transit systems were destroyed. In the inter-war period companies clustered around General Motors purchased existing urban rail systems, in some cases briefly converting them to bus operation, but soon destroying them altogether. In 1920 Los Angeles area had in Pacific Electric the largest urban rail system in the world (Yago, 1984: Bratzel, 1995), but within twenty years this was completely destroyed. Outside the Eastern Seaboard (especially New York) public transport became a residual form of urban mobility (Yago, 1984).

On this basis the post World War II expansion of the car system was part of the replacement of long-distance rail travel in the USA by car and plane. Here, unlike in

the inter-War period, the state played a crucial direct role. The inter-state road system, described as the biggest civil engineering project in world, was a national policy shaped in part by military needs. At this point a new network of road transport and civil engineering professionals and construction lobbyists became prominent, although their emergence lay further back in the inter-war period when professions linked to the car first emerged (Albert, 1999).

The car system in Europe followed a different trajectory. Outside the UK the rail system had been built not by private industry but largely by the state for industrial and above all for strategic reasons. The latter was epitomised by Germany. Just as in the USA part of the reason for the victory of the North in the Civil War was its superior transport system, so the Prussian railways were crucial to the German victories in 1866 and 1870, enabling hitherto unprecedented amounts of men and materiel to be rapidly delivered to the front (most recently in Richie, 1998). Consequently the state played a far greater role in Europe than in the USA.

In Europe the complete breakthrough to the mass market in the automobile occurred much later than in the USA and really not until after World War II. There were some precursors. Just as Lenin, full of enthusiasm for the new Taylorism, had defined communism as 'soviets plus electricity', so Hitler in a 1933 speech defined Nazism in terms of the *Volksmotorisierung* of the car and the autobahn (Wolf, 1996,). Yet before 1945 motorisation in Germany was only militarisation. German military planners were determined to avoid the perceived weakness of the German army in World War I in terms of motorised warfare; the Volkswagen only became a people's car after World War II. For all the prestige of the new German autobahns, it was in fact the UK where mass motorisation was most advanced, based on the new car industries of the West Midlands (Stephenson, 1984: 110) and generating new roads, new urban forms ('ribbon development') and new forms of leisure[11]. By 1939 there were over two million motor cars on British roads (Stephenson, 1984: 390-391).

The second half of the 20th century saw the consolidation of these networks into a self-reproducing system. Mass motorisation was part of the democratic post World War II settlement across Europe, enthusiastically supported by all political parties and seen as integral to the new 'Golden Years' of mass prosperity and consumer democracy. Countries such as Norway which had no indigenous motor car industry were soon made safe for the motor car with engineers playing a key role (Østby, 1994). Within this general context the UK emerged as the most consistently pro-road of all major European countries, with greater destruction of railway systems than elsewhere (Hamer, 1987: 3).

Opposition began from the 1970s, starting in the USA and focused on the safety aspects of certain cars (Nader's *Unsafe At Any Speed*). In Continental Europe opposition began with resistance to the destruction of inner cityscapes from the early 1970s (see Chapter 3 on Bologna and Helsinki). In Britain by contrast opposition focused more on major road building programmes which threatened natural beauty

[11] By 1937 the annual production of private cars in Britain was 507,000. Even during the worst years of the Depression, output had increased every year (Stephenson 1984: 110).

spots. Across Europe within 'best practice' cities 'predict and provide' was abandoned by the mid 1970s; effective restraints on cars in historic cities began to be explored and there were some first attempts to reinvigorate public transport (Apel and Pharaoh, 1995: 232).

By the end of the 20th century in Europe the car system has become contested. However, lobby groups still exercise very different power. On the one side there are well funded industry associations and motorists' organisations, well integrated into the policy making apparatus. Until very recently overall transport strategy has not been an election issue, so that road building policy could continue undisturbed. It remains true, that as was claimed in the 1980s, opposition comprises a disparate collection of pressure groups usually focusing on single issue campaigns (Hamer, 1987) in reaction to a fundamentally pro-car transport policy.

In the UK the motor car became central to the conservative counter-revolution. Margaret Thatcher, who famously claimed that there was 'no such thing as society', also eulogised the 'great car society'. Privatisation of public transport was driven by explicit ideology which saw car transport as the expression of individual consumer choice and by a not always covert determination to break an area of public sector trade union strength. Privatisation of buses and then later the railways seems to be best understood as a privatisation of decline akin to the destruction of public transport in the USA in the 1920s. Although the British Transport White Paper of 1997 marked a retreat from the extreme position of earlier years, there seems no sign that the UK will approach the levels of public transport provision typical of other major EU Member States. For example, the UK has no high speed train initiative remotely comparable to new lines in Germany or Spain, let alone to the French TGV system.

At EU level it is not possible to locate any single coherent transport policy, despite the fact that the original Treaty of Rome contains a commitment to a common transport policy (Article 3) (Bainbridge and Teasdale, 1995: 62). On the hand there is the frequent invocation of sustainable mobility as in the eponymous 1992 Green Paper (European Commission, 1992), in the Common Transport Policy (1995), in policy studies and research programmes, or the aspirations to Trans-European Networks based on high speed rail in the Maastricht Treaty and in Commission proposals such as the 'Delors' Growth White Paper (European Commission, 1994). On the other hand the expansion of competition in road haulage has far more immediate consequences, just as in peripheral regions structural funds have been overwhelmingly spent on roads rather than rail infra-structure (Scott, 1995: 89). Most crucially of all, the almost unnoticed expansion of competition policy into the provision of public transport undermines the role of the 'backbone state' (Wickham, 2002) and threatens to erode not just public provision but public space.

At the onset of the motor age, there was limited opposition to the motor car in USA and Europe in class terms: rich men in cars killed poor people on foot (Albert, 1999). Once most people could aspire to own a car, this simple dividing line disappeared. Most electors are car-owners, so car politics do not pit distinctive social groups against each other. Indeed, the most overt politicisation of the car in Europe now lies in organisations – and even the occasional political party (Betz, 1994)– that fight for 'motorists' rights'. In the cities however, the politics are very different.

1.4.3. Political sociology of urban form

Infrastructure-induced mobility suggests that much travel is in fact 'running fast to stand still', that people need ever increasing amounts of mobility to achieve the same ends. Transport policies based on 'predict and provide' conflate *mobility* with *accessibility.* Today nearly 80% of Europeans live in urban areas (European Commission 1994 cited in Mullally 1997). Understanding the dominance of the car in everyday life therefore requires an analysis of how European cities have developed to require ever greater mobility from their inhabitants.

In terms of urban design, the difference was first clearly formulated in the different positions of Mumford and Le Corbusier. Whereas the vision of Le Corbusier's *The City of the Future* was for an architecture based on ever increasing speed and movement (Le Corbusier, 1929), Mumford's *The Urban Prospect* called for the decentralisation of as many functions as possible to within walking distance of the home, and criticised Le Corbusier's vision as 'an over-attention to movement and an under-attention to settlement' (Mumford, 1956:82).

The dispersal of the urban population over ever greater areas is the converse of ever greater movement within cities. In large European cities suburbanisation preceded the railway age, but developed most clearly in the 19th. century. Railways allowed both the creation of large cities and enabled the better off inhabitants to escape from them. The novelty of the car therefore is not suburbanisation per se, but rather the form of transport dependence it has generated. As suburbs began to be built based on car transport after World War I in the USA, for the first time people were dependent on **one** form of mechanical transport for any mobility at all. In 1922, only 135,000 homes in suburban areas of 60 US cities were beyond the reach of public transport, by 1940 it was 13 million. And in these new suburbs, land zoning which enforced physical separation of activities meant that soon every basic task required car transport

More recently, other activity sites have followed residence into the suburbs. Industrial and manufacturing plants have moved from industrial districts to 'industrial estates', shopping centres, hospitals and other institutions have moved out to the suburbs, and finally service sector office employment, long concentrated in city cores and providing the rationale for most commuter traffic, has also moved dispersed. The concentric city is being replaced by the 'edge city' (Garreau, 1991). Robert Putnam describes the consequences:

> Our lives are increasingly traced in large suburban triangles, as we move daily from home to work to shop to home (Putnam, 2000: 211).

It is however crucial that these processes are not seen as inevitable and universal. Our *social* analysis of the car starts from the empirical observation of varieties in the level of car usage. If the car system is related to urban form and public transport, then it is necessary to explore and explain how these vary.

One obvious difference is between the low density cities of the USA and other 'new settlement' countries (especially Australia) on the one hand and Europe on the other. This difference can be explained as the expression of a deep-rooted historical American preference for the single family home (Gans, 1984). By contrast, writers such as Muller (1995) and Hanson (1995) have argued, the form of US cities depends in part on planning laws which favour suburban development and taxation systems

that favour speculative housing built for owner occupation. Indeed, Muller argues that it is these **contemporary** policies that explain why the difference between European and USA cities is now becoming more pronounced: US cities now are becoming more dispersed, with a less pronounced density gradient than is normal for Europe.

Of course, one difference between Europe and the USA is the ideological importance of history. European cities are not only older than their US counterparts, they often have historic cores which are defined as part of the national heritage and which can only be preserved by radically limiting the motor car. However, in most cases such historic centres occupy a very small amount of the total land area of the contemporary city. More importantly, such cities also often have *legacy systems* of public transport. The great metropolises of 19th century Europe were built around a public transport system which was created before the advent of the motor car. By the 1920s cities such as London, Paris and Berlin had systems of trams, metros and suburban rail that allowed their inhabitants to move easily over a large densely inhabited area. In many ways the inter-war period was the 'golden age' of public transport (Wolf, 1996). To the extent that these systems still survive, they provide a continuing alternative to the motor car and a major resource for any rejuvenation of public transport. As we have seen, US systems were relatively easily destroyed by a determined assault from the nascent auto industry and this was possible because the systems were privately owned. They could thus be bought up and closed down with relatively little political constraint. To the extent that this is true, the difference between the USA and Europe has got little do with geography ('size', 'open spaces') and a lot to do with political systems: the weak role of the US state compared to that of European nations.

Within Europe a sociologist would expect to find systematic differences in car systems analogous to those located by sociologists of (for example) the labour market, the family, and social mobility. Sociologists have located systematic societal features that are **relatively** impervious to short-term fluctuations, for example the high rate of social mobility in Sweden, the hierarchical character of French enterprises, the low trust nature of British industrial relations.

The state massively influences car systems through its planning policies, especially in terms of land use. For example, national planning systems differ in the extent to which they facilitate low density suburban development unrelated to public transport provision; more specifically different countries have different policies towards out-of-town hypermarkets (now perhaps the major car traffic generator) (SERVEMPLOI, 2002). And the state's structures determine the extent to which decisions can be made at local city level. For example, by the 1990s the UK state had become the most centralised of all the larger European countries. Consequently, it was very difficult for any UK city to develop a very distinctive transport policy, because it lacked resources to develop public transport and instruments to restrain private car usage.

A rather different argument might look for similarities within Europe that cross-cut national boundaries. It is given added weight by those rather general claims that today within Europe the nation state is being 'hollowed out' from above (EU, globalisation) and below (the new importance of the city and the region as sources of

identity and crucially for us, as locales of political decision-making). It connects to those arguments that see the key issue for economic success in the quality of governance of the city, and that in their most extreme forms, see the emerging post-modern/ post-industrial world as one of city states rather than nations.

Much discussion of the new role of cities has focused on the 'global cities' of London, New York and Tokyo (Sassen, 1991). However, for most Europeans what happens in the second or even third tier of cities is clearly more directly relevant. Here there are some broad North/South differences, with single-family housing more predominant in the former. There are also differences in the extent to which cities have political power. Research using macro-level indicators by Kenworthy et al (1997) and more detailed studies such as Apel & Pharaoh (1995) has clearly documented differences between cities in the level of car usage. In the terminology used above, this suggests that different cities have different car systems, and as Apel and Pharaoh also suggest, this is related to public transport provision and land use planning, both in turn shaped by political processes. In other words, in order to understand car usage in the city, we need to understand the specific *technological trajectory* of its car system and the political decisions which influence it. Understanding the car in the city requires a political sociology of car-decisions.

Chapter 2 Research strategy and methodology

The project began with a detailed literature review (Workpackage 1.1) much of which has been summarised in the previous chapter. This chapter describes the research strategy of the rest of the project.

The starting point of the project is the simple fact that some cities have higher levels of car usage than others. The first issue for research is how to systematise this finding. What are the systematic variations in car usage between cities? How do European cities compare in a global context? The second research issue was to explain these variations. Why do some cities have higher levels of car usage than others? The third issue is the social consequences of this variety. In particular, does car usage mean car dependency, in other words forms of social life which can only exist because of the car? Does such car dependency have implications for social exclusion? Does high car usage have implications for social cohesion? A final issue is the possibilities and conditions of change. What are the social conditions under which people move away from the car, and what social structures would this involve?

The project focuses on the city for two reasons. Firstly, in the city it is (still?) possible to imagine modern social life without a car. Secondly, of course, most Europeans live in cities and most car journeys occur within cities. Given that we wanted to investigate differences between cities and their social implications, it was decided to adopt a two stage case study approach: we selected four European cities, and then within these we selected three distinct localities in each city.

2.1. Levels of analysis

Given these four basic issues, the project was designed with different levels of analysis. As Chart 2.1 shows, the project began at the global level by collecting statistical data on car usage in cities across the globe (workpackage 1.2).

These cities included the four case study cities: Athens, Bologna, Dublin and Helsinki. The cities were chosen partly for opportunistic reasons. The Italian team had good contacts in Bologna, while all the other teams were studying the city in which they worked. More importantly, however, we wanted to select cities that were examples of 'good' and 'bad' practice. We wanted to compare European cities that had relatively low levels of car usage with cities where the car dominated. In these terms Athens and Dublin were our negative examples. Both cities are notorious for their congestion and have very limited public transport. By contrast, Bologna was one of the first Italian cities to try to control cars within the city centre and to develop an alternative public transport policy (Jaeggi et al, 1977); Helsinki also has a clear policy to reduce car traffic in the city centre and to enhance its public transport.

Chart 2.1. Research strategy

Level	Research issue	Method (Workpackage)
Background	***The car problem as environmental problem and social issue***	Literature review (WP1.1)
Global / European	***Overall variety in car usage***	Comparison of city level statistical data (WP 1.2)
Four case study cities	***History of mobility regimes***	Historical documentation, published histories, city level statistics (WP2.1)
	Political decision-making	Case studies of 'pro' and 'anti' car decisions in each city (8 case studies) (WP2.2)
Three localities in each city (12 in total): • working class suburban • middle class suburban • inner city young professionals	***Car dependency and everyday life*** ***Car dependency and social exclusion*** ***Car dependency and hyper-individualism*** ***Social innovations: living without the car***	In each area: • Ethnography (WP3.1) • Social survey (WP3.2) • Focus groups (WP4.1; WP4.2)
Case study cities	***Political routes out of car dependency***	Scenario building with decision-makers (WP5)
All levels	***Generalisation of results***	Final report (WP5)

While research at the global level was conceptualised as primarily a mapping exercise, the second workpackage was designed to produce some basic explanations for variations in car usage operated. It operated at the level of the individual case study cities to analyse the political processes which have produced their specific car systems. The first part of the workpackage was intended to produce an analytical account of the past and present transport system of the city and of its linkages to population settlement, employment and consumption. In terms which we now use, we would conceptualise this as writing a history of the *mobility regime* of each city and establishing the extent to which the car system of each city had a distinct *technological trajectory*. The objective of the second part of the workpackage was to analyse the political processes which shape the car system in each city: we wanted to locate the key decision makers, their objectives and ideologies, and to analyse the relationship between the political structures and civil society in each city. Taken together, these two activities would explain how the car had achieved its particular role in each city.

A mobility regime concerns the connection between accessibility and mobility: it is about how specific groups of people move to access particular activity sites. Studying this therefore requires a spatial focus. Consequently the next stage of the

research involved moving to a more local level in order to explore the social implications of car usage and car dependency within the context of everyday life.

The three different areas in each city were *not* selected in order to produce a statistical sample of the city's population. Rather, we wanted to find areas in each city that matched as closely as possible to three 'ideal types' of urban areas. This was intended to allow comparison both within and between the cities. The choice was a form of 'strategic sampling' in order to locate particular forms of urban area.

The first type of area was a middle class suburban locality. These areas have been largely built after the car became normal at least in middle class households; they are built on the assumption of car ownership, they are likely to have low levels of public transport provision and low transport usage. Here, so we assumed, high levels of car usage are normal in both statistical and normative terms.

The second type of area we termed 'working class suburban'. Like the first area, these areas have been created in an age of widespread car ownership. However, unlike the first much of the housing is state funded and provided for lower income groups. Although income levels are relatively low in such areas, we deliberately did not focus on areas with a reputation as 'sink estates' or where we might expect to find extremes of social exclusion.

Finally, we researched an area in each city that could be termed 'yuppified inner city'. Such areas are based in the historic (19th century or earlier) inner city, built before widespread suburbanisation and certainly before the car age. In such an area, not physically suited to car ownership, we also wanted to find numbers of young professionals and others who had chosen to live in the area as part of an inner city lifestyle. The area in other words was to be representative of the process of 're-urbanisation' that researchers have noted in virtually all cities in the developed world (Newman et al, 1997).

Each team selected three areas within its city which came closest to these descriptions. Defining each area more precisely involved two further considerations:

1) **Administrative convenience** – it was obviously desirable to choose an area which was already defined administratively so that it could be related to existing data. Thus in Dublin our areas were defined as one or more 'District Electoral Divisions'. These are the smallest unit for which aggregate census data is available and are the basis for Dublin Corporation's traffic modelling. A DED is usually about 8,000 people. We were thus able to use census data for a basic social profile of the area (including car ownership and travel to work) and compare the area with both Dublin and Ireland as a whole.

2) **Social homogeneity** – given that each area was selected to focus on a particular social category, it made sense to choose an area where this type of person predominated, even if that is unusual in the city as a whole. However, it had to be remembered that once the area was chosen, we were profiling the area rather than just the people who fitted our initial criteria. To some extent this reduced the risk of a self-fulfilling prophecy – if we had focused exclusively on the three social categories (conventional middle class, socially excluded, yuppie) we could have ignored many forms of transport behaviour that might be important. Ultimately, the justification for focusing on an *area* was the assumption that people's mobility and accessibility is powerfully shaped by *where they live* as well as by their occupation per se.

Of course there were problems with this approach. In particular, it initially derived from the Dublin experience. Irish cities, and Dublin in particular, are probably more socially segregated than many Continental European cities, and the particular socio-spatial categories we used may also be 'ethnocentric'. Thus reading the Anglo-Saxon urban sociology and urban geography literature, one has to remember that suburbanisation occurred later on the Continent than in the UK, essentially after World War II, or indeed after 1960. As we shall see, this does mean that comparisons between the 'same' areas (defined in these terms) of the different cities are most appropriate between the two Northern European cities of Dublin and Helsinki.

Research at the local level was intended to discover the different forms of mobility and accessibility in each locality. We assumed that these forms are shaped both by the city and the social structure of the locality itself. In other words, accessibility and mobility in inner city Helsinki is the result of both the nature of the immediate area and the people who live there, *and* the fact that this is part of the city of Helsinki (with a particular form of public transport, road system, land use, etc.).

However, we did not want to assume that people are simply the passive recipients of social structural constraints. These areas were also chosen as sites of possible social innovation. Most obviously, the 'yuppified' inner city areas, so we assumed, contained people who had self-consciously chosen to live where possibly car ownership and certainly car usage were going to be less important, at least for their more instrumental journeys. If car usage is to be reduced, the experiences of such people are important, precisely because they are both affluent and have chosen to reduce car usage. At the other end of the income scale, we also wanted to explore how people in the working class suburban housing area dealt with a situation of potential exclusion. Given the fact that for them car usage was more difficult, how did they respond? We were interested in forms of innovation from car sharing and informal lift arrangements through to the possible development of the taxi as a popular form of transport, not to forget car-stealing as a form of expressive car usage for those without cars ('joy riding'). However, the middle class suburban area is far more representative of normal European urban life. If car usage is going to be reduced, social innovation is going to have to occur here even before the cities are rebuilt into environmentally sustainable forms. To what extent are suburbanised, comfortably off Europeans really locked into car dependency?

The final stage of the research moved the level of analysis back up again to the city level. Its purpose was to sketch pathways between the current situation in European cities, where car usage is widely recognised to be environmentally unsustainable, probably socially damaging, and definitely increasing, to a different situation in which car usage is – by whatever means - brought under control. The contribution of the project is not to invent such a future, but to explore possible futures as envisaged by policy makers and political actors in the cities, and to try to relate these futures to what we had discovered about the present situation. In each city therefore the research team would present to city policy makers a report of the findings of the project to date. These findings would be one input into the construction of alternative scenarios of development for the city. In other words, in

interaction with policy makers to explore the social – as well as purely technical – implications of moving towards reduced car usage and car dependency.

As well as reporting on the empirical research in the case study cities, the final report would return to the global level – or at least to the European level – and assess the extent to which the findings could be generalised to other European cities.

Over the course of the project it was therefore intended there should be an increasing involvement with 'users'. Whereas in early stages we were simply researching policy decisions, by the final stage of the project it was intended we should be exploring policy options together with policy makers. The next section of this chapter reports on the extent to which we achieved these objectives.

2.2. Research methods: plans and realities

2.2.1. Background: literature review

The initial design of the project was based almost entirely on Anglophone literature. It was intended that the literature review would broaden this with a discussion of research in French, Italian and German, as well as overviews of relevant literature from Finland and Greece. A separate report on French and Italian literature was produced as a briefing document for the team by the Italian team. Although some of the issues it raised were taken into account as the project developed, it was not possible to include it in the literature report. The Finnish and Greek teams also reviewed their respective national literatures: the Finnish review was submitted as a brief team briefing document, the Greek material was included in the history of the mobility regime in Athens (see below). As can be seen from chapter one and the bibliography to this report, the literature used is almost entirely Anglophone with some use of German material. This limited literature is a clear weakness of the project.

2.2.2. Global level: aggregate statistics

The original intention here was for a two stage research process. We intended to gather broadly comparable data on cities world wide, to establish in what ways European cities differ from those of the rest of the world, especially the USA, Eastern Europe and South Africa? From this data we hoped to establish to what extent it is meaningful to talk of a specifically 'European' situation in terms of car usage in cities. In a second stage we intended to collect standardised data for a large number of European cities (including the four case study cities) to create a dataset that would allow to allow a statistical analysis of basic variables (cars per head of population, proportion of journeys to work by car, etc.).

However, once we started the project we discovered that this data was much more difficult to collect in a comparative form than we had envisaged. We also discovered that this task had been tackled for 37 cities world wide by an Australian research team (Kenworthy et al, 1997). After discussion with our Australian colleagues we decided that a realistic task was to simply gather comparable data on our four cities and to combine this with their published results. This resulted in a data set containing a total

of 40[12] cities including 15 in Europe. This was then analysed to set our four cities in context. The result of this analysis (see Chapter 3) strengthened our original argument: in European terms, Bologna and Helsinki emerge with relatively low levels of car usage, while Athens and Dublin have high car usage.

2.2.3. City level – the politics of the car system

The next stage of the project, 'political sociology', was an analysis of transport policy in the four cities.

The objective of workpackage 2.1 was to provide an overview of the development of the mobility regime in each city. This was not conceptualised as a history of 'transport policy' in isolation but, as Chapter 1 has outlined, of the interaction between land use, public transport and the car system. This stage of the research was designed as primarily desk and library research using secondary sources and a few interviews with significant informants. The research depended a great deal on the existing local knowledge of each national team, but also served to familiarise the teams with the actors whom they would be studying in workpackage 2.2.

The report on workpackage 2.1 took the same form as all other empirical workpackage reports (with the exception of the report on workpackage 3.2). Each national team produced a report on its own city. One team took responsibility for compiling the workpackage report, comprising these four national reports (with editing essentially limited to stylistic and formatting improvements) together with an introduction and an analytical conclusion. The report on workpackage 2.1 shows the problems this approach initially involved. Some of the separate national reports contain much undigested detail, in particular statistical material, which is not used – as was intended – for any systematic comparison between the cities. As the team became more experienced with working with each other, this problem became less serious. However, even in the first use of this approach it was possible to ensure that all the national reports followed an agreed basic format. This allowed the analytical conclusion to provide a clearly structured overview of the findings and a clear explanation for the relative success of Bologna and Helsinki compared to Athens and Dublin (*Report on Workpackage 2.1 The Car System in the City*).

For the second part of this section, workpackage 2.2, we decided to analyse political decision processes through two case-studies in each city (*Report on Workpackage 2.2 Political sociology of the car system*). In each city we took a recent political decision which could reasonably described as 'pro-car' in that it increased the extent to which people would use cars; we compared this with an 'anti-car' decision which would favour other forms of mobility. For example, in Athens we analysed the decision to build a car park in the city centre, and compared this with the decision to expand the metro. Here the objective was to tackle the weakness in the literature which was identified in Chapter 1, namely the lack of any empirical analysis of those political processes which ensure the domination of the motor car in European

[12] Kenworthy et al also collected data on Toronto. We omitted Toronto from our analysis because it does not fall into any of the five groups into which the cities are divided (US, Australia, Europe, Developing Asian, Wealthy Asian).

cities, and conversely, any realistic appreciation of the political obstacles to an alternative mobility strategy.

Our objective was to move beyond identifying particular lobby groups (for and against the car) in order to see whether there are any systematic differences between decisions that favour the car and those that restrain it. Furthermore, we wanted to see if the decision-making processes in car dependent cities differ from those in less car dependent cities. The detailed methodology here was developed by the Italian team on the basis of extensive discussion in the team as a whole (summarised in the internal briefing document *Report on Workpackage 2.0, Political sociology of car system – methodology*). The methodology attempted to trace the course of decisions and locate the key participants in the decision-making process.

This deliberately empiricist approach avoided some of the more simplistic explanations found in the critical literature (e.g. Yago, 1984). Precisely the focus on overt decisions led to the neglect of more basic structural issues and of actors who may have power because of their more implicit agenda-setting roles. Furthermore, not all teams carried out the methodological prescriptions in full. Despite some problems locating appropriate decisions for analysis, the final case study decisions include public transport investment decisions in all four cities, compared with car-generating decisions such as the creation of out-of-town shopping malls in Bologna and Dublin as well as of city centre car parking in Athens. One key finding from these case studies confirms an argument first raised in the previous section: a key characteristic of the two 'worst practice' examples of Athens and Dublin is the disproportionate role of (national) central government in urban decisions and conversely, the under-development of any city and regional democratic governance structure.

2.2.4. Local level – cars in everyday life

Up to this point the project investigated how the mobility regime in general and the car system in particular is shaped by political decisions. With workpackage 3 however the focus changed to the mobility regime as part of people's lives. To do this it 'zoomed in' to three distinct areas of each city as described above (suburban middle class, low income suburban, and inner city yuppified). The total project therefore collected data on 12 areas. Whereas the first stages of the project simply compared cities, now it could compare both similar areas in different cities (e.g. suburban middle class Helsinki with suburban middle class Dublin) and different areas in the same city (e.g. suburban middle class in Dublin with suburban working class in Dublin).

Ethnography

In each of these areas we carried out a series of different research activities. The first was an ethnographic account of mobility and accessibility using qualitative social research techniques. It is important in its own right, as well as an essential preliminary to collecting data from individuals in the area about their journeys and how they understand them.

The detailed methodology for this stage of the project was laid down in a document agreed by the team (summarised in the *Report on Workpackage 3.1, Ethnography of Transport Use*). In each locality the researchers used, as far as possible, the following different sources:

1) Existing secondary sources: Any available detailed census type statistical information for the area (e.g. in Ireland the SAPs, or Small Area Population Statistics, which tabulate census information down to the DED or District Electoral Division level); existing studies of the area by planners, sociologists etc.; planning documents such as land use plans, etc.
2) Fieldwork notes: In the research methodology document agreed by the team researchers were instructed to 'walk around the area and notice what you see, try and get involved in casual conversations with people in the area. As in all ethnographic research, it is essential that you write your notes up immediately after you leave the "field" (i.e. where you are doing the research).'
3) Photographic evidence: Researchers were also instructed to 'use a camera, noting where and when (time of day and weekday/weekend are both crucial) you took the photographs. What does the housing look like, what does the streetscape look like, are there cars everywhere, how do cars relate to people?'
4) Significant informants: Researchers were asked to talk to 'local police, bus drivers, taxi drivers, local social workers/ clergy, health centre staff, local employers, schoolteachers, local politicians; any one who can give you an informed account'.

Each team wrote a report on each of its three localities under a series of agreed headings: introduction (physical environment, demography, employment); research methodology (how and when the information was gathered); road layout (road use and enforcement); cars; public transport provision; local mobility observed (who is walking around the area, and why); facilities and accessibility; mobility and transport modes; local politics and transport; conclusion. Each topic included a list of further questions designed to produce a rich description of the area (see box).

An example of an ethnographic question list: cars in the locality
The simplest of all questions, but crucial. Are there many to be seen? How many per household? What sort of cars predominate (old or new, compacts or large saloons, etc.)? Are they parked, moving, jammed? Do residents appear to park their cars on-street (legally or illegally) or off the street (garages, car ports, driveways, etc.)? Are streets in the area heavily used by cars at all times of the day? Are there sometimes traffic jams within the area, or within the immediate vicinity? Any car repairing (garages), sales, petrol stations etc. in the area? And what about car theft and illegal car-use ('joy-riding')?
From: *Researching Local Transport Use: Methodology: Team briefing*. Project deliverable no. 3.0, submitted 9 January 1999.

Each team used these headings to organise their material. Although there were differences between the reports in the level of detail on the different topics, there was enough common structure to allow the systematic comparison and analysis which formed the final chapter of the report (*Report on Workpackage 3.1, Ethnography of Transport Use*). This ethnography ensured that the researchers knew the locality well enough to carry out the more conventional survey which formed the next stage of the research. Crucially, the ethnography also provided a background for interpreting the survey findings. The ethnography was also important in own right. For example, the systematic description of the localities allowed comparison between similar areas in

the different cities. Thus, while both the Irish and the Finnish teams saw 'their' suburban middle class areas as clear cases of car dependency, comparing the reports shows how life in the Finnish suburb is in fact far less car oriented than in the Dublin suburb. Ethnographic evidence can therefore be used as another form of evidence along with findings from the survey and the focus groups.

Social survey

The second stage of the research in the localities was formulated in the Technical Annex to the project as 'individual accounts of mobility and accessibility'. At the start of the project it was left open whether to collect this data by semi-structured 'qualitative' interviews or by a questionnaire-based social survey. After discussion the team decided to use survey methodology. The team considered that this would generate more easily comparable data across a wide range of issues.

It had originally been planned that the ethnography workpackage should include a small quota sample of residents. Largely for time reasons this was abandoned as a formal objective, but the teams talked with ordinary residents during the ethnographic stage as well as in the subsequent focus groups (see below). Consequently we had extensive and varied qualitative interview material; the choice of the survey provided a much needed second type of data.

The Greek team in particular had extensive experience in survey research and designed the sampling strategy; the Greek team also made an important input to the questionnaire design. Whereas many national censuses and large scale surveys (e.g. the Irish Quarterly National Household Survey) gather information about travel to wok or college, our survey gathered information about all forms of routine travel, as well as information on the use of local facilities. The survey therefore covered not only mobility, but also accessibility. A particular concern was to discover the extent to which people not only used particular transport modes, but the extent to which they were actually dependent on car transport for specific activities. This stage of the research was central to empirically evaluating the extent of *car dependency* in the different areas of our case study cities.

Since this stage of the project focused on different areas of our case study cities, the sample was designed to be representative of each individual area, not of the city as a whole. Each case study area was divided into three further sub-areas in order to maximise the representativity of the sample of the case study area. Within each sub-area individuals were located for interview through quota sampling. Quotas were set at equal numbers of women and men with a total of 50 respondents in each area. In Bologna it was possible to increase the intended sample to 100 respondents in each area. Full details of the sampling procedure used in each city are contained in the Appendix to the workpackage report (*Report on Workpackage 3.2, Using cars, using public transport*) and are summarised in Appendix 4 of this report.

The questionnaire was written and piloted in Dublin and then translated by each national team into the appropriate language. Some minor revisions were then made before the survey was carried out in spring 1999. The questionnaire covered the following main areas:

- Background (age, gender, occupation, etc.)
- Transport ownership in the household
- Household car ownership

- Public transport use
- Forms of mobility (work, school, shopping, sociability)
- Walking around
- Walking environment quality
- Choice of transport mode

Most of these topics were also covered, at least tangentially, in the ethnography and in the focus groups.

Focus groups

The research in the localities culminated in a series of focus group discussions which comprised workpackage 4, co-ordinated by the Finnish team.

The focus groups were originally planned to discuss two separate issues in two separate meetings. Workpackage 4.1 was to deal with 'the experience of mobility', while workpackage 4.2 was to cover 'imaginations of mobility'. Thus the first discussion was to cover people's experience of moving around their locality. More so than in the survey, here we were particularly interested in people's enjoyment or otherwise of mobility, and in the knowledges and skills that people utilised in order to be mobile. By contrast, the second meeting was to cover what changes in mobility people could imagine. What alternatives, if any, could people imagine to the car for their own needs – and how might these needs actually change?

In the original proposal (see the Technical Annex to the project) it was intended to organise three groups in each locality. If each group met twice, this would yield a total of 18 meetings per team. By the time this stage of the project was reached it was clear this was completely unrealistic in terms of the resources available to us. We therefore decided to attempt to organise two groups in each locality. One group was to be comprised of local community activists whom we had met in the initial ethnographic stage of the research. The second group was to comprise respondents to the survey who had responded positively to a question in the survey asking if they would join such a group.

In the event even this was not always possible. It proved to be very difficult to get those who had put themselves forward as volunteers in the survey interviews to participate in the focus group meetings. Only in Athens was there a group based on survey volunteers in each area; in Helsinki there were such groups in two areas. In Dublin there were no survey volunteer groups, although in one area there was a meeting with one survey volunteer, incorporated later into the report of the other focus group meeting for the area. In Bologna the groups on the basis of survey volunteers failed altogether. In Bologna we encountered the additional difficulty of ongoing local elections, which delayed the group meetings. However, Bologna managed finally to have two groups meeting in every area. In Dublin we had to be satisfied with one group per each area, despite the efforts of the researcher. We can also ask whether this neglect of transportation issues at local level is wholly accidental, since people's interest in the issues was highest in Bologna and Helsinki, the least car dependent of our four cities. In virtually every case we only held one meeting for each group. The meetings were held in May and June 1999.

The conduct of the focus groups followed a format which had been agreed and documented in the team beforehand. At the start of the meeting participants were asked to draw a map of their journeys on a normal weekday (see Box). These maps

were then used to stimulate discussion on participants' normal mobility and the role of the car within this. Participants were encouraged to recount their own experiences or *stories* which in turn were the raw material for our analysis. The discussion was to cover six themes[13]:

- time management and mobility
- multi-functional mobility (multi-functional journeys and the car)
- multiple meanings of mobility (multiple meanings of the car)
- mobility as a pleasure and mobility as a constraint (the car as a pleasure/ the car as a constraint; not having the car as a constraint/ not having a car as a pleasure)
- mobility skills (the skills required to use a car, the skills needed if one does not use a car)
- mobility and life-style (life-style choices and the car)

Starting the focus groups: drawing maps

For the mapping, you must provide sheets and pens/pencils of two different colours for each participant.

From experience we have simplified this mapping to one simple sheet and maximum two days' journeys mapped on each sheet. The mapping has two functions:

1. The maps serve as a starting point for the discussion about everyday mobility.
2. The maps will also produce data for a comparative analysis, between different areas and different cities, ie. different transportation systems and mobility needs.

A. Give every participant a sheet of paper.
B. Ask them to mark their home on the sheet. Assure them that it is not a question of being able to draw. Everybody will have given directions to other people about reaching places etc, that is all this is about.
C. Ask them to mark on the sheet all the places they visited yesterday (last weekday), however short the visit.
D. Ask them to draw how they got there, following the actual way the went from each place to another. For journeys on foot or bike draw _ _ _, for journeys by car or public vehicles draw ____. Ask them to write car or public by the lines drawn.
E. IF they did not use the car yesterday, ask them to mark all places visited and draw the journeys for the last day they did use the car, either driving themselves or being driven, with a different colour but in the same drawing if at all possible.

The second part of the discussion was concerned with the possible changes that people can imagine - people's ability for *innovation* in their mobility. Here again we were interested in people's individual stories, but now of two types. First we discussed stories about *what if*? ('How would it affect your mobility *if...*?). This involved three main themes:

- Remember when the transport system last went on strike (car broke down, strike of buses, taxis etc.)?

[13] For a detailed list of all the topics covered in the discussions see Appendix 1 of *Report on Workpackage 4, Experiencing mobility, imagining accessibility: Results from focus groups in four European cities*.

- What if the price of gasoline rose significantly?
- What if the use of cars was restricted by law and with some changes introduced in the transport system (better public means, better local services, possibility to work at home)?

We then continued with stories of *what it would take*? ('What would it take to change your mobility habits and patterns?'). This involved three further themes:

- What would it require of yourself to change your mobility pattern?
- What would it mean for your habits (hobbies, where you shop, where you go for leisure etc.)
- What would it require of the area where you live?

For both themes we were especially interested in noting *differences* between:

- car owners (and car-users)/ non owners (also non users)
- people with different socio-economic and cultural resources
- people with different transport resources, especially between those who were dependent on the car and those who had more choice of means of transport

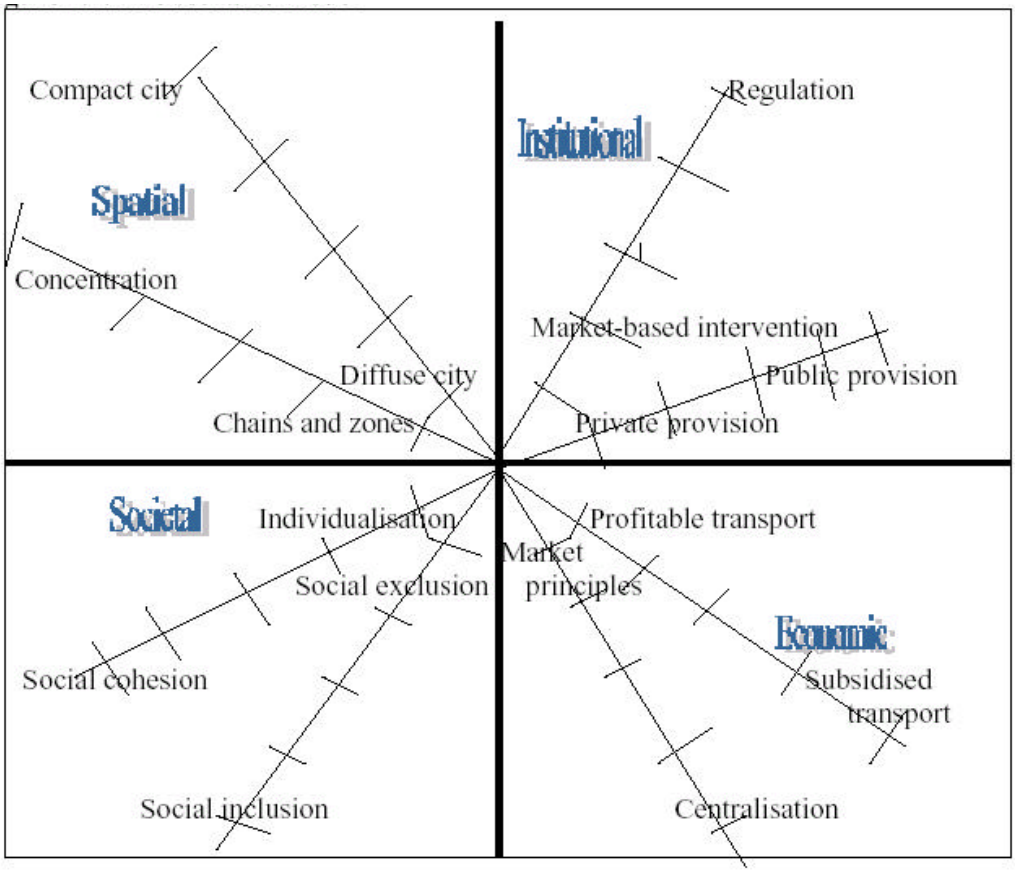
areas with different social structures and different urban locations.Workpackage 4 was originally planned to produce two separate reports, one for each focus group meeting. However, since the meetings were amalgamated both topics were covered in the one report. The research briefing which specified the detailed methodology also specified the format of the national reports. This document was prepared by Taina Rajanti of the Finnish team who also was responsible for editing the reports from each national team and writing the introduction and analytical conclusion to the workpackage report (*Report on Workpackage 4, Experiencing mobility, imagining accessibility*).

2.2.5. City level again: scenarios for the future

The final empirical stage of the project (Workpackage 5) returned to the level of the case study cities. By this stage of the project the national teams had become used to carrying out research according to a common agreed format. We therefore decided to use a standard format for the final scenario-building exercise to which we invited participants in the decision-making process (politicians, planners, lobbyists).

The scenarios were constructed using a slightly adjusted version of an established transport scenario model (Nijkamp et. al, 1998). This so-called spider model is based on the assumption that that transport systems involve a number of *inter-related* policy aspects – spatial, economic, institutional and social. In turn each of these can be conceptualised as comprising one or more distinct dimensions. Each dimension involves a continuum between two extreme positions. For example, the spatial aspect of the transport scenario includes the dimension of **urban form**. Here one extreme would be the highly concentrated and high density **compact city,** at the other extreme would be the more **dispersed** and low density suburbanised city. Chart 2.2 presents the basic model as adapted from Nijkamp et. al (1998).

Chart 2.2. The scenario model



One way of clarifying our image of the city is therefore to position it on each dimension, producing a spider diagram where lines connect each preference point on each dimension. These points can represent how the city is seen at the moment, how the city is expected to be in the future, or how the individual would like to see the city at some point in the future, etc. For this exercise we asked participants to choose points representing how they would *like* the city to be ('desired scenario') and how they *expect* the city to be ('expected scenario'). Furthermore, because the dimension takes the form of a numerical scale, it is possible to calculate the average value given to each dimension by all participants or indeed sub-groups of them[14].

The experts were also asked to evaluate identify technologies for improving mobility in their city. Once again they were asked to score these in terms of both whether they *expected* them to be widely used, and whether they *wanted* them to be

[14] It should be noted that in where this diagram is used to present the scores both in the workpackage report (*Report on Workpackage 5: Scenarios of Mobility*) and in this report (Chapter 8) each dimension has been reversed. Thus for example on the dimension 'urban form' the position 'diffuse city' is at the **outer** rim of the diagram, while the position 'compact city' is at the **inner** edge of the diagram. This was necessary in order to generate the charts with Excel while keeping the original scores.

widely used, in both cases using the same timeframe as for the scenario. The 'technologies' ranged from increasing the supply of roads, through improved public transport provision to regulation (e.g. road pricing) and alternative technologies (e.g. electric cars).

Each team followed guidelines for the meeting which had been circulated by the Irish team. The meeting began with a presentation of the key findings of the research project. The team then explained the model and illustrated by showing the scenario for the city which they themselves expected; they also prepared their own desired scenario, but did not present it to the meeting.

We then asked the participants to fill out a questionnaire *in* the meeting. The questions on the questionnaire referred directly to the policy dimensions of the model with some additional questions in relation to specific technologies. After this data collection stage, the results were immediately analysed using the SPSS statistics package to generate mean scores of the participants' policy choices and preferred policy outcomes. These results were then mapped onto the model and presented to the group towards the end of session.

While the data analysis was being analysed, the meeting was used to form a focus group discussion. Here the experts were asked to explain the choices that they had made on the different dimensions of their desired and expected scenarios, the extent these took into account environmental and social concerns, whether they felt that their desired scenario was possible within a 'business as usual' course of development, what factors they believed shaped their expected scenario and what would be needed to move in the direction of their desired scenario.

Each national team wrote up a report of their meeting following an agreed template. These reports were then edited and collated together with an introduction and analytical conclusion to form the workpackage report (*Report on Workpackage 5, Scenarios of mobility: Experts' images of the future in four European cities).*

The scenario-building was originally planned (see the project's Technical Annex) as the point in the project at which research and dissemination came together. The final stage of the research in the local areas of each city had been the focus groups with local residents, and these had ended by exploring the extent to which local people could imagine a future without cars. The final stage of the project involved reporting our conclusions to policy makers in each city, and on that basis discussing with them scenarios which sketched out the possible lines of development in their city. The scenarios were intended to focus both on the transport solutions to be adopted and the political forces that could support specific solutions. This stage of the project therefore involved both dissemination (giving our results to policy makers) and further research (discovering how policy makers in each city envisaged its future).

By the time the project reached this stage it was already running behind schedule (most scenarios were carried out early in 2000, i.e. after the planned completion of the project) and it had turned out to be much more difficult than we had imagined to get sustained involvement of policy makers.[15]

[15] In fact, involvement with policy makers came after we had finished the research and had results which we could display. This has been particularly the case in Dublin.

Furthermore, by this stage a basic design problem in the project had become clear. The project had been planned as a sequential research process in which each stage ('workpackage') usually laid the basis for the next one. However, this required that at each stage of the research, data was not only collected but also analysed (at least in preliminary form) before the beginning of the next stage. However, it emerged that the schedule was too ambitious to achieve this: research proceeded to the next stage of data collection before adequately analysing the data that had already been collected. This meant that it was only possible to present an oral summary of findings to the policy makers at the start of the scenario building sessions, and furthermore, these summaries only contained preliminary results from the material collected in the workpackages on political decision making and on mobility in the local areas.

By this stage of the project a second problem had also emerged. The project design called for comparison between the different cities, but earlier stages had shown that this was quite difficult to achieve once we moved beyond conventional social survey research. Over the course of the fieldwork therefore we attempted to develop methodologies which allowed us to collect data in a way which would enable us to make relevant comparisons and also to limit the collection of data which was not actually used. Thus whereas the first comparative workpackage (historical analysis of the car system in WP2.1) collected much indigestible material, we carried out the ethnographic studies (workpackage 3.1) and the focus groups (workpackages 4.1 and 4.2) in a way that allowed for much more useful comparisons between areas and between cities. For this final workpackage we used an existing methodology for constructing transport scenarios (Nijkamp et. al, 1998) because we considered it provided a clear framework for collecting data which would be readily comparable.

However, this generated another problem. While the methodology certainly allowed the policy makers' scenarios to be compared, it does so by focusing on some dimensions which were not immediately relevant to the issue at hand, or which even if they were relevant, were beyond the competence of our experts. For example, the dimension 'European spatial form' involves the pattern of settlement at a regional or national level, and is not therefore clearly relevant to the issue of **urban** transport per se. Many participants also found the different aspects of the two 'institutional' dimensions unclear and considered that they overlapped with the 'societal' dimensions. More fundamentally, these dimensions referred directly to policy means (e.g. regulation versus market measures), but only indirectly to policy objectives, including above all the level of car usage itself.

In each city our exercise generated lively debate amongst the participants. We intended the participants to include policy makers in each city, and understood 'policy makers' in the sense of all members of the relevant policy community: elected politicians and officials in the city, business and transport lobbyists, social activists and academic experts. At this stage we were not particularly concerned with exploring differences within the policy making community (this had been tackled in the analysis of actual decisions in workpackage 2.2). In retrospect we missed an opportunity here. Given that the responses used a standardised scoring system, we should have created a data set of all individual replies. This would have allowed an analysis by different type of participant in the entire set of meetings, and certainly

would have allowed an analysis of the extent of agreement *within* each of the four expert groups.

In every city scenario meeting politicians from the established political parties were conspicuous by their absence, whereas representatives of the local Green parties attended in Dublin and Helsinki. In Bologna a large proportion of the group was drawn from social activists; in Dublin various types of academics were particularly over-represented. Despite these differences, probably only the Bologna group can be considered to have seriously diverged from our original intentions.

2.3. Conclusion: Limitations and achievements

As this chapter has shown, the project operated at a series of different levels and with a wide range of methodologies.

In some aspects the project was over-ambitious given the level of resources available. Only the Irish team had a full-time researcher for the duration of the project; all other teams only had a full time researcher for one year in the middle of the project[16]. Since however all the members of the team participated throughout the project, effectively participating institutions were subsidising the project. This was a particular problem at the end of the project, since it meant that no resources were available for many of the planned dissemination activities.

Nonetheless in terms of actual research we achieved all our objectives as defined in the Technical Annex apart from the initial typology of cities and the statistical analysis of European cities (Workpackage 1.2). However, even here the changed approach (incorporation of the four case study cities into the Kenworthy et al data set) produced important findings. These were not only important in their own right, they also did set the context for the research in the individual cities (see Chapter 3). In these terms, even this workpackage achieved its objectives.

Mention should also be made of the two briefing papers commissioned from colleagues at the CSEC at the University of Lancaster (UK). As intended, these provided a general context for our research. The contributors (Professor John Urry and Dr. Elizabeth Shove) also alerted us to issues and acted as useful external 'sounding boards' at the start of the research. In retrospect we would have benefited from giving them such a role for the duration of the project.

The project had ambitious plans for user involvement and dissemination (again see Technical Annex). It was intended to produce 'popular' reports on each city and a popular version of this final report in the final months of the project. Given the lack of resources, this turned out to be completely impossible. However, it is intriguing to notice that dissemination turned out to be much more traditional – and in this way more successful – than we had envisaged. In brief, user involvement came at the end of the project, when we could use our research results to legitimate ourselves.

At the start of the project all the researchers had limited experience and even lower public profiles in transport research.[17] This had implications for user

[16] The team leader of the Italian team was funded at 25% of her time for the duration of the project in addition to funding for the Italian researcher for one year.

[17] The Finnish, Greek and Italian team leaders all had some academic work in environmental sociology; a colleague in the Irish team with similar profile withdrew from the project in the early stages.

involvement, since it seemed we needed some prestige in order to attract the attention of policy makers. Yet after the project ended all teams found that their results attracted considerable interest in 'their' cities and this led to further work in the area (see Appendix). This was particularly the case in Dublin, where initially getting user involvement had been most difficult. This was partly because towards the end of the project transport began to become a major political issue in Dublin, but it was also for the simple reason that by that stage the project was generating findings which could attract media attention.

Chapter 3 A Tale of four cities

James Wickham

This chapter introduces the four case study cities and puts them in a European and global context. It shows that they have very different levels of car usage and begins to explain this in terms of their history. Key aspects of this historical analysis can be generalised through the concept of technological trajectory.

The first part of the chapter presents an overview of the four cities and the obvious differences between them. The next part of the chapter uses city level statistical material and the work of Kenworthy et al to show how 'our' four cities compare with other cities in Europe and elsewhere. In particular this material challenges the widespread assumption that economic growth necessarily means greater car usage. In order to explain these differences, the next part of the chapter examines the history of the four cities.

3.1. Four cities

The four cities are hardly average European cities, if such a thing exists. Instead, they are extreme cases: Athens and Dublin are two European 'worst case' cities and Bologna and Helsinki are two examples of European 'best practice'.

Athens is clogged with cars. Of all the four cities, it has the worst traffic jams, the worst pollution, the least regulated parking. For most journeys within the city, there is no viable alternative to the car. At this general level, Athens appears not just as an example of high levels of car usage, but also of high car dependency. Since a car is essential, everyone who can purchase one does so. Consequently, ever rising numbers of cars drive out other modes of transport, while at the same time increasing congestion reduces the efficiency of the car itself. The dominance of the car contributes to a low quality of urban life and is itself both cause and effect of declining standards of urban citizenship. Athenians must use cars to move around their city, yet the only way to use the car is to break the law, even though this makes the situation worse for everyone. A new metro is under construction, but by itself it is unlikely to woo Athenians away from their cars.

Although conditions in Dublin are not as extreme as in Athens, they are broadly similar. Car usage seems to have become car dependency and to have become self-defeating with increasing congestion. There is some public transport, but nothing that can be called an integrated system. Unlike Athens, Dublin is a low density city and becoming more so: the economic boom of the last decade has exacerbated the city's suburban sprawl. At the moment Dublin, like Athens, resembles the boom cities of South East Asia as epitomised by Bangkok: cities which are being swamped by the car, cities in which the traffic jam becomes a way of life. Yet this may change, for there is an ambitious plan to dramatically reduce car usage in the city by 2016. Serious attempts are underway to revive public transport and control the car: there has been substantial investment in new buses and in segregated bus lanes, several light rail lines are under construction, car parking in the central city is rigorously controlled.

By contrast, Bologna and especially Helsinki have effective public transport systems and effective, even draconian, restrictions on the use of the private car in their central areas. In each city these historic centres provide the citizens with pleasant and attractive urban environments which are focal points for the city as a whole. In both Bologna and Helsinki, the city centre is an attractive destination in its own right, rather than merely the location of isolated historic buildings and tourist destinations. This is particularly so in Bologna, where the *centro storico* is an exemplar of one aspect of the European ideal: a large area of the city where walking and strolling is the natural way to move around, where streets and piazzas are not just routes to somewhere else, but meeting places and the backdrop for urban life.

Like Dublin, Helsinki is a low density city with extensive suburbs. And outside of the city centre, transport usually involves the private car. Yet Helsinki combines a well functioning road network with quite extensive public transport beyond the city centre.

3.2. The cities in context

As indicated in the previous chapter, our original intention was to collect some very simple indicators of car dependency for a large number of European cities so that we could situate our four case study cities. However, we quickly found that even such apparently simple data is very difficult to collect. We also however discovered that the same ground had been covered by Kenworthy et al for a number of cities world wide. Accordingly, we simply collected information on 'our' cities and inserted them into Kenworthy et al's dataset.

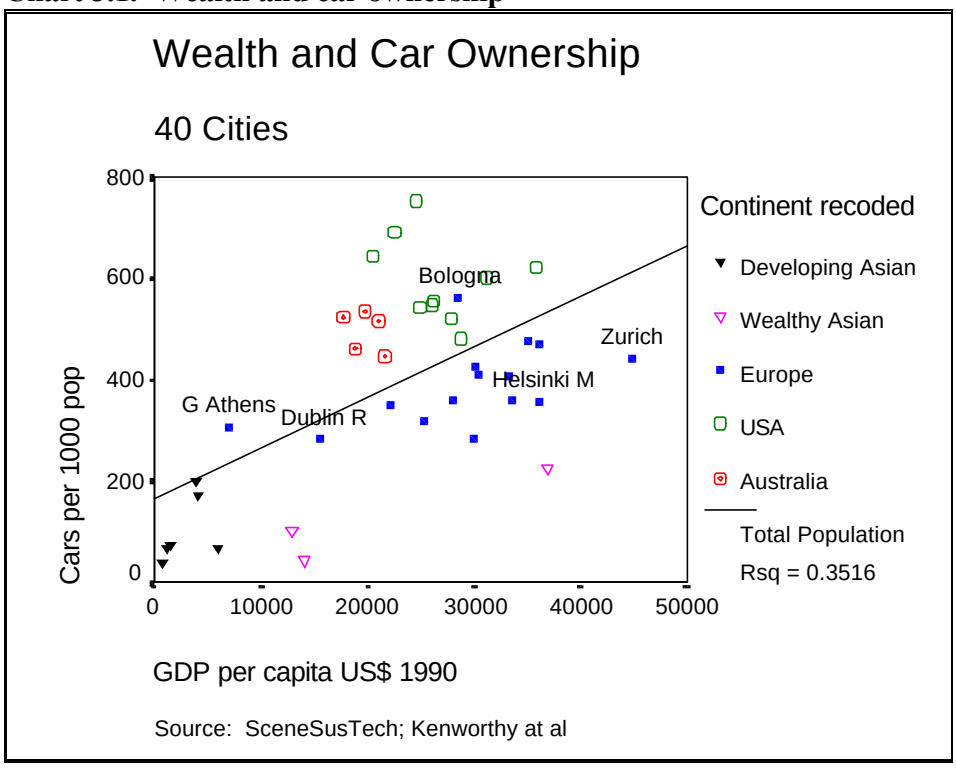
For all four cities we collected measures of the following variables which are also included in the Kenworthy dataset:

- population
- wealth GDP (in US$)
- total number of cars
- length of average journey to work (km)
- total road length
- total city area

The 'city' is defined as the metropolitan region. In order to improve comparability, the data is from as near as possible to 1990.

Our analysis begins by simply inserting our four cities into their dataset and examining the overall relationships between wealth, population density and use of private transport for the journey to work in 40 cities world wide. These relationships are examined by simple bivariate analysis using scattergrams and a linear regression equation. In the charts each point represents one city; the cities are divided into five groups (Developing Asian, Wealthy Asian, Europe, USA and Australia); most charts also identify by name the four case study cities. The regression line refers to all the cases in the dataset or, where indicated, to the subset of European cities.

Chart 3.1. Wealth and car ownership



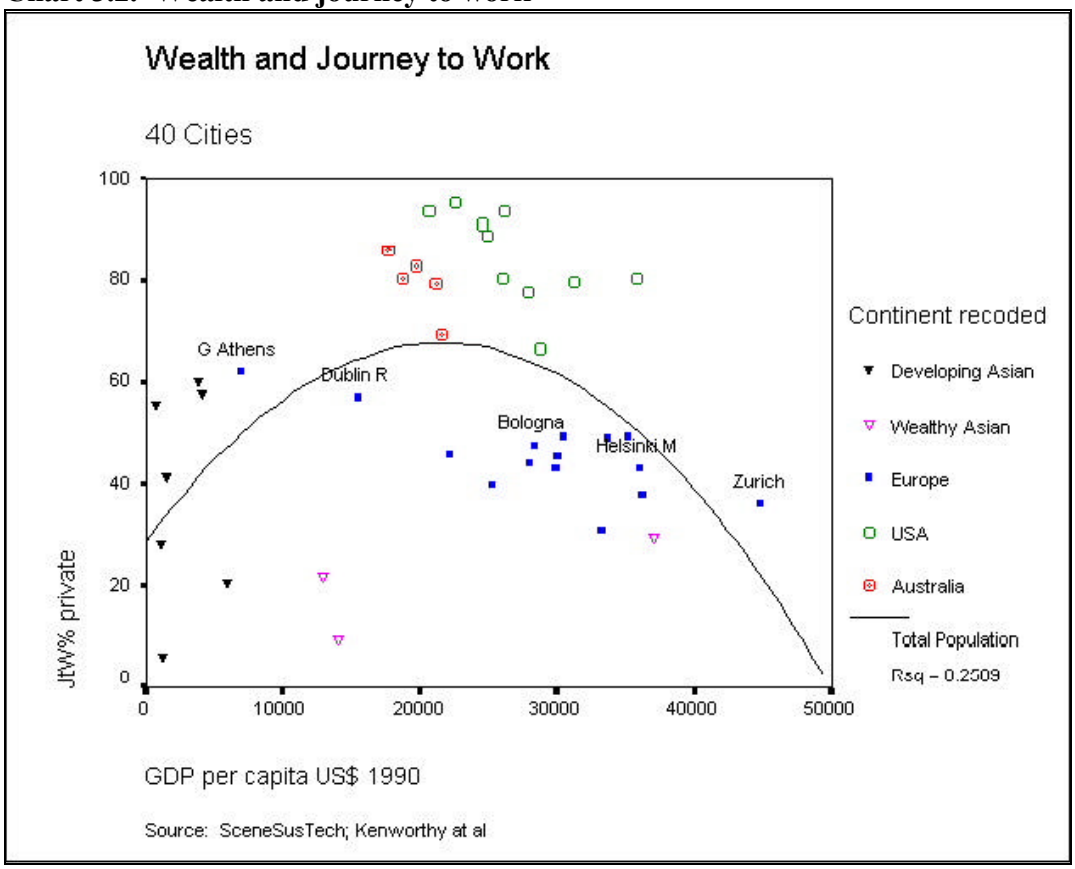
Initially the relationships between these variables appears to confirm our normal assumptions. For example, Chart 3.1 shows that as wealth increases, so does car ownership. Equally, as population density decreases, so car ownership rises; as population density falls, so the journey to work becomes more by private car. As car ownership rises, so journeys to work become longer and rising car ownership is associated with more roads per person. Finally, wealthier cities tend to have lower population densities.[18]

At this point however, we might begin to look at the data more carefully. Firstly, the relationship between wealth and population density is rather weak (r squared =0.34), the weakest of all those examined so far. Secondly, examining the European cities by themselves seems to suggest that the relationship does not hold at all. Within this subgroup, the richer European cities have higher population densities.

Chart 3.2 examines the most crucial relationship for measuring car usage: the relationship between a city's wealth and the extent to which its citizens drive to work. However, this relationship is very weak indeed, far weaker than any of the previous ones (r squared is only 0.02). As Kenworthy et al argue, the relationship is better described as curvilinear. The chart shows that as cities become richer, the extent to which people travel to work by car first rises, but then falls. Thus it is the cities in the middle of the GDP range that have the highest level of commuting by car.

[18] For full details of these relationships, see *Report on Workpackage 1.2, Typology of Car Systems*.

Chart 3.2. Wealth and journey to work



Examining Chart 3.2 in more detail shows that in fact only amongst the Asian cities is rising wealth associated with more use of private transport for the journey to work. Elsewhere, including in the USA and Australia, rising wealth is associated with a lower propensity to use the car for this journey.

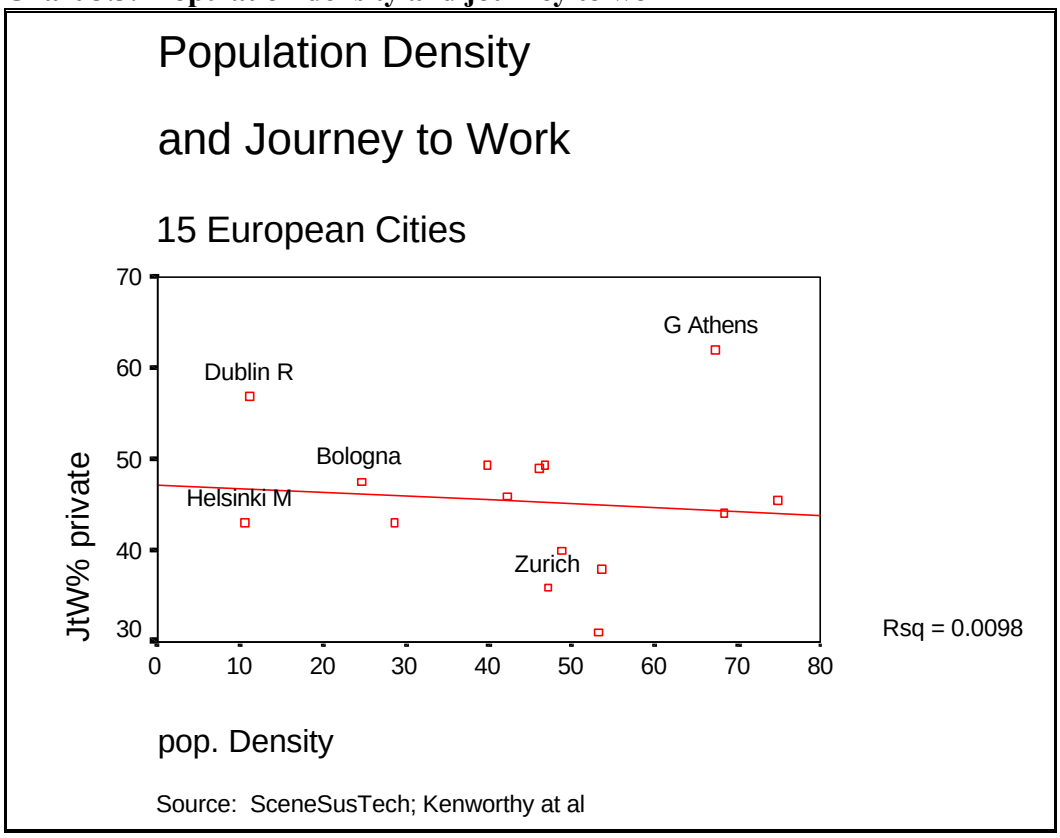
Once we focus only on European cities in the dataset, some of the normal assumptions – which are true for the dataset as a whole – do not hold. Thus in Europe high levels of car ownership are associated with less road space per capita. In other words, within Europe already car ownership is already filling up the roads rather than expanding the road space. Within Europe also, rising car ownership is not associated with the lengthening journeys to work found in the dataset as a whole.

Once we focus only on European cities in the dataset, then the global relationships between wealth, population density and car usage either do not hold or are very weak. Thus amongst the European cities in the dataset there is almost no relationship between wealth and population density. In 1990 Dublin for example was one of the poorer cities, but had one of the lowest population densities. Helsinki, a much richer city, has almost exactly the same population density, while Zurich, the richest city in the sample, has above average density.

An even greater challenge to the conventional argument is provided in Chart 3.3, which shows that for European cities population density has no serious relationship to the use of private transport for the journey to work (the relationship is marginally negative). It is often argued that in cities with low population density people have to use their car to travel to work. This may be true in global terms but in intra-European

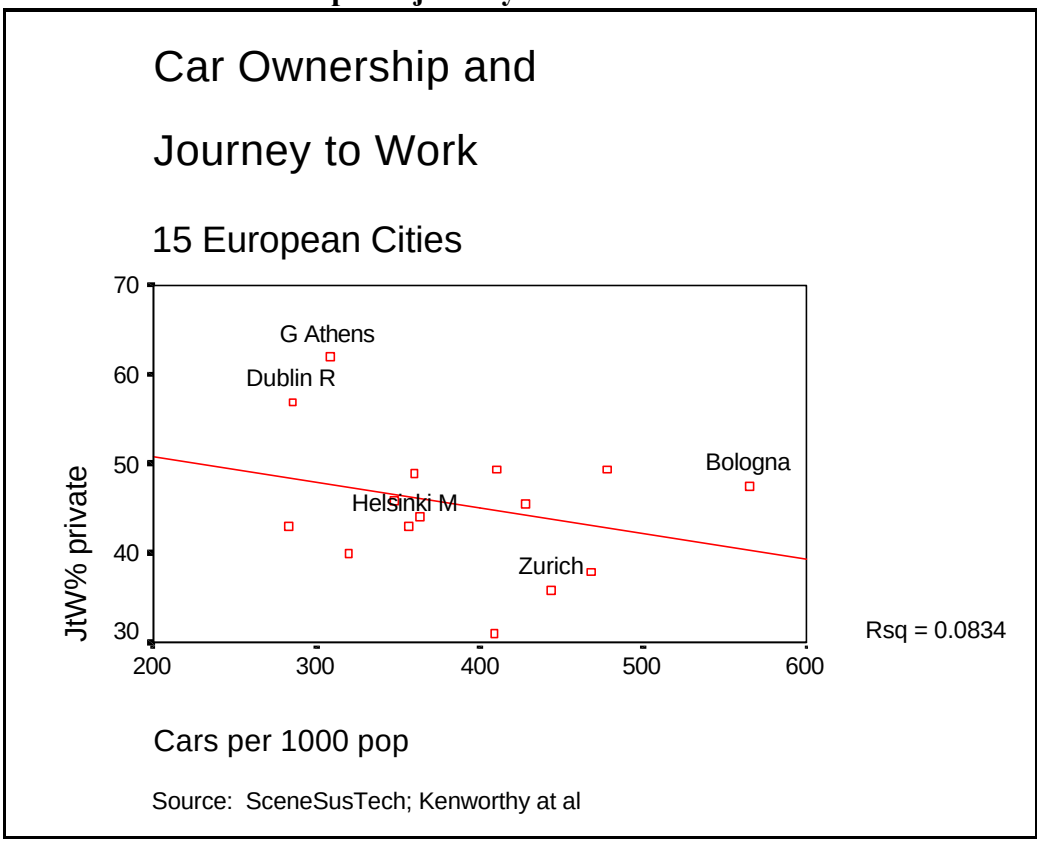
comparisons the argument is not sustainable. The chart shows that Helsinki has almost the same population density as Dublin, but a much lower level of private transport. Athens has a much higher density than Dublin, but also has an even higher use of private cars for the journey to work.

Chart 3.3. Population density and journey to work



Most decisive of all perhaps is Chart 3.4, which shows how within Europe (unlike in the global dataset) car ownership and journey to work are negatively related. Thus car ownership in Bologna is far higher than in Dublin (1990 data), yet people are more likely to commute to work by car in Dublin than in Bologna. Just because people own cars, they do not necessarily use them to travel to work.

Chart 3.4. Car ownership and journey to work



An obvious limitation to this argument is that it is cross-sectional. Although the relationship between wealth and travel to work by private car has been described here with phrases like 'as cities get richer', of course the actual comparison is between *different* cities at the *same* point in time. It remains true that within each city, as wealth rises, so do levels of car ownership. However, the cross-sectional analysis makes clear that different cities continue to have very different levels of car ownership and forms of car usage. In other words, the strength of the relationship between wealth and car ownership, let alone between wealth, car ownership and car usage, is extremely variable. Rather than simply assuming that increasing car usage is an historical inevitability, it is more important to understand how some cities are more 'car dependent' than others. For this an historical analysis is essential.

3.3. Trajectories of car dependency

3.3.1. Origins

Three of our four cities are capital cities of 'small' European countries. It is worth recalling that in 1800 not a single one of our nation states had political independence and that Dublin and Helsinki only became capitals of independent nation states after World War I. Studying the origins of the cities is important in order to reveal the inherited cultural resources available for constructing effective city governance and a committed citizenry.

Here the contrast between Dublin and Helsinki is particularly instructive. During the campaign for Finnish independence Helsinki occupied a pivotal role. As our

report says: 'With the rising of the national movement Helsinki became more and more the central point of all Finland'. In other words, the new Finnish national state was strongly identified with the city of Helsinki. The historical buildings of the 19th. century were identified as part of what we would now call national heritage. Furthermore, a new 'national' style of monumental architecture was central to Finnish nationalism in the early 20th. century, and the key buildings of this style were built in Helsinki. This national importance of the city has most clearly affected the planning of the central historical core, Kantakaupunki, in which the 'public nature of the area directs discussion into public values'. [19]

By contrast, Dublin seems to have played a much less important role in the ideology of Irish nationalism. This tended to see the city as an alien English (Protestant) imposition on the pure body of Catholic Ireland. The period of the rise of Irish nationalism in the 19th century was also a time when Dublin was in relative decline. This is clear in terms of economic development and population. In 1800 Dublin was the third largest city in the then United Kingdom. By 1900 Dublin was smaller than many English and Scottish cities and within Ireland it was an economic backwater compared to Belfast. The same applied in terms of town planning. In the 18th century social inequality in Dublin was extreme even by the standards of the time, but while the poverty of many of its inhabitants reminded observers of St Petersburg, so too did the beauty of its architecture and town planning. Yet while in the 19th century the ruling elites of many European cities had their own projects of municipal glorification, Dublin deteriorated under a political leadership which was 'a nationalist and catholic monolith dominated by publicans and shopkeepers, and said to have been characterised by inefficient self-interested middle class goals'[20]. After the achievement of political independence, there was little interest in maintaining the city's world famous Georgian architecture until well into the 1970s: precisely what defined the Dublin urban experience was also defined as not really Irish and therefore to be rejected.

The contemporary city of Athens grew after the achievement of Greek independence. Like Dublin in relation to the Republic of Ireland, Athens (or more precisely, the Greater Athens Area) dominates Greece demographically. By 1970, fully 30% of all the Greek population lived in the Greater Athens Area. But in neither case did this demographic importance involve any symbolic importance. Apart from the Acropolis, in the city but not of it, central Athens is hardly a national monument.

Bologna is not a capital city, but its history as an important urban centre goes back to the Roman period. What is interesting however is that the maintenance of the physical structures of this history only seems to have become politically important in the 1960s: 19th century industrialisation caused 'irreparable damage' to the fabric of

[19] Report on Helsinki in *Report on Workpackage 2.1,* The Car System in the City.

[20] Report on Dublin in *Report on Workpackage 2.1,* The Car System in the City. The problem for Dublin was not the 'nationalist and catholic monolith' per se, but that this particular nationalist project did not ascribe any role to the city as centre of the nation – unlike in Helsinki.

the city.[21] In this context historic Bologna is important for us as an example of how cities can change their history – the past is not just a resource, it can also be re-made.

3.3.2. Rise and decline of public transit

In transport terms, what matters is not so much a city's past as what it does with the past. As we shall now see, one key advantage of Helsinki is that it has maintained its public transport legacy.

In 1900 Dublin probably had the best public transport system of our four cities. It had several suburban railway lines and a newly electrified tram system covering the inner city area. While much of this was built within an existing city, Helsinki had grown on the basis of its tram and above all its railway lines. Although the population of Athens by this stage was three times larger than that of Helsinki (300,000 as opposed to 100,000) it, like Bologna, had only very rudimentary public transport. In Athens this can be explained simply in terms of wealth, in Bologna in terms of size.

The inter-war period established the conditions for Dublin's subsequent transport decline – and Helsinki's subsequent success. During the 1920s the private company that owned the Dublin tram system replaced trams with buses and was able to ensure government legislation to give it a monopoly status. By contrast, the Helsinki tram system continued to be expanded in the inter-war period, even though buses were already also being used. While it is clear that in the Dublin case this change-over was the result of the profit-maximising strategy of the private owners, it is not completely clear why the municipally owned tram company in Helsinki continued to expand. Certainly the contrast supports Yago's claim that the private ownership of American urban transit helped to ensure that it was destroyed so much quicker than was the case in Europe, where public ownership was the norm (Yago, 1984).

During this period the population of Athens continued to grow, reaching about one million by 1939. This increase was the result both of continued internal migration and the sudden influx of refugees from Asia Minor in 1922. The city now was growing without any adequate transport infrastructure, in particular, it lacked any usable suburban rail system. The implications for the future were serious, for it meant that any rail-based infrastructure would have to be built within an already heavily built up area. In other words, Athens' lack of a *legacy system* would foreclose options in the future; it entered the post war period with only buses, trolley buses and one very short metro line.

During the 1960s in all four cities journeys by car begin to replace those on public transport. At the same time, increased car ownership expanded the number of journeys undertaken. Two dramatic responses to this occurred in Helsinki and Bologna.

The city government of Helsinki put forward a plan to redesign the city in the interests of car transportation (the Smith-Polvinen plan), proposing urban motorways and a quadrupling of parking spaces in the city centre. This created considerable public debate in which ultimately led to the decision to build the metro and a new consensus in favour of restraining the use of the car at least in the city centre.

In Bologna the apparently unceasing rise of the car (by the 1960s the Piazza Maggiore was used as a car park) threatened to completely swamp the city. The

[21] Report on Bologna in *Report on Workpackage 2.1, The Car System in the City.*

Bologna city administration began work on its radical traffic plan in 1972. The plan, finally accepted in 1974, was probably the most radical transport policy in Europe – its prioritisation of public transport even included free fares for rush-hour journeys (Jaeggi et al, 1977).

By contrast, road-building continued in Athens and Dublin, delayed sometimes by bureaucratic inertia but never by any alternative policy or vision. The early 1970s therefore is a historic turning point: in Bologna and Helsinki a new political consensus is created which accepts limiting the private car as a policy objective.

The new policy in favour of public transport was originally very controversial. In both Helsinki and Bologna the political parties divided on left-right lines. In Bologna the plan to promote public transport was a policy of the Italian Communist Party (PCI) which met opposition from right wing parties; in Helsinki the Social Democratic party's plan for a new metro was its most controversial decision of the period. However, this new policy direction did not remain controversial. In both cities in subsequent years most political parties and many business enterprises and organisations came to accept a greater role for public transport and restrictions on private cars.

The new direction was also undoubtedly facilitated by political and administrative structures. Unlike in Athens or Dublin, the city government in both Bologna and Helsinki already had the political authority to restrain private cars, to promote public transport and – in Helsinki – even to fund major infra-structural projects. In Bologna one political precondition for the new policy was clearly the Italian regional reforms of 1970 (Apel and Pharaoh, 1995; for details of the reforms see Allum, 1995: 438; Putnam, 1993: 17).

From the 1970s then Helsinki and Bologna embark on a new direction. Even though not all innovations succeed, and many others do not even gain political support, a learning process for both citizens and government is initiated. City government learns that policies can create changes, citizens learn that there are other ways of achieving mobility than only the private car. By contrast, in Athens and Dublin local government 'learns' defeat and the citizens 'learn' that there is no realistic alternative to the car.

3.3.3. Settlement and population

In the post World War II period both Dublin and Athens have held the title of the 'fastest growing city in Europe'. Athens grew rapidly in the 1950s and 1960s; between 1961 and 1981 the population of the GAA grew by fully 64%, although the pace of growth has slowed since. During the 1970s the population of Dublin grew by 15%, reportedly the highest growth rate for any European metropolitan area.

In Dublin the decline of the inner city population dates from as early as 1936 and this accelerated from the 1960s. By 1961 the population of the inner suburbs was also beginning to fall. New housing, whether provided by the state or private enterprise, was almost exclusively in the form of 'housing estates' of detached or semi-detached houses with their own front and back gardens; the few attempts to create tower blocks rapidly became notorious urban slums and were not repeated. Of all four cities, Dublin is the most socially segregated: different social groups live in clearly defined areas and this is particularly true for post World War II housing developments.

In all four cities the process of suburbanisation soon involved not just housing but employment and retail activities. In Dublin the first suburban shopping centres were built in the 1960s and are now being followed by larger scale developments in the outer suburbs. Industrial employment started to move from the centre in the 1970s and this was followed from the 1980s by service sector employment (in particular business services) with the development of suburban 'office parks'; Helsinki (metropolitan area) has a similar population density to Dublin and much middle class housing in particular is built at low densities. However, unlike in Dublin virtually all low income housing is well served by public transport. Furthermore, with the exception of the city of Espoo employment and retail developments within the metropolitan area are all concentrated on public transport nodes; all hospitals are well served by bus and tram.

In Athens from the 1960s onwards many businesses re-located from the central area to the two main avenues which connect the centre to the northern and southern suburbs, although as in all the other cities, the main financial and administrative institutions remained in the city centre. However, the key feature of Athens is the combination of very rapid population growth and high density housing even in the suburbs. The physical area of the city has grown more because of the growth in population than because of falling density. At the other extreme, the physical area of Bologna has grown almost entirely because of suburbanisation with the total population of the city as a whole now falling. Housing and then employment moved rapidly in the 1960s and the 1970s to the new suburbs. The historic centre remains larger (relative to the suburbs) than in the other cities. The city centre (centro storico) has been protected but at the cost of becoming disconnected from the rest of the city. Here employment is overwhelmingly in the service sector, largely in administration and personal services (especially hotels and restaurants).[22] The 'monumentalist' city centre has become somewhere that is visited and passed through – whether on a daily basis (commuters), a holiday basis (tourists) or a life-cycle basis (students living temporarily in the city).

In all four cities however we can also find some tendencies towards 'reurbanisation': a return of the population to the central city. This process seems particularly clear in Dublin, where within the last ten years the population of the inner city has begun to rise for the first time since 1926. In Athens and Bologna there are signs that housing in the city centre is again becoming desirable, while in Helsinki the city centre never lost its appeal as a place to live. This re-urbanisation is often linked to 'yuppies' (young high earning professionals), but it seems to be a broader process, involving a wide range of income groups. Finally, re-urbanisation involves only a small part of the city's population. In different ways, these cities have all become for the overwhelming majority of their inhabitants, *suburban* cities.

3.3.4. Urban planning

In Athens legislation from 1983 and 1985 imposes on local authorities the obligation to draw up 'urban plans', but in practice growth in Athens has been unregulated and

[22] Although the urban renewal policy of the PCI in the 1970s aimed to combine architectural restoration with the maintenance of artisanal employment in the city centre (Jaeggi et al, 1977).

unplanned. The key feature of Athens' local government therefore is its lack of 'capacity' (Evans et al, 1985) or ability to act. There is only a very limited relationship between legislation and what actually happens 'on the ground'. Furthermore, to the extent that any policy does get implemented, this depends on central government for both conception and execution.

Urban planning in Dublin shows many similar features. While formally there now is a Dublin regional authority, it has no real powers and planning functions within the metropolitan area depend on four different authorities. In this framework, planning is continually adjusted by various political deals[23] so that in practice planning is replaced by what our Dublin report terms 'developer-led development'. Whereas in Athens plans are simply ignored, in Dublin they are subverted. In both cases however the physical structure of the city has been determined largely by individual private interests. Equally, Dublin's formal planning procedures allow for extensive participation, but the reality is public apathy.

Our other two cities provide a clear contrast. In Helsinki although there was some competition between the component municipalities in the 1960s, overall planning authority has been successfully exerted since the 1970s. A metropolitan area Council provides a framework for greater Helsinki, but real power remains at the municipal level. However, unlike in Dublin, Helsinki City Council has enough financial independence and legislative authority to provide local government with high 'capacity'. Similarly, the Bologna City Council is able to exercise effective planning control over the city as a whole. Effectiveness goes hand-in-hand with democratic participation. Since the elected authorities are actually able to make decisions, political participation has some relevance for the citizens.

3.3.5. Transport planning

Reducing dependence on the motor car would involve not also travelling by public transport instead of by car, but also reducing the very need for travel within the city. This is very difficult, since the long-term trend in almost all European cities is in the opposite direction: towards greater use of the car for specific journeys, and towards more journeys in total.

Since reducing car dependence involves reducing the amount of travelling people have to undertake, transport planning has to involve questions of accessibility as well as of mobility. Policies to reduce car dependence therefore range from penalising car usage (by parking controls etc.), through providing effective public transport to strategic land use planning. This section therefore discusses to what extent the four cities committed to reducing car dependency as a whole, and what specific policies are in place that may reduce car dependency?

Transport planning in both Helsinki and Bologna does aim to reduce car traffic in the city centre (Kantakaupunki, Centro Storico). In Bologna this has involved extensive pedestrianisation and drastic limits on car access to the entire area within the city walls. Although overt controls are less drastic in Helsinki, the same is achieved by continually reducing both on and off street parking. At the same time in both cities public transport within the central area has been improved. This is

[23] Since the report was written it is has become clear that this has included several cases of actual bribery.

especially so in Helsinki where the bus and in particular the tram system provide a dense grid of connections within Kantakaupunki; in Bologna mobility within the centro storico itself involves walking and the sophisticated bus system. In terms of pushing down the level of car usage within the city centre, both cities have been successful.

Although Dublin and Athens are finally enhancing their public transport systems, neither of them have made achieved any serious reduction of car usage within the city centre. While in Dublin there is now a serious attempt to end illegal parking, this is combined with increased provision of (largely privately owned) car parking spaces within the city centre. In Athens illegal parking is still the norm everywhere. In Athens when pollution safety levels are exceeded only cars with either odd or even numbered licenses may enter the central area, but increased car ownership means that car numbers in the city centre continue to rise. In other words, both cities do not have effective policies to reduce car usage within the city centre, although in Dublin there are policies that control it.

The second policy area to examine is the modal mix on the journey to work from suburb to city centre. This is the classic 'fordist' journey and the one most easily targeted by better public transport provision. At the moment Bologna and Helsinki have far higher levels of public transport usage for the journey to work than Athens and Dublin. Clearly this is the result of the stick of penalising car usage in the city centre and the carrot of an efficient and attractive public transport system. As we have seen, both features do not exist in either Dublin or Athens.

In terms of future plans, all the cities plan to increase the use of public transport for the journey to work from suburb to city centre. In Athens and Dublin this is a clear change from earlier policies. Here in fact Bologna is the exception, because to date it has relied entirely on the bus system (although a tramway system is under discussion) for this form of commuting. In Athens extensions to the metro are already under construction which will add two new lines with 21 new stations. In Dublin planning is far advanced for a light rail system (the 'Luas') including a central underground section. In Helsinki the metro has recently been extended and there are plans under discussion to extend it further. This focus on rail systems is consistent with international research (Kenworthy et al, 1997), which shows that only investment in rail, in particular heavy rail, can really create a modal shift on the journey to work.

Yet everywhere these 'fordist' journeys are becoming less important as a proportion of total journeys. Firstly, as we have seen, in all the cities both manufacturing and service sector employment is growing in the suburbs. Secondly, as part-time and weekend employment increases, journeys to and from work increasingly occur outside of the normal peaks[24]. Thirdly, there are more and more 'leisure' journeys related to changes in consumption, life style and household structure.[25] The key questions become the extent to which the road system encourages non-radial and suburb-to-suburb journeys, the extent to which land planning concentrates activities either in walking distance or at transport nodes, and

[24] This issue has not been discussed in any of the city reports. Part-time working has long been important in Helsinki and is rapidly growing in Dublin.

[25] Again these topics were not covered in the city reports.

the extent to which public transport facilitates non-radial mobility. In these terms Helsinki is notable for its relatively effective land use planning which does concentrate development at transport nodes and for beginning to tackle the question of radial public transport (bus service along the motorway 'Ring' roads around the city). In Dublin and Athens there are also some local bus services which facilitate journeys within the suburban areas.

3.4. Conclusion: technological trajectories and switching points

The next stage of the research was a systematic analysis of key car system decisions in each of our case study cities. The purpose is to explain some of the differences this initial statistical and historical analysis has located. Already however some points are clear. Cities such as Bologna and Helsinki have low levels of private car use for the journey to work and as such appear relatively low in terms of car dependency. This has been achieved by public policies which constrain car usage, in particular in the city centre (pedestrianisation, limited access for private cars, very strong parking restrictions) and at the same time provide effective public transport. Helsinki has a grid-shaped tramway network in the city centre, a metro and effective suburban rail; Bologna has a very high quality bus service and suburban rail. Both cities have integrated public transport systems which are easy to use and easy to understand. Both cities articulate the car system and public transport in ways that often prioritise public transport, at least in the city centre. Both cities, but particularly Helsinki, integrate land use planning and transport planning. In Helsinki planning restricts the number of off street parking places that can be provided by development in the city centre; outside of the city centre new shopping and employment facilities are pushed towards public transport nodes.

Athens and increasingly Dublin are notorious for their traffic congestion. They both have high levels of private car usage, but particularly in Dublin traffic restraint is very limited and haphazard. They both have ineffective, uncoordinated and underfunded public transport systems which ensure that people must use private cars in order to get to work - however difficult and frustrating that may be. Thus Chart 3.3 shows that Dublin and Athens have the highest proportions of private journey to work of all 15 European cities in the sample, and this despite their very different population densities. In Dublin land use policy interwoven with massive land speculation has allowed the development of new housing, employment and shopping centres inaccessible by public transport. Dublin's low density (highlighted in Chart 3.3) is the result of political decisions rather than some autonomous geographical factor.

In Dublin changes in the car system focus on putting intelligence into the road network (electronic parking information, computer controlled traffic lights). Such traffic management de facto increases the network capacity, thus generating more traffic in exactly the same way as would building new roads. And indeed, whereas Helsinki and Bologna have long since stopped building roads in the city centre, Dublin is still adding substantially to its already high road length[26].

The sociology of technology suggests that technological development proceeds along trajectories which once entered are relatively difficult to change. This argument

[26] See *Report on Workpackage 1.2*, Chart 12; *Report on Workpackage 2.1*, Dublin report.

can be applied to the car system within different cities. Moving Dublin and Athens towards more environmentally sustainable forms of mobility is difficult because the existing car system has become built into each city in a particular form: the car system is aligned with and partly the result of, specific forms of public transport and specific forms of urban land planning. The car system is embedded in the physical fabric and the social interaction of each city. It is therefore plausible that the differences which we have located between the cities will continue into the future.

Chapter 4 Making car decisions

James Wickham and Elena Battaglini

The previous chapter showed how the car systems of different cities have developed along different trajectories. By itself this indicates the importance of socio-political *choice*, and challenges the simplistic assumption that all European cities are doomed to ever rising levels of car usage and indeed of car dependency. The next stage of our project investigated how these differences occur. Whereas the previous chapter discussed the results of political decisions, this chapter opens up the process of decision-making to analysis.[27]

In particular, this stage of the research was designed to evaluate our initial hypotheses that decisions that cause greater car dependency tend to be the result of distinctive *forms* of decision-making. Extremes of car dependency, so we argued in our original proposal, are the result of extensive suburbanisation, but also of 'weak urban citizenship and an ineffective system of urban governance'. We further hypothesised that:

- traditional left/right political divisions will have little impact
- car dependent cities have a very narrow political agenda (i.e. major planning options are not debated)
- decisions that extend car dependency are dominated by business pressure groups and engineering professionals.

The research proceeded by case studies of what we termed 'car decisions': decisions that increased car usage in the specific city: the creation of out-of-town shopping centres in Bologna and Dublin, as well as the construction of a city centre car park in Athens and the decision not to build a metro extension to Helsinki's most car dependent suburb. In each city these were contrasted with decisions which should reduce car dependency through expanding rail-based public transport: metro extensions in Athens and Helsinki, light rail systems in Bologna and Dublin[28]. The defining issue here was to find decisions which had clear effects on car usage per se – and following the arguments of Chapter 1, we assumed that to reduce car usage was to contribute to environmental sustainability. However, we also made some attempt to evaluate each case in terms of its impact on social inclusion and social cohesion as defined in Chapter 1.

These three aspects are conceptually distinct. Although it is plausible that in general they vary together, the extent to which this occurs is an empirical issue – one

[27] Full details of the case studies are contained in the workpackge report (*Report on Workpackage 2.2, Political Sociology of the Car System)* available on the project website; the detailed methodology is discussed in the team briefing document (submitted to the Commission in August 1999) *Report on Workpackage 2.0, Political sociology of car system – methodology* and summarised in Appendix 4 of this report.

[28] The Italian team also carried out a study of the Bologna car parking plan, which cannot be categorised unambiguously in either category.

cannot be 'read off' from another.[29] For example, a new high quality public transport system linking affluent housing areas to the city centre will reduce car dependency (people **can** now travel without using cars) and probably car usage (people **do** use cars less). It therefore potentially makes a major contribution to environmental sustainability. However, given the areas which it serves, the system does little to facilitate poorer citizens' movement around their city and so does little or nothing to reduce social exclusion. Again, metro systems are effective at moving large numbers of people but, because they create 'dead space' below ground make little contribution to social cohesion as compared to tram systems.

The chapter begins by outlining the case study decisions, focusing in particular on their consequences for car usage, social inclusion and social cohesion. The main section analyses the actors involved in these decisions in each city. Is it the case, as we originally assumed, that particular types of actors dominate decision making processes that lead to particular outcomes? In particular, are decisions that enhance car dependency dominated by particular groups of actors? At its simplest, are such decisions dominated by business pressure groups and engineering professionals? The final section of the chapter examines the forms of decision-making. Do decisions that exacerbate car dependency involve a particular relationship between the actors? At its simplest, are such decisions made in ways that are less transparent and less accountable than more environmentally friendly decisions?

4.1. The case study decisions

Athens metro extension project

The Athens underground is one of the most significant infrastructural interventions underway in Athens. The underground is generally considered a sustainable transport mode even if by itself it can hardly solve the problem of deep-rooted car dependency. When the field work was carried (1999) approximately 80% of the entire project had been completed. The construction of the 18km underground network is intended to reduce the serious traffic problem in Athens, yet it is in fact a rather limited intervention. Not only does it ignore most of the city, but even more importantly, there is no real integration with the rest of the public transport network. Given the chaotic traffic that affects the whole city, the construction of the underground is therefore only a very limited step towards greater sustainability. It should also be mentioned that an environmental impact study of the project was only carried out after the work had been started. With respect to social exclusion, perhaps the most important innovation in terms of the situation in Athens is merely that the stations are constructed to enable ease of access for the disabled.

Athens historic centre underground car park (Kotzia Square)

The decision to construct a car park in the historic centre of Athens represents one of the most important decisions to be taken on the issue of transport since the 1950s when the main roads of the city were constructed. The decision was taken in conjunction with the Municipality of Athens, the Ministry of the Environment, Physical Planning and Public Works. This project is considered important because of the central position of Kotzia Square. The construction of the car park encourages the

[29] Like earlier forms of mass transport, the car has been seen for much of this century as inherently democratic.

already widespread habit of using the car. The presence of the car park makes the area more accessible especially for those who want to go to the numerous shops located in the area. Since it will therefore generate more traffic, the car park is not a solution to the traffic problem and can must be considered to have a negative impact on environmental sustainability. However, taken by itself the new car park probably has little or no impact on either social inclusion or social cohesion.

Bologna parking plan

The Parking Plan contains a series of interventions aimed at regulating car traffic and car parking. The plan foresees the introduction of paid parking as well as the construction of new car parks. One of these, a multi-storey car park located near the Piazzola street market, has created much public controversy. These decisions stem from the Urban Traffic Plan which in Italy every city council above a certain size has to develop and implement. The promptness with which the national measure was applied by the city of Bologna indicates how the city has always been particularly alert to the traffic issue. Indeed, there was already a local debate on the problem of car traffic. Yet paradoxically the regulation of parking, especially regarding the creation of new car parks, has ended up stimulating private transport. Therefore, not all of the initiatives within the Parking Plan make a significant contribution to environmental sustainability. Furthermore, since the increase in the number of cars reduces the level of urban accessibility, and since at the same time public transport becomes a residual mode in relation to private transport, the Parking Plan arguably exacerbates social exclusion. Indeed, the Parking Plan does not take into consideration the issue of social exclusion. While it does conceptualise environmental sustainability as a reduction in the usage of private transport, most of its interventions to achieve this are focused on the historic city centre where the traffic problem is universally perceived to be an urgent issue.

Bologna tramline project

At the same time as the initiatives to regulate parking, Bologna delved back into its past by planning to restore its tramline network as a competitive alternative to the car. In the 1960s the old tramline network was demolished in the wave of enthusiasm that went with economic growth and the belief that social inclusion meant that everyone from whatever social class had a right to own and use their own car. The restoration of the tramline network will take many years and is intended to create a high speed and technologically advanced network that will be able to compete with the car. The tram project will cover the city centre and the North/North East of the city. Since it aims to enhance the liveability of the city centre, the Bologna tramline objectives include both environmental improvement (reduction of pollution, noise, etc.) and also strengthening social inclusion and social cohesion.

Bologna shopping mall

The construction of the new shopping mall at Cataneso outside Bologna is part of process of suburbanisation of historic Italian cities that is completely at variance with the more high profile and traditional focus of Italian planning on the maintenance and regeneration of the *centro storico* of each city. Our report makes clear that the shopping mall occurred almost 'naturally'. with little political controversy. At the same time, it is clear that the shopping mall massively contributes to environmental degradation by encouraging car usage: interwoven with the motorway system, the

shopping centre consolidates car-centred ways of life (compare Liffey Valley shopping centre in Ireland). The shopping centre can effectively only be reached by car and so is unusable by those who do not own cars. It therefore furthers social exclusion. Serving a wide catchment area, it undermines more localised shopping facilities and so undermines social cohesion, despite the owners' rather ineffective gestures (e.g. a bookshop) towards the creation of more genuinely public and cultural facilities in the centre.

Dublin light rail ('Luas')

The decision to proceed with this project should reduce car dependency by providing improved access to the city centre for commuting, shopping and recreation. However Luas itself remains radial and does not in itself provide a public transport *network* (grid system) that is more appropriate to mobility in 'post fordist' cities.[30] In Dublin there has been much controversy over whether the route should be overground or underground in the city centre. Finally the latter option was 'bundled' with the decision to proceed with a line linking an area of high unemployment and marginality (Ballymun) to the city centre. The underground option therefore reduces social exclusion, because it benefits the transport poor. However, it makes a lower contribution to environmental sustainability, because it does not reduce car traffic so much in the city centre. Furthermore, the underground option creates 'dead' spaces within the city, whereas the overground 'on street' option would have contributed to social cohesion.

Dublin Liffey Valley shopping centre

This large out of town shopping at a motorway junction substantially increases car dependency in Dublin. Furthermore, the location of the centre has been one factor in changing the role of the motorway ring road and ensuring the suburbanisation of Dublin. Originally planned as a way in which motor traffic could by pass the city, even before it has been completed the motorway has become a means of mobility within an expanded and now **suburbanised** city. At the same time Liffey Valley increases social exclusion because shopping facilities are located further away from the transport poor. Any employment it generates is probably at the cost of city centre employment and difficult to reach for those without private cars. It could also be argued that the creation of such privately owned 'public' space only accessible to the motorised citizen also undermines social cohesion.

Helsinki metro extension eastwards

The extension of the metro reduces car dependency by developing Helsinki as a 'city on rails'. The decision appears to be driven not so much by the desire to reduce a particular form of car journey (above all commuting) but by the desire to ensure that even inhabitants of relatively outlying areas of the city have access to the city's

[30] Since completion of the fieldwork the Irish government has announced a major urban rail plan for Dublin. This includes a metro system and extensions of the existing suburban rail lines, as well as upgrading sections of the Luas to metro standard. If completed, this will provide an integrated rail-based public transport system which explicitly would be a 'grid' network (see Dublin Transport Office, 2000). However, it must be noted that at the time of writing (summer 2002) the Luas remains the only section of these ambitious plans actually under construction.

facilities. It is therefore partly a pre-emptive strike against growing car dependency, facilitating more but different forms of mobility. Because the area concerned (Vantaa) is not very affluent, the metro extension clearly contributes to reducing social exclusion, quite apart from any argument that, at least within urban areas, public transport is inherently more egalitarian than private cars. Scoring high on environmental, social inclusion and social cohesion dimensions, the metro extension is the 'best practice' decision within our case studies.

Helsinki metro extension westwards

The decision in Helsinki not to proceed with the metro extension westwards to the suburb of Espoo is clearly negative in terms of reducing car dependency (although it should be noted that some 'Green' groups opposed this metro plan, believing that only a tram would be appropriate). The decision leaves Espoo as the only area of the Helsinki Region not connected to the urban rail network. It thus ensures that these citizens must satisfy their mobility needs with the private car. At the same time, and particularly because it is a 'negative' decision (i.e. not to proceed with a particular course of action), it does not have a major impact on social exclusion.

4.2. The actors and their orientations

The first stage of the case study analysis was to identify the different actors involved in each decision making process and to characterise the roles they played. Comparing the decisions in these terms identifies some key differences between the cities.

Chapter 3 has already made clear that one key difference between our worst practice cities (Athens and Dublin) and our best practice cities (Bologna and Helsinki) lies in the fact that the latter have relatively powerful local (city level) governments which are in turn embedded in effective regional governments. What do the case studies of specific decisions contribute to this general argument?

Chart 4.1 sketches the main actors involved in the decisions. The decisive feature is the relative lack of central government involvement in the most 'successful' project, namely the Helsinki metro extension.. In Helsinki the role of the national Ministry of Traffic in the eastern metro extension was limited to that of gatekeeper: it decided whether or not to provide funds, but did not initiate the project. This gatekeeper role of the Finnish national Ministry of Transport was even more important in the western extension. Indeed, the Finnish report tentatively suggests that the Ministry's generally pro-road policy may have been important and that the Ministry may have also acted as opponent of the project. However, it is clear that national government and national political parties were not involved to the same extent as in Dublin.

In Dublin several different government departments played a major role and the major decisions were made by national government (whether to proceed with the project and what form the project should take). In Dublin central government was both promoter, mediator and gatekeeper of the Luas project. Conversely, city government played an important role in Helsinki. The city government was the main promoter of both projects. Also it is important to notice that the main (and ultimately successful) opposition to the western metro extension came from the city of Espoo. In latter case, as the report makes clear, the two main protagonists, i.e. the 'promoter' and the 'opponent', both are local (city) governments. By contrast in Dublin city government has no say in the final decision and furthermore, hardly any role even as 'filter' let alone as 'proponent'.

Even in Bologna, local government played a crucial role all transport and mobility decisions. Bologna's image as an efficient city has been consolidated over the past decades both within Bologna and throughout Italy as a whole. This is mainly derived from the city's capacity for effective local administration despite the notorious inefficiencies of national government. It is the local administration that boasts a long tradition of reflection and intervention in social participation and the creation of a city that is accessible to everybody.

The contrast between local and national administration is emphasised in the case of the tram project where a prominent role is played by technical experts and the innovative technology of the project itself. In this case, given that it is a project that can obtain funding from the EU, one of the main obstacles for its completion has been the complex national bureaucracy. As the chart shows, EU funds have also been important in Dublin and Athens.

Although Athens is a much bigger city than either Bologna or Helsinki, here the central national government is decisive, especially in relation to the metro extension project. The decision to extend the underground derives largely from the fact that Athens is hosting the 2004 Olympics and that substantial European funding was available. Central government plays the main role in deciding public transport policies and this is particularly the case for the metro project. The overlapping responsibilities of the various national and local authorities make it difficult to implement an integrated transport system. In the case of the underground car park an important role was played by the Athens Traders' Association, who directly supported the project since they believed it could bring about a revival of the historic city centre.

Finally, both the Dublin and Bologna shopping centres show how an effective transport policy requires an effective metropolitan area authority. In both cases local authorities were competing with each other for taxable resources: the promoters were able to play them off against each other and push through a development which undermined metropolitan level planning policy.

Chart 4.1. The actors in the case studies

	Athens		**Bologna**		
Actor	Athens Metro	Underground Car-Park	Tramway	Parking Plan	Shopping Centre
EU	Active (funds)	Background only	Active (funds)	Background only	No
Central Government	Two different departments	Two different departments	Active	Active	No
Local govt. (city)	Limited	Substantial	Active	Substantial	Substantial
Local govt.: other areas	Limited	No	Limited	Limited	Substantial
Transport professionals	Yes	Marginal	Yes	Yes	No
Business organisations	Limited	Substantial	Different organisations different views	Directly and explicitly opposed by most business organisation	Limited
Individual businesses	Massively involved	Massively involved	No	Yes (shop owners)	Yes (Coop Adriatica)
Citizen groups	Limited	Limited	Yes	Yes	No
Technology	New metro technology	Cars	New trams	Cars/roads/ electronic control system	local motorway
Events	Olympic Games	Olympic Games	PUT (national legislation)	PUT (national legislation)	none

Chart 4.1 (continued)

	Dublin		**Helsinki**	
Actor	Luas	Liffey Valley	Metro East	Metro West
EU	Structural funds	none	none	none
Central government	very active, several departments	Department of Environment	Transport Ministry (limited)	Transport Ministry (substantial)
Local govt (city)	limited	limited	substantial	substantial
Local govt: other areas	limited	substantial	very limited	yes Espoo
Transport professionals	yes	no	yes	yes
Business organisations	conflicting views	opposed by some organisations	absent	absent
Individual businesses	no	yes massively	yes supportive	absent
Citizen groups	yes	no	yes	yes (some opposed)
Technology	cars on the street	M50 motorway	metro 'the city on rails'	metro and car
Events	none	none	none	none

Transport professionals

One of our original hypotheses was that 'engineering professionals' would dominate pro-car decisions. The Finnish report suggests that this is not the case, pointing out that the transport planners in the Helsinki region were involved and united in support of both metro projects. And in Dublin too, such professionals supported the Luas project but do not figure in the list of actors for Liffey Valley.

The role of engineers is quite important in two of the Bologna cases: the environmentally sustainable tramway and the more ambiguous Parking Plan. In Bologna technology seems to be perceived as a synonym of efficiency; there is also still a strong belief in the value of integrated planning, even if the results do not always accord with the initial objectives. The implementation of the parking control plan involved close liaison between the city government and the local transport authority which was responsible for running the paid parking areas. The role of technical experts in Bologna is demonstrated by the close link with the University which is involved in the tramline project and in the planning and implementation of the electronic traffic control system (Sirio). This link in Bologna between the local administration and the academic world in local mobility policies and planning is not new but is part of a network that has developed in the city since the 1970s. By contrast, in Bologna transport professionals played no role in the shopping centre decision.

As regards Athens, the equation between advanced technology and efficiency is not as central. Here no conception of integrated planning has emerged. Instead, separate initiatives are planned and implemented in isolation from each other. The absence of any integrated approach to mobility planning and to transport accentuates the negative impact of any intervention such as the underground car park or the metro

extension project. For example, supporting measures for the metro (such as building car parks near the main stations, connections with the suburban railway network, changes to the bus routes, etc.) would have increased the impact of the underground network and made a bigger contribution to reducing the traffic problem.

However, 'transport planners' are hardly only the professionals involved in transport. In particular, large numbers of professional civil engineers are involved in the planning and construction of the road system. In retrospect a major problem of this stage of the research was that decisions to construct the actual roads, i.e. the very core of the car system, has again eluded our analysis. A sign perhaps of how deeply embedded this technology remains!

Business organisations

Business organisations seem not to have been involved in either of the Helsinki decisions, but were more active in the Dublin case studies. It is important to notice that here the 'line-up' was not straightforward. In terms of the light rail decision, the two different business associations took opposing stances as to whether the line should be built underground. Similarly, Liffey Valley was opposed by several small business associations. Environmentally damaging decisions are not necessarily the result of business pressure. However, it is probably significant that in the Dublin case business lobby groups do seem to play a larger and more overt role in transport decisions.

In Athens business organisations do not seem to have played a major role in either decision. Instead what matters is the relationship between the national government, as the key decision-maker, and individual companies which were directly involved in developing the projects. Thus the metro extension project was initiated in 1991. Shortly afterwards the funding plan was approved and within the same month the Ministry for the Environment, Physical Planning and Public Works transferred the supervision of the project over to a new private company Attiko Metro S.A. In other words, it was necessary to create a new company to manage the new metro and also to maintain a distinction between the functions of, on the one hand, the Ministry for the Environment, Physical Planning and Public Works and, on the other hand, those of the Ministry for Transport and Telecommunications. There has been criticism of the lack of transparency in the arrangements by which this company was entrusted with the contract. Rather similar issues arises in the construction of the underground car park where the private company Mechaniki S.A. is responsible for the execution of the project on a self-funding basis and has been given the right to run the car park for a period of 30 years. Arguably in this case the central government has facilitated a private company which is undermining the local council administration.

Business organisations seem to have a marginal role in the decision-making process in Bologna, although the many decisions of the local government often cause friction with the citizens. The main opponents of the car parking controls and the construction of the new car parks are the organisations of small shopkeepers and the local employer associations. The most controversial case is without a doubt represented by the Piazzola market vendors. They object to part of their traditional working space being taken over to make way for a multi-storey car park. On the other hand it can be assumed that construction companies will be very interested in participating in these projects. There has however been some controversy over the

lack of transparency regarding the allocation of some contracts, especially those for the management of the car parks.

Individual business enterprises

Of necessity these played a major role in the creation of the Liffey Valley shopping centre. Several property developers were the major beneficiaries of a planning decision which will have extremely negative consequences for sustainable development in Dublin. Interestingly in the transport cases individual enterprises do not seem to have played a role in Dublin, but in Helsinki the active support of one property firm was crucial to the success of the metro extension project.

Citizens' groups

They were active in both the Helsinki cases and in the Dublin Luas project, but not in the Dublin Liffey Valley decision. In Helsinki some citizen groups were actively opposed to the western metro extension. In Athens, citizens' organisations seem to have played a very limited role although it should be noticed that both projects seemed to have been based on a broad political consensus. Parking controls are at the forefront of public debate in Bologna which has involved a large section of the population. Spontaneous citizen groups are often formed to oppose the disruption created by construction sites. These same groups also protest both against the decline in the quality of life due to the increase in motor traffic and against the 'strict' controls on traffic. In Bologna citizens still play an active if marginal in the decision-making processes of local government; citizens' influence can lead to changes being made to the original plan. At the same time these citizens' initiatives are usually very fragmented and only concerned with issues that involve the immediate neighbourhood.

Political parties

In none of the case studies was the decision a straightforward left/right issue. Indeed it is striking that political parties do not emerge as major actors in these decision-making processes at all. The only substantial involvement of political parties occurred in Helsinki, where there was an 'old style' left/right division over the financing of the Helsinki eastern metro extension. However, this was an issue that involved primarily national level government policy and had little direct involvement of city level parties.

Technologies

Following Actor Network Theory, the list of 'actors' includes specific transport technologies and artefacts. Thus Chapter 3 has already suggested that the existence of 'legacy systems' is important for developing environmentally sustainable urban mobility. In Helsinki the city has become entwined with its metro and suburban rail system. As our report says, Helsinki is a 'city on rails'[31]. Rails also make Helsinki a 'schematic city', a city which its inhabitants partly understand in terms of the map of its railway links. Although Dublin has suburban railways, some recently upgraded, they do not form a system, they certainly do not structure the city. In Dublin the key technology is the M50 motorway ring, which even as it was being built created the opportunity for the Liffey Valley shopping centre and hence the further suburbanisation of the city.

[31] *Report on Workpackage 2.2, Political Sociology of the Car System,* p.87.

In the Bologna case studies technology is also an 'actor' in its own right. In fact one specific technology (electronic car parking monitoring) is considered essential to achieve the objectives of the PUT and to make the city more user-friendly.

In the tram project the choice of technology is fundamental. The original decision of the 1960s to dismantle the tramway in the city centre was also based on assumptions of the technology's consequences: given the high rate of growth in the number of cars in circulation, the tramlines were dismantled to facilitate the traffic flow.

In the tram restoration project, advanced technology is being used to create an efficient and fast service that can compete with the car. At the same time, the technology is also important for the creation of a service with a low environmental impact, even in terms of noise pollution. It is potentially competitive and efficient because it can provide a regular service with a higher capacity (because of its larger carriages) than either bus or trolley bus. An additional advantage of the tramline is its intersection with the light metropolitan railway and other bus lines. It is a project that focuses on mobility from the outskirts to the centre of Bologna. The project also hopes to attract new users to public transport users, especially the white collar workers who have been deserting public transport considerably in recent years. In Bologna 'technology' appears as a synonym for modernisation and efficiency. And Bologna's image is precisely as a 'modern' and 'efficient' city. The recourse to advanced and often sophisticated technologies appears as a necessary requirement (although we should add that it is not enough) to keep in line with the European situation.

Actors and orientations

Our research aimed to locate not only the main actors, but also their orientations, particularly in regard to questions of sustainability and social exclusion. Here the studies show that similar actors vary in terms of the positions they adopt and the roles they play. Thus in Dublin, some individual companies were the key proponents of the Liffey Valley project, our most negative case in terms of car dependency. At the same time however, in Helsinki the 'filter' role of at least one property company was crucial in the success of the eastern metro extension. The problem in Dublin is not so much that property developers are important, but that the system as whole creates so many business opportunities for them which have negative environmental consequences[32].

The same argument applies to technologies as actants. There is clearly some variation in the environmental consequences of similar technologies. Thus in Dublin the move to put the Luas underground becomes part of a relatively negative environmental package, while in Helsinki the overground tram is part of the opposition in Espoo to the underground – and environmentally sustainable – metro. As the final section of this chapter will argue, the key question is not so much the individual actor, but the coalition within which it is incorporated.

[32] Paradoxically, Dublin's claim to European fame rests on the town planning and architecture of 18th. century Georgian Dublin – an entirely 'speculative' development by private builders of the period!

Two of the cities raise interesting points about the way in which actors now understand their roles. In Bologna an established political tradition combines the notions of efficiency and political participation: everyone believes that they can be decision-makers. However, in the past this was based on a certain homogeneity characteristic of an industrial city. Today there appears to be a growing individualisation and fragmentation, so that when citizens defend their interests this is less likely to lead to any generalisable policy for the city as a whole. At first sight Athens appears as a contrasting development, since the construction of the new metro has led to greater political participation. There has been an extensive information campaign about the implementation of the project which also enjoys support from almost all social actors. Doubts about how sustainable this change is go beyond the simple fact that the construction work has caused much disruption and dissatisfaction in the city. The project itself has only happened because of the 2004 Olympic Games and the availability of EU funds. Although only the future will tell, at the moment it seems that that the metro will remain an isolated and once-off innovation.

The missing actors

The methodology used in the research precluded examining those interests which may set the agenda for decision-making but not be directly involved. Consequently no case study examined in any detail the political role of the construction industry, which is after all the immediate financial beneficiary of any road building programme. Its role is however suggested by the two Athens case studies. The report comments that the construction industry now strongly supports the expansion of the road network, and that this is part of the collapse of any serious attempt to reverse the city's car dependency. Furthermore, in relation to the Athens metro, our results suggest that one reason why the metro was preferred over a tramway option was that the metro delivered larger contracts to local firms. Because it involves much basic civil engineering, an underground rail system, just like a motorway, has a high local content. It will therefore tend to benefit local construction firms more than a tram or light rail system where a larger proportion of the expenditure is on imported specialised equipment (signalling, rolling stock). While it is perfectly plausible that similar processes were involved in the surprising choice of the Irish government for the underground Luas option, our methodology made it impossible to investigate this issue.

4.3. The forms of decision-making

The case studies produced a list of actors involved in each of the nine decision-making processes and enabled some comments on their roles. The next stage was to analyse the interaction between the actors in the course of the decision-making. Here the case studies presented follow more divergent analyses and so direct comparison is more difficult.

The methodological prescriptions (as developed in *Report on Workpackage 2.0, Political sociology of car system – methodology)* suggest that a key question to ask about the inter-relationship between the actors is whether they form either a 'policy community' or a 'policy network'. In fact none of the case study reports do this and it cannot really be deduced from them as they stand. More fundamentally, this stage of the analysis was intended to evaluate the relationship between 'car system' decisions and issues of environmental sustainability, social inclusion and social cohesion. The

methodological prescriptions suggest that this involves investigating 'the values that legitimate the administrative action'. Some of the case study reports presented here focus on 'barriers' and 'openings' (or 'opportunities'), but in order to do this move beyond the rigorously empiricist and inductive methodology originally proposed. The reports are not restricted to simply categorising the explicit value statements of participants but instead suggest possible developments on the basis of their analysis of the existing decision-making processes.

As already indicated, our original argument suggested it should be possible to link decisions that favour or undermine car dependency to particular forms of decision-making. We have already seen that, examining the rail projects in all four cities, the decisive difference between Bologna and Helsinki on the one side, and Athens and Dublin on the other, is that in the latter two cities central government plays a decisive role, whereas in the two more successful cities local government is more important. In fact it is not a simple question of central versus local government. In both Bologna and Helsinki national **and regional** government is also involved, although in both cities the initiative undoubtedly comes primarily from the city level. These two more successful cities however are able to **articulate** these different levels of government in a way that does not occur in Athens or (especially) in Dublin, where government means essentially **national** government.

In all four cities the rail projects attracted considerable media attention and there was considerable public debate over the decisions involved. If car dependency is challenged by investment in public transport infrastructure, in particular rail-based projects, then this does seem to involve very public decisions, whatever their form, whatever their outcome, and even if they are based on a broad political consensus. By contrast, decisions that enhance car dependency are much more likely to be 'hidden': they simply 'happen'. The two shopping centre projects in Bologna and Dublin highlight this in rather different ways. In both Dublin and Bologna the case studies report a growing number of shopping centres and shopping malls. Although arguments against them do seem more publicised in Ireland than in Italy (perhaps surprisingly, given the greater importance of small retail outlets in Italy), in neither Bologna or Dublin has there been any **general** resistance to suburban shopping centres. Cataneso was utterly uncontroversial, although there was some discussion of other shopping centres in the Bologna area; in Dublin Liffey Valley has been the only controversial case. Despite the different level of controversy, the two shopping centre case studies also show similarities: the importance of individual large scale private enterprises and their ability to exploit rivalry between local level authorities anxious to increase their financial base. This occurs both in Italy, where the regional level of government is now relatively well established and, at least in Northern Italy, relatively effective (see Putnam, 1993), and in Ireland, where a regional level government is almost non-existent. This inter-area competition cannot simply be removed by regional government and so is relatively intractable.

Although in both Athens and Dublin decisions are handed down by central government, this does not necessarily ensure that decision-making is clear and transparent. Indeed, the interaction between the actors highlights a key difference between Dublin and the other cities. In Dublin decisions are less transparent than in all the other cities, not least because it is not clear who is going to make the final

decisions. In the case of Luas government ministers announced decisions, sometimes over-turning not only those of a previous government but also of the recommendations of expert consultants whom the government had empowered to make a 'binding' recommendation. By contrast, in both Bologna and Helsinki key decisions about the rail projects have been made by elected local authorities with clearly defined responsibilities; in Athens the metro project did depend on a series of clear decisions by central government, even though these were very removed from any city level input.

This essential 'murkiness' of Dublin decision making is highlighted by the Liffey Valley decision. The decision emerged from a series of negotiations between property developers and local and national government. Because local government is responsible for outline planning ('zoning') but has no resources to develop appropriate infra-structure, this creates a situation which incites developers to try to change zoning decisions to suit their needs. The Liffey Valley case confirms the argument of WP2.1 that in Dublin the shape of the city is essentially determined by the interests of individual enterprises, what the Dublin report terms 'developer led development'. It is indeed hardly surprising that this structure has now generated accusations of bribery and corruption in the planning process specifically in relation to Liffey Valley which are now the subject of judicial enquiry.

The research hypothesised that successful sustainable urban development policies occur where there is a strong political culture of urban citizenship, that is to say a urban public sphere with public debate over urban policies. The case studies show that the relationship between urban citizenship and sustainable development is not straightforward. Of the nine case studies the liveliest political debate with the greatest popular involvement occurred over the western extension of the Helsinki metro to Espoo. Yet at least to date this debate has created a consensus opposed to the metro.

The Bologna reports also highlight another issue that was not considered in our original proposal. They stress not only the short-term and localised nature of political action (discussions with the citizenry focus on the implications of, for example, the parking plan, purely for a small neighbourhood or a small group of traders), but more fundamentally, the growing individualism and fragmentation of the political culture as a whole. They suggest that, compared to the 1960s and 1970s when Bologna was launched on its path of radical urban traffic policies, social groups in the city are now less clearly defined and less available for mobilisation. Finally, the Bologna reports show how sustainable urban policies can create new forms of opposition. All too often, transport policy is understood by citizens as threatening their rights to mobility – which usually means the right to use their cars – rather than as a positive contribution to their right to an enhanced quality of life. And some solutions to this new 'repression' can be purely individual –witness the unanticipated expansion of the use of mopeds and scooters in Bologna city centre, which now create new forms of congestion and noise. All this provides an interesting context for the recent defeat of the traditional ruling coalition in Bologna's municipal elections, and has implications for transport policy in other cities.

4.4. Conclusion

Chapter 3 argued that in Bologna and Helsinki the original impetus for a revival of public transport came from the political left in the 1970s, but that over time this policy

had become common to most major actors in the city. The case studies do confirm this argument. Successful policies do require the creation of an urban coalition of diverse interest groups which share a basic strategic vision of the city and of the role of urban transport. Both metro decisions in Helsinki show a political consensus identifying the city with its rail system. The study of the eastern extension showed how a major property developer became aligned with the public transport policy and how this helped to ensure the policy's success. Intriguingly, the decision not to expand the metro westwards may be reversed in the future because of support for the metro by Nokia, the major employer in Espoo. Conversely in Dublin, the original overground Luas project was supported by a diverse coalition of interest groups, but this was easily over-ridden by central government. Despite political changes, the vision of a liveable city remains strong in Bologna and provides the political basis for continuing innovation in transport. By contrast in Athens, the 'top-down' imposition of one large-scale engineering project, the new metro, seems to date relatively unconnected to wider political processes and, not coincidentally, will make relatively little impact on the city's chronic car dependency. For those who wish to create sustainable urban development, the political task is therefore the creation of a durable urban coalition.

Chapter 5 Twelve areas in four cities

James Wickham

With this chapter the research (see Chapter 2) moves from the level of the city to the level of the locality. Chapters 5 to 7 are concerned with the mobility and accessibility of different social categories of people in different localities in different cities.

Whereas the car is normally posed as a general problem, this project makes it social in two senses. Firstly, and this has been the concern of Chapters 3-4, the car system is socially shaped – different cities have different car systems, thus demonstrating the possibility of socio-political choice (choice through institutions and collective action). Secondly, and this is the concern of these three chapters, different social groups use (or do not use) cars differently. Just as at the city level the car system involves a technological trajectory, in which what happens at any one point in time is constrained by the existing configuration (in that sense change is path dependent), so too individuals do not make choices in the abstract. What journeys people make and how they make them is constrained by the existing system and their location within it. This constraint is the rationale for looking at different groups of people in different physical localities. At the same time, these constraints are the context of individual choice and even innovation.

The context in which different people make different journeys is constituted by social categories (age, class, gender, etc.) and also of course, spatial factors – where people live. Here we are concerned with the intertwining of the city and the locality. A mobility regime as defined in Chapter 1 involves the interaction of two spatial levels, the city and the locality, and their interweaving with social structure. The city level involves the overall urban context: the form and extent of public transport, the physical layout of the city, the relationship between different forms of land use, etc. It is a plausible hypothesis therefore that there are 'city effects'[33]: that apparently similar social groups in apparently similar localities will use transport differently if they live in different cities. Thus we can expect that travel in middle class suburbia in Helsinki will be different from travel in middle class suburban Dublin. Yet at the same time, we can hypothesise that there are clear differences *within* cities: people living in 'yuppified' inner cities travel in very different ways to those living in the suburbs. These three chapters investigates these arguments.

Of these three chapters, this chapter presents the different localities chosen for case study (the overall logic of selection has been discussed in Chapter 2) and then proceeds to an ethnographic account of local mobility (for the basic methodology again see Chapter 2). The next chapter (Chapter 6) presents the results of the social survey carried out in each locality and finally Chapter 7 presents the results of the focus groups.

[33] The term 'city effects' is used deliberately to connect the argument with that of the neo-institutionalist Aix school (cf. Maurice et al, 1986) who have argued that within Europe different nation states have different 'society effects' on the way in which economic activity is organised.

The ethnographic account is not simply a qualitative scene-setting description for subsequent more formal research with social survey and focus group. The 'thick description' provided by the ethnographic material, gathered largely by walking around the areas, is used in its own right to evaluate the three sets of questions raised in Chapter 1. It tackles the overall question of car usage and car dependency by describing the transport facilities in an area and how people are using them. It suggests the extent to which the private car has become part of the lives and indeed the lifestyles of the inhabitants (Cooper et al, 2001); it indicates the range of facilities that are available within the area and the sort of facilities people use. It tackles the question of social exclusion by discovering the extent to which the transport provision of the area enables the inhabitants to be mobile within the city as a whole. It also reveals what facilities are available in the locality and the extent to which people can, if they choose to, live a full social life within the area. It tackles the question of social cohesion by asking to what extent in the *different* areas of the city are there public places and public spaces, and how and by whom are they used? Who is walking where? Do streets become 'traffic canyons' and divide and fragment living areas? In what ways, if indeed at all, are cars used in socially irresponsible ways? To date most arguments about the relationship between car dependency and social cohesion have been largely impressionistic and/or normative, here, as for the other two themes, an ethnographic comparison of different areas of different cities is the beginning of an empirical analysis.

The full ethnographic accounts are contained in the report, *Report on Workpackage 3.1, Ethnography of Transport Use.* This chapter is an edited version of the final analytical chapter of that report.

5.1. The areas in brief

As described in Chapter 2, each team selected three case study areas in 'its' city. These areas were used for the ethnography, the survey and the focus groups. The research plan did not prescribe an exact methodology for selecting the areas: different statistical data is available for different cities at the area level, and furthermore, the conventional statistics (e.g. occupational structure) do not necessarily capture the key differences between the areas which were important for the project. In the event, the Greek and Finnish teams were able to use a formal methodology to select their areas, while the Irish and Italian teams proceeded more intuitively. The actual areas chosen are indicated in Table 6.1, which highlights the problem that the Dublin areas are significantly smaller in population than those selected in the other cities.

Table 5.1. Case study areas

	Working class peripheral	Middle class peripheral	Inner city professional
Athens	Agioi Anargiroi (30,700)	Polidrosso n/a	Kolonaki (approx 20,000)
Bologna	La Barca (20,500)	Bolognina (c 33,200)	Centro Storico (55,500)
Dublin	Jobstown (7,300)	Clonskeagh (1,800)	North Docklands (1,200)
Helsinki	Kontula (12,600)	Länsi-Pakila (6,500)	Taka- Töölö (14,300)

In *Athens* the Greek team had data on income distribution and poverty for seven broad areas of the city, which in turn could be aggregated into three broad categories (high, medium and low) in terms of average income. Within the high income category they selected the city centre area of **Kolonaki.** This is an inner city area with high average incomes and comes closest to the idea of a 'yuppified' inner city area. Within the middle income band they selected **Polidrosso** as an example of a socially homogeneous conventional middle class suburb. Within the low income group, they selected for study as a working class area **Agioi Anargiroi,** both for administrative convenience and for its relative social homogeneity.

The city of *Bologna* is conventionally divided into the historic inner city (the area within the old city walls), an inner periphery and an outer periphery. The Italian team selected one area from each of these divisions: the historic centre itself, the **Centro Storico**; in the inner periphery **La Bolognina**, an area of apartment houses which is becoming more middle class; in the outer periphery **La Barca**¸ a housing project built in the 1970s with relatively high unemployment.

In *Dublin* the **Docklands** was chosen as an inner city area with bus and rail connections and with a rapidly growing young professional population, **Clonskeagh** as a middle-class suburb of Dublin which, like **Jobstown**, the peripheral working class suburb selected, is served only by the city bus-system.

Helsinki can be seen as comprising three distinct types of housing: the original inner core of the city with mixed residential and commercial usage, areas of single family houses and finally areas of apartment blocks where jobs and housing are physically separated. As the Finnish report notes, this corresponds quite closely to the project's proposed categorisation ('yuppified' inner city, middle class suburban, working class suburban). Within these areas the team selected distinct areas in terms of educational level as a proxy for social class: in the central area they selected **Taka-Töölö**, where average educational level is medium, from the single family housing they chose **Länsi-Pakila** with medium to high levels of average education, and from the apartment housing **Kontula** with low average educational level. In Helsinki, as in the other cities, the research teams did not select for their peripheral working class housing area districts which are the more 'notorious' slums or problem areas.

5.2. Car usage and car dependency in the middle class suburbs

5.2.1. Contrasts in the North: Dublin and Helsinki

It is normally assumed that the highest levels of car usage are most likely to be found in middle to high income suburbs of low density single family housing. In confirmation of the suspicion that our initial approach was rather ethnocentric (or at least North Atlantic centric), only two of the four 'suburbs' really fit this description. In both Bolognina in Bologna and Polidrosso in Athens most housing is not single family houses but rather apartments. Furthermore, while Polidrosso is clearly suburban in its distance (10 km) from the city centre of Athens, this only tangentially applies to Bolognina which is quite close to the central area of Bologna. Indeed, it seems debatable whether Bolognina, rather than one of the newer suburbs in the North of the city, was the most appropriate area for the study: much of the housing dates from the early 20th century and the population is quite heterogeneous including an established working class element.

By contrast, Clonskeagh in Dublin and Lansi-Pakila in Helsinki do clearly fit the definition of a peripheral (or suburban) middle class area. Both are areas of single family housing. They are typical of the areas of European cities which, like the American housing tracts that they imitate[34], are built for the car. This occurs both positively and negatively. Positively the road design gives ample space for cars, through traffic is segregated from local traffic and restricted to the boundaries of the housing area, outside the immediate housing area the major roads are built on a scale which favours car commuting. Negatively, the dispersed settlement pattern makes public transport more difficult, segregated land usage separates housing from employment and other facilities, and these in turn are unlikely to be within walking distance. While Ireland has a higher level of retail outlets per capita than Finland, Clonskeagh, like Lansi-Pakila, has no local shops. This situation could be expected to facilitate car usage and lead to car dependency. The physical infrastructure facilitates the car and there is limited provision for any alternative transport mode. Furthermore, we can hypothesise that as people increasingly access facilities which can only be reached by car, so lifestyles will become increasingly car dependent.

To what extent does our initial ethnographic encounter with these two suburbs confirm this argument?

Suburban social structure and the integrated car

At first sight there are clear physical similarities reinforced by similarities of social structure. Both areas are inhabited predominantly by single families with children; the most common alternative household form appears to be older and usually couple-based 'empty nest' households. Here the population are beginning to be 'more affluent than just middle-class' in the words of an interview quoted in the Helsinki report. These are car rich suburbs. To all intents and purposes every household has a car, two cars per household is normal and, at least in Clonskeagh, overwhelmingly so.

[34] The origins of suburbs are often seen in the English Garden City movement. Contemporary European suburbs, perhaps particularly in Ireland, are much influenced by US vernacular architecture. Gans (1984) sees the search for low density living as deriving from US values which predate the policy initiatives to which radicals critics give more explanatory power. On the motorised city, see Weil (1999).

During the daytime the cars parked in the area appear to be usually second cars, but while frequently less expensive, they are in good condition. When towards evening the commuters return: 'These are nice new family-cars, Audi, Opel, Peugeot, Volvo; often spacious station wagons in good condition' (Helsinki report). In Dublin too:

> Cars always look clean and in good condition. The drives are usually also built to accommodate two cars. The car-dealerships in the area are BMW and Honda, typically bought as first and second cars respectively by wealthy professional households (Dublin report).

Within the area the car is well integrated. Parked cars, for example, do not cause problems. In Länsi-Pakila when cars are parked (continental style) on the pavements they do not block them; when there are no pavements cars are parked in the road but slow traffic rather than blocking it. Within the area cars behave in a civilised manner: in Clonskeagh they are slowed by speed ramps, while in Länsi-Pakila they are driven slowly even though there no physical obstructions. Both areas are bounded by main traffic arteries, but this through traffic does not enter the residential space (in Länsi-Pakila residents are ensuring that some through traffic entering the main motorway Ring via Länsi-Pakila will be diverted onto the motorway earlier). It is only outside the residential area that the car appears as a problem, since the daily commute involves daily traffic jams, but these can presumably be understood as caused by other people's cars coming from somewhere else.

On the negative side, both Länsi-Pakila and Clonskeagh are relatively poorly served by public transport. Buses provide the only scheduled service, even though Dublin has some limited suburban rail and Helsinki extensive suburban rail, metro and tram systems. Although in both Länsi-Pakila and Clonskeagh orbital bus routes do exist in the vicinity, essentially the routes are radial going from the city centre to (or near to) the suburb.

Finally it should be noticed that these areas are able to look after themselves. There are active residents' associations in both Länsi-Pakila and Clonskeagh. Collectively and individually the inhabitants have the self-confidence and knowledge to negotiate with the public authorities for the facilities to which they feel entitled.

Taken in isolation, both areas seem clear cases of suburban car dependency. Yet comparing them also highlights some quite significant differences that qualify this assessment for Länsi-Pakila and accentuate it for Clonskeagh.

Public transport

Firstly the level and quality of public transport provision is very different. Clonskeagh itself is served by bus routes running along the Stillorgan dual carriageway at the edge of the area. These provide a high frequency service to the city centre. The bus stops are mostly not lit at night but are on well lit public streets. However, reaching this service requires walking out of an estate onto the main road, a journey that can last from several minutes to more than 20 minutes. The only orbital route in the vicinity is even further from the case study housing estates and does not really traverse the immediate area. Since the fieldwork was carried out, the radial route past the area has been designated a 'Quality Bus Corridor' (QBC) with improved bus stops, more and better quality buses and, above all, much of the journey in bus lanes. Since these bus lanes are quite effectively policed (another innovation for Dublin), along the actual bus route at peak times the journey time to the city centre

is noticeably quicker than by private car. Nonetheless, even such a flagship route shares the general problems of the Dublin bus system. Firstly, though Dublin Bus does frequently display time-tabling information at bus-shelters, the times given are only the times of the departure from the terminus. It is only possible to know when a bus will arrive at your particular stop if you know how long the bus needs to reach the stop from the terminus. Even with this rather esoteric piece of knowledge, the calculation would be a fruitless exercise since journey times vary so much because of increasing congestion. Secondly, there are no route maps on the bus shelters, so working out where the destination of a bus again requires esoteric local knowledge. Finally, ticketing is user-hostile: buses only accept exact fares (but there is no list of fares on the bus shelter); pre-paid tickets can be bought at specific shops but there is little discount for doing so; there is very limited through ticketing on the bus-service and needless to say, no integrated ticketing (let alone integrated routing) with other modes of public transport.

By contrast, even though Länsi-Pakila is itself dependent only on buses, these buses are part of an effective city-wide public transport system. Every year the city distributes to each household a booklet on timetables, routes and fares. Timetables are provided at route termini and at most other bus-stops. Tickets can be purchased in advance, which is also cheaper, from the HKL offices in the centre, and also from various kiosks. The HKL office in the main Railway Station distributes free route maps and timetables. Bus routes and fares are integrated with those of the tram and the metro, creating a complete system. While using the system is easier if you already know how it functions, it is easy to find any information you need. Using Helsinki public transport does not require the detailed insider knowledge that is needed in Dublin. At a more specific level too Länsi-Pakila is a clear contrast to Clonskeagh. Bus stops are closer to where people live: nobody in the area is further than 1km from a stop, and for most people the nearest stop is less than 500m away. Although the service is limited, it does mean that everyone can reach all the main public services. The buses have special facilities for older people; an adult with a child in a buggy travels free. Finally, the municipality subsidises the use of taxis for disabled people (including many older people) with the 'Helsinki card': users only pay the first element of their taxi fare, the city pays the rest, up to a monthly maximum.

Physical layout

These two affluent housing areas also differ in their physical layout. In Clonskeagh the main roads around the area frequently have no cycle lanes or even footpaths, thus discouraging cycling and walking outside the immediate estates. Within the estates there are adequate footpaths and traffic is calmed by speed ramps. In Länsi-Pakila by contrast roads around the area, even though busy, have well kept pedestrian/bicycle lanes. Within the area there are often pedestrian/bicycle gravel lanes which traverse the area almost completely within woods. Even in winter many are swept clean and all are in use. Wherever the cycle lanes cross roads there is a pedestrian crossing with white stripes and signs. There are even signs indicating 'Watch out for bicycles' for those cars turning onto the main routes from the side-streets. Accordingly, in Länsi-Pakila the physical layout facilitates those who wish to walk or cycle, whereas in Clonskeagh, despite the milder climate, the car is the only mode of transport which is facilitated.

Facilities

Both areas have a local health centre, but the one in Länsi-Pakila seems to be more heavily used by local inhabitants and to be more easily accessible by public transport (or subsidised taxi). In both Helsinki and Dublin there are no shops in the housing areas so going to any shop involves a journey which in Clonskeagh in particular means using a car. In both areas most people would need to use a car to attend the main denominational church. In terms of schooling there is a clear difference. In Länsi-Pakila most parents send their children to a specific secondary school, and a major reason is that it is accessible by bicycle or public transport. By contrast in Clonskeagh most parents choose from a selection of fee paying schools, nearly all of which require a car journey. Since the only non-fee paying secondary school in the area is about to close, those who cannot or will not pay secondary school fees must also transport their children out of the area. In terms of schooling Clonskeagh has therefore already gone far down a cycle of car dependency: the car has put other schools within reach, and exercising private 'choice' undermines local facilities and creates a life style (the desire for private education) which can only be met by private transport with all its increased public costs.

Conclusion

Walking around Länsi-Pakila and Clonskeagh in the daytime, according to our reports, is a very different experience. In Clonskeagh what strikes one is 'the quietness of it all', whereas in Länsi-Pakila 'there are people walking - kids and adults'. Systematically comparing the ethnographic accounts shows that these areas are different. We therefore have to reject any simply equation of 'middle class suburbia' with high car usage, let alone with high car dependency. Despite similar population densities, similar population structure and similar suburban housing, these two housing areas have significant differences. The physical layout of Länsi-Pakila facilitates cycling and walking in a way that Clonskeagh does not. In Länsi-Pakila, unlike Clonskeagh, the rather limited public transport is part of an effective city wide public transport system. And partly for this reason, but partly also because of their more convenient physical location, more facilities can be reached without using a car in Länsi-Pakila than in Clonskeagh. Accordingly, there is fewer signs in Länsi-Pakila of the self-reproducing car dependency epitomised by the schooling system in Clonskeagh.

The Helsinki report concludes that Länsi-Pakila is transport rich, in that there are choices of mode available, but because people do not use these choices, they are in fact is transport poor. This is because the lifestyle of the inhabitants of Länsi-Pakila involves needs and activities which can only be met by using a car. However, comparison relatives this argument and produces two basic conclusions. Firstly, there are different forms of car dependency in European middle class suburban housing areas. Despite other similarities, the two reports show clearly that some areas are more car dependent than others in terms of the *potential* forms of mobility, with wider choice of modes and greater accessibility in Helsinki than Dublin. Secondly, and interwoven with this, the two reports suggest that such areas have different *actual* forms of mobility, with more use of public transport and more walking and cycling in Helsinki than in Dublin. While this first conclusion can be taken as conclusively

shown by the ethnographic accounts, the second (i.e. actual mobility) is more of a hypothesis and will be investigated in the survey.

5.2.2. High density suburbs in the South: the car in the way?

The two middle class 'suburban' case studies in the Southern cities of Athens and Bologna are very different to Clonskeagh and Länsi-Pakila. Both areas are built at much higher density with housing comprising primarily apartments rather than single houses. Furthermore, residential usages are not so tightly segregated from other activities as in both Northern suburbs. Both Southern areas traversed by major traffic arteries which are also shopping and commercial streets. There are also many smaller shops away from these main roads, reflecting the much greater density of small retail outlets in both Italy and Greece compared to Northern Europe (Jacobsen, 2001).

In Bolognina cars are everywhere. The street pattern was laid down before the epoch of mass motorisation: the car has infiltrated and undermined this physical structure. On the streets cars are parked everywhere and occupy much of the badly maintained pavements, so that walking around the area is quite difficult. Parking is controlled by the same system as in the Centro Storico, which means that for visitors parking is almost impossible and for residents it is a problem. Many of the apartment buildings have internal courtyards, and as is normal in Italy, these spaces, originally intended for collective usage by residents, are now fully occupied by the residents' cars. By contrast, Polidrosso was built for people who were expected to own cars. In the residential streets there is usually enough parking, whether on the street or in residents' parking at the base of the apartment buildings. However, traffic congestion and a shortage of parking makes cars a problem for the majority of people who use their cars to go shopping in the main local shopping area in Maroussi. Pressure on parking space will doubtless increase if car ownership continues to rise, especially if there is a move towards individual (as opposed to 'family') cars.

Both areas also have public transport facilities that connect them to the wider world. Bolognina is close to the city centre of Bologna to which it has good bus connections; it is within walking distance of the city's main railway station. Many inhabitants of Polidrosso use the metro in nearby Maroussi, although the metro station is not within walking distance. There are also plentiful bus services, both to the centre of Athens and, more infrequently, to other suburban municipalities. In an innovative response to the growing car parking problems in Maroussi, the municipality has introduced a free municipal mini-bus service traversing the district.

In both areas, unlike in the North, there is a lot of mobility on foot although little use of bicycles. Bolognina has fewer small shops than many other districts of the city, and indeed at the time of the report there was an initiative to increase the number of shops. Nonetheless, there are small shops and supermarkets within walking distance; within the area there is also a large open-air market. Just as in the Centro Storico of Bologna, for local journeys many people use scooters which are easier to park and far quicker than public transport. In both Bolognina and Polidrosso many facilities are within walking distance, including a health centre and the main church. However in Polidrosso the Greek health system means that much medical care is provided at a local hospital: the hospital in Maroussi can be reached by public transport. Both primary and secondary schools can also be reached on foot or by public transport in both areas. However, Bolognina has few developed recreational facilities: visiting

anything more than a bar or cafe involves leaving the area, while residents in Polidrosso have some restaurants in walking distance.

Like the Northern case study areas, these areas have an active local political life. There has been environmental pressure group activity in Maroussi; Bolognina has an active community life including voluntary associations and political parties' clubs. In both areas local authorities have to respond to local groups when dealing with traffic and transport issues, but it would seem that overall Bolognina has a more clearly defined local identity than Polidrosso.

Overall these areas suggest the importance of the car as part of the routines of everyday life, despite relatively high public costs of congestion, pollution and (in Bolognina) residential parking. The areas are connected to their city centres by public transport, but, despite some recent improvements in Polidrosso, neither has an effective dense public transport network. Although there are some local facilities in each area, these are not attractive enough, even in congested Athens, to cancel the advantages of car ownership. The ethnographic research by itself does not tell us whether the car is used to access a wider range of facilities, to maintain more spatially diverse social networks, to reach better employment, and/or to co-ordinate individual time schedules. However, this stage of the research does allow one basic, if negative conclusion: high density housing, even when combined with multiple land-use, is not enough to restrain car ownership or even car use.

5.3. Car dependency and social exclusion in working class areas

The areas

La Barca in Bologna, Jobstown in Dublin and Kontula in Helsinki are all clear examples of peripheral working class housing areas. All were built as public housing for a low income population; La Barca and Kontula were constructed in the late 1960s, Jobstown in the late 1980s. La Barca and Kontula comprise large concrete apartment blocks. Indeed, in La Barca the main area is known as 'Il Treno' (the train) because of the long concrete spine block. Jobstown by contrast is low rise terraced housing. Their building styles and their peripheral locations are typical of post World War II working class housing in their respective countries (see Power, 1998).

Agioi Anargiroi is rather different in all respects. While it is a low income area, given the low provision of public housing in Greece, it mostly comprises small and privately owned houses. Indeed, the only apartment blocks in the municipality form part of a more affluent enclave. Agioi Anargiroi also has more diverse land use, with many inhabitants working in the area in services, artisanal manufacturing and textiles.

Like the middle class housing areas of Clonskeagh and Lansi-Pakila, La Barca, Jobstown and Kontula were all built as residentially segregated areas on the assumption of car ownership, physically separated from the city. What happens when areas designed in this way are inhabited by people for whom owning a car is often difficult and sometimes impossible? This section concentrates on comparing these three areas while making some reference to Agioi Anargiroi. The similarities of the three areas in terms of low income, housing and physical location means that the key differentiating factor is the form of transport provision.

Population, employment and social problems

All three areas are seen in a negative way by the rest of the local population. As the taxi driver remarked when taking the researcher to La Barca, 'It doesn't seem to be a

part of Bologna". Yet these are not the most notorious areas of each city and at least in the case of La Barca crime statistics suggest that the reputation is ill-deserved. Certainly however, in all areas the population has low skills and low income. When the fieldwork was carried out in 1999 both Finland and, most spectacularly, Ireland, had left their national recessions of the early 1990s behind them. This revival had not yet touched Jobstown or Kontula. In both areas unemployment was well over 20% with a high levels of long term unemployment. In Jobstown women find employment in retail and in low grade service work (especially hospital cleaning), while men work in the nearby industrial estates. In La Barca and Kontula employment is fairly similar, with the difference that women's employment is certainly lower in La Barca. Employment in Agioi Anargiroi is not well paid but rather different, being mainly male employment in local manufacturing and small artisanal workshops.

All four areas are identified with 'social problems'. Illegal immigrants are concentrated in Agioi Anargiroi; La Barca, Jobstown and Kontula are all perceived as unsafe by outsiders; there are problems of alcoholism in Kontula; there are drugs and youth gangs in Jobstown and Kontula. And this perception is not simply that of outsiders. In La Barca and in particular in Jobstown, residents complain of the anti-social behaviour of local young people. In these terms Agioi Anargiroi is at one extreme, where this hardly appears as a problem, and Jobstown at the other, where problems of car theft, joy riding and vandalism undermine the local quality of life: public facilities are vandalised, the local river is a dump for abandoned stolen cars and joy-riding puts the lives of local people and especially of local children at risk. Of all four areas, only Jobstown approaches the form of anomic and self-destructive behaviour that has characterised US 'underclass' inner city ghettoes (see Wilson, 1987).

Roads and cars

In terms of road layout Agioi Anargiroi is again very different to the other three areas. Agioi Anargiroi is divided by heavily used roads, pavements are narrow and difficult for pedestrians to use. By contrast, the other three areas are separated from main roads, while in Bologna the nearby autostrada also acts as a physical barrier between the city and La Barca itself. Apart from young people driving too fast around La Barca, the housing areas themselves are quiet with little traffic. There are however substantial differences. At one extreme Jobstown presents a desolate appearance: open green spaces are unlandscaped and the only feature is muddy tracks worn by locals taking short cuts. The roads now include features such as small roundabouts and bollards - built at the request of local residents to reduce joy-riding. At the other extreme in Kontula well maintained gravel paths for pedestrians and cyclists weave through the woods, and the quality of the landscape is even better than in middle class Lansi-Pakila.

Cars of course are everywhere. Unlike in the middle class areas, here they are usually old and include many vans and pick-ups which are also used for various forms of employment. In Kontula cars parked outside are often 'summer cars' which are in too bad repair to function in the snow and damp of winter. In Jobstown all the houses have been built on the usual assumption of 100% car ownership, yet it appears that only about one third of the households own a car. Paradoxically Jobstown, with this low level of car ownership, has the best provision of parking space: each house has a

driveway with parking space, and the roads are broad enough to provide plenty of additional on-street parking. Parking for residents is also ample in Kontula; in La Barca by contrast, space such as yards and entrance areas has been turned into car parking, so that cars appear squeezed into the townscape; finally in Agioi Anargiroi there is a clear parking shortage.

Public transport and access to facilities

Except for Kontula, the bus is everywhere the key mode of public transport. In Agioi Anargiroi railway lines bisect the area but have a negative impact on local mobility since they make it more difficult for residents to reach local bus stops. The railway is not used for suburban journeys at all, although this does seem a very underused local transport resource. Different bus lines provide frequent services both to Athens city centre and, at a lower frequency, to other suburban areas. In La Barca and in Jobstown buses connect to the city centre; in Jobstown the bus route also links the area to Tallaght Town Centre about a mile (1.6km) away. In La Barca the bus service to Bologna city centre is frequent, but passengers complain that it is not reliable. Bus stops are within easy reach of all residents. The service appears to be mainly used by older people, women and young people, in other words, those who do not have access to a car. Jobstown is also dependent on a bus service, but despite some recent improvements in the routes, this clearly leaves the area very isolated. The bus shelters are often vandalised, there is no service after the early evening and indeed, services have often been withdrawn because bus drivers have been threatened and attacked by local youths. Residents supplement the bus service by using taxis and by informal car sharing, and some employers organise transport to collect staff who live in the area. Given land use segregation and poor local transport, even those people who work on the nearby industrial estates must have difficulty getting to work if they do not have a car.

Kontula is a dramatic contrast to all three other areas. The metro is integral to the area and the metro station is the centre of the local shopping centre. The metro links Kontula directly to Helsinki city centre, making Kontula far easier to access from central Helsinki than Lansi-Pakila. Two stops away on the metro there is Itäkeskus with extensive shopping facilities and other services. The metro stations are clean and bright. The metro is served by bus feeder routes throughout Kontula; all housing is less than 500m from a stop and most is within 250m; buses and metro share an integrated ticketing system.

As a multiple use area Agioi Anargiroi has plenty of small shop and cafés. In the three other suburban areas facilities vary widely. In La Barca the central spine block, 'il Treno', includes shops, but many are rundown or even closed, partly because of competition from a new out of town shopping centre nearby. The local sports facilities are good and indeed are used by people from outside the area and there is a local social service centre. Jobstown by contrast has no health centre of its own and no shopping facilities whatsoever, while sports facilities are rudimentary. Certainly Tallaght Centre nearby has extensive shopping and other facilities, but it is not within easy walking distance. Indeed, a visit to the 'local' supermarket can involve pushing a loaded supermarket trolley for nearly 2km along the edge of the road. The contrast with Kontula is dramatic. The local shopping centre has a full range of facilities: swimming-pool, outdoor-area for slides, even skiing routes; there are some 7 bigger

super-markets and 35 other shops plus 10 restaurants and cafes. And what the Helsinki report terms the 'the unlimited consumption, leisure and service possibilities of Itäkeskus' are only two metro stops away.

Conclusion

Despite the bad physical conditions (narrow roads, bad pavements), the high density and multiple land use of Agioi Anargiroi ensures that the most basic shopping and social facilities are within easy reach and sociability is facilitated within the area. Of the three segregated suburban areas there is a clear contrast between Jobstown and Kontula, with La Barca in an intermediary position. In all three areas their physical isolation from the city can only be overcome by transport. Equally, even accessing the most basic employment usually requires some form of transport, as does entertainment and shopping. Kontula not only has better facilities within easier reach than Jobstown or La Barca, but is better connected to the wider world. Even though Kontula could be self sufficient it does not need to be: public transport overcomes geographical distance.

By contrast Jobstown is, as the Dublin report comments, 'on the periphery of the periphery': Tallaght itself is isolated from Dublin proper, and Jobstown is isolated from Tallaght. Here the community activism and local initiatives appear as stop-gap solutions to an appallingly low level of facilities, bad public transport and inappropriate physical planning. Here positive social innovation – the development of the taxi as a poor person's transport system and extensive car-sharing - is counter-balanced by vandalism and self-destruction, for the main victims of local crime are of course other local inhabitants. Like La Barca, Kontula certainly is not without its problems, but Kontula is part of the city of Helsinki. The metro not only integrates Kontula, it also acts as a social leveller, providing the same facilities to everyone and used by all different sorts of people. The metro operates as a leveller in another sense, breaking down the isolation of the area, so that there is even some middle class 'immigration' to Kontula as people realise that, thanks to the metro, it provides good facilities at a low cost. In these terms, Kontula is a sign of effective planning and of what could be termed transport welfare. In Kontula good public transport and good land use planning *reduce* the disadvantages experienced by those on low incomes. Jobstown is a car-dependent area, but without many cars: bad public transport and bad planning *exacerbate* the risks of social exclusion.

5.4. Reurbanisation without the car? Transport rich inner city areas

Introduction

In films set in Manhattan characters hail a taxi to get to the action, whereas in other American films the characters climb into their cars. Increasingly, the richest and most central residential areas of 'global' cities such as New York have the lowest levels of car usage and even of car ownership (Newman et al, 1997). Such areas of cities, with their plentiful facilities and lively street life, hark back to an older European experience of the urban in general – and not just of a few hyper-rich capital cities. One of the most famous statements of this image of a desirable urban environment was by Jane Jocobs (Jacobs, 1962); the ideal has been repeated frequently since then, a recent example being Rogers (1997). Rogers differentiates between 'single-minded spaces' such as car parks, residential suburbs, shopping malls, which only have one function, and 'open-minded spaces' such as cafés and markets. 'When we are in [the

single minded space] we are generally in a hurry, but in the in open minded places we are readier to meet people's gaze and participate'. This is the city of the stroller, the flaneur. Its opposite is the dystopia of Los Angeles, the 'militarised' car-based city in which the affluent are (literally) fenced off from the poor as effectively in their shopping malls as in their gated suburbs.

Environmentalists have now joined planners and architects in their praise for traditional urban life. The suburb, seen originally in the English Garden Suburb movement as the epitome of all that was healthy and salubrious, now becomes seen as a pollution generator – since suburbs are now interwoven with car commuting and a car-dependent life style.[35] The problem of course is that high density cities may be environmentally and aesthetically desirable, but the overall trend in Europe as well as the USA in the last half century has been towards suburbanisation. Our research in these inner city areas explores first of all the extent to which these areas really do involve low levels of car usage. To what extent are these areas where life is organised in a way that is not dependent on the car? To what extent does this result from high population density, good public transport and the physical location of facilities? Or does the causality run the other way round: have people here have developed a life style which has different requirements to those of their car dependent and suburban fellow citizens?

The areas

Of the four inner city case study areas, the Centro Storico is unambiguously the centre of Bologna; Kolonaki is the main shopping district of Athens and either contains or is immediately adjacent to the main administrative buildings (Parliament, Presidential Palace, etc.). Taka-Töölö and Dublin Docklands are close to, but not of, the city centre respectively of Helsinki and Dublin. All four areas are 'historic'. The Centro Storico of Bologna is the area within the town walls with its mediaeval buildings and indeed mediaeval townscape has been designated a world heritage site. In Taka-Töölö in Helsinki most residential buildings date from before 1949 and Töölö as a whole essentially is the historic city of Helsinki.

Dublin Docklands includes some of the city's extensive Georgian (18th century) and Victorian (19th century) housing; it also contains some 19th century industrial buildings which, like those in the London Docklands, have been designated archaeological monuments. Unlike the other four areas, the Docklands also contain public housing, open space storage and warehousing. The new office buildings of the International Financial Services Centre are also particularly important, but, unlike in the other three areas, there are few shopping facilities. Whereas the other areas have become prestigious residential areas through unplanned processes, in the Docklands this is a result of public policy. Within our four case studies the Docklands are the only example of planned urban regeneration. Like the London Docklands, in many

[35] Of course, suburbia predates the motor car, which as a transport technology merely accelerated existing trends towards low density residential areas segregated from employment and linked by rail-based systems. Thus Bratzel has pointed out that Los Angeles, now seen as the city of the motor car, took shape as a suburban metropolis around the (rail-based) electric streetcar system (Bratzel, 1995); on Los Angeles more generally see above all Davis (1998).

ways the prototype of such schemes around the world, the Dublin Docklands are based around high quality residential and office developments. These were built by the private sector in the context of special planning and incentives organised by a development agency (in this case, the Dublin Docklands Development Authority) separate from the existing city planning structures. Given the key role of policy in the creation of the Dublin Docklands, lessons from the Dublin experience are thus particularly important for further policy.

In all four areas housing is in apartments with no single family houses. Despite their differences, these areas are all multiple usage. In all of them there is a substantial residential population, many of whom work in or near the area, and in addition the areas import many workers, shoppers and other visitors during the day. Thus in the most extreme case, anything up to 400,000 people pass through Kolonaki during a normal day. All four areas are thus totally different to the segregated housing of 20th century Northern European and North Atlantic countries.

The Dublin case study area of North Docklands has a population of only 1,200, but it can be taken as typical – in terms of land use, population structure and transport facilities - of the Docklands as a whole with a population of approximately 21,000 in 1996. Making this assumption, then the areas are broadly comparable: the resident population of Taka-Töölö is about 14,300, of Kolonaki 20,000 and of the Centro Storico of Bologna 44,000. This means of course that such areas only comprise a small proportion of the city's population. Kolonaki is less than 1% of the Greater Athens Area population of three million, Taka-Töölö is about 1.5% of the Helsinki metropolitan area population of .9 million, all of Docklands similarly amounts to about 1.4% of Greater Dublin's population of 1.4 million. Even in Bologna, where the city's total population is about 380,000, the Centro Storico comprises at most about 14% of the total population. These areas therefore are distinctive – and very small. To the extent they are not car dependent, can they be scaled up to include greater proportion of urban population?

These are all affluent areas, though each city has suburban enclaves where the average income is even higher. Kolonaki at least is also seen as a safe area, while the reputation of the others is less clear. These are areas into which many people have moved, it would seem as part of a lifestyle choice. Living in the inner city seems to involve a sense of choice, a sense even of being different. All four areas include many young professionals who have chosen to live in the area so that they are near to their work and so reduce their commuting time – sometimes to almost nothing. Young professionals have moved to Kolonaki in response to Athens' growing commuting problems, and now either walk to work to offices in the area or travel against the traffic to the city's two main office locations around Syngrou Avenue and Kifissias Avenue. Similarly, many of the residents of Dublin's Docklands walk to work from their new apartments through the renovated dockland landscape to the new office blocks of the International Financial Services Centre. But these areas are not just inhabited by such 'yuppies'. Compared to the suburban housing areas, they have more complex social structures. Kolonaki has an above average proportion of older people. According to our informants, most of these are affluent couples who have moved back into the city centre in order to be near the facilities of the city centre after their children have left home. The population of Bologna's Centro Storico includes

artisans and shopkeepers who have traditionally lived in the city, while Dublin's Docklands also include some unskilled and skilled manual workers, the surviving members of long-established working class communities in the area. Students are an important component of the population in Bologna in particular, given that the Centro Storico is also the university quarter, and in Taka-Töölö. At the same time, all areas, with the exception of the Centro Storico, have a below average proportion of children in the population.

Roads and cars

In these areas roads are usually well suited for pedestrians. The most difficult is Kolonaki, where walking in the narrow streets is often hindered by cars parked illegally on the pavements; in Bologna the famous arcades of the Centro Storico physically separate pedestrians from cars as well as sheltering pedestrians from rain and sun, while walking in Taka-Töölö is also pleasant. Only in the Docklands however do streets appear designed for the car. Parking and traffic regulations operate to discourage cars, effectively in Taka-Töölö, less so in Bologna and only by intention in Kolonaki, where cars clog the streets and make any movement difficult. At the other extreme road space in Dublin Docklands is partly segregated from ordinary pedestrians by being within gated communities, where the fortification of US suburbia (Luymens, 1997) has been imported into the European city. Here the new apartments, may be high density, but many nonetheless come with their own parking spaces. By contrast, many of the working class residents probably simply cannot afford to own cars.

Public transport and access to facilities

All the areas are close to good public transport routes. Kolonaki is bounded by roads with frequent bus services to other areas of Athens and includes two stops on the new metro line, many bus routes in Bologna cross the Centro Storico, much of Dublin Docklands (in particular the immediate case study area) is within walking distance of the city's main rail and bus stations, in Taka-Töölö there are buses to other areas of Helsinki and the metro is just outside the immediate area. More important however, and less discussed in the literature, is the varying extent to which short-distance mobility within and around these areas is enhanced by more 'local' public transport. At one extreme such public transport is almost non-existent within the Dublin Docklands, where only a few bus routes actually traverse the area and the service quality is even worse than usual in other areas of Dublin. In Athens buses through Kolonaki are infrequent and unreliable, not least because roads are so often made impassable by illegally parked cars, but the area does also have a new and effective orbital mini-bus route. In Bologna the Centro Storico is traversed by many bus routes, many bus stops have electronic indicators showing the arrival time of the next bus, even though here too buses are slowed by illegally parked cars; taxis are plentiful but seen as expensive. By far the best local provision however is in Helsinki, where the network of tramlines provides an alternative for journeys which would otherwise be covered on foot. Because the tram routes are often indirect, using the tram requires local esoteric knowledge. However, this is esoteric knowledge is knowledge of the immediate area, not, as is required of Dublin bus users (see above section 5.2.1.), knowledge of the whole city.

Almost by definition, these areas are rich in facilities. Kolonaki and Centro Storico are the shopping centres of their cities, and Taka-Töölö also has plentiful shops. In these three areas therefore, residents' immediate and more specialist needs are well met from high quality local shops. In Dublin Docklands however, the situation is more complex. The Docklands itself only has a few and very basic shops. Nearby is the centre of Dublin with its plentiful shops, yet these may not meet the routine needs of the more affluent local residents either. Given the new levels of physical mobility amongst the European service class (frequent weekend breaks to other capital cities, etc.), the smart shops of central Dublin now see themselves as competing not with the new suburban shopping malls of the city but with other European urban luxury shopping centres, above all Paris. Yet as McGauran's comparison of retail work in Dublin and Paris shows, many shops in central Paris are part of a tradition of local retail, whereas the Dublin city centre is dominated by multiples with their focus on merchandising for the city as a whole (McGauran, 2001).

Docklands is also the exception in that the local facilities for health and education are essentially merely for the local working class community – and of the same standard as provided in other working class communities in Ireland. The old inhabitants do not use the smart new pubs. Indeed, one community activist remarked that the only facility the two communities share is the local Roman Catholic Church – and given the precipitous recent decline of church attendance in Ireland, this is hardly of any great significance.

Conclusion

The four areas all provide the experience of multi-user space and, to varying extent, of living streets. In terms of car usage, there are low standards of urban citizenship in Centro Storico and especially in Kolonaki: parking restrictions and road regulations are ignored, pedestrian-only rules are flaunted. Showing that anti-social behaviour is not the prerogative of the poor, the affluent residents of Kolonaki, like the socially excluded of Jobstown, are themselves one major cause of their area's problems. The main effect however appears not to be on the use of the street per se, but to create a further obstacle to public transport and so to make collective solutions even more difficult. That this does not happen is what sets Taka-Töölö apart. Here the tram, an apparent relic of early 20th century transport, functions as an alternative to walking. The area is physically tied together by the rails of the trams which partly even define Taka-Töölö and inner Helsinki: the tram is part of the streetscape of Helsinki city, but not of the 'suburban' metropolitan area. The tram may be an old form of transport, but the lifestyles of many of the residents of Taka-Töölö are highly contemporary. Residents can link the many different activities in which they engage because on the one hand, many of the activities occur within or near Taka-Töölö itself, and because on the other hand they have a dense network of public transport and perhaps, a bicycle. They may own cars but even if they do, they can and do accomplish many routine activities without them. Residents of Taka-Töölö appear to be transport rich and not car dependent; they also appear to enjoy more social cohesion and more public space. By contrast, Dublin Docklands with its few facilities and limited local

public transport[36] suggests that, as we have already seen in Polidrosso, high density housing by itself does not solve car dependency. Equally, Dublin Docklands with its suburban style privatised space within the city centre has limited public space and so limited social cohesion.

Despite their size relative to the city as a whole, these inner city areas are important as sites of social innovation. Even Dublin Docklands shows that it is possible to create attractive residential areas where residents do not have to use a car to travel to work. They therefore show that car dependency can be reduced by creating environments in which people choose not to use cars. Furthermore, they show that in certain circumstances precisely those with the most resources in society may wish to live in a way that is less car dependent than the norm. Yet such a situation is not just a question of housing and employment. Another crucial precondition, so the example of Taka-Töölö and to some extent Bologna shows, is an effective and high quality local public transport system.

5.5. Conclusion: The city effect on the areas

Previous chapters have shown how the four cities differ in terms of overall levels of car usage, in terms of the technological trajectory of their car systems, and in terms of the way political decisions about the car system are made. What have we now learnt from this first focus on different areas within cities?

The ethnographic reports do reveal significant differences between the areas. Systematic observation shows how cars are used in different ways and to differing extents. Car use – and non-car use – therefore has to be analysed in its local context. In general, the areas chosen do appear to have been appropriate in terms of the initial typology, the one exception being Bolognina in Bologna, which is socially and physically probably closer to the Centro Storico than to Bologna's newer middle class apartment housing areas.

Within each city the differences between the areas largely confirm our initial arguments. The novelty is when similar areas in different cities are compared. Thus it is hardly surprising that middle class suburban housing areas are car dependent. What is striking however is how extreme this in Dublin compared to Helsinki, despite the two case study areas being so similar in social structure, housing type, etc. Even more dramatic is the contrasting experience of mobility and accessibility in working class Jobstown and working class Kontula: comparing these areas shows clearly how Helsinki's integrated public transport system reduces social exclusion, while Dublin's lack of any system exacerbates it. And finally, contrasting the inner city areas shows how within Helsinki low car dependence and high social cohesion is created in Taka-Töölö, Bologna's Centro Storico and Athens' Kolonaki, but much less so in Dublin Docklands.

Comparisons between Dublin and Helsinki are initially easier than with the other 'Mediterranean' cities: European cities cannot be understood simply in terms of a Northern European let alone a 'North Atlantic' urban model. Thus comparing all

[36] There are plans to extent the new light rail system 'Luas' into the Docklands. Whether these plans will ever be realised is a matter of conjecture. In any case, Dublin transport planners see light rail as a form of mass transit linking suburbs and city centre, rather than as a local transport system as discussed here.

three clearly middle class suburban areas (Bolognina is excluded for reasons given above) shows how car dependency is hardly simply a function of low housing density:[37] Polidrosso appears in the same broad range as Clonskeagh and Länsi-Pakila in the extent to which cars are an integral part of residents' life style. Equally, including Bologna's Centro Storico and Athens' Kolonaki in the discussion of new inner city areas suggests that controlling cars is not so important to create urban sociability and social cohesion as contemporary architects and planners believe.

Finally, comparing local areas shows how city level decisions about public transport do shape accessibility and mobility at the local level. At least this stage of the research, Helsinki emerges as an example of 'best practice', with its integrated and multi-modal public transport system having clear effects in all the localities we have studied. Supplementing ethnographic research with survey data and focus groups, subsequent chapters take up this theme of the 'city effect'.

[37] As Bratzel (1995) has pointed out, in policy and aesthetic discussions in particular there is often a naive equation of car dependency and low housing density. This chapter criticises the equation at a sub-city level by comparing different localities. However, Chapter 2 has already criticised it at a macro (city) level, showing that Dublin and Helsinki are both low density cities, but have very different levels of car usage.

Chapter 6 Individual mobility: survey results

James Wickham

The ethnographic accounts of the previous chapter have shown what forms of transport and local facilities (shops, entertainment, etc.) exist in each case study area of the four cities. This enables us to link questions of mobility (how people move around) with questions of accessibility (what people can reach). This chapter now uses survey research to investigate how individuals in these areas use cars and other forms of transport. This focus on the contextualised individual allows us to examine mobility and accessibility together, which in turn enables an analysis of the link between car usage and car dependency which is not possible from aggregate level statistics. It also enables us to develop the empirical analysis of the relationship between, on the one hand, car usage and car dependency, and on the other hand, social inclusion and social cohesion.

The chapter begins by presenting the demographic and social structure of the 12 areas and relating this to car ownership and use of public transport. Against this background, the chapter then moves to examine the work and non-work journeys people make, and in the key central section, the extent to which these journeys are understood as involving a choice of transport mode. In other words, has the car system developed so far that all other forms of mobility have become occluded? And to what extent is this interwoven with new forms of social exclusion? A final section uses individuals' experience of walking in their neighbourhoods to explore the relationship between car usage and social cohesion.

Chapter 2 has already presented an outline of the survey methodology used for this stage of the project. The full results of the initial analysis of the survey, along with a complete set of tables and charts, details of sampling strategy, questionnaire, etc. are contained in the report, *Report on Workpackage 3.2, Using cars, using public transport.*

6.1. Modes of mobility in the localities

6.1.1. The areas

Table 6.1 shows the social class composition of the areas as reported by the survey. 'Social class' is derived simply from the occupation given by those respondents who reported that they had a job. This occupation was coded according to the International Standard Classification of Occupations. These were then aggregated into a three-fold 'Goldthorpe' schema. The 'service class' comprises professional and managerial occupations, including large proprietors, 'intermediary' comprises routine white collar, technical and sales staff, while 'manual' comprises all manual occupations (for details see Appendix 3 of the *Report on Workpackage 3.1*). The results presented in Table 6.1 are necessarily very crude, in particular because they take no account of either gender or household structure.

Table 6.1. Areas by social class

	Service	Inter-mediary	Working	Total
Athens (W)	35.0	25.0	40.0	100.0
Athens (M)	22.6	67.7	9.7	100.0
Athens (I)	87.5	6.3	6.3	100.0
Bologna (W)	20.8	32.1	47.2	100.0
Bologna (M)	17.3	40.4	42.3	100.0
Bologna (I)	25.0	36.4	38.6	100.0
Dublin (W)	6.3	12.5	81.3	100.0
Dublin (M)	42.9	25.0	32.1	100.0
Dublin (I)	25.0	46.9	28.1	100.0
Helsinki (W)	15.8	36.8	47.4	100.0
Helsinki (M)	56.3	28.1	15.6	100.0
Helsinki (I)	54.8	22.6	22.6	100.0

Base: All employed.

In all four cities the area that we had designated as working class does in fact have the highest proportion of respondents in working class occupations. The high proportion of service class occupations in the Athens working class area probably occurs because our coding scheme allocates all self-employed people to the service class, and in Athens these will have included many small artisans. It is also noticeable how Dublin emerges as the most socially segregated of all our four cities, at least in terms of the extent of the homogeneity of the working class area. Thus working class occupations comprise 81% of all relevant respondents in the Dublin working class area, as opposed to only 47% in both the Bologna and Helsinki 'working class' areas and a mere 40% in the Athens working class area.

The credibility of the survey data is strengthened by the results for age which are in line with the different national demographic structures. Thus overall the Dublin areas tend to have a higher proportion of young people (18-24) and the Helsinki areas a higher proportion of older people (65+). The table also confirm two demographic peculiarities of two inner city areas reported from ethnographic and census material (*Report on Workpackage 3.1*): inner city Athens has an unusually high proportion of older people, and inner city Helsinki a high proportion of young people.

The survey also reported employment in the different areas for the age group 18-64. In line with current EU practice the focus here is on employment per se, i.e. part-time and full-time employment is collapsed into one category. This shows considerable variation between the areas: from a low of 43% in Athens (W) to a high of 85% in Athens (I). As expected, there is little difference in employment between the genders in Helsinki. More surprisingly, there is also very little difference in the working class area of Athens. In these terms Dublin is very divided: working class Dublin is close to the two southern cities with their large gap between women and men, while the other two Dublin areas are closer to the Helsinki pattern of fairly similar employment levels for both genders.

6.1.2. Car ownership and car driving

Car ownership is the norm in our cities. In virtually every area, the majority of households have a car. At the household level then, car ownership is normal. But 'normal' does not mean universal and there are significant variations in both car ownership and car driving.

With the exception of the working class suburb of La Barca in Bologna, in each city the middle class area has the highest proportion of household car ownership. In every city, the inner city area has the lowest proportion of household car ownership.

As argued above, it is not possible to generalise directly from our sample to the population of each city as a whole. However, the cities can be ranked by taking each of the different types of area (working class, middle class, inner city) and ranking the cities within them. Table 6.2 presents car ownership in this form. It suggests that Athens and Helsinki are the two extreme cases in the study. Athens ranked the highest or second highest within each type of area. Conversely, Helsinki is lowest or second lowest within each area. Bologna and Dublin appear more ambiguous with no clear overall rank order across the different areas. On this basis, car ownership would seem to be most prevalent in Athens and least prevalent in Helsinki.

Table 6.2. Household car ownership: cities ranked by area
Cities by rank order within each area

	Working class suburban	Middle class suburban	Inner city
Highest	Bologna 88%	Athens 90%	Athens 68%
	Athens 75%	Dublin 89%	Bologna 64%
	Dublin 56%	Helsinki 83%	Helsinki 48%
Lowest	Helsinki 50%	Bologna 65%	Dublin 39%

Base: All respondents

It is well known that household types are becoming more diverse within Europe. Consequently it is useful to isolate the 'conventional' household, comprising the respondent and a spouse or partner and where the respondent is in the core employment age of 25 to 64. Virtually all of these 'core age partner households' have a car. Indeed, in the middle class suburban areas such household car ownership reaches 100% in Dublin and Helsinki. In fact in these areas car ownership now frequently means not the family car, but several cars. The extreme case is Dublin, where in such households the average number of cars per household is 1.9. Car owning is least common amongst 'core age partner' households in the Dublin working class area (only 63% of all respondents) and the inner city areas of Dublin (73%) and Helsinki (79%).

Evidence from the preliminary interviews (*Report on Workpackage 3.1*) and the focus groups *(Report on Workpackage 4*) shows that deviations from this normality can be the result of conscious choice rather than simply relative poverty. In the survey this issue was addressed by focusing on those who did not have a car but who had to travel to work or college. This group was asked for their response to the statement 'I would buy a car if only I could afford one'. It would be tempting to argue that the only reason why people in the suburban areas do not have a car is that they cannot afford one, whereas non-owners in the inner city might choose whether or not

to buy a car. However, this is not the case, although given the very small numbers the responses must be interpreted with more than usual caution. The data shows an interaction of city level and area level issues. Firstly, *all* the areas of Bologna and Helsinki had a significant proportion of non-car owners who 'strongly disagreed' with the statement that they would buy a car if they could afford one, while in the suburban areas of Athens and Dublin there were no such respondents at all. In other words, citizens of Bologna and Helsinki, wherever they live, can conceptualise life without a car, while this is much more difficult for suburban inhabitants of Athens and Dublin. Secondly, there was *some* disagreement with the statement amongst non-car owners in every single area of the study, suggesting that even in those areas where mobility is most dependent on the private car, not everyone regards it as an absolute priority to own one.

One reason why people may not wish to buy their own car is the simple fact that a car in the household may be shared between several adults. Examining only those households with cars leads to showing the number of cars per adult in these households. This shows much the same pattern as for ownership in general. In each city with the exception of Bologna, it is the middle class areas that have the highest number of cars per adult. More important is the overall picture: even in households where there is a car, most adults have to share it with other members of the household.

If the car is to be shared within the household, this raises the question of who actually does drive it. Taking only respondents in car-owning households, we can compare the proportions of women and men who reported that they drove the household car. Once again this shows the extent to which in our cities car usage is widespread but not universal. In virtually all areas, there is a significant gender difference, with women less likely to drive a car than men. As one might expect, this gender difference is largest in the working class areas of the two Mediterranean cities. Some of the results are however counter-intuitive. Thus in car owning households in the Dublin working class area women are more likely to drive the car than men (possibly because there are more female headed households).

If analysis is further restricted to 'core age partner households ' (see above) then the gender inequality is both reduced and becomes completely consistent. These households have above average car ownership. In these households *all* the men drive the car with the exception of only three areas (the working class areas of Athens, Bologna and Dublin). For women in these households the situation is more complex. In most (but not all) areas a majority of women drive; in only one area (inner city Athens) do *all* women drive; in *no* cases are women more likely to drive than men.

Finally, age is a more important discriminator than gender. In every area with the exception of inner city Helsinki, there is an inverted U shaped relationship between age and car driving. With the exception of Bologna, car driving is most common amongst the middle class and the middle aged. Fully 90% of respondents aged between 25 and 64 in the middle class Dublin suburb drove, while at the other extreme the same applied to only 13% of respondents under 25 in the working class Dublin suburb. The same pattern applies in most other cities, but not with the extreme differences shown in Dublin.

Car ownership is also most common in the middle years of the life cycle. As might be expected, while in the older age category the proportion who own a car and

the proportion who drive a car are usually similar, in the younger category drivers are more frequent than owners.

Not surprisingly therefore, the survey shows that car ownership and even more so, car driving, is widespread in all areas of our four cities. However, the survey also reminds us that car driving, and even more so, car ownership, is *not* universal. A significant minority of people do not drive and a larger minority do not own a car. Some of these people are excluded from the car society by lack of resources (often linked to age and dass), but others appear to have chosen to use their resources in other ways. The car is dominant but not universal.

6.1.3. Public transport usage

Table 6.3 shows substantial differences between our cities in the use of public transport. Public transport usage is higher in Bologna and in particular in Helsinki than in the other two cities. Thus within the working class areas, fully 48% of respondents in Helsinki had used public transport in the last two days, higher than in any other working class area. Equally, in both inner city and middle class suburban areas, usage is higher in Helsinki than in the other cities. The differences within the cities are equally important and clear. With the exception of Bologna, usage of public transport is lowest in the middle class area. Within these general patterns, it is worth noticing the extraordinarily high level of public transport usage in the Helsinki inner city, with fully 58% of all respondents using public transport in the last two days - the highest level in the entire study. Helsinki is also remarkable for the mix of public transport - in Helsinki respondents are likely to use metro, tram and bus, and as Chapter 5 has shown, this is in fact particularly high in the inner city area which is served by all three transport modes.

Table 6.3. Public transport use and household car ownership
Percentage of each category using public transport in the last two days

	No car in household	Car in household	All	*N*
Athens (W)	31	29	29	*51*
Athens (M)	20	20	20	*51*
Athens (I)	31	21	24	*50*
Bologna (W)	83	30	36	*99*
Bologna (M)	62	34	44	*98*
Bologna (I)	63	27	40	*98*
Dublin (W)	42	37	39	*54*
Dublin (M)	50	15	19	*54*
Dublin (I)	27	0	20	*54*
Helsinki (W)	62	33	48	*48*
Helsinki (M)	63	15	23	*48*
Helsinki (I)	72	43	58	*48*

Base: All respondents, N=753.

Table 6.3 also shows the level of public transport usage by whether or not there is a car in the household. Not surprisingly, public transport usage usually falls as soon as there is a car in the household, although there are exceptions: the working class areas of Athens and Dublin, and in middle class Athens. Relating public transport

usage to car driving shows essentially the same pattern. Those people who report themselves as driving a car are noticeably less likely to use public transport. However, in the working class areas relatively high numbers of car drivers do use public transport, presumably because they may drive but do not always have access to the car when they need it.

Within each type of city area comparing car-owners with non-car owners, or car-drivers with non-car drivers, shows, so we have seen, that car ownership and car driving is associated with less use of public transport. This is hardly surprising. Our study of twelve different areas of four different European cities shows something rather less obvious and much more important. There is substantial variation between areas and between cities in the extent to which car drivers (and car owners) also use public transport. At one extreme in inner city Helsinki 43% of all those respondents in car-owing households (and 38% of all car drivers) used public transport in the last two days. At the other extreme there are areas, namely inner city Dublin and middle class Helsinki and middle class Dublin, where no car drivers in our sample had used any public transport. By itself this does not allow us to categorise these areas as *car dependent*, but it obviously categorises them as involving extremes of car *usage.*

6.1 4. Public transport quality

It is usually assumed that people do not use public transport because they see it as low quality form of travelling - it is unreliable, crowded, dirty, etc. Respondents were presented with a series of statements about public transport in their city and asked the extent to which they agreed with them.

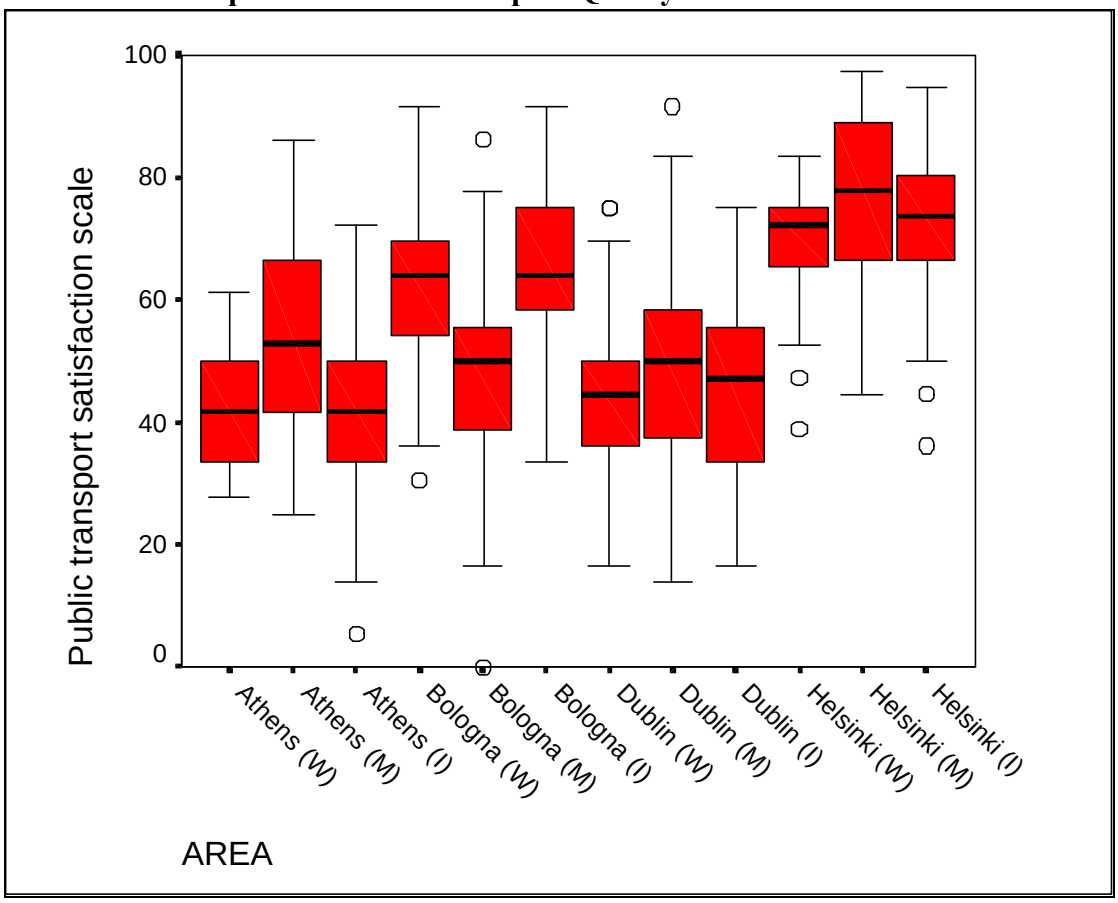
The simplest issue of public transport quality is whether or not it is clean - in terms of *cleanliness* of public transport, the statement was 'Public transport is dirty'. Another crucial issue is *accessibility* - whether the public transport system is a system which people can use to reach different parts of the city ('Public transport makes any part of the city accessible to me'). If citizens are to use public transport they need reliable and comprehensible *information* ('The timetables are clear and easy to understand').

The key division in the results is between cities, rather than between different areas. This is entirely plausible, because public transport operates at the level of the city rather than the local area. The results show that Dubliners have a far more negative view of their public transport than the inhabitants of our other cities. On each of the three aspects of public transport quality every single area of the city returns scores below the average. Conversely, the citizens of Helsinki see their public transport in a very positive light: on every aspect all areas of Helsinki return scores on or above the average. The situation in Bologna and Athens is more ambiguous, with Bologna tending to score more positively.

The results can be seen more clearly if the different aspects of public transport quality are combined into a scale (Chart 6.1). We used a simple additive scale combining 9 aspects of transport quality. Of the original 11 items, two were omitted since they did not correlate strongly with the others: 'The cost of fares puts me off using public transport' and 'The public transport routes are useless for me'. The scores on all other items were totalled and the result recalculated to produce a scale ranging from 0 (low) to 100 (high).

Chart 6.1 also presents the scores on this 'public transport satisfaction scale'. It shows clearly how using this composite measure brings out the importance of the city factor - the scores for all three areas of each city are closely related.

Chart 6.1. Perception of Public Transport Quality



Base: All respondents, N=745.

What the box plot shows

Chart 6.1. is a 'box plot'. It presents the scores on a scale of perceived transport quality which ranges from 0 to 100. Each box in the plot shows the scores for different localities. Very simply, the heavy line is the average for the group, and the longer the box, the greater the spread of the scores for the group.

In more technical terms:

The heavy line in the box shows the median response - one half of the group had scores above this point and the other half had scores below this point.

The length of the box shows the distribution of the central half of the responses. The top of the box is the 75th percentile, the bottom of the box the 25th percentile. Thus one quarter of the respondents obtained a score lower than the person whose score is shown by the line at the bottom of the box; one quarter of the respondents obtained a score higher than the person whose score is shown by the line at the top of the box.

The vertical bars show the largest and the smallest values that are not 'outliers'. Outliers are values that are more than 1.5 box lengths from the 75th or the 25th percentile.

Further analysis shows that in all cities but Dublin, those people who actually use public transport have a rather more positive perception of it than those who do not. By contrast, in every single Dublin area those people who actually use public transport have a more negative perception of it than non-users - the only other example is in the middle class area of Helsinki.

Overall the most satisfied transport users are those in all areas of Helsinki, in the inner city and working class areas of Bologna, and in the middle class area of Athens. The latter is particularly interesting given the negative views of public transport that Athenians in general report, and the large gap between users and non-users. Overall the most important finding of this section is that in Helsinki there areh high levels of public transport usage and a positive perception of public transport quality. In Helsinki as elsewhere, when people own cars they are less likely to use public transport. However, the city in which they live also has an independent effect. Thus in Helsinki the high quality of public transport both makes car ownership marginally less important for people, and ensures that car owners are less likely to use their cars for all the journeys they make.

6.2. Journeys

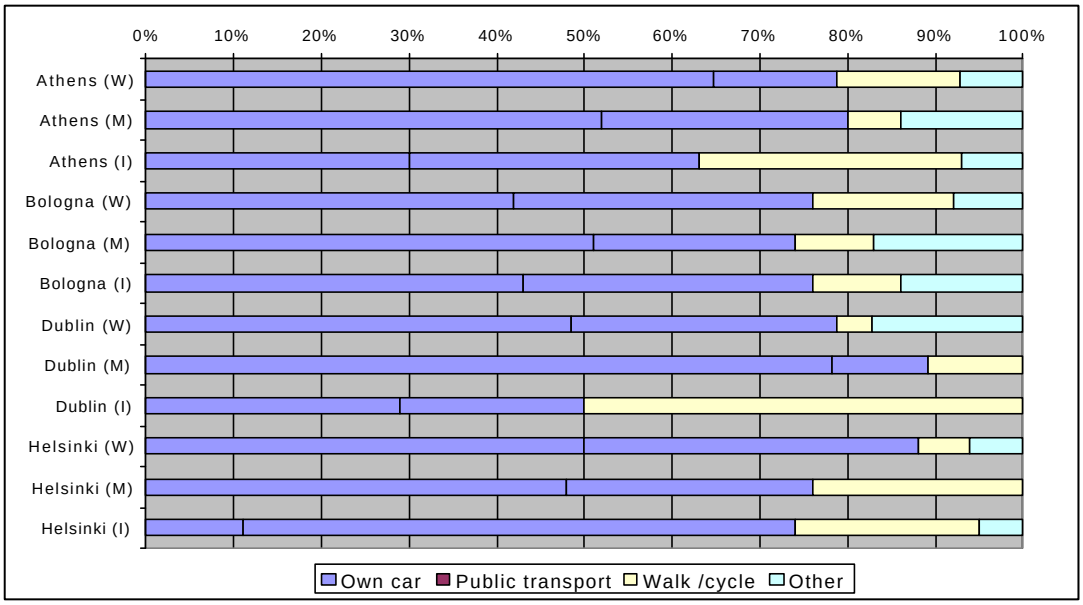
6.2.1. Journey to work

The journey to work remains the main focus of public policy attempts to reduce car usage, whether by persuading people to change transport mode or, in the longer term, by locating work and housing closer together. As we have already argued, this focus is in fact increasingly problematic because the journey to work is a decreasing proportion of the total amount of car journeys. Furthermore, working times and even work locations are also becoming more flexible, so that the journey to work itself is becoming less amenable to the rigid patterns of most public transport provision.

Nonetheless the journey to work remains the simplest starting point for a discussion of the different ways in which people use cars. Our initial crude measure of car dependency in the four cities was precisely the extent to which people used the car for this journey (Chapter 3). City level data from 1990 showed a clear difference between on the one hand, Athens and Dublin, two very car dependent cities, and on the other hand, Bologna and Helsinki, where cars were used much less for this journey. This section uses the survey data to explore that issue within the different areas of the four cities.

Analysis began with the 'normal' mode of travel used by all respondents in the survey for their journey 'to work or college'. As expected, in every city inhabitants of middle class suburban areas are most likely to make this journey in their own car. In every city but Helsinki, inhabitants of the inner city are most likely to travel on foot or by bicycle. Comparing similar areas in the different cities shows that Athens has the highest level of travel to work by car (it is either in first or second position within each area). Conversely Helsinki has the highest level of travel by public transport (it is in the first position within each area).

Chart 6.2. Normal mode of travel to work, all employed aged 25-64



Base: All at work aged 25-64, N=354.

Examining only those aged between 25 and 64 who are at work focuses on that journey and on those people that have been the conventional focus of transport policy (Chart 6.2). Not surprisingly, the proportion using their own car for this journey now increases. In middle class Dublin it now reaches nearly 80% of all respondents, and in most areas is at about the 50% mark. This narrower focus also highlights the specific situation of inner city Helsinki, Dublin and Athens, where the proportion using their car is now remarkably low compared to the rest of the sample.

We can narrow the focus still further to examine only the car owners within the 'core age employed' group. Obviously the very small numbers involved within any one area mean the results are only indicative, but they are nonetheless both plausible and important. Not surprisingly, car owners usually drive to work. This reaches the most extreme levels in Dublin (70% or more in all areas), but in nearly all areas well over 50% of car owners use their car to travel to work. The main reason given is usually speed, followed by comfort. However, some car owners do leave the car at home for this journey. Comparing the areas, car owners are particularly likely not to drive to work in the inner city areas, and comparing the cities they are noticeably more likely to do so in Helsinki than elsewhere. Those few owners who did not use their car frequently cited the problem of parking as the chief reason, although particularly in Helsinki some found public transport more comfortable.

The results of low quality public transport and a poor land use policy are clear in Dublin. In working class suburban Dublin 92% of all car owners use their car to get to work, the highest proportion of all areas. This area of Dublin, it will be recalled, has the lowest level of car ownership in the study (Table 6.2). Normally low car ownership is associated with low car usage - since the same factors that make it unnecessary for people to buy a car also allow those with a car not to use it. However, in working class suburban areas like Dublin's Jobstown low car ownership is largely because of lack of resources: those who can afford a car will use it. This

contrast between car-owners and non-car owners is clear evidence of car dependency. It suggests that in this area of Dublin there are journeys for which a car is not just a choice but an essential. This was already suggested in Chapter 5 and is further strengthened by the results of the focus groups reported in the next chapter.

6.2.2. Journey to school

Another important regular journey is the journey to school. In many cities this is known to have a significant impact on the level of traffic. In the UK children are far more likely to be driven to school than was the case even ten years ago, and the major cause appears to be parents' concerns about safety. However, public policy in many cities is attempting to reduce this trend. In Dublin for example, there was in autumn 1999 a 'Safe Walk to School' campaign which focused on making it safer for children to walk to school.

The survey collected information on journey to school separately for children at kindergarten, primary and secondary schools. Overall children are far more likely to travel to school by non-mechanised transport (walking, cycling) than are their parents when they travel to work. The survey suggests that it is in the middle class areas that children are most likely to be taken to school by car. The important exception is Helsinki, where despite high car ownership in the middle class area in particular, children continue to walk or cycle to school.

The results also suggests that public transport is used for this journey *either* where it is the only option, as in working class Dublin, *or* where it is of very high quality as in middle class Helsinki. This (tentative) argument is made more plausible by the fact that only in working class Dublin is there a significant number of respondents with children who do not have a car, and this is also the only area where excluding car-less households substantially increases the proportion using cars for this journey. This is the same pattern in Jobstown as for the journey to work: once people are able to afford a car, their travel patterns change, suggesting the combination of car dependency and social exclusion.

6.2.3. Other non-work journeys

We have already stressed that travel to work comprises a decreasing proportion of total travel. The study therefore also asked how people travelled for a range of 11 different activities: various forms of shopping (small amounts of food, food for several days, clothes, electronic goods, DIY items), sociability (visiting relatives and friends in their own houses, meeting people in café, bar or restaurant), entertainment (going to the cinema or sport) and medical facilities (hospital for emergencies or major surgery, doctor for general care).

The least 'motorised' activity is shopping for 'small amounts of food'. This is usually done on foot (or by bicycle): middle class Dublin is the only area where the usage of non-mechanical transport falls below 50%. In most areas only about 10% of respondents use their car for this activity, but in middle class Dublin the proportion rises to 44% and in middle class Helsinki it is still 30%. Working class Bologna is the only other area where the proportion is over 20%.

Other activities involve greater use of the car and/or public transport. Shopping for 'food for several days' one might imagine has now become an activity for which people use a car to reach a suburban supermarket. However, in the areas of the study

this is not yet the case. In all areas, with the exception of the working class suburban area of Dublin, a substantial minority of respondents report walking or cycling to this form of shopping. This rises to over 50% in the working class areas of Helsinki and Athens. In both working class suburban and inner city areas, car usage for this activity never rises above 50%.

While two other forms of shopping (electronic goods, DIY) show broadly the same pattern as large food shopping, shopping for clothes shows a noticeably higher level of public transport use. Probably this is because in all four cities clothes shopping tends to be done in the city centre which is accessible by public transport. Other forms of shopping are more likely to involve out of town retail outlets which can be reached more easily by car.

Public transport is unimportant for visiting friends in Athens and important in Helsinki. Indeed, in inner city Helsinki 57% of respondents used public transport to visit friends in their own house. The high quality *local* public transport (tram) in the area is clearly decisive here. Walking (and cycling) is, not surprisingly, also important in all the inner city areas but in fact the highest level is in working class Dublin. Again, this is probably the result of lack of car ownership and lack of choice. In the working class area of Athens 55% of respondents use their car for 'visiting friends in their own house', with 71% in the middle class area and 40% in the inner city. Athens is highest in car use within each type of area for this activity, while Helsinki is lowest or second lowest in each area. This ranking is also replicated for the other forms of sociability: Athens areas have high car usage and the Helsinki areas have either the lowest or second lowest ranking for car usage.

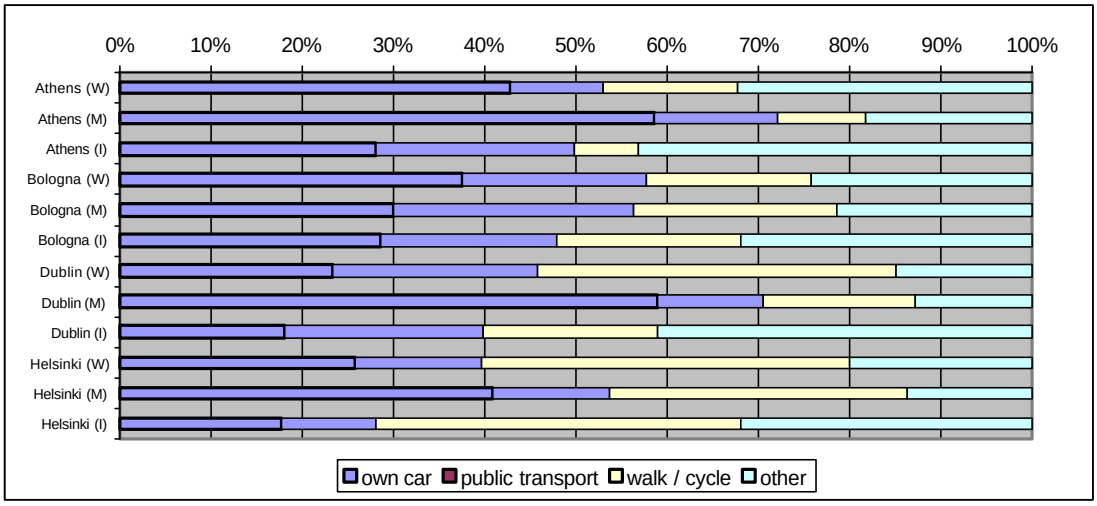
Finally, the survey examined the form of transport used to access medical care. With the exception of working class and middle class Athens, over 20% of respondents will walk to visit a doctor. The Athens pattern is partly because in Athens general medical care usually involves visiting a hospital, unlike in the other cities. Ranking the cities within each area produces the now familiar pattern: car usage is clearly highest in Athens, lowest in Helsinki, while Dublin and Bologna are in the intermediate position.

The advantage of Helsinki city centre living is shown in terms of access to hospital: fully 35% of respondents reported that they would walk to hospital. In a city like Dublin, which has now almost completed 'suburbanising' its erstwhile city centre hospitals, this figure is only 14%. It is even lower in the other two cities.

An overall measure of mobility form was created for all 11 activities for which this standard question was asked. For each respondent we counted the total number of activities carried out by each of the four transport means (car, public transport, walking or cycling, 'other means'). Since these four totals together represent all the journeys undertaken by the individual, each of them can be expressed as a percentage of the total number of journeys. The measure therefore simply records what percentage of these activities is undertaken by car, public transport, walking and 'other means'.[38] The results are shown in Chart 6.3.

[38] Individual totals are for all journeys undertaken by the respondent: not every respondent gave information about all 11 activities. No attempt was made to weight

Chart 6.3. Travel: all non-work activities



Base: All respondents, N=752.

The chart shows how car usage is far higher in the middle class areas of Athens and Dublin, with very nearly 60% of all activities reached by using one's own car. In other cities and in other areas the proportion is never over 50%, and in inner city Dublin and Helsinki it falls to below 20%. Comparing similar areas across the cities shows consistently high levels of car usage in Athens and consistently lower levels in Helsinki, with the picture for Dublin and Bologna is rather more ambiguous. Restricting the analysis to households with a car makes this pattern less clear but does not remove it entirely. In particular within the middle class suburban areas, car usage is highest in suburban Dublin (66% of all activities by car) and Athens (65%), and much lower in Helsinki (40%) and Bologna (30%).

Looking at the respondents as a whole, these results show a rather lower level of car usage than one might have expected. In most areas at least a substantial minority of people do not use the car for most activities. In these cities, despite widespread car ownership, most activities are carried out without using the car. Extremely high levels of car usage occur in middle class Dublin for shopping, and in middle class Athens for sociability and medical care, while the car is used least in inner city Helsinki. Restricting the analysis only to those households with a car obviously makes it more likely that people use the car for these journeys, but it remains the case that even here substantial minorities still use other means of transport, including quite frequently walking. Indeed as we shall now see, car dependency is not as widespread as we might expect.

6.3. Choice and car dependency

Previous sections have shown how car ownership and car usage varies between cities and between areas. The considerable range of variation makes clear that there is nothing inevitable about ever-expanding car use. However, the crucial question is not simply the variation of actual car use, but the extent to which the car system has now

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the components of the measure, although it could be argued that some are more important than others.

permanently marginalized other forms of mobility. To answer this we need to know to what extent have people *chosen* to use the private car for journeys which they could make by other means. To what extent are people now making journeys by car that they could *not* make by other means?

In order to tackle these questions, this section investigates the extent to which people in the different areas of the four cities consider that they have a choice of transport mode. Section 6.1 has already shown how low levels of car usage occur in inner city areas and in cities where public transport quality is perceived to be good. To what extent however do people consider that they can *choose* the form of transport they use? The issue is analysed in relation to a range of activities (work, shopping for large amounts of food, etc.). In the section of the questionnaire devoted to transport choice, for each activity respondents were asked how they *normally* travelled, how they *sometimes* travelled and how they *could* travel. Thus while people could only give a single answer to the first question, each person could give several responses to the second and third questions[39].

6.3.1. Travel to work

As we have already seen there is extensive variation in the way in which people in our cities travel to work. At one extreme nearly 80% of the core age group employed in middle class Dublin travel to work or college by private car, whereas this falls to less than 10% of the same group in inner city Helsinki.

Nonetheless, public transport does remain at least a theoretical option for most people travelling to work Still restricting the analysis to the 'core employed group', in every area except inner city Dublin and middle class Athens, a majority consider that they could use public transport to get to work. A surprisingly large proportion of people also consider that they could walk or cycle to work, and not just in the inner city. Thus even in middle class Dublin, over a third of those in employment consider that they could walk or cycle to work, as is the case for fully two thirds of those from middle class Helsinki.

The key question of course is the extent to which people use the options that are available to them. Table 6.4 therefore shows how people's normal mode of travel to work is related to the other ways they could travel to work. It compares four main groups, those who:

1. normally travel to work in their own car, but could walk, cycle or use public transport
2. normally travel to work in their own car and could not walk, cycle or use public transport
3. normally travel to work by public transport, walking or cycling but could use their own car.
4. normally travel to work by public transport, walking or cycling but could not use their own car.

[39] Question: 'I'm going to read a list of the main activities we've talked about. For each one of them, could you tell me how you ***normally*** travel to do it, if there is any form of travel you ***sometimes*** use, and whether there is another form you personally ***could reasonably*** use.'

Thus groups (2) and (4) are mode dependent. Group 2 is 'car dependent' and group 4 is 'public transport dependent'. By contrast, the other two groups are exercising choice since they consider that there are several ways in which they could get to work.

Table 6.4. Choice of travel mode to work
Core employed age group: row percentages

Normal mode:	Car			Non-car		None of these	Total
Possible alternative modes:	Non-car	None	*(Deped-ency rate)*	Car	None		
(Group)	*(1)*	*(2)*		*(3)*	*(4)*		
Athens (W)	43	14	*(25)*	14	14	14	100
Athens (M)	13	37	*(74)*	23	13	13	100
Athens (I)	24	16	*(40)*	8	40	12	100
Bologna (W)	30	13	*(30)*	28	20	9	100
Bologna (M)	47	4	*(8)*	2	30	17	100
Bologna (I)	19	17	*(47)*	19	36	10	100
Dublin (W)	35	13	*(27)*	4	30	17	100
Dublin (M)	62	14	*(18)*	10	14	0	100
Dublin (I)	21	4	*(16)*	13	63	0	100
Helsinki (W)	47	4	*(8)*	2	30	17	100
Helsinki (M)	30	13	*(30)*	13	44	0	100
Helsinki (I)	.-	9	*(100)*	26	61	4	100

Base: All employed aged 25-65.
'Non-car': public transport, walk or cycle.
'None': no answer, missing data.
'No choice': no alternative possible to normal mode.

Table 6.4 shows the distribution of these four groups for the journey to work. It shows that in this strict sense, car dependency is actually quite limited in our four cities. With the exception of middle class Athens, the proportion of respondents who are car dependent for travel to work never rises above 20%. This finding is important, for it suggests that car usage can be reduced.

The final stage of this analysis relates car usage to car dependency. The third column of Table 6.4 shows the '[car] dependency rate'. It is calculated by simply taking the second column (car journeys for which there was no choice) as a percentage of the sum of the first and second columns. Comparing car dependency and car usage shows again how much car usage for the journey to work is a matter of choice. With only two exceptions (middle class Athens and inner city Helsinki) the proportion of car journeys for which there is no alternative is never more than half.

The proportion of journeys that are mode dependent has no relationship to the overall level of car usage. The area with the highest proportion of car journeys for which there is no alternative is in fact inner city Helsinki. Here virtually nobody uses a car to travel to work, but absolutely everyone who does, considers that they have no option. By contrast, the next highest proportion of mode dependent car journeys is in

middle class Athens (74%). This is an area where half of all journeys to work are by car, one of the highest levels of car usage in the study. In inner city Helsinki, the focus group reports (*Report on Workpackage 4, Experiencing Moblity)* suggest that those who use their car for work not only travel out of the city centre, but also are travelling and working at the same time (for example, visiting a series of clients in one day). Thus the low level of car usage in inner city Helsinki can be seen as the irreducible minimum that occurs even when re-urbanisation is combined with a highly effective and well regarded transport system. At the other extreme, the high proportion of mode dependency in middle class Athens is the result of a public transport system that is so bad that very few could consider using it and an urban environment in which walking or cycling to work is unacceptable.

Questions about the journey to work suggest the reasons why people choose to use the car. For most who use the car for this journey, public transport would be 'impractical' and conversely, with the exception of Bologna, car users choose the car because they believe it is quicker than other methods. Overall, those who travel to work by private car are marginally less likely to find the journey 'pleasant' and less likely to believe they will arrive on time than those who walk or who use public transport. Overall, this suggests that although most car users consider that they 'could' travel to work without the car, they believe that it would be impractical to do so. For the journey to work therefore, utilitarian considerations determine the choice of mode.

6.3.2. Other activities

A similar analysis was carried for four other activities - shopping for small amounts of food, visiting the doctor or hospital, visiting friends, going out for entertainment (e.g. sports, cinema). For each activity the questionnaire asked for the one 'normal' mode of transport, the mode(s) used 'sometimes' and all possible modes. Once again these were aggregated into using one's own car, using public transport, walking or cycling and 'other' (taxi, motor scooter or motorcycle).

As section 6.2.3. has already shown, most respondents in all the cities walk or cycle in order to shop for small amounts of food. The percentage ranges from over 90% in all three areas of Athens to 45% in middle class Dublin. The high levels of walking in Athens presumably occur because all three areas of Athens are relatively densely populated and are quite well provided with small shops. Thus virtually all Athenian respondents considered that they could make this journey on foot. Yet even in middle class Dublin 85% of respondents considered that they could walk to the shops although fully 40% of them in fact use the car for this journey. Comparing normal mode and possible modes shows that car dependency – as opposed to car usage – is very low for this journey. Thus middle class Dublin has the highest level of car usage for this journey, but precisely one respondent (2%) believed that there was no alternative to the car. More surprisingly, walking to the shops is low in inner city Bologna, where fully 15% use their own car for this form of shopping (as compared to well below 10% in the other inner city areas). One peculiarity of Bologna does appear to be that high car usage for some activities is combined with good public transport.

People are of course more likely to use a car to reach a doctor, though only in three areas (working and middle class Athens, middle class Dublin) are over 20% of respondents using a car without any alternative being available. Once again what is

probably more important is the converse, that is to say that even where people do use their car for this journey they consider that they have an alternative. Car usage and car dependency is slightly higher for 'visiting friends' and higher again for 'going out for entertainment'. Yet this journey also shows a higher proportion of respondents who walk or use public transport even though they could use the car, and in Helsinki this group is actually larger than those choosing to use a car.

6.3.3. Imagining differences

A final section of the questionnaire approached the question of choice and constraint more directly. It used two open ended questions. Car owners were asked what they would *not* be able to do if they did not have a car. Then non-car owners were asked what they would be able to do if they *did* have a car. The two questions did not produce usable answers for Athens so analysis is restricted to the other three cities.

Overall for car owners, not having a car would above all pose problems for retaining their present employment or education. The Dublin results are particularly interesting here. In the working class Dublin area 44% of all car owners mentioned employment as a potential problem. This strengthens the earlier argument that in this working class suburb a car is essential for some people to retain their existing job.[40] By contrast in middle class Dublin this problem is only cited by 19% of car-owners, despite the importance of the car for travelling to work in this area. Indeed in general within Dublin car owning respondents from the working class suburb produced a larger list of activities which they would have to abandon if they did not have a car. By contrast, in working class Helsinki losing their car would only cause a problem for 4% of all respondents for work. Indeed if analysis is restricted to the 'core age employed', the figure is 11% in working class Helsinki as opposed to 58% in working class Dublin. This suggests that for middle class Dublin, there are in fact alternative ways in which people could get to work, and that it is the working class area, despite its lower car usage, which is in fact the most car dependent.

The other key factor is that in all areas of Helsinki car owners find the car crucial for going to the country, whether to visit relatives, use a summer house or simply make an excursion. In other words, in Helsinki what matters about cars is not so much using them within the city, but outside it.

When attention is turned to non-car owners, working class Dublin also stands out as the area in which having a car would mean better access to work. This strengthens the hypothesis that in this area lacking a car really does weaken people's position on the labour market. Once again we also notice the importance of going to the country for all Helsinki areas.

In middle class Helsinki over a half of non-car owners feel that owning a car would bring no advantages or even create additional problems. Interestingly, this is the view of a similar proportion of middle class Dublin respondents. In all three cities inner city respondents can think of advantages to having a car. In Dublin and Bologna a car is seen as useful for visiting dependent relatives and transporting children.

[40] When analysis is restricted to the core age employed, working class Dublin respondents are even more likely to raise this issue. Conversely employment remains relatively unimportant in middle class Dublin.

Overall this question shows the outlying position of working class Dublin in terms of car dependency. Here the car is crucial to those who have one, and those who do not have one are only too aware of what they are missing. Indeed car owners in Dublin in general seem more able than car owners in other cities to identify routine activities (visiting friends, going shopping) which they would not be able to do if they did not have a car. Conversely, for people in Helsinki the major problem for not having a car is journeys outside of the city. For the inhabitants of Helsinki, mobility within the city does not depend on the car, even for car users.

6.4. Local mobility and social cohesion

To live in a city involves living both in an immediate locality or neighbourhood and using some places within the city as a whole. Obviously this mixture of spatial levels varies between social groups. It is also interwoven with people's use of transport. This section of the chapter discusses the issue by looking at extent to which people have facilities within easy reach, the extent to which they use them, and how this is related to their use of the car.

The vast majority of our respondents consider that they have basic facilities within 'walking distance'. For nearly everyone in every area of every city, there is a shop, a pub or café, a doctor and a church. For rather fewer a cinema and facilities for their hobbies are also within walking distance. There are some differences between the areas: people in working class Bologna and middle class Dublin are less likely to consider they have a shop within walking distance, middle class Dublin has the lowest proportion of respondents who consider they could walk to see a doctor. In most areas there is some disagreement about whether a particular facility is in fact within reach. This is partly because sampling was spread across each area, partly because people may well be thinking of different facilities, but also because 'walking distance' is a subjective concept.

Although 'walking distance' clearly depends partly on who is walking, it has perhaps surprisingly no clear relationship to car ownership. Although one might have expected that car-owners would be less likely than non car-owners to consider facilities to be in walking distance, if anything the relationship is the other way round. Respondents with a car in the household are marginally more likely to consider particular facilities to be within walking distance compared to respondents from households without cars.

Car ownership might be expected to increase the distance which people are able to travel even for the most basic activities. Accordingly we would expect usage of local facilities to be negatively related to car ownership. Car ownership in other words, should 'de-localise' people's living patterns. The survey results provide some rather weak evidence for this. In a majority of areas respondents from car-owning households are less likely to use the local shop and pub / café than non-car owners. For hobbies in fact the trend is if anything the other way round, with car owners marginally more likely to use local facilities[41].

Another aspect of using the locality is the extent to which people consider it safe or pleasant to walk around. The survey asked a series of questions about the 'walking

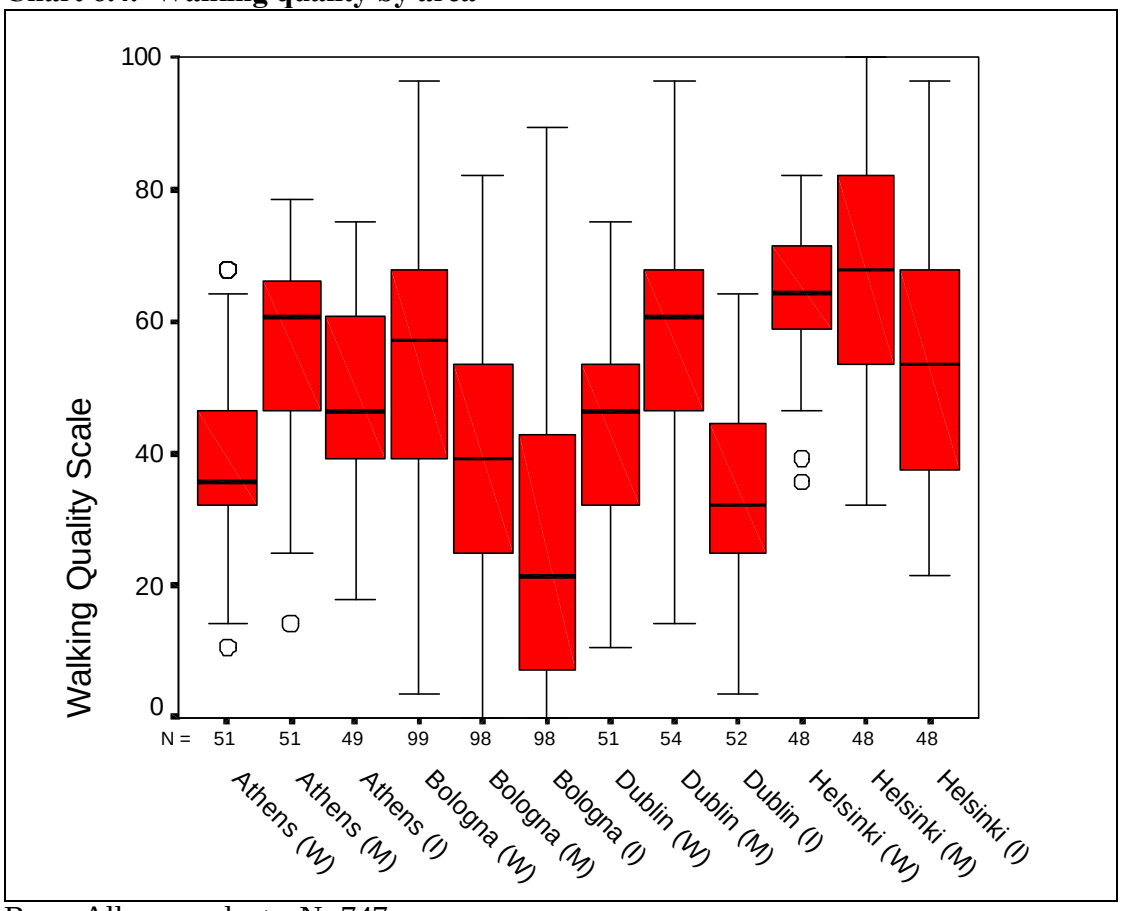
[41] Obviously other variables are involved here than simply car ownership and a fuller discussion requires multi-variate analysis of the data.

quality' of the area, covering aspects of traffic pollution to personal safety and safety of children. The only item to do with sociability ('If I walk around this area I nearly always meet someone I know') did not correlate strongly with the others, which were aggregated to create a scale. The box plot (Chart 6.4) shows how walking quality is higher (in terms of both low pollution and high personal safety) in all Helsinki areas compared to the comparable areas in other cities. It is noticeable that despite the resurgence of inner city living, walking around these areas is not seen as particularly pleasant or safe by their inhabitants. Indeed, inner city Bologna, praised by planners because of its restrictions on car usage, actually scores the lowest of all areas.

Equally surprising perhaps is that there is really very little difference between the genders here. In inner city Dublin and Bologna, and in middle class Athens, women rate the walking quality lower than men. Otherwise, there is very little difference and in all areas of Helsinki women are more positive about walking in their locality than are men. Living in a car owning household also makes very little difference.

Many urban planners argue that curbing traffic and restoring the streets to pedestrians heightens personal safety and so makes cities 'habitable'. Starting with the work of Jane Jacobs (Jacobs, 1962), this once critical position has now become the new orthodoxy. Chart 6.4 warns against a simplistic application of this argument. It shows that inner city Bologna is seen as one of the worst areas in terms of personal safety. There is in fact a growing amount of anecdotal evidence to suggest that pedestrianisation of inner city areas can attract 'street people' whom the inhabitants find threatening (shortly after the survey was carried out, there was a much publicised murder in the Piazza Maggiore in the heart of Bologna's Centro Storico). Equally, the lack of safety in working class Athens and Dublin areas shows a destruction of public space by some inhabitants themselves. In neither of these cases can the car be blamed for the destruction of public space.

Chart 6.4. Walking quality by area



Base: All respondents, N=747.

Finally analysis of children's perceived safety when walking to school also warns against simplistic strategies. The areas seen as most unsafe for children are inner city Dublin, working class Athens and inner city Bologna, in other words two areas where local car usage is relatively low. More consistent with the overall findings is that the safest perceived areas for children are all in Helsinki.

6.5. Conclusion

The guiding principle of Project *SceneSusTech* is that car use must be understood *in its social context.* Thus the first empirical chapter (Chapter 3) showed clear differences between the four cities of the study in the level of car usage. This chapter has shown how such differences expand dramatically when the focus moves to the local level. Thus at one extreme in inner city Helsinki a mere 11% of all our 'core age employed' individuals use their own car to travel to work, whereas the figure is fully 78% in middle class suburban Dublin (Chart 6.1). Given this range, it is difficult to give much credence to psychological or cultural explanations of car usage.

'Context' here operates at two levels: the immediate locality and the city as a whole. In sociology the relevance of spatial context is now often disputed. For example, much discussion of the 'underclass' focuses on particular deprived areas of cities where, so it is argued, factors to do with the specific context influence the level of poverty. People are poor not just because of who they are, but because of where

they live. Yet systematic research shows that whereas such 'contextual' factors do operate in the American inner city ghetto, they do not operate in Europe. Certainly concentrations of poverty exist, but the poor in these areas are poor because of who they are (in terms of education, qualifications, etc.) rather than because of where they live (see discussion in Nolan & Whelan, 2000).

Such arguments clearly cannot be generalised to car use which is shaped by both the locality and the city. Thus a key characteristic of the local level is the extent to which the facilities which people need (shopping, leisure, schools) can be reached without using a car. This report has shown that in each of the four cities the inner city areas have lower levels of car usage for most activities; one reason is simply that people consider that there are more facilities in walking distance. Of course, such 'densification' does not mean that people do not use cars at all. As inner city Helsinki shows clearly, people in such areas are likely to feel they need cars in order to leave them (e.g. to visit the countryside). Furthermore, the ubiquity of car travel has ensured that both facilities and sociability have become increasingly dispersed, so that people may well choose to travel further rather than use local facilities or visit local friends. Inner city Bologna seems to be an example of this process.

Questions of accessibility depend on planning decisions that are made in the first instance at city level. This applies even more to decisions about public transport provision. Chapter 3 has shown how each of the four cities have had different trajectories of transport development; Chapter 4 has shown how this has been based on different types of decision-making. Dublin and Athens - our two worst case cities - stand out as city governments with a *low capacity* for effective decision-making. The result is clear in the ineffective public transport systems of these two cities. Indeed, in Athens and Dublin the term 'public transport system' is really an oxymoron. This chapter has now shown how these different decisions shape local car usage and how therefore the quality of city governance becomes a key factor determining the level of car usage in a city. In Athens and especially Dublin public transport is badly rated by all inhabitants. Partly for this reason, car owners in these cities are particularly unlikely to use public transport at all, and car ownership becomes more desirable.

At the same time this chapter has shown the extent to which car dependency in the strict sense (i.e. journeys for which there is no alternative mode of transport available) is not as widespread as we initially assumed. Even in suburban Dublin, many car drivers consider that other modes of transport are available especially for the journey to work.

By contrast, the chapter has broadly confirmed our hypothesis on the relationship between car dependency and social exclusion as itself the result of the interaction of city and local levels. Here the case of Dublin's Jobstown - the working class suburban area - is crucial. Dublin is a car dependent city, with poor public transport and extensive suburban development. In this overall context inhabitants of a low income area like Jobstown need a car to find employment and to carry out most normal activities - but many of them cannot afford a car. In such an area, car dependency therefore generates social exclusion.

Finally, as for social cohesion the *centro storico* of Bologna shows that extensive pedestrianisation does not guarantee a safe urban environment. Inner city Bologna is

the most pedestrianised of all our case study areas - and the most photogenic! Yet as we have seen, its inhabitants consider their area more dangerous than do inhabitants of suburban Dublin or Helsinki. Our results suggest that the relationship between safe streets and car usage is more complex than the conventional wisdom amongst planners assumes.

Chapter 7 Local mobility experience in its social context: focus groups results

Taina Rajanti

Taken overall car dependency is a habit, an attitude, a mentality. It is something one has grown used to and takes for granted; it is something for which one cannot see alternatives except at the cost of prolonged effort and inconvenience. This might seem banal and obvious, but if one considers 'habit' carefully, it immediately raises more questions. One set of questions concerns the structural preconditions of car dependency. We have argued that these lie in urban structure, the structures of retail and employment, the car system and the means of public transport. In particular Chapter 3 has shown how specific configurations of external structures make car dependency possible or even inevitable (see also the separate research reports, especially *Report of Workpackage 2.1, The Car System in the City*). Chapters 5 and 6 have shown how these structural preconditions vary not only between cities, but between areas within cities. On this basis, Chapter 6 then showed empirically that car dependency can be distinguished from simply high car usage and that in these terms it varies significantly between different areas of our case study cities.

The first part of this chapter explores these structural preconditions for car dependency as they are experienced in the everyday lives of our respondents. It begins by using the focus group data to examine how the resources and constraints of the separate areas are understood by their inhabitants. The concept of 'precondition' can however be developed further. Thus people have to learn how to use those means of transport that are available. Thus the notion of 'habit' raises the question of how car dependency is *learnt.* However 'natural' it may seem, using a car as a means of mobility involves a set of *mobility skills* that have to be learnt – and that involve more than the obvious skill of car driving which is now formally tested and certified. While such skills or knowledges are missing from the experience of other people, using other means of transport also involves skills and knowledges that those completely dependent on the car may well have lost or never acquired. Having the learnt the habit, in what ways do people maintain it by their daily experience, for example through the time management of their daily errands? In the long run, so we can assume, such daily experiences fix the habit as part of people's life-style choices. At any point in time however, these choices appear to the individual as fixed constraints which cannot easily be changed and as such face the individual as external and constraining structures.

The second part of the chapter uses the focus group data to explore the meaning of mobility for our respondents. In other words, we shift from the understanding of structures and preconditions to the understanding of mobility itself. To what extent do different groups of people, in particular of course car users as compared to non-car users, have different understandings of mobility, and do these vary depending on the city and locality within which they are living? Can they imagine different forms of mobility, in particular of course, one that involves less use of the private car? And

finally, in the experiences and understandings of our respondents, can we find any linkages between the level of car dependency and urban citizenship?

7.1. Structures of everyday mobility

7.1.1. External structures: the areas

With the ethnography, the survey and the focus groups we are moving away from the more institutional level of political and social mechanisms and dynamics of the car system to the level of everyday experience of the car system. The 'experience' of mobility and accessibility can be considered both in terms of how people experience mobility and accessibility, and in terms of what experience mobility requires and constructs. This experience grows from a learning process, it is kept going by daily activities and it is fixed in patterns that can be termed life-styles. However, we must not forget that the experience does not happen in a vacuum but is also constructed by the external car-system/ transport system of the particular area and the particular city in which people live.

The cities and the areas are thus not just modes of sampling that bring the research closer to everyday experience, but they make up for a significant part of that experience. We could call them the external structures of everyday mobility. What choices of transport are there? How are services for the daily run of things accessible? What is the area like as a walking environment or how safe it is for women, children and elderly etc.? All these necessarily influence the daily experience of mobility of the residents.

Athens and Dublin can both be described as car dependent cities, in that in these cities the overall need for mobility is satisfied almost entirely by private car transport. The situation in Bologna and Helsinki is clearly different, even if these cities cannot be called car-free or even non-dependent on cars. Nonetheless, in these two cities firstly, private car traffic is controlled to some degree, and secondly there exists a functioning system of alternative transport, basically public transport, as well as also the possibility of bicycling and walking. Bologna and Helsinki can thus be termed cities of limited or controlled car dependency.

Within these four cities the three different case study areas (an inner city middle class or 'yuppie' area, a low income suburban area, and a 'normal' middle class suburban area) represent the different types of transport resources available in different areas in the each city[42]. We begin by revisiting the ethnographic account of the areas in Chapter 5 through the stories of the inhabitants themselves.

The inner city areas

In Athens, Bologna and Helsinki the inner city has traditionally been valued as a residential area. None of the inner city areas could in fact be described exclusively as 'yuppie' areas, since the traditional residential uses were present in Kolonaki, Centro Storico and Taka-Töölö; and also Docklands was divided into a traditional working class area and a new yuppie development area.

[42] As pointed out above (Chapter 2), the choice of areas ran into national cultural differences. Thus in most of our cities the inner city areas are not necessarily new yuppie areas but rather traditionally valuable residential areas. Equally, Mediterranean cities do not have 'normal' middle class suburbs of one-family houses.

To some extent all the inner city areas have similar characteristics, especially the accessibility on foot of a wealth of services and activities, while walking is the most efficient and the most preferred mode of reaching destinations within the area. There are also differences, the most striking being the choice of public transportation and connections beyond the confines of the area. While Kolonaki is very close to the centre of Athens it still has very limited possibilities of communication by public transport to other parts of the city, and is actually cut off from the rest of the centre by traffic congestion around Kolonaki, which is a problem for those who have to get out of the area for their work. In fact, the decision of the residents to live in Kolonaki is linked to the advantage of doing without both the car and public transport. Equally, in the Dublin Docklands the public transport facilities are not seen by the residents as one of the attractions of inner city life.

The Centro Storico of Bologna is more similar to Taka-Töölö in Helsinki in that the residents value how its public transport connections make other parts of the city centre and other parts of the city accessible to them. There is always plenty of traffic, but in Helsinki pavements as a rule are wide and well maintained, and on the side streets traffic is considerably quieter; in Bologna the pavements of the inner city often run in archways. The choice of public transportation modes, routes and directions is practically unlimited, again especially in Helsinki. The inner city is both a junction and a destination for various communication routes both within the city and outside it. The residents have abundant resources of mobility and accessibility and can thus be considered *transport rich*, whether in terms of using transport technology for individual mobility needs, or in terms of making choices between different transport technologies.

Thus, even if all inner city areas offer their residents a wealth of accessibility (of services and activities), this does not necessarily imply a wealth of transportation. In car dependent cities the wealth of accessibility is still confined within the area, lack of (public) means or congestion of (private car) traffic limits transportation that is available to the residents. True affluence lies in an affluence of public means and possibility of choice, which is a theme we shall return to in connection with other themes of mobility experience.

The suburban working class areas

The connection between car dependency and social exclusion in car dependent cities is already visible in the overall transport resources of the suburban working class areas. Especially Jobstown, but also Aghioi Anarghiroi lack reliable and convenient public transport connections out of the area. Jobstown has very few basic services and the nearby town centre of Tallaght is at an unwalkable distance away. A. Anarghiroi fares a bit better as regards basic services accessible by foot in the area, but there are no leisure activities. The residents of these areas have a lack of transport resources for their daily lives.

By contrast, in Helsinki the suburbs are based on public transport links, since the city spread outwards along the railway lines and later along the metro. Kontula has a direct metro connection to the centre, and several feeder bus-lines which connect it also to the local railway. The area has a relatively big shopping centre that has retail, restaurants and cafes and public services, within one kilometre of every resident. Walking and bicycling is easy and pleasant on the wide pavements and dedicated

pathways. The structure of Kontula and its transport connections are all produced by a planned public structure, and therefore the residents have a transport wealth regardless of their individual (socio-economic and cultural) possibilities. This mode of transport richness can be termed *transport welfare*.

This transport welfare sets Kontula apart from all the other similar areas, even La Barca, which rests somewhere between the transport welfare of Kontula and lack of transport resources of A. Anarghiroi and Jobstown.

The suburban middle class areas

At the outset cultural differences are more evident between the middle class areas. Clonskeagh and Paloheinä represent the typical idea of middle class one-family housing residential area removed from the city centre. Polidroso is clearly a middle class area at a distance from the centre, but it consist more of small apartment houses. Bolognina is in fact a case apart, since it is a traditional working class area right outside the historical centre. However, all these areas also represent valued normal housing areas in each cultural milieu.

A structural feature these areas have in common is that there are few services and activities besides housing, so that for most things you have to 'get out' of the area. For life style reasons, the residents also demand more than merely basic services. Most of the residents in all these areas are affluent middle class families, with one or more cars in the household, and most of the residents are car dependent for their everyday mobility.

The situation of transport resources is interesting. Compared to Polidroso and Clonskeagh, Bolognina and Paloheinä are well provided with public means connections, possibilities of walking and bicycling and accessibility of basic services on foot within the area. Nevertheless, in terms of their own city, Polidroso and Clonskeagh have in fact relatively good public transport connections, whereas from the perspective of the transport system of Helsinki Paloheinä lacks a basic connection by rail and has fewer services available locally than other areas of the city. Thus comparing all four middle class suburban areas reveals them to be very much alike in terms of their transport facilities. By contrast, for the inner city areas and the working class suburban areas there are clear differences between the car dependent cities and cities of controlled car dependency, with the latter having significantly greater wealth in terms of transport resources.

Even more interestingly, it could be argued that the middle class suburban areas in the car dependent cities have more transport resources than the working class suburbs, while in the cities of controlled car dependency the middle class areas are not provided with the transport welfare of the working class suburbs or the transport richness of the inner cities. They seem rather to have (relatively) limited public transport resources, so that their transport wealth relies heavily on the private resources of the residents. With regard to transport resources, within the scope of car dependent cities the residents are well off; within the scope of cities of controlled car dependency the residents have limited resources. Car dependent cities thus seem to favour car dependent middle class suburban areas and residents.

7.1.2. Mobility skills

When discussing car dependency it was often defined as *a habit* or *an attitude*, both by those who used cars and those who did not. At first glance this is self-evident, to

the degree of having no analytical potential. But we should not underestimate the significance and force of habits. Instead, if we look at car dependency as basically a habit, we must ask how this habit is formed, how is it kept going and how it becomes a fixed way of life.

Car dependency and even more so its converse, the habit of not using a car, can be seen as a skill that is formed through a learning process. One learns through everyday experience that the car is the only possible or the most convenient means available for moving about in one's surroundings. Alternatively, one learns - again through everyday experience - that using public transport is a feasible and convenient way of moving about. If one has not learned to use public transport, the system appears incomprehensible and difficult. One has to be able to cope with timetables and routes that do not derive directly from one's immediate needs, and unless one has this skill public transport cannot really be an alternative to one's own car.

In all cities a car dependent person has usually grown up in a family that has always had a car. There is a pronounced difference between the groups from the car dependent cities of Athens and Dublin and the cities of controlled car dependency Bologna and Helsinki. The majority of interviewees in Athens and Dublin have 'always had a car in their family' and feel no 'serious reasons not to have a car', in fact, to them, 'life without a car/motorbike is considered meaningless'. For them mobility skills signify skills of driving the car, avoiding congestion or knowing where to park.[43] Instead there are various groups and group-members in Bologna and Helsinki who do not have the experience of always having had a car, and for whom the car is not 'taken for granted'.

Both in Bologna and Helsinki this is first of all a question of generations. In Helsinki all the respondents born in the pre-war period remember clearly how cars were considered imported luxury goods for which one had to apply for permission to purchase. In Bologna the retired people recall how in their youth 'having a bicycle was quite a thing', while those from Helsinki remember how one did 'everything with the bike'. All the groups of retired people from the different areas of Bologna discuss at length car dependency and the generations; like them, the other groups in Bologna consider that 'the use of transport means is part of the socio-economic transformation process', where the car for the previous generations was a 'commodity to be shared', whereas now it is 'linked to individual life-styles' and taken for granted.

Familiarity with the car is also a question of gender. The retired women living in the inner city of Bologna have no experience whatsoever of driving a car, and in Bologna and Helsinki the majority of those who either because of external reasons or because of choice do without a car in their daily mobility are women. However, the

[43] There are also exceptions, such as the two women who have never had or driven a car in their lives from the working class suburb in Athens, or a middle class suburb resident from Dublin who has given up the car altogether and has an impressive knowledge about using buses. Here we are speaking of the general and normal way of experiencing mobility, and in that context there is a striking difference. There is no mention of a discussion of not having always had a car in the Athens or Dublin reports.

issue of gender takes on a different meaning in the car dependent cities of Athens and Dublin.

According to the Dublin report, the women in the group from the working class suburb Jobstown express a gendered cultural fear of learning to drive a car; women's opportunities to use the car are restricted by economic considerations. This has a cumulative and restrictive impact on the lives of the women. They only take jobs locally, they consider themselves very handicapped in terms of access to leisure and indeed in dealing with their daily errands. In addition there is a tendency to 'feminise public transport knowledge and especially the bus as a technology', as reported from the inner city group. In Athens too, it is the women from the working class area with 'limited needs' who have no experience of cars and who do all their mobility by bus or locally on foot. Thus in car dependent cities being able to drive a car (i.e. being able to acquire a car and drive it), is linked to men being adult and independent citizens with full rights, whereas not being able to drive a car but instead being able to/having to use buses is linked to the subordinate position of women with 'limited needs' that can be neglected. Driving a car is the skill of a normal adult person, a citizen with full rights. Using a bus is not really a skill but an attribute only of those who have no choice.

In Bologna, and even more so in Helsinki, the situation is very different. Here the skill of using public transport is a sign of an adult citizen. Particularly in Helsinki, people who originally came from the country are those who have long had a car in the family. For them a car is a normal comfortable way to reach places. By contrast, for people who were born in Helsinki and who grew up in the city, learning to use public transport is part of becoming an independent adult person. You learn to use public transport at least at seven when you start school, or even earlier, as one interviewee recalls having used it at age six, 'when you got a free ride'. 'I am urban' means I know how to use public transport. One learns to know the city by public transport, learning how to use public transport is part of urban socialisation. The local activists' group from Kontula discussed at length how learning to use public transport also increases a children's ability to cope with their environment and is an important element in making children independent.

Even walking seems to be a skill that has to be learned to be 'the normal way of reaching things'. All groups from Helsinki consider walking to have been their first and basic means of exploring their surroundings, and all groups from Bologna indicate that the tradition is that everything needed for daily life is reached locally on foot. Instead in Athens and Dublin only those who come from the inner city consider walking the normal means of moving around.

7.1.3. Daily experience of mobility

In a paper produced for this project (*Report on Workpackage 1.3, Consuming Automobility)* Elizabeth Shove argued that increasingly fragmented and individualised societies, the car becomes a crucial means of time management and a technology through which individuals can reconcile the different time schedules of individuals and institutions. The focus groups allow us to explore this argument empirically *in different social and spatial contexts*.

Time-management and mobility

Time-management and the meaning of time is a fundamental factor in people's everyday experience of mobility. Differences in relation to the meaning of time and differences in time-management are related to meaningful differences of mobility patterns. A basic difference in all cities is that for those who are employed time has more importance than for those who are not. Especially the ones who have to combine children and work consider that 'time is everything', regardless of city or area: not 'wasting time' is an important factor in their decisions. By contrast, those who are not employed (i.e. the retired, the unemployed and the housewives) have no rigid schedules or are not obliged to be at certain places at certain times. There are however interesting differences between different cities and to some extent between areas.

The retired and the unemployed or housewives who live in the car dependent cities of Athens and Dublin associate the lesser demand of time-management with their limited possibilities of moving about, precisely due to not having a car and not being able to rely on public means. In Athens they are defined as having 'limited needs' and therefore it is also possible for them to content themselves with limited mobility. The housewives of Jobstown in Dublin however felt painfully how their limited possibilities of mobility limited their needs which could not be adequately taken care of, despite the fact that they did not have exclusive demands on their time-management. For them 'there were not enough hours in the day' to get through their daily tasks by the inadequate public means connections in their area.

By contrast, whatever their area, all the retired people from Bologna and all the retired and the unemployed from Helsinki, used their freedom from external demands to create through their mobility meaningful patterns in time and in space. From their individual needs, desires and interests, they construct for themselves a pattern of appointments, often planning ahead only on a daily basis, creating a varied and satisfying pattern in time for their days. This is most striking with the long-term unemployed from Kontula, who are almost all women with children, mostly single mothers, and who all show surprisingly mobile patterns. It is clear that where there exists the possibility, given the urban structure and public means, limited demands on time-management do not mean that people have to content themselves to limited needs and limited mobility, but on the contrary they can use their freedom from external demands to create their own patterns of mobility.

Those who are employed, especially those who in addition have a family and children, consider time-management an all-important factor in their everyday mobility patterns. However, there was an interesting difference in the way time was conceived and what was considered to be efficient time-management between those living in the middle class suburbs and those living in the inner city, that is those structurally least dependent on cars and those who admitted themselves to be the most car dependent.

For the middle-aged middle class families with children living in middle class suburbs 'time is money', it is a limited resource of which they have to make the best use. 'They have a job and they are also trying to run a home', 'trying to divide their time between family and job', 'children and work' and 'keeping the household'. Their days are made of different tasks for which they have to be at different places at different moments, and they are always in a hurry. More exactly, their day is made of

various fixed and scattered points in time and space, and their mobility is to a great part made up of trying to keep up with the pattern of different points within the limited time at their disposal. For this pattern the car is the easy and obvious solution, 'the car makes it possible', it is 'indispensable in managing time', the 'essential resource'.

The inner city residents are also highly time-conscious. They do not think the normal rhythm of their days to be hurried, yet they are conscious of minutes spent at different tasks, so that they dislike waiting for traffic lights to turn green or for buses more than two to three minutes. They also construct their days by time, counting distances in time. Time-management is one basis for choices of transport (e.g. they do not want to waste time in traffic). However, their patterns and solutions are not made on the basis of fixed points, but on the contrary on the basis of having as few fixed points as possible. Thus they do not want to 'build their lives around' the car, but neither do they want to build their lives around waiting for public transport with its time-tables and fixed operating hours, nor around the time-tables of the other members of the family, nor even around working time as such. Their ideal of time-management is that you have as few fixed points as possible, themselves flexible in time, and abundant choices of means of transport and services so as to be able to keep the basically flexible but exacting daily time-table as fluent as possible. For them the inner city is the ideal place for such time-management.

All groups in all cities consider the car a waste of time in city traffic, especially in the city centre. In Athens and Dublin public transport is generally considered to be ineffective in time-management, being unreliable and taking too long. In Bologna this often depends from the circumstances, and mostly public transport is considered commendable. In Helsinki there was only one person who thought public transport a waste of time, and he never used it; all who used them thought them good, and many car-owners used public means for work-journeys.

In Bologna and Athens people use the motor-bike or moped for efficient time-management. Similarly in Bologna and Helsinki some used the bicycle for saving time. The motor-bike seems to be an efficient and flexible means precisely because one can stretch traffic rules about routes, traffic-lights, parking etc. The bicycle is similar, providing there are some elementary facilities such as space for riding it in traffic even it there are not special cycle lanes, otherwise it becomes too dangerous. With the bicycle one can also combine exercise and dealing with errands.

Walking was considered effective from the point of view of time-management especially by the inner city residents in all cities, and also for taking care of errands locally in the other areas of Bologna and Helsinki. The Athenians and the Dubliners in general preferred their cars also for local errands in the suburbs.

Multi-functional mobility

In combining several errands for one journey there is again a basic difference between those employed and those who are not. The creation of meaningful patterns in time is accomplished by spreading out tasks and inventing errands, instead of minimising errands by combining them. As the retired persons from inner city Bologna explain, 'every opportunity is taken to get out of the house'. Also where these people combine tasks they seem to do it to create diversions, such as shopping on the way to some other appointment.

Also the inner city residents in all cities show little interest in combining errands, but for a different reason. Because of the abundant services and choice of transport modes, dealing with errands and chores is not a complicated issue, but can be inserted in moments when they can most conveniently be taken care of. The inner city residents also make multi-functional journeys when they fit their time-table, so that they can shop before, during or after their work-day, on their way home or drop into a shop 'after the TV news' if the need arises.

Combining errands seems to be one of the most important advantages and uses of the private car. This is especially stressed by the Athenians, who feel they are 'using the car rationally' as they 'make many combinations' and 'seriously plan' its use. It is also, as pointed out in the Dublin report, the major way in which the use of the car is justified: as the only way of getting through with all the different things one has to take care of. However from the maps of the daily mobility patterns and from the discussions it emerges that even if this indeed is one very good reason for having and using the car it is not the only or even the main way the car is actually being used. Instead it is very much the main way of justifying car usage.

The car is good for shopping various items and large amounts, and good for going to work and carrying the children and shopping in the same journey, but it is also good for making quick short journeys for one errand, and is used in this way as often as for multi-functional journeys. The Athenians and the Dubliners, especially the middle class suburb residents but also the residents of other areas clearly state that they use it for 'short-distance journeys', for 'short local distances', because it is safer and more reliable. Also some suburban residents in Bologna were satisfied that in their area the use of car for local journeys was possible (unlike within the centre where it was considered to be madness). The maps of all the Helsinki residents who use their car for most journeys show that they use it most both for long distance journeys and for short local journeys – which are single purpose rather than multi-functional. In fact, it is journeys on foot that are multi-functional, as are everywhere journeys from the suburbs to the city centre that are not related to work.

7.1.4. Mobility and life-style

The car dependent middle class suburb residents in all the cities are perfectly conscious that their car dependency and their life-styles are related. Their life-styles 'would be impossible' without the car, it is the car that 'gives you that possibility' to keep up their specific life-style; they have 'committed themselves to the car'. A Clonskeagh resident sums this up:

> You have created your life-style based on private transport and to try and rearrange it to fit in with public transport is something else altogether, where you are now trying to cover routes that aren't covered.

The middle-aged middle class families with children have made their basic life-style choice of building a life between fixed points scattered in time and space. Their focal point is the family and the children, and integrally connected to their having the family and the children are their house, their choice of area and their jobs. They want the house in the nice area for their children and family, and they need the job to have the house. To keep up the pattern of scattered fixed points they need the car, because their points are fixed 'based on private transport'. To give up the car they would have

to rearrange their mobility, and that means they ought to give up their present lives, their fixed points.

Also for the inner city residents in all the cities the basic life-style choice is their choice of living in the inner city. They all appreciate the multiplicity of services within easy reach, and prefer this to a detached house or nice landscape. There is however again the difference, that whereas for residents of Kolonaki and Docklands the main advantage is the possibility of avoiding and minimising both car dependency and public transport use, residents of Centro Storico and Taka-Töölö appreciate precisely the possibility of choosing between different forms of transport, where walking and public transport tend to be the favourites. Daily life does not depend on the car, 'but whether I'm dependent on means of transportation, I'd say *very*', sums up a working mother from Taka-Töölö. The choice of the inner city creates their basic mobility resources and so enables them to realise their flexible individual lifestyles. There is also some evidence in the reports that inner city areas in car dependent cities are better suited to satisfying adult needs, the Dublin report defining the city as the group members' 'playground', whereas especially the working mothers from Helsinki inner city stressed the advantages of uniting work and family in the inner city.

Again, with regard to life-style choices, the position of those without a car is very different in all areas of the car dependent cities compared with the cities of controlled car dependency, especially in the working class suburbs. Conditions for people without cars in Athens and Dublin are in fact better for those who live in the middle class suburbs than for those who live in the working class suburbs, since they are provided with more and better public transport means. This is not the case in Bologna, and in Helsinki we have the opposite: it is the working class suburb that is provided with more options. Thus whereas the women with families from Jobstown Dublin feel a cumulative restrictive impact on all their potential and actual life-style choices, there are working single mothers in both suburbs in Helsinki who manage to 'plan and organise' an active life-style without cars, not to mention the long-term unemployed single mothers who state that 'One sure does not need a car in Helsinki!', and who feel that having a car or not having one would not have any impact on their actual lives.

In fact, from the perspective of the experience of the Helsinki residents, all life-style reasons given for the necessity of car-usage can always be countered by the experience of those who for whatever reason do not have a car. Children can have hobbies, work-places can be reached, shopping can be taken care of, friends can be visited, in sum, an active and a mobile life-style can be maintained without the use of car, *if* the public transport system is guaranteed to function at least to the present level. Car dependency is not caused directly by the life-style or the choice of a certain type of life-style, but is a combination of external structural conditions and learned habits that have become fixed as life-styles. Given other structures such as the concentration of various activities as in the inner cities or the existence of a functioning public transport system other habits can be learned. Nevertheless it is important to notice that what is considered a normal (middle class), active, individual suburban life-style is also considered to be normally based on the private car.

7.2. The meaning of mobility

7.2.1. The meaning of mobility

For the focus groups in Athens and Dublin the meaning of mobility was more or less understood to be whether or not they were car dependent, and to what degree. Mobility was, in the expression of the Dublin report, 'automobility'. Some inner city residents in Athens and an eccentric in Dublin thought that they could envisage the possibility of having a life without car, but for the other respondents life without a car would be meaningless and restricted, for some because of their work, for all because of leisure. The Jobstown group without cars from Dublin in fact instead of having meanings for mobility had 'a strong understanding of what it meant *not* to be mobile': not be able to take jobs except locally, to have great difficulty in taking care of daily errands, to have to give up possibilities of leisure.

Their contrast to the unemployed women from Kontula was again great. According to them, 'one can always move about'. For them mobility was not a problem, whether considering potential jobs or daily errands or leisure; and the car was no answer. The car was not a means of actual everyday mobility, but a symbol of being able to get away, to be somewhere completely else. The car was not a missing necessity but an object of fantasy.

The significant difference came up in the animated and complicated discussions of the groups from Bologna and Helsinki, when confronted with the philosophical question of 'what is the meaning of mobility'. All groups of retired people from Bologna and all but one of all the groups in Helsinki defined mobility as 'alpha and omega of everything, tied to everything in life. Work and social life and health', 'sanity', 'social and political participation of all citizens', 'the identity of the community' and 'being able to take part in all this' 'all depend on mobility' which is 'a value in itself'. These people see mobility primarily as a basic social and mental need, in the beautiful definition of a data-planner from Taka-Töölö: 'the consciousness of being able to move about and having choices one is able to use gives one a feeling that life is under control'.

The stress is here on keeping up a network of relations, 'a social resource'. Mobility is not merely about getting from one place to another, but about being in contact with one's surroundings and with other people. Mobility is not about getting from one definite point to another, but about having the possibility of choice. Mobility is not merely about the actual getting from one place to another, but about having the possibility of getting about. A resident of Taka-Töölö recalls how during the bus-strike 'one felt terribly helpless', even if the family did have a car; a retired lady from Paloheinä who being an invalid moves mostly with her own car nevertheless thinks that if there was no bus route from the area which she could use she would be terribly restricted. Mobility is a relation with one's surroundings that gives one the feeling that life is under control, it is an appropriation of one's surroundings, and this is its primary meaning.

Mobility is also taking care of specific errands and to do this getting from one place to another. This is the instrumental meaning of mobility, mobility as target oriented mobility. Also this is important for everybody. What is interesting is that it is the only definition that car dependent people have for mobility, their mobility is

primarily made of getting from one place to another, and they make their choices of means accordingly.

The retired from Bologna expressed a great concern about younger generations who are rejecting sociality, who are not used to getting about on foot and who have prejudices against public transport, and who see mobility only as a possibility of getting to places according to their individual needs. And in fact the groups with younger members from Bologna all see mobility as a possibility to be active, to have an active life. They stress independency, flexibility, rapidity, convenience; and for most of them the preferred means for this active life is the car. The car for them is an instrument to meet their personal needs.

Even clearer than this is the difference in Helsinki, where mobility is defined primarily as a basic social and mental need by all other groups except the group of car dependent middle-aged family people from the middle class suburb. The latter to a surprising degree see mobility only from the perspective of target oriented mobility. For them mobility means getting to the necessary fixed points in their life: work, home, kids' needs, leisure. They do not think this mobility could be restricted, because they could not omit any of the fixed points. In the same way, restricting mobility is seen by the young from Bologna or the interviewees from Athens and Dublin as restricting their activities and their independence. Obviously car dependency obstructs the conception of mobility as a basic need and the capability to differentiate between the two meanings of mobility. Instead, for the not car dependent respondents target oriented mobility is precisely the mobility that can and needs to be restricted, it should be efficient and its wastefulness should be minimised – either for environmental reasons or for personal dislike of waiting in shops, etc.

What is interesting is that the conception of mobility and the need for mobility as target oriented is understanding of mobility that one finds in traffic planning, especially traffic planning based on the private car. Also traffic planning proceeds from mobility as the need to move optimally between points A and B. Mobility defined as basic human social and mental need would instead mean that what we need to plan for is a multiplicity of possibilities and a network of choices, which is linked to both socially and environmentally sustainable mobility patterns. Furthermore, if we look for ways to decrease the negative environmental impact of mobility it should not be done on the basis of reducing this network, but by offering people possibilities to decrease and minimise specific target oriented mobility needs or car dependency within a specific mobility need according to their respective requirements.

7.2.2. Imagining changing mobility patterns

The overall result of the discussions on imagining change in mobility patterns was that in all the groups of all the cities everybody expressed a dislike of restricting their mobility or changing their mobility patterns or mobility patterns in general through negative measures, restrictions and prohibitions. 'Things won't work through prohibiting them, people will find the most convenient way for themselves anyway.' Having to restrict their mobility people would feel 'frustrated', 'like a prisoner', 'confined'. Yet again in all the groups and in all the cities everybody expresses a need to restrict mobility, and in many groups would welcome a decrease of their own mobility.

The seeming contradiction stems from the two different conceptions of mobility. Nobody wants to have their own basic social and mental need for mobility restricted: 'the consciousness of being able to move about and having choices one is able to use' which gives 'one the feeling that life is under control'. Everybody wants and needs to have the possibility of appropriating their surroundings, having contacts with other people and with their world; everybody wants to feel part of the city they live in. Instead everybody recognises the need to restrict mobility in general, especially rationalising and minimising specific target-oriented mobility and target oriented mobility needs. Most significant is that people connect this need of restricting specific target-oriented mobility needs with bettering and enhancing their basic mobility need.

The car is considered necessary and inevitable first of all by some people in all cities for their work. Their work simply consists of travelling to places, often carrying heavy or valuable material, and they feel they cannot perform their work using public transport. The motor-bike in Athens is even better, since one can overcome some drawbacks of the congested car-traffic. Also in all cities some people cannot reach their workplace from the area where they live by public transport. In the groups the possibility of working at home is also not much appreciated, since an important aspect of being employed is to be in contact with other people. On the other hand, work-related mobility by private car might be one excellent item of target-oriented mobility that could be directed towards alternatives or otherwise rationalised, and most would also welcome this.

The car is also considered necessary for dealing with daily concerns in the car dependent cities. For people who have 'committed themselves to the car', 'life would be meaningless' without it. They might just see themselves 'surviving', temporarily, but on a daily basis their 'life just couldn't be done'. Here the difference between the two groups made of economically and socially disadvantaged women from Jobstown, Dublin and Kontula, Helsinki is most striking. The unemployed women from Kontula discuss car dependency as a problem not concerning themselves but other people. It simply has no meaning for them, not even negatively, since they do not feel their life is in any way restricted by not having a car.

In Jobstown the women certainly have a list of proposals for improving public transport links and facilities in their area. However, they still believe it is essential to have a car for emergencies; they would not feel secure if the family was totally without a car. It is evident that their imagination has no room for trust in public structures to fulfil their needs. The mobility need in question here is the basic human social and mental need of being in contact with one's surroundings. People in car dependent cities may imagine changing over to alternative means for some specific instances of target-oriented mobility, but they have no trust in alternative means for fulfilling their basic need of mobility. They feel they must either restrict their basic needs, or have access to a car. By contrast, in Bologna and especially in Helsinki, the controlled car dependency cities, where there is a functioning system of alternative and public transport, and a tradition of the relevant mobility skills, people consider the car more a means for a specific type of target-oriented mobility, which most of them could do without, without having to restrict their basic need for mobility.

The greatest unanimity about the necessity of the car is for leisure. Even people who live in inner cities and who consider themselves able to do without cars on a daily basis, and who do not consider themselves car dependent, would not give up their use of their car for leisure purposes, for social visits with the family in the evenings or during week-ends or for vacations. For these journeys the car is the most convenient and comfortable means, the most flexible and the most individual method and indeed often literally the only possible means for these journeys. Yet there are also people who have no cars and who give contradictory evidence by their mobility experience.

The overall conclusion about car dependency is that in fact it is a habit, an attitude, a mentality, something one has grown used to and takes for granted, and for which one cannot see alternatives except at the cost of prolonged effort and inconvenience. Once the habit is learnt, it is kept going by daily experience, through for example the time-management of daily errands. In the long run these daily experiences fix the habit as part of people's life-style choices. Finally the private car comes to mean the possibility of mobility as a basic human social and mental need for being in contact with one's surroundings.

The great majority of people in all the groups expressed a readiness to restrict their car-usage linked to target-oriented mobility needs. Here it should also not be too hard to come up with functioning solutions and alternatives. The real trial in the car dependent cities is to build up an alternative system that people could trust to fulfil their basic need of mobility; and in the cities of controlled car dependency to ensure that this trust is kept alive. Since this too is a learning process, it needs time; but since habits of car dependency are learned through daily experience, overcoming car dependency must also be a daily concern for people's everyday experience.

7.2.3. Mobility, car dependency and urban citizenship

The city is first of all the ethical, political and cultural entirety of people, the form that the life of this entirety takes and that gives expression to it.[44] The focus group discussions – together in particular with the ethnographic accounts of Chapter 5 – show how car dependent cities as cities in this sense differ structurally from the cities of controlled car dependency at three important levels.

Urban structures and urban conditions

Car dependent cities have a dispersed urban structure. They have no one clear urban centre, a concentration of the most important public institutions, historical heritage, commercial and leisure activities and transportation connections, a focal point for all the citizens. Car dependent cities have also disorganised public transport: their public transport does not function as a system of networks covering all of the city's territory, making the city accessible by public transport from all parts of it. They have dispersed structure of services, so that some areas may be in practice without even basic facilities. Car dependent cities favour huge commercial centres outside urban

[44] This is the classic definition of a city, common to all western thinking until the dawn of modernity and the modern nation state. In the post-modern era the classic conception is again gaining importance, as cities are surpassing nation states as units of economic and cultural growth and importance (see for instance Burtenshaw, et al, 1991).

structure, unreachable by any other means than private car. In addition car dependent cities do not provide any infra-structure for pedestrians and bicycles.

Cultural structures

Not surprisingly then, car dependent cities do not have a culture of public spaces. Neither Athens nor Dublin seem to have any squares as free open spaces for public gathering; streets are alive only for commercial functions, i.e. people buying things and on their way to buy things. As the Athens report expresses it 'there is no culture of walking'; and even if Athenians think it would be nice to have better walking conditions, they do not think this would make them walk more. Squares, streets and other public places are not used by people for the pleasure of being out among other people, the public spaces are not 'public living rooms' as the Bolognians feel they are. Car dependent cities thus lack also a culture of public activities, doing things in public places. In fact, car dependency goes with a decrease of public consciousness, the public or civic sense that the retired activists of Bologna or Helsinki complain the younger, car dependent generation lacks.

Individual structures

Consequently inhabitants in car dependent cities do not have a strong sense of urban citizenship. They do not feel it is their city or that they can influence its planning and its future. They feel at the mercy of the city, they see themselves as dealing with external structures where they have to survive. It does not occur to them to make a complaint or launch an initiative, they do not believe that they can change their city. They do not have skills of public culture, because in the first place they have not through their experience learned such skills, and instead their experience tells them they are helpless in this respect, that precisely public structures cannot be trusted to provide for the functioning of their daily lives.

Instead there is a strong sense of urban citizenship in almost all groups from the cities of controlled car dependency. In fact, the only group which seems resigned and passive with respect to their surroundings is the group of long-term unemployed women from Kontula. Considering the definition of mobility as 'the consciousness of being able to move about and having choices one is able to use gives one a feeling that life is under control' we can try to express this connection between car dependency and a weak sense of urban citizenship.

The important things here are, first of all 'consciousness of being able to move about', that is consciousness of being able to satisfy both mobility as a basic social and mental need, and mobility as specific target-oriented needs. All those who have to rely on the private car, especially those for whom private car has become the only means to satisfy the basic need have no trust in public structures, and have no experience of public structures. Secondly, and crucially, is 'having choices'. Cities are if anything public structures, and urban mobility is made up of a network of possibilities. What car dependent cities lack is precisely 'choice', a multiplicity of mobility, which can only be offered by public structures and networks. Thirdly comes the belief that 'one is able to use [choices]': lacking the structures the residents lack the experiences, the skills and the habits of using the public network, and so do not believe that this public network could be used. Finally they lack the 'feeling that life is under control', they lack the feeling that they could be an active part of this urban network, since they have no experience of it.

Urban residents become citizens through everyday practices and experiences of their surroundings. Car dependent cities build up an experience of individualism and mistrust of public structures. Controlled car dependency enhances urban networks and promotes an identity of urban citizenship based on daily local mobility experience.

Chapter 8 Scenarios of Mobility

James Wickham

The most basic objective of the project is indicated by its title - 'Scenarios for a sustainable society: car transport systems and the sociology of embedded technologies'. Moving towards a more environmentally sustainable society clearly involves less use of cars (see chapter 1). However, we have also argued that the car has become 'embedded' in society, so that changing the transport technology must also mean some form of social change. Since we have claimed that car usage can only be understood *in its social context,* changing car usage means that the social context itself must change. But what could this mean in practice?

One way of tackling this question is to discover how policy makers and transport experts in the four cities envisaged the future of transport policy. As described in Chapter 2, to do this we held scenario-building focus groups with experts in each city, asking them to identify how they saw the future of their city on eight different policy dimensions, grouped into four policy aspects (spatial, institutional, economic and social). This chapter begins in 'reflexive' mode, reporting briefly on the desired and expected scenarios of the different research teams ourselves. The second section of the chapter reports on our scenario-building exercise with the experts. We compared their *desired* scenario with their *expected* scenario. The third section of the chapter reports a second exercise in which we asked our respondents to evaluate transport technologies (metro, alternative fuels, etc.), again in terms of whether they should be used and whether they expected them to actually be used. These aspirations and expectations of the experts in the different cities lead directly to our analysis of the likely future evolution of the car system in the four cities in the next chapter.

8.1. Teams' scenarios

Before each research term met with 'its' own experts, it developed a desired and expected scenario itself. This was used to clarify our own understanding of the methodology, but also served to make explicit our own values, to see the extent to which there was a consensus across the team as a whole and finally to see how close our views were to those of the experts.

The main disagreement within the teams was over the desired urban form.[45] Like the high profile architectural and planning commentators in their city, the Dublin team was committed to the vision of a high density and therefore compact city. While Dublin has developed as a low density city, Bologna and especially Athens have much higher population densities (see reports on workpackages 1.2 and 2.1). Here the teams were less committed to high density living. Indeed it is striking that the Athens team, living in the highest density city in the study, are those least in favour of high density living! Although the Finnish team gave no numerical values to their scenario, their reports shows that they supported a compact city. It seems therefore that in the Northern and dispersed cities, researchers – and probably others sharing their general

[45] The Helsinki team did not report numerical values for their own scenario. Chart 8.1 therefore only reports the other three teams' scenarios.

values - want more compact 'Southern' cities, whereas in the South low density suburban development still appears attractive.

Overall the significant feature of the teams' scenarios is the extent to which they have an almost in 'old fashioned' commitment to state delivery and public management of transport services (and indeed of the economy more generally).

Turning to the teams' expected scenarios, all the teams agree that their cities will become very suburbanised. Generally the teams all expect transport in their cities to become provided by private enterprise and anticipate a clear move to market forms of regulation. Equally, in the societal sphere they all expect society to become more individualistic and social exclusion to rise. The Dublin team has the most extreme vision here, which is probably explicable in view of the increasingly explicit commitment of much Irish policy to an Anglo-American market-oriented society. The extent in which the team is out of sympathy with anticipated changes in the society in general and in transport in particular is most extreme in the Dublin case.

Chart 8.1. All teams: desired and expected scenarios

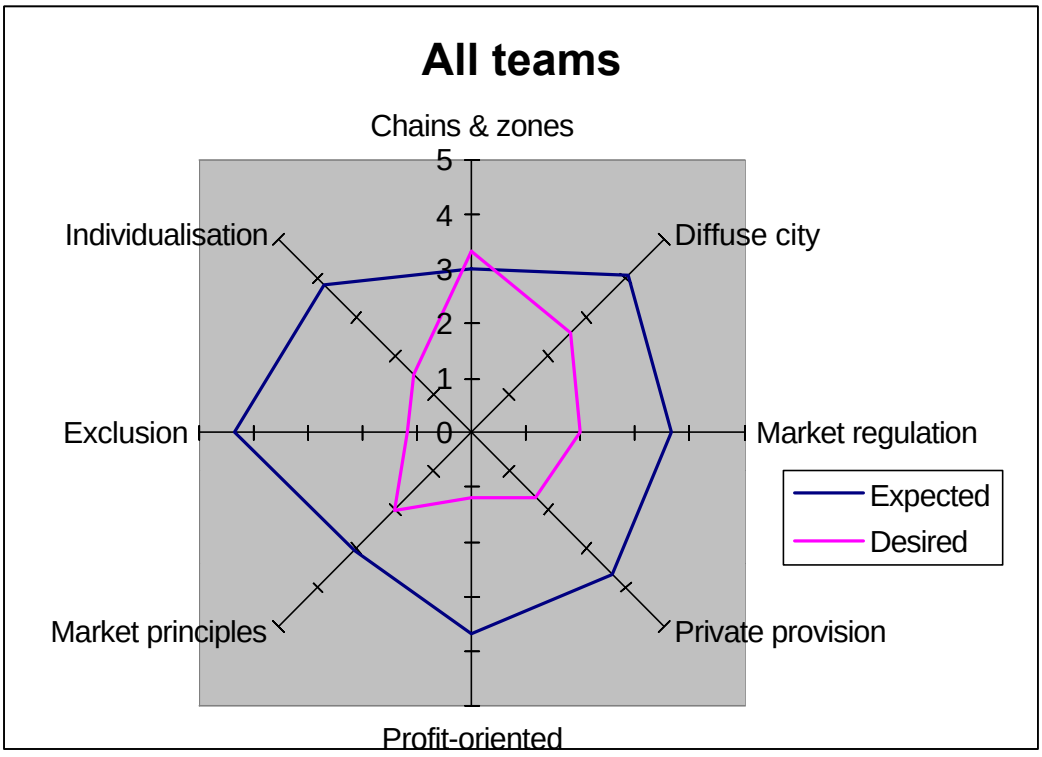


Chart 8.1 presents average scores for all teams[46]. It shows that while the teams wish for public ownership, state subsidy and state regulation of public transport, they all expect the opposite to occur. Equally overall the teams are pessimistic in terms of social exclusion and social cohesion, anticipating that the societies will become more exclusionary and more individualistic than they would prefer.

Finally, as would be expected, in terms of both desired and expected scenarios there is more agreement between the different national teams than there is between

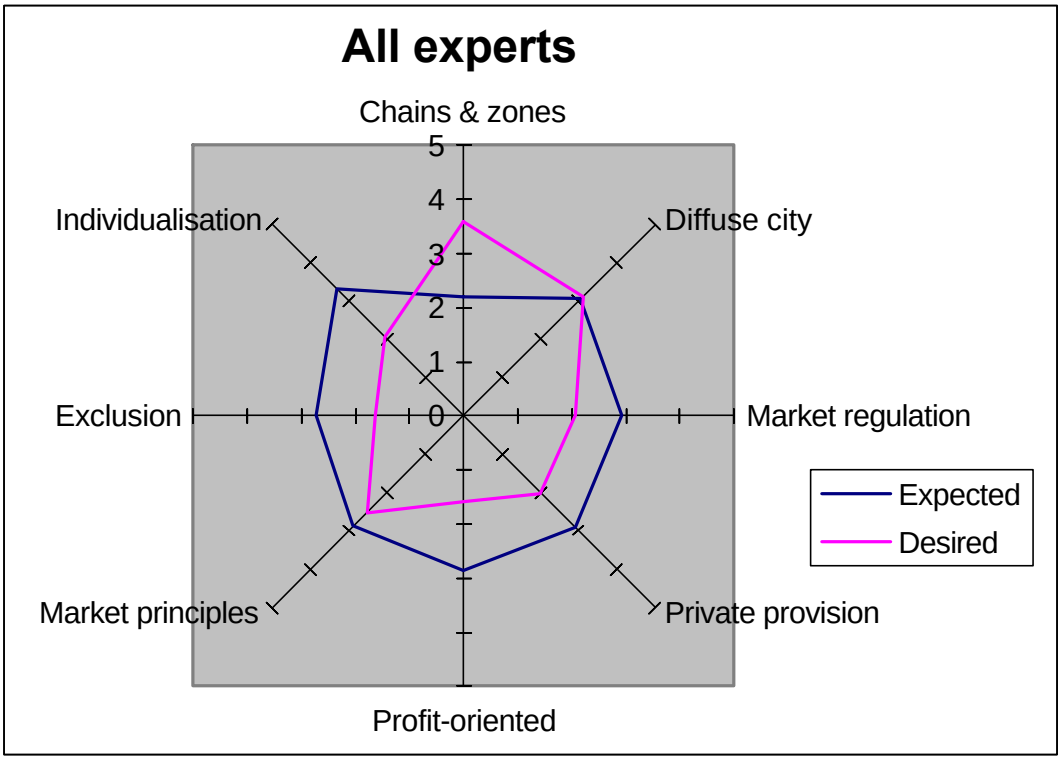
[46] No values are included for the Helsinki team.

different national experts (for details see *Report on Workpackage 5, Scenarios of Mobility*).

8.2. Experts' scenarios

Chart 8.2 represents the average expected and desired views of all four expert groups[47] and shows that the pattern is in fact very similar to that of the researchers. On all dimensions except that of European spatial organisation, the experts' desired positions are closer to the centre of the web than their expected positions. In fact arguably the scoring of the 'European spatial organisation' dimension should be reversed: a development of chains and zones can be seen as much more socially and environmentally sustainable than one based on concentration, and perfectly compatible with the cities themselves being relatively compact.

Chart 8.2. All experts' expected and desired scenarios



8.2.1. Experts' desired scenarios

Chart 8.3 presents the desired scenarios for all four groups of experts. Just as amongst the teams, the spatial aspect generated most disagreement. In terms of regional development (*concentration* versus *chains & zones*) most experts wanted what they considered a balanced population development rather than the concentration of growth at a few major centres. However, within the Finnish group there was no consensus. One set of participants welcomed the trend towards concentration of population in a few major urban areas, largely on the grounds that this was the only

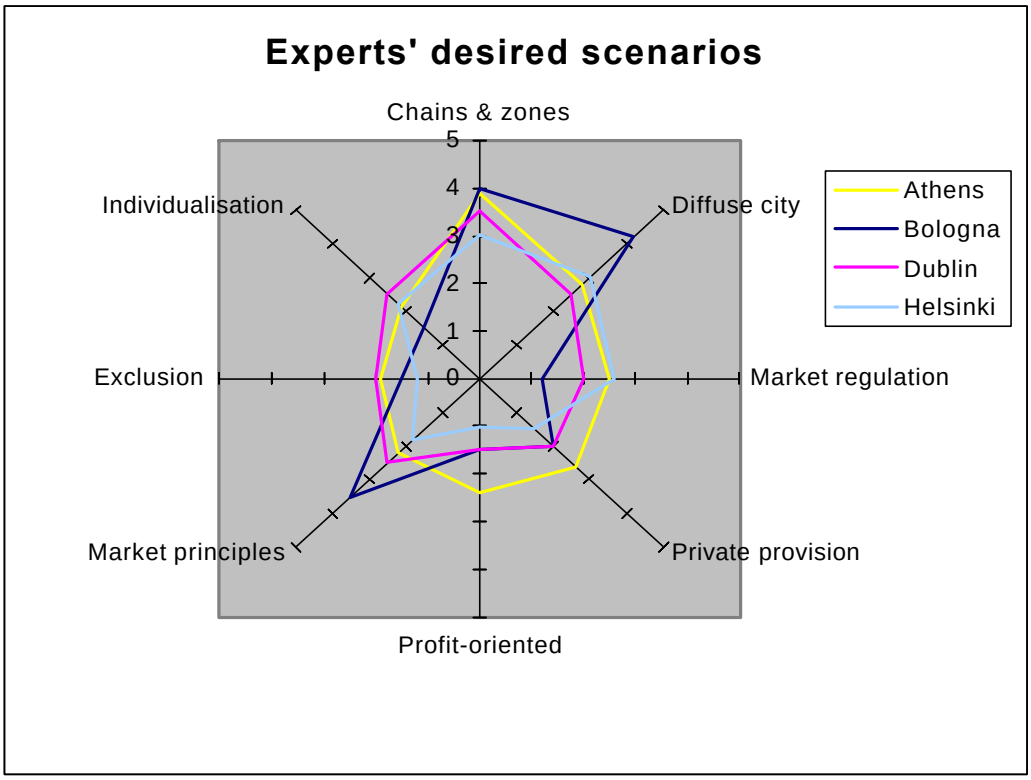
[47] The Helsinki report does include numerical values for the experts scenarios. Chart 6.4 therefore represents the average of all four expert groups.

way they could receive adequate services. In most countries such a deliberate policy of rural depopulation is rarely explicit, though in the past it has been part of social democratic regional planning in Sweden. By contrast, other Finnish experts argued that this move to the large cities undermined the traditional Finnish way of life and was anyway environmentally less sustainable.

As far as the layout of the cities themselves was concerned, all the experts were opposed to European cities developing as suburban cities on the US model. In several cases they explicitly cited the importance of a more 'European' city development. One extreme formulation is cited in the Bologna report:

> In the experts' desired scenario, the city is an accessible, socially compact and liveable place, where the car becomes a residual means in the economy of mobility.[48]

Chart 8.3. Experts' desired scenarios



In terms of the 'institutional aspect' of transport provision, all the groups stressed the role of the state and of public control and regulation. In Helsinki, where there was already some experience of limited competition on the bus lines, the group argued that regulation and market mechanisms can be combined and are not necessarily antagonistic. This was the clearest acceptance of some role for the private provision of 'public' transport. Here however the group insisted that overall public control was crucial, and that this had to involve public control of physical infrastructure. While this debate over the institutional structures for public transport has become

[48] The Bologna experts' score of 4.2 on this dimension indicates a desire for a very diffuse city, but this seems to be contradicted by their comments.

commonplace recently amongst experts, it is noticeable that nowhere among our groups was there a strong demand for more private provision.

The debate amongst the experts also raised two issues that are not usually heard in the conventional discussion, dominated as it is by the categories of economics. In Bologna participants stressed that public transport was 'public' in the sense of sociability – travelling by public transport allowed you to meet people, it was part of living in a city with fellow citizens. This rather understated connection between public transport and public citizenship was also developed by participants from Bologna and Helsinki, who talked of the importance of 'moral pressure' in getting people not to use cars. It both senses therefore public transport is seen as something belonging to the public realm, not as simply a technical solution to a given mobility need. Presumably this understanding of the public nature of public transport is difficult to reconcile with its private provision.

Significantly, the experts are surprisingly close to the researchers in their universal support for financial subsidy of public transport. All experts accept that public transport will require public subsidy, with the Finnish group in particular stressiasng that the reason for this is the need to make accessibility available to all. Even amongst those directly concerned with the actual provision of transport in cities, there is clearly no discernible strong desire for private enterprise participation and deregulated solutions which are being widely promoted by some national governments and the EU Commission. Furthermore, even in the two cities where state owned public transport is a manifest failure, namely Dublin and Athens, there is no strong pressure for outright privatisation and marketisation.

The two 'societal' dimensions are 'individualisation versus social cohesion' and 'exclusion versus social inclusion'. Here all the experts want social cohesion and social inclusion. This is hardly surprising, since almost by definition everyone is in favour of social cohesion and social inclusion! This is the sort of position can only be explicitly rejected by a clearly formulated neo-liberal ideology which regards inequality as desirable in itself and which values individualism so highly that it is prepared to tolerate high levels of social anomie. Such an ideology remains unusual in Europe (unlike in the USA). Clearly most participants regarded social inclusion and social cohesion as linked, although interestingly in the Helsinki discussion it was suggested that social inclusion is the basis for individualisation of the full development of each individual's potential.

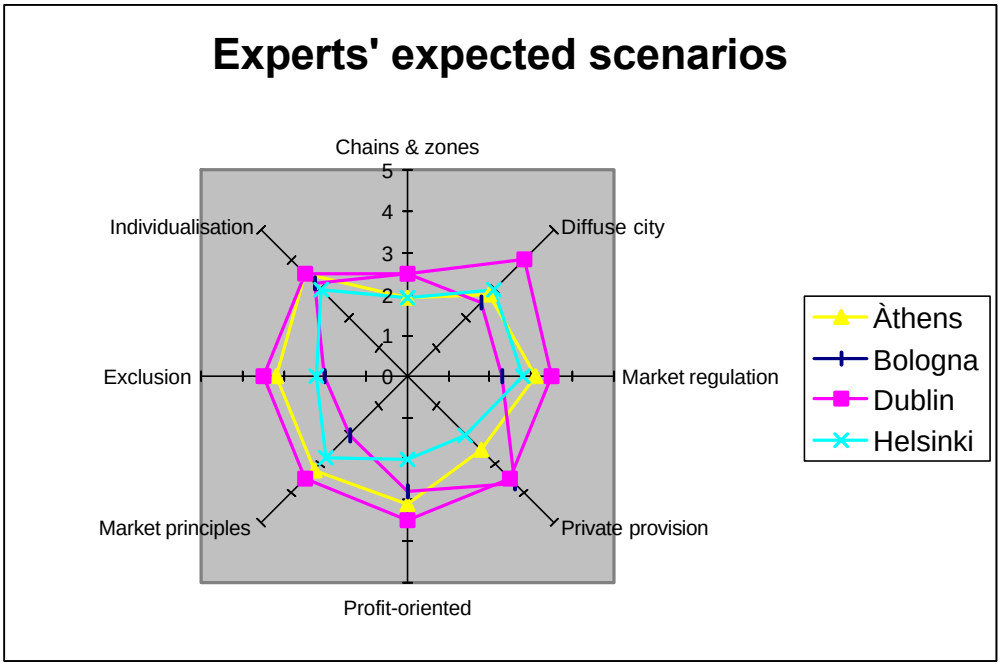
8.2.2. Experts' expected scenarios

As noted above, the experts, like the researchers, have a relatively pessimistic view of the future of their cities. Whereas their desires tend towards the centre of the 'web', their expectations (with the exception of 'concentration' versus 'chains & zones') tend towards the rim. Interestingly, just as the Dublin researchers were the most pessimistic of the research teams, so the Dublin experts were the most pessimistic of all the expert groups.

In terms of spatial developments, all the experts expect population growth to be concentrated in the main urban areas. However, only the Dublin experts expect an extensive suburbanisation of their city. The reasons for this vary: in Bologna relatively compact cities are seen as inherent in the Italian way of life, in Athens high density will continue because the infrastructure is inadequate for more dispersed

settlement, and only in Helsinki as the result of planning policies. It is often argued that cities land use policy should promote higher density in cities *in order to facilitate public transport.* Paradoxically however, our scenarios do suggest that some of our cities will remain relatively compact, but not, according to our experts, because of any closer linkage between land use policy and transport policy.

Chart 8.4. Experts' expected scenarios



Rather similarly, the experts all expect a move towards more regulation through market mechanisms and more private provision of transport. Here again the Dublin experts take the most 'extreme' position. Our measuring instrument does not really measure the extent of change from the status quo. The comments however suggest that in both 'worst case' Athens and 'best practice' Helsinki, the experts expect very little actual change, so that state regulation will continue to be more important than regulation through the market, and public transport will continue to be largely provided by publicly owned enterprises. By contrast, in Bologna and especially in Dublin the experts anticipate a substantial shift towards market regulatory mechanisms and the private provision of public transport. None of the experts' contributions suggest that they anticipate any major benefits from these changes, and in the Bologna discussion it was suggested that they will create greater problems of co-ordination.

As we have already seen, the experts frequently found the dimension 'organisation of the European economy' outside their area of competence and not really relevant to transport issues. In terms of the subsidisation of public transport experts in Athens and Bologna in particular stressed that public transport would always need subsidies, no matter how it was organised.

Finally, most experts anticipate a future of greater social inequality with social welfare systems becoming less redistributive. Their prognoses therefore went in the direction as those of the Dublin team, but were less extremely formulated. In Athens

the experts expected the effects of the growth in social inequality would be softened by the continued importance of the family, thus echoing social policy writers who have suggested that the family lies at the heart of the 'Mediterranean' version of the European welfare state (Ferrara, 1996). At the same time however the Greek experts foresaw a growth in individualism and a diminishing regard for the common good. In Bologna too a similar theme emerged. Although the experts there foresaw that in the future the social welfare system would continue to restrain social exclusion, they worried that conventional mass participation in politics would continue to decline and that the social welfare system would becoming increasingly disconnected from new forms of politics and less able to tackle new forms of social exclusion. The comments from the Helsinki group are rather more optimistic. They were aware of growing inequality and growing individualisation; and they suggested that both changes were symbolised by the growth of gated communities of new housing. Nonetheless, their optimism derived from the fact that they did not expect such forms of physical and social withdrawal to become normal.

8.3. Experts and technological strategies

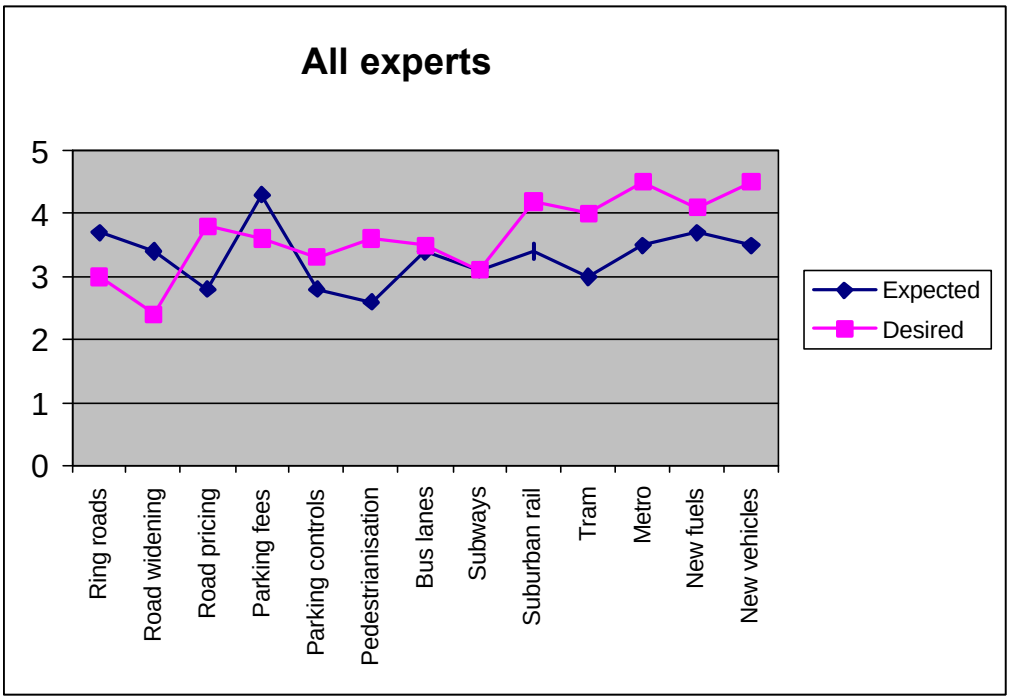
As well as completing the 'spider's web' scenarios, the experts also discussed various transport technologies and the extent to which they saw them as *desirable* and the extent to which they *expected* them to be used. It is important to notice that these are discussed as 'technologies', i.e. outside of any specific institutional structure (such as discussed in the scenarios) and without any explicit discussion of costs. Some technologies (physical infrastructure, whether road or rail) would have a high capital cost as well as running costs, all of which would probably have to be subsidised by the state in some form. Other technologies mainly impose actual costs on car users (e.g. parking fees or road pricing) or physically restrain them (e.g. bus lanes). Finally the new technologies (e.g. electrical vehicles) provide alternative transport means within a system which is still based on individual mobility.[49]

Repeating the form of analysis used for the scenarios, Chart 6.7 presents the technologies experts want introduced and those which they expect to be introduced.[50] Although roads and rail infrastructure both involve costs, it is noticeable that the experts clearly prefer expenditure on rail systems. The three rail technologies all score higher than any other technology apart from the new vehicle technologies. However, while the experts do not see roads as particularly desirable, they nonetheless expect them to be built, while conversely they see rail systems as desirable but less likely to be actually built.

[49] Obviously this is a simplification. Subsidies to roads (and cars) operate in different and less transparent ways than subsidies to public transport. Alternative forms of private transport may well involve different forms of private mobility – for example, if electric cars have a shorter range and lower speed, they would be less compatible with suburbanisation than existing cars.

[50] Desired scores were reported for all four cities; no 'expected' scores were reported for Dublin. However the Dublin report states that while the Dublin experts favoured rail-based technologies over the construction of more roads, they in fact expected more expansion of roads than rail. Dublin 'expected' scores would not therefore undermine the analysis of this section.

Chart 8.5. All experts' expected and desired technologies

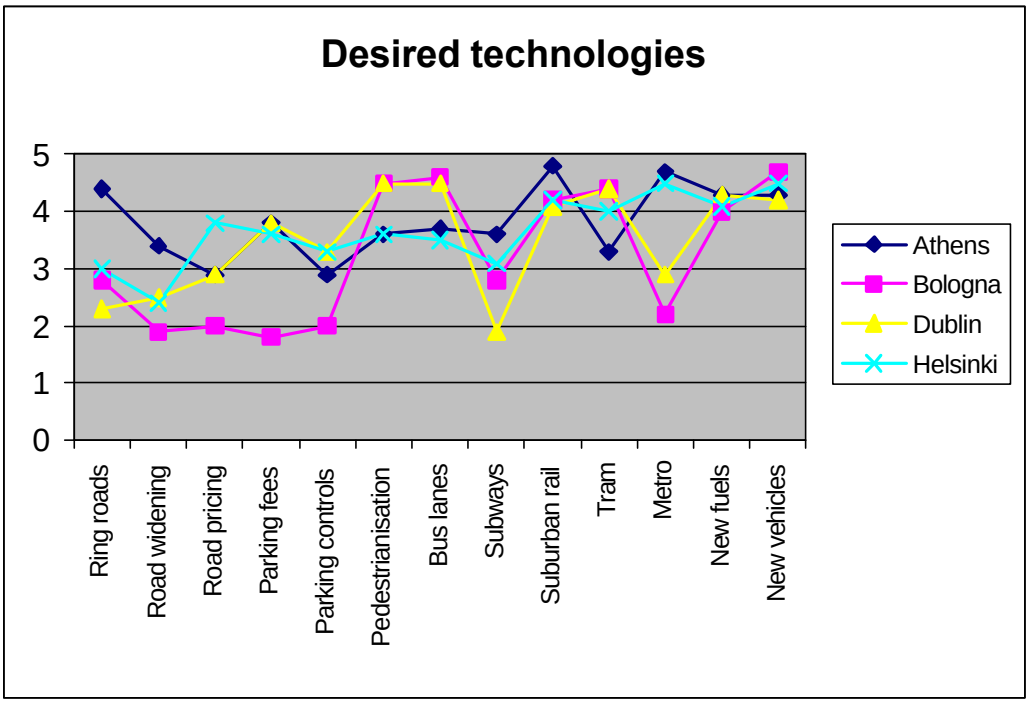


By contrast for regulatory measures (bus lanes, etc.) the experts' aspirations appear more realistic. Experts want some increase here, and this in line with what they expect to actually happen. Of the market measures, parking charges get a higher 'expected' than 'desired' score, whereas the reverse is true for road pricing and reducing parking supply. Arguably the experts want measures taken which actually reduce car usage, but suspect that measures that merely charge for an activity that happens anyway will have more chances of being implemented.

8.3.1. Experts' desired technologies

Chart 8.6 presents the experts' desired technologies in the four different cities. It shows that the key finding of the aggregate level analysis remains true at the city level: in each city experts are in favour of rail-based solutions and less favourably disposed towards road-building. There are however some differences between the cities on this and other technologies.

Chart 8.6. Experts' desired technologies



In terms of road building, Athens is unusual. Much more so than their colleagues elsewhere, the Greek experts are strongly in favour of ring roads and even support road-widening within the city. The very limited construction of new roads in Athens to date is not because of any political decision, but because of general institutional problems. At the same time, streets are already filled with cars (see in particular *Report on Workpackage 2.1* and *Report on Workpackage 3.1*). Accordingly, the new conventional wisdom of transport specialists elsewhere, namely that road building merely generates more traffic, has little intuitive appeal in Athens. Conversely Athens has not had the negative experience of other cities, where new roads have destroyed the inner city without solving the traffic problem. In Athens the city is being destroyed - not by new roads, but by cars clogging existing roads.

There is also a divergence on the desirability of a metro system. Metro extensions score highest in Athens and Helsinki, both of which already have a metro. By contrast, building a new metro receives rather low support in Bologna and Dublin, neither of which have a metro at the moment. The Bologna result can plausibly be explained in terms of the unsuitability of a metro for what is the smallest of our four case study cities. By contrast, detailed plans for a metro in Dublin have now been discussed for decades, but the metro has largely been posed as a partial alternative to on-street rail, not, as in Helsinki, as a complement to it[51]. Interestingly, in Athens a tram system has been mooted as an alternative to the metro, and the experts give the metro the higher rating.

[51] See Chapter 4 of this report and the detailed discussion in the relevant workpackage reports: *Report on Workpackage 2.1* and *Report on Workpackage 2.2.*

In terms of the desirability of controlling car usage, Bologna emerges as the outlier. Although Bologna was one of the first Italian cities to introduce controls on cars, the experience has become increasingly negative. As our reports from Bologna suggest, traffic control in Bologna is widely seen as simply a restriction on citizens' wishes, rather than as part of a new and improved mobility for all. The Bologna reports also lead to the suggestion that restrictions on car usage should involve some appeal to social citizenship or 'social capital' – an asset that now appears to be declining in Bologna.[52]

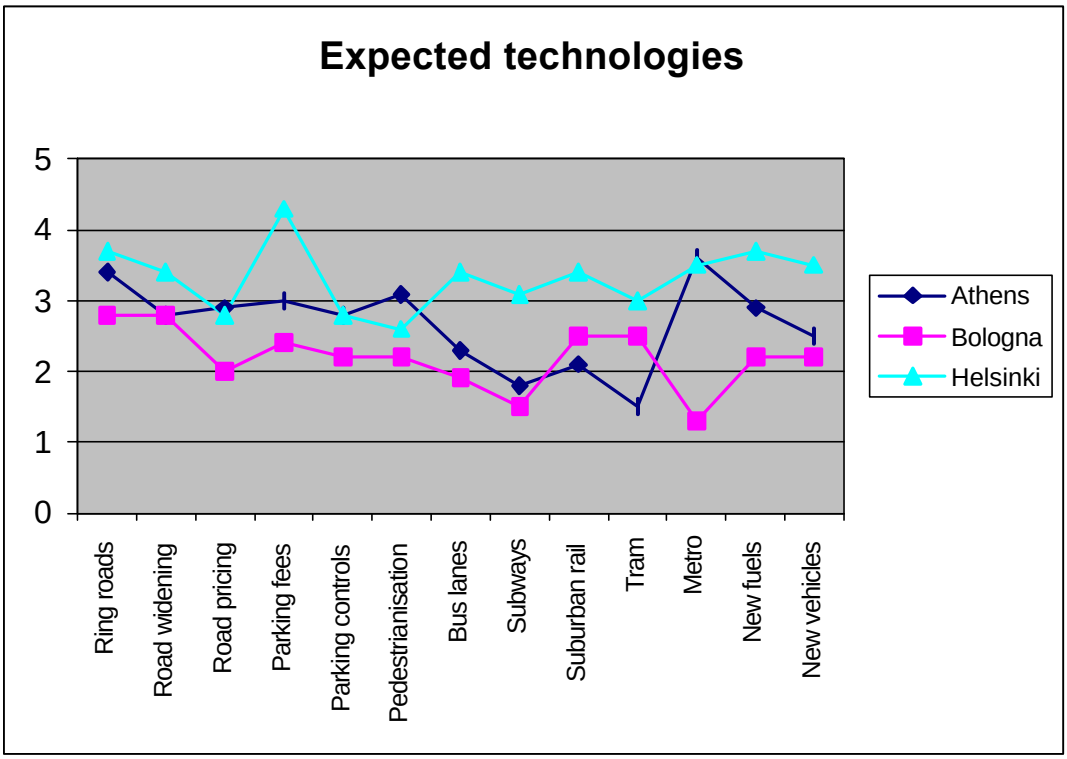
Finally it is worth noting that pedestrian subways are often viewed negatively - as dangerous and unattractive spaces - while new vehicle and fuel technologies appear as self-evidently desirable to all.

8.3.2. Experts' expected technologies

Disaggregating the experts' expected technologies shows that within each city it is still true that expectations for road building are higher than for rail infrastructure (Chart 8.7). In Bologna scores for both forms of road building are higher than those for all rail forms; in Athens the only exception to this is the metro (doubtless partly because the metro is at the moment the largest transport project within the inner city area). Only in Helsinki do rail projects come very close to road-building, and in Helsinki too, all three forms of rail infrastructure score highly. In the experts' expectations therefore, Helsinki comes closest to moving away from merely continuing to invest in the existing car system. Finally it should be noticed that Helsinki is also remarkable for the extent to which all technologies receive relatively high scores – in other words, the experts in Helsinki expect their city to be implementing a broad range of measures to improve mobility.

[52] Another term for social citizenship could be 'social capital' (Putnam, 1993). It is paradoxical that the term was introduced into social science by Robert Putnam in his study of civic activism in North-Eastern Italian cities – such as Bologna!

Chart 8.7. Experts' expected technologies



8.4. Conclusion

The experts' views are important research data in their own right. This applies both to the points of agreement and the points of disagreement between the experts in the four cities. This section briefly summarises the findings of this final empirical stage of the project, treating the results simply as an account of the experts' views by themselves. The broader implications of their views for the development of their cities is discussed in the next chapter of this report.

All in all, the findings are pessimistic. The experts are all fairly clear what measures are needed to reduce car usage and improve mobility. They stress an overall institutional framework that focuses on public provision and gives *relatively* little weight to market principles; they favour rail-based solutions rather than new roads or even mechanisms to regulate car usage such as road pricing or parking fees. Overall their desired city appears to be a compact 'European' city[53]. Yet what they expect will happen is almost the mirror image of this: institutional frameworks that opt for private provision and that attempt to achieve policy objectives through market mechanisms, road widening and even road building rather than rail-based mass transit, and, although the evidence is perhaps less clear on this, continued suburbanisation.

Another striking point of agreement between the experts is what they did *not* discuss. Although the dimensions of the scenario building exercise focused strongly on issues of market versus state regulation and provision, such questions did not

[53] As noted above, the Bologna experts' score on this dimension is contradicted by the report of the discussion within the expert group. The Bologna discussion is reported in full in *Report on Workpackage 5, Scenarios of Mobility,* chapter 3.

particularly concern the experts. Privatisation, deregulation, competitive tendering for public service contracts – all the institutional innovations that attract so much attention at national and EU level – all played relatively little role in the open-ended discussions. In other words, such 'solutions' appear to these experts at least as at best marginal and at worst irrelevant to actually tackling the transport issue in their cities.

There are also significant differences between the experts. These confirm and illuminate the systematic differences between the four cities that have been emerging in the previous chapters of this report. The two extreme cases are Athens and Helsinki, respectively the 'worst' and the 'best' cities in terms of car usage and car dependency. In these two cities the experts' aspirations and expectations are relatively close to each other. In Athens the situation is so bad that our experts' aspirations appear to have been lowered in line with their expectations, while in Helsinki the experts' aspirations are really for minor improvements within what they consider a reasonably adequate status quo. By contrast, in both Bologna and Dublin the situation appears much less stable. In Dublin, the experts' aspirations diverge dramatically from their expectations, suggesting a pent-up frustration which reflects the contrast between the ambitious plans of the key transport authority (Dublin Transportation Office, 2000) and the reality of congested roads and inadequate public transport. In Bologna, the experts look nervously into the future, expecting an erosion of the political structures that have sustained the city's pioneering initiatives in the past. The final chapter of this report begins by relating these differences to our other findings and so suggesting the different probable futures of our four cities.

Chapter 9 Conclusions

James Wickham

The core of this project has been detailed fieldwork in four cities. This concluding chapter begins by reiterating the issue of sustainable mobility which sets the reduction of car usage as a political necessity. This policy objective is the starting point of our research, and the first section of the chapter builds scenarios of likely developments in four cities in terms of the extent to which they are likely to realise this objective. These scenarios (outlined in Figure 9.1) form the first conclusion of the project. However, the findings are of more general significance, and section two of the chapter therefore considers the extent to which our results can be generalised to other European cities.

9.1. Scenarios of mobility in four cities

9.1.1. Sustainable mobility and sustainable consumption.

Radical environmental policies – such as reducing car use - are often seen as 'utopian' or 'unrealistic'. At on level this is absurd. The growing evidence of global environmental degradation, in particular global warming with its increasingly catastrophic effects, makes those who argue that life must go on as normal resemble lemmings singing the virtues of normality as they approach the proverbial cliff. But the more realistic version of this criticism is to claim that social alternatives should not be posed in the abstract. Instead, they must be related to the status quo: it must be possible to show how we get to where we want to be from where we are now. The alternative is different to the present, but connected to it. We might term this 'practical utopianism'. Assuming that an environmental cataclysm does not force radical transformation of the way of life in European cities, such a gradual move towards a utopian goal remains the only realistic strategy: this is the context for our first set of conclusions: likely scenarios of mobility in our case study cities.

9.1.2. The future of four cities

This project originated in the belief that the current levels of car usage in European cities are a major threat to environmental sustainability. Halting and then reducing these levels is imperative in order to protect the environment at global and at local level (see *Report on Workpackage 1.1, Literature Review*). However, we intended to deploy our competence as social researchers not to investigate this issue, but to ask about the possibilities of change. Given that the car is so central to contemporary life, what are the social implications of reducing car usage and how, realistically, could this be achieved?

The scenarios constructed with experts in each city (see chapter 8) provide one starting point. The experts' aspirations and expectations, especially when coupled with the knowledge of the cities that the project has generated, provide evidence as to the possibilities of change. In chapter 3, borrowing ideas from evolutionary economics, we saw the development of the car system in each city as path dependent, as proceeding along a given *technological trajectory*. Institutional 'lock-in' ensures that only a very limited range of alternatives are available at any one time. The

account also stressed that change of trajectory can occur. In Helsinki and in particular in Bologna we identified 'switching points' in the late 1960s and early 1970s (the first pedestrianisations in the Centro Storico in Bologna, the rejection of the Smith-Polvinen plan in Helsinki) which moved these two cities decisively towards what Chapter 7 termed 'controlled car dependency'. Can these cities remain on this trajectory? Will the other two cities move towards it?

In Athens it seems clear that no major shift away from car usage and indeed car dependency can be expected. While the new metro has widespread support, even the experts are still committed to road-building. The metro itself is a major project but is unconnected to any wider systemic change, and there is little expectation of any flanking measures being developed. The discussion around the scenario confirmed that there is little social or political support for any change of trajectory, and few cultural resources are available even to formulate it. The decision-making case studies showed the absence of any influential political actors committed to more sustainable development; transport decisions are essentially handed down from central (national) government. Equally, while Athens has the worst traffic problem of our case study cities, the local studies showed little evidence of any alternative initiatives: there is for example, no culture of walking or cycling. Of our four case study cities, Athens is the most clearly locked into its existing trajectory.

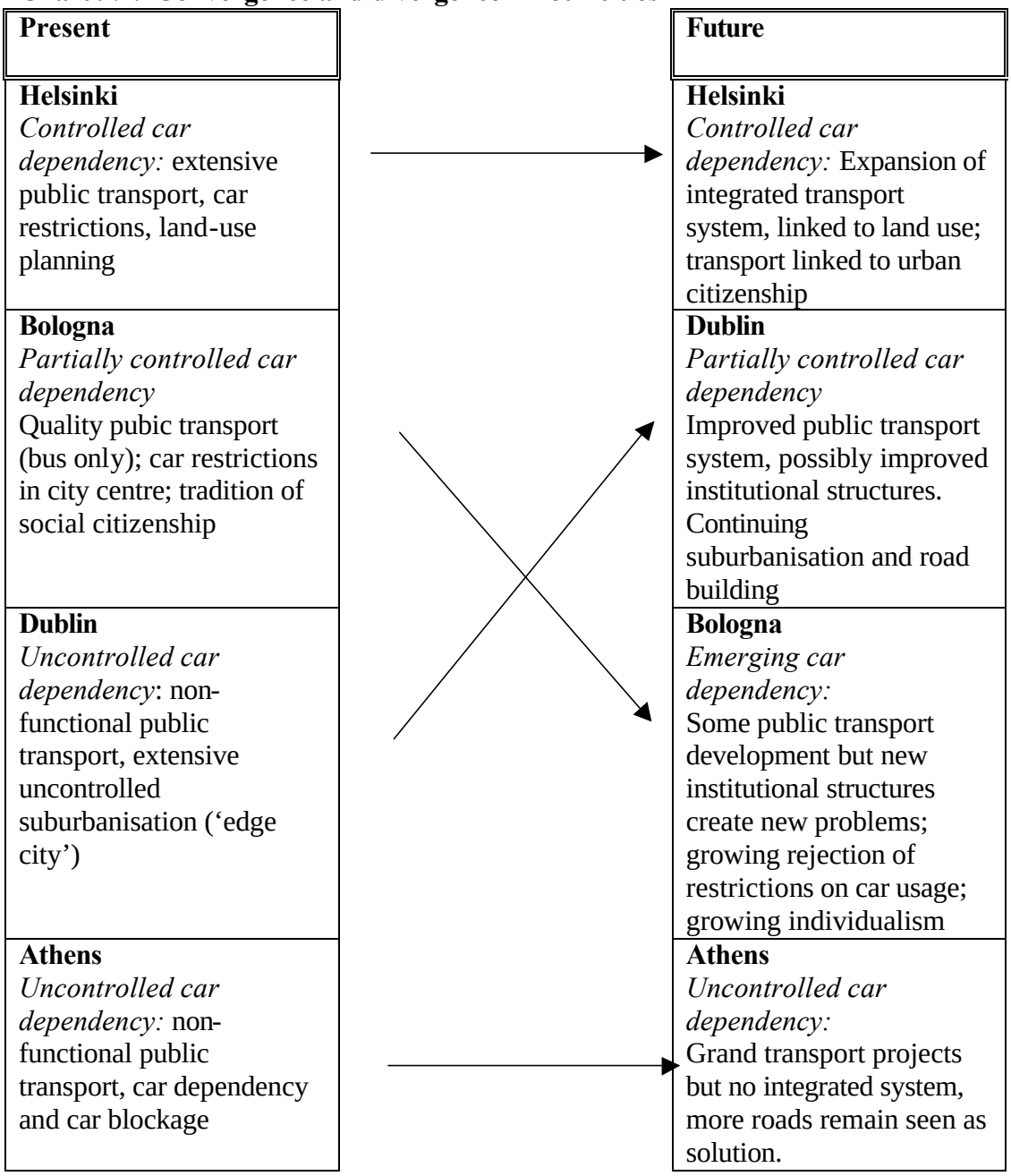
Yet in many ways it is Bologna that is the most depressing situation. Having once stood at the forefront of transport change in Europe (Jaeggi et al, 1977; Topp & Pharaoh, 1994) we now find a developing rejection of the trajectory of the last thirty years. A growing individualism, allied to political changes, undermines the collectivist (and rather 'top down') solutions of the previous generation. Thus measures needed to directly control car usage are now seen as particularly unlikely to succeed in Bologna. Although in the scenario discussion the experts were clear that the Italian preference for relatively compact cities will persist and an important role for the state will continue to be important, Bologna appears as a city where car dependency may well be *less* controlled in the future. Switching points can be towards car dependency as well as away from it.

The remarkable feature of the Dublin scenario-building was the extent to which the research team's dystopian vision was shared by the experts. Both researchers and those involved in policy formation argued for radical solutions (a very compact city with a strong reliance on rail transport), and both groups were pessimistic as to whether such solutions would be implemented. Since our meeting, the body charged with developing a transport strategy for the city has published its proposals for the period until 2016: whereas in 1997 73% of all journeys to work in the Dublin area were by car, it is planned to reduce this to only 37% in 2016 (Dublin Transportation Office, 2000). Such a change would be unprecedented in recent European experience. Our scenarios unfortunately suggest it will not be achieved. At the same time it is important to recognise that – unlike in Athens or even Bologna – such radical plans are being formulated in Dublin (Ellis & Kim, 2001). The 'extreme' positions taken by the Dublin experts may well be representative of a wider social trend, and therefore indicate new forces promoting change. Dublin may well stand at a novel switching point for the city's car system.

Finally, the Helsinki situation suggests the truth of the traditional maxim 'If it's not broke, don't fix it'. Throughout the project Helsinki consistently emerged as a best practice case, with the highest levels of public transport usage and low car usage and low car dependency. This is despite the fact that the institutional structures are largely 'unreformed' in the terminology of New Public Management and the more market-oriented options in the scenario. The discussion during the scenario building repeated the point that had emerged in earlier Helsinki reports, namely the linkage between citizenship, public spaces and public transport, all centred around a positive evaluation of powerful local government. Indeed, Helsinki is the only case of all our cities where public authorities have clear plans which they have a realistic chance of implementing.

These four very different scenarios are presented graphically in Figure 9.1 which ranks the four cities in terms of the extent to which they control car dependency now and in the future. While the scenarios suggest that Helsinki and Athens will retain their respective positions at the top and bottom of the hierarchy, the chart shows that Bologna and Dublin may well exchange positions.

Chart 9.1. Convergence and divergence in four cities



9.2. Generalising the results: Four cities in Europe

The case studies of cities and localities analysed in this project are of course intended as the basis for generalisation to European cities generally. The case studies were chosen not as statistically representative of European cities and their localities, but as representative *strategic cases* (Hakim, 1987; Yin, 1984). We now summarise the main conclusions and their relationship to existing knowledge. The presentation follows the levels of analysis set out in Chapter 2 (Chart 2.1).

9.2.1. Car usage in European cities

The analysis of aggregate city level data on the extent of car usage (chapter 3) built on the crucial work of Kenworthy et al (e.g. Kenworthy et al, 1999). Such data confirms that European cities do form a distinctive cluster with a distinctive pattern of car usage. Understanding car usage in terms of fashionable concepts like 'globalisation' – with all its implications of inevitable convergence – is therefore very misleading. Furthermore, adding our case study cities to the data set of Kenworthy et al strengthened their argument that wealthy cities tend to have lower levels of car usage. Even more counter-intuitively, our analysis challenged the usual assumption that high density cities necessarily have lower levels of car usage. This second intra-European comparison is less discussed in the literature and has important and hitherto unexplored implications for public policy (see below, section 9.3).

9.2.2. City level analysis

Analysis at the level of the individual city had two parts: the historical analysis of the decline of public transport and the rise of the car system (Chapter 3) and the analysis of contemporary 'car decisions' of each city (Chapter 4).

There remain relatively few historical accounts of the decline of urban transit, of which Yago's work (Yago, 1984) remains decisive. His comparison of European and US cities (in particular Frankfurt and Chicago) suggests that in many ways European and US cities increasingly diverged **after World War II,** since US cities destroyed their public transit systems with an enthusiasm that was rarely echoed in Europe. Our analysis however focused on comparisons **within** Europe. We applied concepts from the sociology of technology to the car system, arguing that the car systems of cities have distinctive technological trajectories. An explanation of the differences between cities therefore necessarily has a historical element. We suggested that explaining the differences between European cities involves such historical issues as the cultural significance of the city, the role of 'legacy systems' of transport, and crucially, the 'capacity' of the city government to act effectively and integrate transport planning and land use planning. The concept of trajectory indicates how institutions and social interests cluster around specific technologies, creating a lock-in effect which is difficult to change. This indicates that moving towards a more sustainable form of mobility encounters institutional obstacles rather than simply some generalised cultural resistance. However, such change does of course occur, and we located the 'switching points' in the past that moved Bologna and Helsinki towards controlled car dependency. To some extent this is compatible with the argument that the moves towards 'greener' urban transport in the more successful European cities have required shocks from *outside* the local political system (Bratzel, 1999).

The analysis of 'car decisions' challenged simplistic assumptions about the forces for and against more sustainable mobility. In none of our cities is the issue simply a left/ right political division, indeed the issue has now relatively little to do with conventional political cleavages or party politics. Equally, there is no simple 'business' or 'corporate' pressure group promoting roads and the motor car, nor is it the case that cars are everywhere promoted by a lobby of professional road engineers. Instead we found that measures which further sustainable mobility are promoted by 'urban coalitions' with disparate memberships which cannot be defined in advance.

In the more sustainable cities, such coalitions are both cause and effect of the city's trajectory of controlled car dependency, creating a consensus which binds individual businesses into the overall policy. By contrast, our car dependent cities seem to be characterised by the ease with which major traffic generators (above all out of town shopping centres) are created without major controversy, and individual businesses play a disproportionate role in shaping the layout of the city outside of any effective planning policies. In these cities also, decision-making tends to be opaque and not to occur in any clearly defined city and metropolitan fora. Our research therefore confirms and elaborates the argument that a necessary (but not a sufficient) condition for effective sustainable mobility polices is effective city and metropolitan level government structures (Apel and Pharaoh, 1995). In particular, while the existing literature draws this conclusion from case studies of best practice, our study of worst practice cities shows how they are characterised by the converse: ineffective city and regional government, with national government taking a disproportionate role in all decision-making.

9.2.3. Local level analysis

At the centre of project SceneSusTech has been the insistence that mobility has to be understood in its socio-spatial context. Accordingly, the key empirical findings of the project derive from this stage of the research. In particular, they derive from the *double contextualisation* of mobility in terms of both city level and locality level effects. Thus, how people use cars depends on which area of the city in which they live, *and* in which city they live. Whereas chapters 5 to 7 reported on each stage of the research in turn (i.e. ethnography, social survey, focus group), this section briefly summarises the findings of the local research in terms of the type of area and the issues which each area highlights. Although the argument is couched in terms of the areas of the case study cities, these areas themselves were selected (see Chapter 2) to capture key features of different localities within European cities. The accounts that follow are therefore of general European relevance.

The key finding is that the extent to which the city as a whole is car dependent shapes and differentiates experiences at local level within the city. All three stages of the research in the localities confirmed how our two car dependent cities are defined by their bad public transport. The low quality of public transport is shown by the ethnographic studies of the areas, documenting the low level of service especially within Dublin. Using the survey data, Figure 6.1 showed how public perception of the quality of public transport was significantly higher in Helsinki (and to a lesser extent in Bologna) than in the other two cities. In the focus groups participants from Athens and Dublin continually reiterated their reluctance to use public transport. And yet again, the survey data also shows that, comparing similar areas or similar groups,

public transport usage is generally higher in Bologna and Helsinki than in Athens and Dublin.

Social exclusion and peripheral working class areas

Three out of the four 'peripheral working class' areas (La Barca in Bologna, Jobstown in Dublin and Kontula in Helsinki) are typical of European 'social housing' from the 1960s onwards. They are large areas of state built and originally at least state owned housing, built on new land at the edge of the city; they are 'estates on the edge' (Power, 1998). Yet the comparison of such apparently similar peripheral working class areas in two 'best practice' and two 'worst practice' cities produced a key finding:

In car dependent cities those without access to car transport are more at risk of social exclusion than those without access to car transport in cities of controlled car dependency.

All four peripheral working class areas are served by public transport, and indeed there has been some limited recent improvements in both Athens and Dublin. Yet only in Kontula (Helsinki) with its mixture of buses and metro is there any sense that public transport gives the inhabitants of the area easy access to the city as a whole. In some ways in these areas transport facilities are *barriers* rather than *links*: La Barca in Bologna is separated from the city by a new motorway, Agioi Anarigiroi in Athens is bisected by railway lines; in both cases these are transport facilities for others which reduce mobility for the area's inhabitants. Indeed, there is some suggestion in Chapter 7 that within car dependent cities in fact *middle class* areas tend to have better public transport. While we cannot definitely confirm this argument, our data does show how in the car dependent cities those without cars have to use a service that is inadequate to their needs. The facilities in Dublin are particularly bad: windswept bus shelters and dirty unreliable buses. And, as our informants frequently commented, some of this is the result of vandalism by inhabitants of the very area the buses are meant to serve (see box).

The public destroys the public service

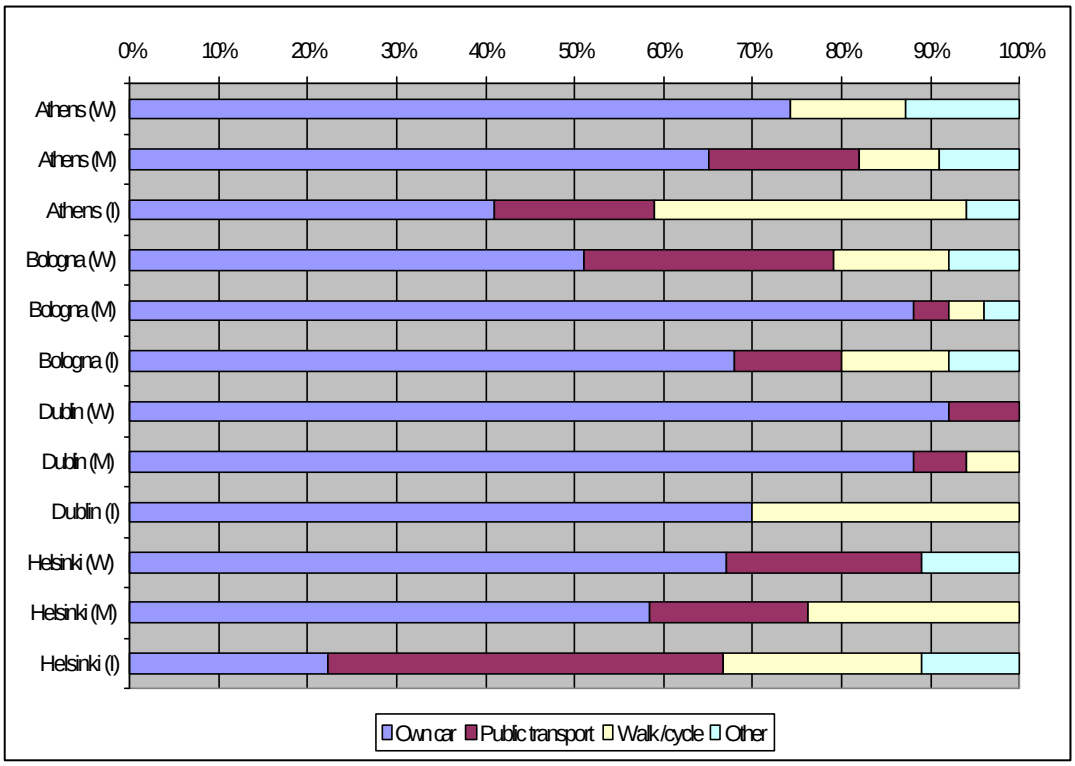
I was going to town last week. It was 10 in the morning and nobody could use upstairs. A lot of boys had got off at the community centre before 10 and I suppose they had come out from town because the bus was after coming from town and whatever they were at, they had made a public toilet of upstairs ('Nora' in Dublin Report, *Report on Workpackage 4, Experiencing Mobility,* p. 116)

The Dublin report also documents assaults on bus crews and abuse of other passengers. There is no mention of such pathological levels of self-destructive anomie in any of the other reports. In this situation, anyone who can use a car will do so. And equally, in these circumstances owning a car makes a substantial difference to people's quality of life. A car becomes a necessity.

The simplest form that this takes is the travel to work. When American journalist Barbara Ehrenreich tried to find out what is was like to live on low pay in the USA, she took a low paid job and equipped herself with the barest necessities. Such necessities included a car, since 'Otherwise this book would have been about waiting

at bus stops' (cited in London Independent on Sunday 12.08.01). This is hardly news to the inhabitants of Jobstown. The area has comparatively low levels of household car ownership and many people travel to work by public transport. Yet of all the areas in the study, Jobstown has the **highest** proportion of car owners who use their car to travel to work (Chart 9.2). Car dependency in other words is a problem for those that do not have cars. Our findings therefore can be added to the limited existing literature which shows that for poor people, one basic problem is that they often simply cannot reach the jobs for which they are qualified (Webster, 1999; Shen, 1998). However, we add to that research the important qualification: such labour market exclusion depends on whether or not the *city* is car dependent.

Chart 9.2. Normal mode of travel to work, all employed aged 25-64, car owners



Base: All aged 25-64 and at work who own cars, N=212.

Broadly similar patterns can be found in terms of access to services and facilities. In poor areas in car dependent cities people are constrained to use local services, yet these services are becoming inadequate because provision assumes car ownership. In La Barca for example, local shops within the housing area have been closing as new hypermarkets open outside of Bologna. In Jobstown in Dublin shopping is not a question of going to a local (if usually expensive) 'corner shop', but pushing a supermarket trolley for up to a mile along rain swept roads with no pavements. At least in relation to shopping and entertainment, the more traditional facilities (local cafes, local shops) in Agioi Anarigiroi in Athens mean that its inhabitants are better served then are the inhabitants of Jobstown with their more 'modern' retail and entertainment facilities. La Barca and Kontula in Helsinki are also relatively poorly provided with local facilities compared to Agioi Anarigiroi, since they like Jobstown

are essentially suburban housing areas. Yet Kontula stands out by the way in which its inhabitants – because of their transport facilities – have access to shopping and other services.

In car dependent cities being relatively poor or being unemployed results in social isolation far more easily than in cities where car dependency is controlled. Unemployed people in Kontula were very unlikely to have a car in their household and so were dependent on public transport and on services within walking distance, yet this did not appear as a major restriction of their lives or their physical mobility[54]. By contrast in Dublin unreliable transport imprisons those without cars within their immediate physical space. In only the most abstract sense are they citizens of the city in which they notionally live.

Re-urbanisation and the new inner city

For over a decade, many town planners and architects have been encouraging 'the new urbanism' of high density housing (Newman & Kenworthy, 1996) Within such a strategy a key aim is the reanimation of the inner city. All four case study cities included inner urban areas that are undergoing such renewal with a population of relatively affluent residents, many of whom have moved into these areas in search of a better quality of life. Only in the Dublin case however did the area itself emerge from an explicit urban renewal policy, derived in part from the experience of the London Docklands. However, it is important to notice that whereas such 'renewal' in UK areas like the London Docklands has often meant physically decanting the existing inhabitants to make way for a newer and more affluent population (Hudson, 1994), an explicit aim of the Dublin initiative was to avoid any such result.

The new urbanism aims both to improve the quality of life within the city by creating new local communities and to improve environmental sustainability by reducing the need for private car transport, especially in relation to commuting. However, our research qualifies this enthusiasm:

Only in cities where car dependency is controlled can re-urbanisation substantially reduce car ownership and car usage,

The study shows a major difference between inner urban areas in cities of car dependency and in cities of controlled car dependency. Just as in the suburbs, the difference in the quality of public transport is clear in the inner areas of our cities. The ethnographic studies showed that here too there is the (usual) hierarchy of provision. In the Dublin Docklands and in Kolonaki in Athens public transport is largely outside the locality itself, whereas in the Centro Storico of Bologna and Taka Töölö in Helsinki public transport traverses the locality. These are areas in which people appear to use public transport almost as a natural extension of mobility on foot (and frequently as an alternative to travelling on foot). In particular in Taka Töölö the tram system binds the locality together, extending the area which people can claim as their own neighbourhood. In this context light rail is part of a dense grid of public transport, facilitating short and multi-functional journeys, rather than a transport mode for target mobility as it is now usually understood by transport planners.

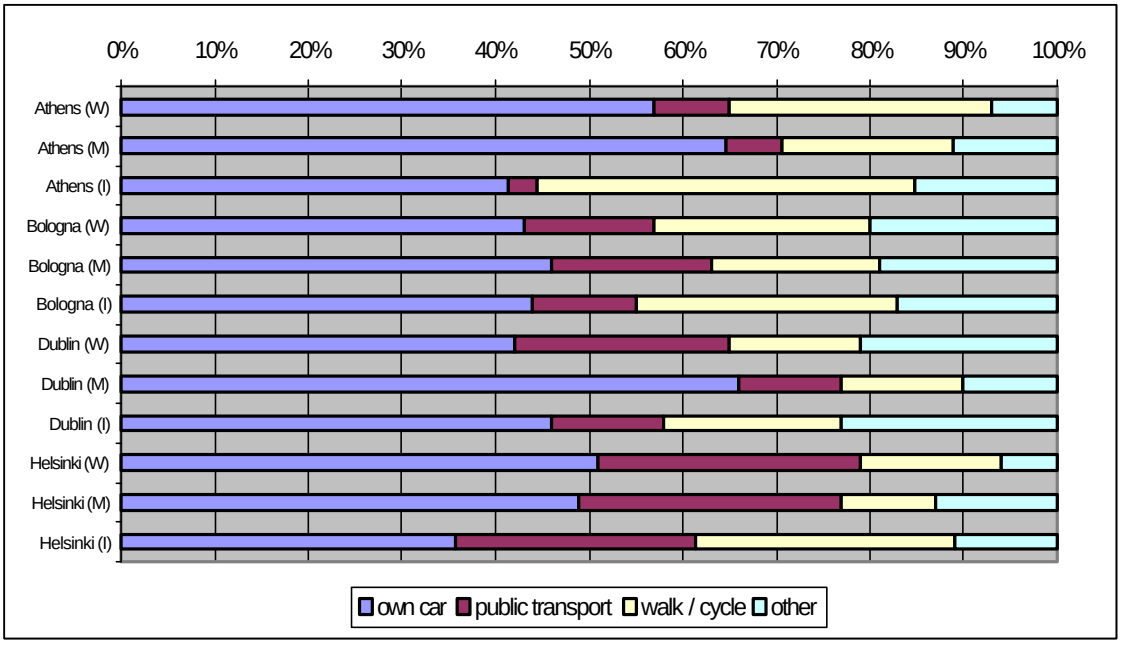
The focus groups in particular showed how in all four inner city areas a major attraction for many inhabitants is the fact that they can walk to work. However, in

[54] See in particular, Ethnography, p182 (Section 5.2.3. Conclusions from Kontula').

Athens and Dublin this goes with a second attraction: the fact that people do not have to rely on public transport. By contrast, in Bologna and above all in Helsinki, the particularly high quality of public transport in the inner city is another reason for its attractiveness.

This combination of closeness to work and high quality public transport produces a highly distinctive mobility pattern. In inner city Helsinki car ownership is low, since people feel they do not really need a car for their daily lives. In this context, the key advantage of the car becomes that it can get you *out* of the city altogether – to the countryside and above all to the second home in the summer. Amongst car owners, travel to work by private car falls to just over 20% (Chart 9.2), and the focus groups showed that such car drivers often use their car because it is essential for the nature of their work. Such work often combines the lack of a fixed location with the need to carry work material to the work activity, as for example architects carrying architectural drawings to clients whom they have to visit in different parts of the city.

Chart 9.3. Travel all activities: households with car only



Similar patterns are repeated in relation to other uses of transport. As Chart 9.3 shows, members of car-owning households in inner city Helsinki are less likely to use their car for a range of non-work activities than any other comparable group. This is partly because local facilities continue to exist. For example, whereas Dublin has now 'suburbanised' most of its hospitals, inhabitants of Taka Töölö are still within walking distance of a hospital. Again because of the better public transport available for travelling short distances and for non-work journeys, only 20% of Helsinki inner city inhabitants use a car to visit friends in their own house. In inner city Bologna and – again – Helsinki, residents have the feeling that everything is within reach on foot or by public transport (see box)

Inner city living in a transport rich environment
You can just drop in [to] an exhibition, well, this is one I haven't seen. If you come from some Espoo [Helsinki suburb] you have to think about leaving for it and where can you put the car and how are you going to get there..." (Nurse in Helsinki Report, *Repor on Workpackage 4,* p. 161)

Finally, inner city residents in cities of controlled car dependency seem to have a different understanding of physical and social space. At its simplest this can be expressed by the idea that for them, their urban citizenship is interwoven with how they move around the city. The streets may be noisy, polluted and even physically dangerous (unlike the streets of the middle class suburbs), but these are public spaces in which they live part of their lives. As in particular the focus groups showed, in Helsinki and Bologna to use public transport is to know the way around your city, and to understand yourself as a participant in its life. Such people are conscious of their own mobility skills as part of a shared and public knowledge. By contrast, in Athens and Dublin people certainly also learn how to use public transport, but their mobility skills are different. Because public transport information is completely inadequate (for example, incomprehensible, unreliable and even non-existent bus timetables), such knowledge has to remain restricted to a group of immediate users: it is knowledge of 'my bus route' rather of 'our transport system'. For this reason, in the car dependent cities mobility skills are disconnected from any sense of citizenship. This theme of citizenship emerged spontaneously in many of the focus groups in the cities of controlled car dependency, and was particularly strong amongst the inner city residents. By contrast, it never emerged in any of the discussions in any of the areas in the car dependent cities, not even in the inner urban areas[55].

Middle class suburbs: car dependency, target mobility, and unexpected possibilities

The majority of the inhabitants of European cities now live in new housing in the suburbs. The conventional assumption is that such suburbs generate car dependency. Certainly the focus group data shows how in these suburbs, particularly in Dublin and Helsinki, mobility is understood by the inhabitants in the same way as it is by transport planners, that is as what we term 'target mobility'. Such mobility is movement between points A and B, and for this the car is then the most convenient mode. And cars are crucial to the suburban lifestyle, not just for work and leisure, but perhaps in particular for children (see box).

[55] Indeed, Dublin shows how the physical structures of 'new urbanism' can actually be inimical to public space and urban citizenship. In the case study area the new housing frequently takes the form of urban gated communities, walled off behind electronic gates from the city outside, not in suburbia (Luymens, 1997) but in the heart of the city itself.

Car dependency and children
"When I was a kid I had judo as a hobby, and the requirement was that I could get there by bus. My parents might have come to see it once, but that was that. Nowadays the hobbies must be organised, and there has to be guaranteed quality. It is the car that gives you the possibility" (Technical planner, Helsinki Report, *Report on Workpackage 4,Experiencing Mobility,* p. 161).

However, to characterise European suburbs as low density generators of car-based mobility is simplistic. After all, as Bratzel (1995) has stressed, even in Los Angeles the origins of the extensive suburbs lie not in the freeway system, but in the (now long demolished) suburban electric rail lines. This simple historical reminder suggests problems and possibilities that are often ignored.

In particular our research produces four key findings:

1. High density itself does not reduce car dependency

Housing in the typical middle class Athens suburb of Polidrosso is largely apartment blocks, built at a significantly higher density than the two middle class suburbs of Clonskeagh in Dunlin and Lansi-Pakila in Helsinki. Furthermore the ethnographic report shows that in Polidrosso (unlike in Clongskeagh) there is also quite extensive local public transport. This is reflected in the survey result for Polidrosso, where respondents have a relatively high perception of the quality of public transport, especially compared to the other two Athens localities (see Chart 6.1). Yet Polidrosso shows high to very high levels of car ownership and car usage, in particular for leisure journeys. As the focus groups report, for these inhabitants a car is 'essential' for their lives; the survey shows that that Polidrosso has the highest level of car dependency for travel to work of all the middle class suburban areas (*Report on Workpackage 3.2, Using Cars*, Table 11.4).

2. A good city wide public transport system reduces car usage even in 'car based' suburbs

The case study middle class suburbs of Helsinki and Dublin initially appear very similar. They are both low density and affluent areas, inhabited largely by families with children; they comprise single family houses with at least one car per household. Although the national research teams saw each of 'their' suburbs as clearly car dependent, comparing the local data, whether from the ethnography, the survey or the focus groups, shows clear contrasts. Thus survey data shows higher levels of car usage in Dublin than in Helsinki, for both work and non-work journeys, even when analysis is restricted to car owners (Charts 9.2 and 9.3) and even car ownership itself is marginally lower in Helsinki. Even in suburban Helsinki, car owners are less likely to use their cars than car owners in Dublin and more likely to use public transport or bicycle. Furthermore, in Lansi-Pakila in Helsinki young people have more mobility skills than their counterparts in Clonskeagh in Dublin, since they are noticeably more likely to go to school by public transport or by cycle.

The main explanation seems to lie in the perception of all inhabitants of Helsinki that they live in a city with good public transport. Thus Chart 6.1 shows that it is these respondents from Lansi-Pakila who give public transport quality the highest score of all 12 localities in the study! Even the inhabitants of suburban Lansi-Pakili

see themselves as born Helsinki dwellers, people who are, in their own words, 'urban', 'partial to the trams' and who 'naturally learn who to use public transport' (Helsinki Report, *Report on Workpackage 4, Experiencing Mobility,* p. 201). Consequently they can imagine using public transport - in particular rail-based transport - even when they do not usually do so. In these terms they very different to the inhabitants of Clonskeagh, for most of whom public transport is a vague and threatening world of which they only know its negative aspects by repute[56].

Interwoven with the public transport system is the level of facilities. In the Helsinki suburb basic shops and other facilities are in reach of inhabitants either on foot or by local public transport, whereas in Dublin there are fewer facilities and also less local public transport. Accordingly, the car appears more essential even for small scale and casual journeys.

3. Walking cultures are not restricted to inner city areas

The ethnographic reports shows that walking – whether for leisure, as a form of 'target mobility' or as part of being mobile across a spatial area is not restricted to the inner city areas. Here again there is a clear contrast between Dublin and Helsinki. The physical layout of Lansi-Pakila encourages cycling and walking, despite the cold (see box), whereas in Dublin or in Athens, despite the milder climate, there is far less use of cycles and even walking.

> **Walking and cycling in suburbia**
> Between the [housing] blocks there are often pedestrian/bicycle gravel lanes which cross the area practically within the woods. The houses have their front to a street, but some have their back to woods (trees, bushes), and within these woods there run pedestrian/bicycle lanes. (Helsinki Report, *Report on Workpackage 3.1,Ethnography of Transport Use,* p. 113).

And the reports show clearly that walking and cycling are treated as normal in Lansi-Pakila in a way that does not occur in the other areas, particularly in Dublin or Athens. Oddly enough, in Dublin people may walk or cycle for discreet journeys, including reaching work or college, but the greater difference appears to lie in the greater casual amount of walking and cycling found in Finland. In other words, even in the Helsinki suburb, mobility is marginally less 'target oriented'.

4. Even in the worst environments, car dependency is not absolute

The middle class suburbs (joined to some extent by La Barca), appear at first sight as areas in which car usage has turned into physical car dependency. Not only do all (adults) have cars, but they use them for all forms of mobility. Facilities that can be reached by non-mechanical transport have withered away; the lack of public transport has ensured that people use cars for everything, so there is now no demand for public transport.

[56] Their perceptions should not be ridiculed. If anything, the Dublin survey respondents who did not use public transport *under*-estimated its quality. See above, chapter 6 and *Report on Workpackage 3.2, Individual Mobility,* p. 7 and Table 6.2.

While this account might apply to suburbs in the USA, our results suggest that it would be a caricature of even the most car dependent European suburbs. Even when car usage is at its highest, in suburban Dublin, other possible forms of mobility still exist. Whereas 42% of all respondents normally use their car even to buy 'small amounts of food' (as opposed to 32% in Lansi-Pakila and a mere 4% in Polidrosso), only 2% claim that this was the only possible way of shopping. And while there are noticeably fewer people walking or cycling in Clonskeagh than in Lansi-Pakila, the discussion in the focus group confirmed that people could still imagine carrying out many activities without a car. Indeed, we even located one determined public transport user in Clonskeagh who deliberately did not own a car. Furthermore, even in Dublin there was an awareness of the negative aspects of car transport and of some of the self-defeating forms of behaviour it involved.

Chapter 10 Policy implications: Reducing car dependency in Europe

James Wickham

This chapter develops the results of our research into broad policy recommendations aimed in particular at city and regional governments and at European Union policy-makers. Project SceneSusTech has documented the wide range of *variation* in both car usage and car dependency within and between European cities. This variation essentially depends on the inter-relationship between land use policy, public transport provision and the car system itself (road provision and traffic regulation) in each city. All these factors are massively shaped by political processes and overt political decisions at the city level. The simple straightforward implication is that to a large extent the extent of car usage already depends upon public policy.

As the first section of the chapter reports, the broad measures that are needed to reduce car usage in European cities are now well known. The problem is securing political support for them. As the second section argues, our research results show clearly that a key precondition is effective city and regional government; our results also suggest what sort of policies are most likely to work in practice. The third sections suggests that a key policy issue is now the extent to which the citizens of Europe's cities have a right to mobility. To the extent that this is the case, then public policy has to ensure that Europeans have a choice *not* to travel by car - on this basis the fourth section reports the implications of our results for strategies to reduce car dependence. A brief concluding section argues that a key research issue for the future is the relationship between public transport in European cities and the European social model.

10.1. Key conventional policy measures

Environmental sustainability requires that the increase in car usage be slowed and then reversed. However, our results also clearly show that cities which are 'car dependent' exacerbate social exclusion. Finally our results also suggest that cities in which car dependency is curtailed and controlled have greater social cohesion and better urban citizenship than cities which are dominated by the private car.

Taken as a whole, there is no longer any mystery as to the measures required to reduce car usage and car dependency within European cities (e.g. Pucher, 1998; for more qualified statement Stokes, 1996). Strategies have been documented and explored in EU funded projects such as the CAPTURE[57] project and by conferences of the European Committee of Ministers of Transport. In summary, they are:

- **High quality public transport**, including innovative low cost solutions. To reduce overall car dependency, as opposed to merely altering the 'modal split' on specific point-to-point routes, such transport has to form an integrated transport grid combining different transport modes (bus, tram, metro, surface

[57] Details at http://www.cordis.lu/transport/src/capturerep.htm

rail). In general public transport should be prioritised over road construction, which tends to simply generate more car traffic.

- **Effective land use planning**, ensuring that main traffic generators (employment, hospitals, shopping areas, airports, etc.) are located on public transport nodes. Particularly important, and particularly difficult to ensure, is the regulation of large-scale retail outlets, since their continued growth is usually at the cost of local shops which can be reached on foot and of existing urban centres which are usually well served by public transport.
- **Physical restrictions on cars especially in city centre areas**, including the reduction of off street parking and above all, the banning of private cars from large areas of the urban core.

It should be noted that another strategy which is often discussed is the attempt to make motorists pay their true costs, especially through road pricing. This remains controversial, is (as yet) relatively little used, and was not implemented in any of our case study cities.

10.2. Implementing policy to reduce car dependency

The experts in our scenario exercises were in broad agreement with each other that measures such as those outlined above are needed; they were less convinced that they would ever be implemented. What then can be learnt from those cities that have, to some extent at least, implemented such measures?

Develop effective urban and regional authorities

The clearest result of the research at city level was that cities which have effective public transport have a considerable degree of local autonomy. Conversely, in bad practice cities decisions are taken disproportionately by national government. This has some immediate policy consequences:

- **Strengthen urban government.** Reducing car dependency requires effective city level governments, with some independent tax base and some democratic authority and legitimacy. This is of course in accordance with the subsidiarity principle of the European Union. Some autonomy at city level allows citizens to evaluate decisions that are made in their city. **If national governments wish to improve urban transport, they need to devolve power to the cities.**
- **European instititutions should enhance the move towards subsidiarity in urban policy**. A relatively autonomous city government can learn from initiatives in other European cities, not least through EU initiatives such as the sustainable cities programme. Without effective city government, such exchanges can degenerate into 'junkets' for powerless politicians, undermining the legitimacy of democratic institutions. There is now anecdotal evidence that European citizens themselves are informally 'benchmarking' their city governments: there is growing awareness, not least through travel and tourism, of how other cities tackle transportation issues. City governments are going to have to develop the capacity to respond to these demands, even though national politicians are usually reluctant to cede power. The European Commission should build on these informal experiences by imposing on city officials who participate in EU programmes the obligation that they inform their electorates of what they have learnt.

- **Implant cities in effective regional or metropolitan level government with strategic power.** Cities with effective transport policies are implanted in regional or metropolitan level governments which have strategic capacity and democratic legitimacy. This is especially important if land use planning is to be integrated with transport planning. The planning of urban public transport, in particular the crucial issue of network integration, can only be carried out at regional or metropolitan level. This requires some form of regional level transport authority responsible to a regional government with democratic legitimacy. Once again, such institutions can be developed through greater development of European Union sub-national institutions, such as in particular the Committee of the Regions as potentially strengthened by the Nice Treaty (Article 263).

Prioritise contextual rather than general policy measures

Our research shows that the extent to which people want cars, let alone use cars, depends on the social and spatial context. This suggests that as a general principle, contextual measures (specific traffic restrictions, specific transport alternatives) are more effective than general measures (increasing fuel taxes, even road pricing).

Build urban coalitions

The analysis of 'car decisions' showed that successful policies are usually constructed by policy coalitions that span major interest groups and conventional ideological divides. Such policies are successful when they create a framework within which major interests, e.g. land developers, can operate to their own advantage. It is important to be clear that this is **not** an argument for seeking to compromise with existing interests at all costs. Instead, it is about creating a new framework within which interests, including in particular private sector interests, can operate in a way that is compatible with the over-riding objective of sustainable development[58].

Deliver visible benefits

Both the analysis of political decisions and the focus group discussions highlighted a paradox of transport politics. On the one hand there is now in European cities a widespread acceptance that mobility based on the private car is unsustainable (and indeed unpleasant for the user as well as the environment). Consequently most European citizens accept that they cannot always be allowed to use their cars in the way they might like, and that alternatives (from walking to public transport) should be encouraged. On the other hand there is also the pervasive belief that people will not accept restrictions on car usage, and that cars are absolutely essential to most people's ordinary lives. In this situation traffic control measures may call on a vague fund of goodwill, but may also be passionately resented when they are actually applied.

Effective policy therefore needs to deliver clear benefits to at least some of those whose freedom it restrains. At its simplest this means that there is no point in restraining car access to city centres ('sticks') unless people can see benefits

[58] This assumes that some forms of strong political regulation can be beneficial to private sector interests. For the concept of 'beneficial constraints' see Streeck (1997); for the broader political argument in relation to environmental protection see in particular Turner (2001).

('carrots'). Such benefits can range from pleasant pedestrian piazzas to clean and reliable public transport. Our case study of Bologna suggests that in the perception of many its citizens, traffic control in the Centro Storico has become *all sticks but no carrots*. In this situation sustainable transport policy simply becomes a dead-end, stimulating demands for motorists' 'rights' for greater use of their cars, and possibly even producing political parties committed to 'cars' rights' (as has happened, for example, in Holland and Switzerland). Yet such rights can hardly be unlimited. Nobody for example suggests that car owners should have the right to drive on whichever side of the road they please, since the benefits of **enforced** adherence to the rules of the road are fairly clear. Effective transport policy has to make the benefits of other constraints equally clear[59].

10.3. Urban mobility and citizenship

Enhance public transport as a public service

At the time of writing much transport policy discussion focuses on the issue of public versus private ownership, the possibility of using Public-Private-Partnerships (PPPs) and enhancing the role of the private sector in service delivery. Our results suggest that in the first instance much of this debate is irrelevant. At the time of the research all the public transport in the case study cities was in public ownership, yet the quality of the service ranged from the appalling (Athens, Dublin) through the competent (Bologna) to the impressive (Helsinki). More wide ranging studies have come to similar conclusions (NERA and TIS.PT, 2001). The most that could be argued is that, compared to private sector provision, publicly owned transport authorities *tend* to have better integration between transport modes, but worse industrial relations[60].

Traditionally public transport has been defined as part of the realm of 'public provision' or 'public welfare' which are excluded from EU competition law by Articles 16 and 86 of the Treaty (Bünger, 2002). There is now a clear trend, partly initiated by the Commission, to reduce or even remove this protection. This is usually justified in the name of greater transparency and efficiency. It is argued that if public authorities wish to subsidise public transport they can, but they should do so by buying services from competing enterprises. Most of the problems involved here are now well known and fall outside the range of our research (e.g. over-reliance on legal contracts to enforce service standards, etc.). However, our research does highlight two implications:

- In both our best practice cities, but particularly in Helsinki, public transport is effective because it forms an integrated system. This is increasingly important given the decline of the traditional suburb to city centre journey as a proportion of total journeys. We have also argued that low levels of car usage

[59] In the USA citizens enjoy the right to bear arms, a 'right' which most Europeans would regard as needing to be restrained in order to ensure fewer people are killed. Restraining car owners raises similar gains and losses. Such mutual acceptance of restraint is an example of the civilising process (Elias, 1995) which in these terms appears more advanced in Europe than the USA!

[60] Even such generalisations are hardly cast-iron: Dublin has relatively bad industrial relations *and* poor integration!

occur where citizens' mobility is not 'target mobility'. Such fluid patterns of mobility are impossible without an integrated public transport system. **However, competitive tendering tends to focus on individual routes and therefore runs the risk of fragmenting the system.**[61]

- Our focus groups showed that public transport in Bologna and Helsinki could command goodwill because it is seen as part of the public domain. There are even residues of this attitude in the Athens and (more so) in the Dublin focus group material. From this perspective public transport is a public property and a public service. If the service was provided – however competently – by a private company it would presumably not command this type of support. After nearly a decade of the 'New Public Management', it is belatedly being recognised that public sector employees enter the public sector for different reasons than those who join the private sector (Brown and Scase, 1994), and that they respond to rather different motivators (e.g. Timmins, 2002). In a similar way, we need to differentiate between the expectations that people have as consumers and the expectations that they have as citizens (Cahill, 1994). A private company serves its customers, a public enterprise serves the citizens. As John Kay has pointed out, public enterprises have a legitimacy that private enterprises *necessarily* lack (Kay, 2002). **Privatising public transport in the name of efficiency and transparency runs the risk of removing public support from public transport.**

Making public spaces safe for the public

There is a long tradition in urban planning, deriving in particular from the work of Jacobs (1962), which blames the car for the destruction of streets which form public meeting places. Yet as our research shows, this tradition ignores that rescuing public spaces from the motor car does not necessarily in itself create spaces which people wish to use. This has three policy implications.

- **Make the city centre safe.** Re-urbanisation assumes that inner city areas can be made attractive residential areas, in particular for relatively affluent professional groups who value cultural facilities and even social diversity. Quite rightly, public policy has attempted to regain some limited areas of the city from the private car through pedestrianisation. However, our results suggest that this ignores the extent to which the attractiveness of such areas is undermined by the extent to which they are often seen as particularly unsafe. Thus the Centro Storico of Bologna – the showpiece city centre of our study – has the *lowest* score of all our 12 localities for perceived personal safety (*Report on Workpackage 3.2*, p.12). In cities of controlled car dependency, the city centre has a particularly emblematic role. It is therefore imperative that it is not allowed to degenerate into a 'dangerous zone' which people avoid.
- **Make the streets safe.** More generally our results suggest that one reason why people use cars is because they feel physically protected by the car from random violence outside. Making streets safe – and perceived to be safe –

[61] Notice that 'regulation' of such competition can actually make this problem worse (see Financial Times, 12.09.2002).

therefore reduces one basis for car dependency. To get citizens out of their cars, it is probably necessary for the police to get out of theirs!

- **Make public transport safe.** Similar arguments apply to public transport. Here too there is a risk of a vicious circle: public transport is seen as unsafe, so those who can use the private car abandon it, thus giving more scope to hooligans and removing more public spaces from the public (e.g. some Dublin bus routes).

Transport welfare, citizens' rights and citizens' obligations

Our research has shown that car dependent cities exacerbate social exclusion. Consequently environmentally sustainable mobility *by itself* contributes to an anti-poverty strategy. This is because reducing dependence on the private car means that it those who do not own a car can become more mobile.

However, such contextual city level considerations do not detract from the fact that individual transport investments may well disproportionately benefit the better off population groups. Indeed, we have suggested that this may be particularly the case in car dependent cities (Chapter 7). There is a paradox here. The most cost effective way of ensuring a major modal shift on journeys to work (and hence of making mobility more sustainable) is the introduction of heavy rail services in *affluent* commuter areas (Kenworthy et al, 1997). Yet better public transport, so we are arguing, reduces social exclusion.

The paradox is resolved at two levels. Firstly, cost-benefit analysis (including analysis that attempts to assess differential social impacts) almost inevitably focuses on individual routes. Our research shows however that public transport challenges social exclusion through the development of an integrated transport *system.* Yet in car dependent cities, public transport initiatives tend to be isolated and often prestigious projects (e.g. the Athens metro). Secondly, our research shows that good public transport (as in Helsinki) can be supported by the broad public and used by population groups which in cities with bad public transport will not use public transport at all. By contrast, a public transport system will command little public support if, with the possible exception of a few isolated prestige projects, it has only a 'safety net' function for those who have no private car. Such a system will be locked into a vicious circle of declining resources, declining quality and declining passengers, and consequently further loss of political support. In transport, as in other areas of state provision, arguments that provision should be cost effectively targeted on specific groups have the (only sometimes unintended) corollary that such provision should be residual and second best.

This suggests a definition of urban rights that include the right to mobility within the city. Such a right is even more to difficult to define ('how much mobility at what cost?') than the rights of social citizenship (Marshall, 1950) to education, training, housing and health, some of which are enshrined in declarations such as the Council of Europe's European Social Charter of 1961 (Bainbridge & Teasdale, 1995: 224) and even the Social Chapter of the European Union. Such a generalised right to mobility is not to be confused with social cost benefit analysis, determining the costs and benefits of transport provision for different social groups (e.g. UK Social Exclusion Unit (2002). As Hodge (1995) has argued in his detailed discussion of such analysis in the USA, an over focus on equity may well detract from the *general* benefits of

public transport. The right to mobility requires a *systemic* approach to public transport provision.

This 'systemic' issue is even more important with reference to the other social policy aspect of public transport, namely its contribution to social cohesion (in the sense defined in Chapter 1). Our results do suggest that generalised car dependency does undermine social cohesion, but this is not just a question of the lack of quality public spaces in the city centre. Indeed, a simple focus on pedestrianising the historic city core can detract both from the issues of public order that are required to ensure these areas really do remain attractive, and from the fundamental question of the quality of life in the areas where most citizens actually live. Here the policy issues involve the maintenance and even the regeneration of localised facilities (shopping, education, health etc.), the improvement of facilities for walking and cycling, and above all the maintenance and reinvigoration of transport as a public rather than a private space.

Finally, 'transport citizenship', like other forms of citizenship, has obligations as well as rights. While it does seem that anomic public violence is more likely where public transport provision has become simply a safety net for the poor (as shown by the Dublin reports), this cannot detract from the elementary need to enforce an obligation of good public behaviour on all public transport users. More fundamentally, in an epoch of environmental crisis, transport citizenship carries the key obligation of responsible mobility at the individual level. Our results do show some evidence that walking, cycling or using public transport are here seen as morally correct. While the immediate ethical issue is posed in terms of the environment, it is possible that the linkage of 'public transport' to such public values and ideals of good citizenship is much easier if public transport is in fact owned by public authorities. The privatisation of public transport may well undermine one ethical basis for alternatives to the private motor car.

10.4. Developing alternatives to the private car

It is well known that good quality public transport can produce a substantial modal shift on radial routes for the journey to work. However, these journeys are becoming relatively less important: most employment is no longer in city centres; a decreasing proportion of employment occurs solely in the 'normal' working day (NESY, 2001). Conventional urban transport planning tends to focus on long journeys that are 'point to point' involving what we have termed 'target mobility'. Our results suggest other ways in which car usage can be reduced.

Facilitate walking and cycling in low density areas

One credo of the new urbanism is the importance of high density housing. Our results suggest that by itself this is less important in reducing car dependency than is often believed (it may of course be desirable for other reasons). Conversely, relatively low density housing areas are not necessarily extreme cases of car dependency. In these areas car dependency can be reduced by policies such as effective land and transport planning (clustering housing around transport nodes), provision of effective local transport, facilitating walking and cycling, and ensuring the maintenance of local facilities (shops, schools, health centres etc.). Even without major investments, it is

for example possible for public health campaigns to reduce car usage in low density areas by persuading people to walk rather than use the car.

Use public transport to enhance local mobility
Especially in inner city areas, car dependency can be best be reduced by public transport that extends citizens' *local* mobility and enhances *diffuse* (not 'point to point') mobility. In this context public transport extends the physical area that people can consider within walking distance. While high quality local bus services are relevant here, our results show that on street light rail systems ('trams') have some specific characteristics (on street visibility and accessibility, physically demarcated routes specified by the tracks, comfort) which help them to facilitate citizens' use of local space,. The highly visible rails of the tram are the best way to bind together an area.

Use public transport to enhance urban design.
Within the Anglo-Saxon technical literature, public transport evaluation focuses on cost effectiveness. Curiously absent from the expert discussion is what seemed to matter to some of our respondents, namely the quality of life in the city and even the actual cityscape itself. Trams clearly have a particular contribution here. Given the role of cities in European culture, it is imperative that such aesthetic and quality of life issues are given an explicit role in policy choices, *even if they are difficult to integrate into cost-benefit analyses.*

Maintaining and developing trust
If people are to use their cars less, they have to develop *trust* in the alternatives. Equally, public transport users are more likely to switch to cars if they lose trust in the service. The obvious implication is that industrial relations disputes in the public transport sector have a considerable knock-on effect. This should be borne in mind by public sector trade unions who wish to safeguard the employment of their members. Equally, ensuring the day to day reliability of the service has to be a high priority.

Maintaining and developing compentences
Walking and cycling are also alternatives which require relatively small infrastructure investments. It is however important to recognise that they require not just physical facilities, but the development of 'mobility skills' and a 'walking and cycling culture'. Again, the safety of public spaces is both cause and effect of such skills and of such a culture. Equally, using public transport is a skill that needs to be learnt. It can be helped by ensuring good quality reliable information is available to all transport users.

Making car ownership a choice and not a necessity
Once people own a car, they will use it and probably develop life styles for which it becomes essential. However, our results show that this development is not inevitable. There is wide variety of car ownership levels across our different case study areas, and even in the most apparently car dependent areas, it is possible to find non-car owners. While politicians are unlikely to find the courage to make *reducing car ownership levels* an explicit objective, it is possible to make it an explicit objective that the car should not be essential if one is to live in a city. In particular this means:

- **Ensure that young people do not have to use a car.** Given that car ownership generates car dependent activities, a policy objective should be to

ensure that young adults feel able to choose *not* to have a car for as long as possible. Public transport services (routes and timetables) need to adjust to the need for other journeys apart from the traditional suburb to city centre daytime services (night buses etc.). Given the extent to which young adults (especially young males) are disproportionately involved in car accidents (see Chapter 1), such a policy has important health policy benefits.

10.5. Future research: The European Social Model and the European City

In general there has been astonishingly little social research on cars or mobility (see Urry 2002). There is of course an extensive technical engineering and planning literature, and the economics of transport are far more advanced than social research on the issue. This project, like several other projects funded within the TSER programme has gone some way to meeting this deficit.

As Chapter 2 documented, it was not possible to tackle some of the issues raised in the original research proposal: the social distribution of the costs (including health costs) and benefits of car ownership, nor the implications in terms of social structure (especially with regard to employment structure) of a move towards more sustainable mobility. These issues remain important and largely unexplored. The same applies to what is now probably the key political question: the extent to which any move towards sustainable mobility is possible given the political importance of the car industry and all its ancillary activities. Here a comparison with the successful challenge to the power of the tobacco industry in Europe and the USA would be instructive. In particular it would be useful to explore the hypothesis that car *manufacturing* is now of decreasing importance given the structural shift towards a service economy: this could make it both easier to political isolate inveterate proponents of car dependency, but more importantly, it suggests ways in which the enterprises currently committed to ever greater use of cars can diversify into more environmentally and socially sustainable areas.

Unlike the USA, the European Union remains committed to its Kyoto targets and hence to some move towards sustainable mobility. This project has shown that challenging car dependency within European cities makes an important contribution to social inclusion and social cohesion. The idea, even the ideal, of the city is an important component of the European tradition. *This* city is part of what Hutton has termed the 'social capability' of European societies – their ability to combine a market economy with social bonds:

> 'This social capability is supported by a conception of the public realm whose underwriting of public science, **public transport**, public art, public networks, public health, public broadcasting, public knowledge and the wider public interest gives European civilization its unique character while offering many of its enterprises competitive advantage.' (Hutton, 2002: 258-259, emphasis added).

From this perspective, researching physical mobility in European cities is part of researching what defines Europe itself.

Chapter 11 Dissemination and exploitation activities

It was originally planned that users would be increasingly involved in the research as it came nearer to completion. This was intended to occur both in the field work localities and at city level in the case study cities. It was hoped to produce brief local reports for each city which would be developed in collaboration with city level policy makers and experts involved in the scenario-building exercise. As discussed in Chapter 2, this proved unrealistic and the separate local reports had to be abandoned. Nonetheless, the project results attracted attention in each case study city and led to various publications and further activities, in addition to academic papers and conference presentations during and after the project. In particular the final stage of the project (the scenario building exercise) did involve direct contact with policy makers and transport experts in each case study city. As the list below shows, in Dublin and Helsinki members of the team have also been invited to present the project results to various meetings of policy makers.

11.1. Publications, conference presentations and media appearances

The table below lists all publications, conference presentations and media appearances based on the work of the project and involving the research team. These all occurred during the project or after its completion.

Bologna / Rome

Francesco Garibaldo and Elena Battaglini	'Mobility and Environment: Is It Possible to Transfer Western Mobility Patterns to the Emerging Countries? Scenarios on Mobility and the Car Industry.' Sixth GERPISA International Colloquium, "New Spaces in the World Automobile Industry" 4-6 June 1998, Palais du Luxembourg, Paris (France).
Elena Battaglini	'A Theoretical Framework of the Link between Environment And Society. Our Research Experiences, and Implications for the Urban Policies.' 14th World Congress of Sociology, Research Committee 46, Montreal, July 26th - August 1st, 1998.
Elena Battaglini	'Urban Mobility and Environmental Sustainability: a comparison among different European Experiences' (Original title: 'Mobilità urbana e sostenibilità ambientale. Esperienze europee a confronto'). The Sociology of Environment in Italy, 2nd National Seminar, Rome, 9th-10th April 1999. Organised by: Department of Sociology, University of Rome "La Sapienza", Department of Human Sciences, University of Trieste, AIS Associazione Italiana di Sociologia.

Fatima Farina and Elena Battaglini	'Scenarios for a sustainable society: car transport systems and mobility patterns. The case study of Bologna: a multi-level analysis'. 3rd European Society for Ecological Economics (ESEE) Conference 2- 8 May 2000, Wien.

Dublin

Maria Lohan and James Wickham	'Dublin's Car System' in M. Peillon and E. Slater (eds.) *Memories of the Present: A Sociological Chronicle of Ireland 1997-1998 (Irish Sociological Chronicles Volume 2 1997-98)*, Dublin: Institute of Public Administration, 2000, pp. 77-88.
Maria Lohan and James Wickham	'Creating Sustainable Transport, Loosing Political Innocence: A comparison of regional innovation systems in four European cities'. Network of Centres in Science and Technology Studies 1999 Conference 'Regional Innovation Systems in Europe' September, 1999.
James Wickham	'The Social Shaping of European Urban Car Systems,' EASST 1998 General Conference 'Cultures of Science and Technology: Europe and the Global Context' ISTCE, Lisbon, September 30- October 3, 1998.
James Wickham	'The Transport Rich and the Transport Poor: Car dependency and social class in four European cities', EASST 2000 Conference: 'Worlds in Transition: Technoscience, Citizenship and Culture in the 21st Century', University of Vienna, September 27-30, 2000. Earlier version of paper also presented at the conference 'Urbanism and Suburbanism at the End of the Century', National University of Ireland, Maynooth, November 26-27, 1999.
James Wickham	'Contextualising Car Dependency', ECMT (European Conference of Ministers of Transport) -OECD Workshop Managing Car Use for Sustainable Travel, Dublin, December 1-2, 1999.
James Wickham	'When just being normal is a problem: What happens when sociologists think about transport and policy-makers worry about cars' Contribution to INTEPOL Brussels workshop, 15 November, 2000.
James Wickham	'Competition and Public Transport', Irish Congress of Trade Unions conference for trade unions in the public transport sector, Wexford, 24-25 January 2001.
James Wickham	'Next Stop Bangkok? Dublin's deepening transport crisis'. Public Transport Partnership Forum, Department of Public Enterprise, Dublin, 6 September, 2001; also Trinity College Dublin Policy Institute seminar, 12 March 2002.

James Wickham	**National media contributions on Dublin transport:**
James Wickham	**Newspaper articles on Dublin transport:** 'Transport mess is due to bad governance' *Irish Times,* 30 March 2000. 'Why this taxi madness must end now' *Irish Independent,* 23 November 2000. 'Transport sector unions lose run of themselves' *Irish Independent,* 18 May 2001.

Helsinki

Taina Rajanti	Onko autoistuminen välttämätöntä? Kestävän kehityksen liikennejärjestelmät. (Is car-dependency necessary? Sustainable traffic systems) Kuntapuntari (published by Statistics Finland) 5/1999.
Taina Rajanti	Presentation of the project results in Finnish, commisioned by Lyyli - project (Ympäristövaikutuksiltaan edullinen yhdyskuntarakenne ja liikennejärjestelmä/ Environmentally sustainable urban structure and traffic system) of the Ministries of Transport, Environment, Social- and Health, Commerce and Industry, Finnish Association of Municipalities, TEKES, Finnish Road Association and Railway Administration Center: * Sosiaalisilta vaikutuksiltaan kestävä liikennejärjestelmä: Helsinki eurooppalaisessa vertailussa. (Socially sustainable transport system: Helsinki in a European perspective.) * Helsingin liikennejärjestelmä rakenteellisen henkilöautoriippuvuuden näkökulmasta (The transport system of Helsinki in the perspective of structural car-dependency) * Helsingin liikennejärjestelmä paikallisen liikennekokemuksen näkökulmasta (The transport system of Helsinki in the perspective of local moiblity experience)

Taina Rajanti	'Helsingin autojärjestelmä - juurtunut teknologia' (The Car System of Helsinki - an Embedded Technology), teoksessa Järvelä, Marja, Lybäck, Katinka & Jokinen, Marika toim. (eds.): Kaupunkiliikenteen ekososiaaliset ulottuvuudet (The Ecosocial Dimensions of Urban Traffic). Jyväskylän Yliopisto, Yhteiskuntatieteiden ja filosofian laitos, Jyväskylän Yliopistopaino (The University of Jyväskylä, Department of Social Sciences and Philosophy, University Press of Jyväskylä) 2002.
Taina Rajanti	23.10 1999, workshop paper "Local mobility experience in three areas of Helsinki", Sosiaalipolitiikan päivät Jyväskylä. (Annual national Social Policy Conference) 23 October 1999.
Taina Rajanti	Visiting lecture "Esperienza locale di mobilità in un mondo globale" in professor Alessandro Dal Lago's seminar "Globalisation and forms of governance", University of Genoa, Italy, 26 November 1999.
Taina Rajanti	28.2. 2000 lecture presenting the SceneSusTech project and especially the results on Local Mobility Experience to the Research Department of the Information Center of the City of Helsinki. 28 February, 200.
Taina Rajanti	'"The more people there are the better" Mobility of the elderly and urban structural limits and resources.' Paper presented at the 3rd International conference of Anthropology and History of Health and Disease 13-16 March 2002 Genoa, Italy.

11.2 Other dissemination activities

Participation by team members in subsequent relevant research

Maria Lohan is currently participating in an EU-funded project 'PORTAL' which disseminates the results of SceneSusTech and other transport research into engineering education.

Taina Rajanti has participated in an EU funded project on sustainable urban planning, and is now doing research, financed by the Finnish Academy, on a project entitled 'Governing Life'.

Planned dissemination events

In 2003 the Policy Institute, Trinity College Dublin, will host an international conference on 'The Car and the City – Social Analysis and Policy Implications' which will feature the results of project SceneSusTech.

Planned academic articles

Academic articles currently being written or planned include:

Provisional title	Topic and workpackage (WP) used
'Walking around the city'	Ethnography as a research methodology, based on WP3.1
'Experiencing mobility'	Focus group results, based on WP4
'A Tale of Four Cities'	Technological trajectories and varieties of car usage, based on WP1.2 and WP2.1 and possibly WP5
Cars, mobility and social exclusion	Restraining car usage and its implications for social exclusion. Material from all workpackages.
Cars and social policy	Social inclusion and social cohesion as issues for European transport policy. Material from all workpackages.
Reurbanisation: a challenge to the private car?	The limits of re-urbanisation without adequate transport policy. Material from all workpackages.

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Annexes

Annex 1 SceneSusTech Deliverables

Work package	Number and Name	Status
1.1	1.1 Literature Review	Completed
1.2	1.2 Typology of car system	Completed
1.3	1.3 Consumption & mobility	Completed
2.1.	2.0 Political sociology of car syst ems - methodology	Completed (R)
2.1	2.1 Urban car systems	Completed
2.2	2.2 Political sociology of car system	Completed
2.3	2.3 Car system and weightless economy	Completed
3.1	3.0 Transport use - methodology	Completed (R)
3.1	3.1 Ethnography of transport use	Completed
3.2	3.2 Individual transport use	Completed
4.1	4.0 Focus group methodology	All agreed tasks carried out. Results are reported in the amalgamated report on Workpackage 4, *Experiencing Mobility*, *Imagining Accessibility.*
4.1	4.1 Experience of mobility	
4.2	4.2 Imaginations of accessibility	
5	5.1 Preliminary case study reports (4)	Abandoned as separate reports; results amalgamated into report on Workpackage 5, *Scenarios of Mobility.*
5	5.2 Case study city reports (4)	
5	5.3 Final report	Completed

The first two columns of the table are taken from the Technical Annex of the project as agreed at the start of the project. The table lists all agreed deliverables. All reports are available from the project website with the exception of those restricted team briefings marked (R). See Appendix 2 for full titles of reports.

Annex 2 Available SceneSusTech reports

The reports listed below have all been submitted to the European Commission as project deliverables. They can be downloaded (pdf format) from the project website (http://www.tcd.ie/erc/projects/cars) with the exception of reports marked (R) which are restricted team briefings – these are available on request from the Employment Research Centre, Trinity College Dublin (Dublin, Ireland).

Workpackage		Report
No.	Title	Authors and title
1.1	**Literature review**	M. Lohan (edited J. Wickham) (2001), *Literature Review* (final version).
1.2	**Typology of the car system**	J. Wickham and M. Lohan (1998), *The Social Shaping of European Urban Car Systems.*
1.3	**Consumption and mobility**	E. Shove (1998), *Consuming Automobility.*
2.1	**Political sociology of car systems – methodology**	E. Battaglini and J. Wickham (1999), *Political sociology of car systems – methodology* (final version) (R).
2.1	**The urban car system**	J. Wickham (ed.) (1999), *The Car System in the City.*
2.2	**Political sociology of the car system**	J. Wickham and E. Battaglini (eds.) (2001), *The Political Sociology of the Car System.*
2.3	**Car system and the weightless economy**	J. Urry (1998), *Automobility, Car Culture and Weightless Travel*.
3.1	**Transport use - methodology**	J. Wickham (1999), *Researching Local Transport Use: Methodology (R).*
3.1	**Ethnography of transport use**	J. Wickham (ed.) (2002), *Ethnography of transport use*.
3.2	**Survey of transport use**	J. Wickham (2001), *Using cars, using public transport: First results from a survey on individual mobility in four European cities.*
4	**Local focus groups**	T. Rajanti and J. Wickham (eds.) (2002), *Experiencing mobility, imagining accessibility: Results from focus groups in four European cities.*
5.1	**Scenarios of mobility**	J. Wickham (ed.) (2002), *Scenarios of mobility: Experts' images of the future in four European cities.*
5.2	**Final report**	J. Wickham et al (2002), *SceneSusTech Final Report.*

The web page also contains some interim reports for different workpackages.

Annex 3 Analysing political 'car decisions'

Excerpt from *Report on Workpackage 2.2, Political car decisions*

Research methodology

The detailed research methodology for this work package was developed by the Italian team, using in particular a specially commissioned review of the literature on the analysis of administrative decision-making. This argued that analysis had to avoid two rather different problems. Firstly, it was important to avoid attributing motives and interests to actors, and in association with this, it was important to avoid explaining decisions purely in terms of some 'meta story' (e.g. the 'post-fordist city'). In other words, the researchers' account had to be empirically consistent with actors' own accounts. Secondly, the account had to do more than simply focus on the gap between planners' aims and their actual achievements. Instead it had to empirically locate (1) those groups who actually participated in the decisions (2) these groups' values and intentions and (3) the arenas where these decisions were actually made. Differences on these different dimensions should in turn explain the different decisions in the four cities.

The research methodology for the workpackage is described in detail in a restricted report (Report 2.0, *Political sociology of car systems – methodology*, final version submitted August 1999). Essentially, the methodology was designed to locate and analyse the decision-making network through which decisions about the car system were made. Research was to involve three stages:

1. Chronological reconstruction of the decision-making process. This defines the time period for analysis and locates the different participants in the network.
2. Analysis of the participants: their definition of the problem, their objectives, their resources.
3. Re-construction of the interaction between the actors.

Discussion within the research team identified some problems with this methodology (the discussion is summarised as 'Debate on Methodology' in the *Methodology* report). Project *SceneSusTech* is not only about technology and the choice of technologies (i.e. the 'social shaping of technology'), it also assumes that technologies are part of society. Yet the only actors that the methodology identifies are purely social. Following actor-network theory therefore, it was agreed that the 'actors' should include technologies where they became relevant.

As originally formulated the methodology was explicitly empiricist and inductive. Almost by definition, this raises the question of the beneficiaries of agenda setting. In other words, some groups may benefit from decisions because all participants 'take it for granted' that their views must be taken into account. Such groups do not have to take any overt action in order to influence decisions, and they may therefore be invisible to any research that focuses only on groups actively involved in the decision-making process. Furthermore, while the original methodology did not privilege any outcome or interest, the project is concerned to identify whether or not particular

outcomes occur – those that (a) lead to environmentally sustainable development and (b) reduce social exclusion. Finally, the project hypothesises that such developments are more likely to occur when there is a relatively participatory political culture.

Given our interest in the politics of the car system, in WP2.2 each national team was to study one decision which could be expected to reduce car dependency, and one which could be expected to increase it. The former comprised: the new Athens metro, the tramline project in Bologna, the Dublin light rail, the Helsinki metro extension. Decisions that could be assumed to increase car dependency were the parking plan and the construction of an out of town shopping mall in Bologna, the construction of an underground car park in the city centre of Athens (Kotzia Square), the decision not to proceed with another metro extension in Helsinki, the construction of a large out of town shopping centre in Dublin (Liffey Valley).

In Helsinki the Finnish team decided that in the time available it was only possible to study two closely related decisions: the decision in favour of extending the metro in the East of the city and the decision not to extend the metro in the West. This choice was unfortunate. It would have been useful to compare a 'bad' decision in a best practice city (Helsinki) with a similar one in a worst practice city (Dublin). Nonetheless, the Helsinki research was very informative and is therefore included in this report.

In Bologna the two original case studies were of decisions which both formed part of the Urban Traffic Plan. The first case is the Parking and Circulation Plan and the second one the project to restore the tramline. Although these two interventions have a common origin, both belonging to the Urban Traffic Plan, they have different objectives and different impacts on the local car system. Nonetheless, in order to achieve a better understanding of 'negative' decisions in Bologna, the Italian team also studied the construction of an out of town shopping mall. In all four cities therefore we have been able to study decisions which extend public transport and so presumably directly reduce car dependency; in three cities we have studied other decisions which, by contrast, facilitate car usage. And finally in two cities (Dublin and Bologna), we have case studies of decisions of developments (shopping malls) which are known to accentuate car dependency. All in all we are therefore able to compare the decisions on two different dimensions: decisions in cities that are more car dependent as opposed to cities that are less car dependent; decisions that accentuate car dependency and decisions that reduce it.

Annex 4 Guidelines for ethnographic research

Extracts from 'Researching Local Transport Use: Methodology: Team briefing' submitted 9 January 1999.

Basic concerns: how this fits into the overall project

The project argues (see proposal) that social structure and car system are inter-related. The previous work package showed how the car system is shaped by political decisions, in other words, how 'society' influences the 'car'. This work package reverses the analysis, and examines how the car system influences society. But of course it's not that simple. Firstly, we have moved away from any simple division between 'society' and 'car' as mutually exclusive domains with different ontologies. Secondly, although at any one point in time the car system certainly does confront individuals as pre-existing, part of the project is to find out what people can do in that situation. In other words, we look at how the system constrains and facilitates, rather than simply determines.

Our literature review and the contributions by Elizabeth Shove and John Urry have all shown that sociological analysis of the car is largely restricted to the car as a consumption object. Furthermore, this work is almost entirely culturalist – it makes general assertions, using anecdotal evidence, about 'the car' in 'contemporary society': systematic empirical evaluation of arguments is remarkable for its absence, while there is almost no attempt to explore differences – between societies, between social groups, between cities and geographical areas. Studies from disciplines such as geography and social medicine do have a much better empirical basis, but with very few exceptions these remain at the level of case studies. Yet differences matter, quite apart from their obvious theoretical relevance. The extent of national differences is crucial for the exploring the plausibility of a European solution to urban mobility; the extent of differences indicates whether the city is an appropriate site for transport policy innovation; and above all, differences between social groups within different urban and national contexts, indicate the relationship between car system and social exclusion. So systematic comparative research is one of our key contributions!

Choosing the area

We have agreed that the research focus is on areas, rather than on people per se. In other words, we will be choosing three different areas as being broadly (1) conventional middle class car dependent suburb (2) 'yuppie' inner city with lower car dependence by choice (3) excluded low income area where access to cars is limited. We also agreed that the socially excluded area will in fact not be the most extreme case of exclusion, but will be a low income area. Defining the area precisely will involve two further issues:

(1) administrative convenience – it is obviously a good idea to choose an area which is already defined administratively so that you can relate it to existing data. Thus in Dublin we are selecting 'District Electoral Divisions'. These are the smallest unit for which aggregate census data is available and are the basis for Dublin

Corporation's traffic modelling. A DED is usually about 8,000 people. We can thus use census data for a basic social profile of the area (including car ownership and travel to work) and compare the area with both Dublin and Ireland as a whole.

(2) social homogeneity – given that each area is selected to focus on a particular social category, it makes sense to choose an area where this type of person predominates, even if that is unusual in the city as a whole. But this issue is a bit contradictory, since we have also agreed that once the area is chosen, we will be profiling the area rather than just the people who fit our initial criteria.

We should remember that selecting areas (rather than people) has other advantages. Obviously it means that data collection is simpler: we study everyone in the particular area, rather than having to spend a lot of time locating our subjects. It also reduces the risk of a self-fulfilling prophecy – if we focused exclusively on the three social categories (conventional middle class, socially excluded, yuppie) we would ignore many forms of transport behaviour that might be important. And above all, people's mobility and accessibility is powerfully shaped by **where they live**!

Of course there are problems with this approach. In particular, the initial approach derives from our Dublin experience. Irish cities, and Dublin in particular, are probably more socially segregated than many Continental European cities, and the particular socio-spatial categories we are using may also be 'ethnocentric'. Thus reading the Anglo-Saxon urban sociology and urban geography literature, one has to remember that suburbanisation occurred later on the Continent than in the UK, i.e. essentially after World War II, or indeed after 1960. It is important that we begin to explicitly discuss these differences in relation to the car system.

Profiling the area

The first part of the work package (WP 3.1) aims to produce a profile of each area. First draft of these reports must be available before the Athens meeting since they form the basis for the questionnaire for WP3.2.

At its simplest, each area must be profiled in terms of **mobility and accessibility**. What is the provision of roads and of public transport, what is the level of car ownership and above all who actually travels where, when, how and for what? Conversely, what is available in the area which can be reached by very short journeys (usually on foot). What cannot be reached at all? In all of this, recall Elizabeth's point about the multi-functionality of car journeys and John's point about different time use (public timetabling, individual car usage).

Research sources

See technical annex to the contract and the 'Methodology and Timetable' document.

Existing secondary sources

Small scale census (in Ireland the SAPs, or Small Area Population Statistics give census type information down to this level).

Existing studies by planners, sociologists etc of the area

Planning documents such as land use plans etc.

Fieldwork notes

Walk around the area and notice what you see, try and get involved in casual conversations with people in the area. As in all ethnographic research, it is essential

that you write your notes up immediately after you leave the 'field' (i.e. where you are doing the research).

Photographic evidence

Use a camera, noting where and when (time of day and weekday/weekend are both crucial) you took the photographs. What does the housing look like, what does the streetscape look like, are there cars everywhere, how do cars relate to people?

Significant informants

Police, bus drivers, taxi drivers, local social workers/ clergy, health centre staff, local employers, schoolteachers, local politicians. Any one who can give you an informed account of any of the topics listed. Remember to keep an accurate catalogue of all interviews (as we have already discussed) and to clarify whether or not the information is provided anonymously. I am assuming that the areas of the city will be identified in our public reports, so if informants want to remain anonymous this must be made explicit and noted in the interview catalogue.

Writing the report

Format

Each profile will probably need a maximum of ten pages of text, but since this will be the raw material for other writing, do not feel constrained by this if you have more material. In particular at this stage feel free to include direct quotes from interviews and you must include photographs!

Structure

See next section. This builds on our discussion of December 12. Please ensure that you clearly identify each section with a separate heading. You must comment on all these topics, however briefly. Feel free to add extra topics that you feel are relevant. Equally, remember that you will find some of your treatment superficial. Do not worry: it is more important for the overall project that you comment on all the topics for all three areas than you research one area in great detail. Please note in particular that section 7.8 below is essentially covered in the survey – at this stage we just expect preliminary impressions.

Team reports and the final report for WP3

As always, see the technical annex. The final report is due at end of month 18, i.e. July 1999. At the moment I envisage this taking the same form as the other fieldwork reports, i.e. the editor (me) will provide an introduction and analytical conclusion, the bulk of the text will be the actual reports provided by the teams. We need to clarify this in Athens.

The area profile: headings

Introduction: physical environment, demography, employment

What does the area look like? What sort of housing is there (apartment blocks, terraced housing, semi-detached etc)? What is the total population of the area and what is its composition in terms of age, gender, household structure? What are the main forms of employment and the basic social class composition? Can you say anything about environmental pollution levels?

Research methodology

Describe how you gathered the information: how often were you in the area and at what times of the day (minimally you need to be there at different times of the day

and in the evening on both a weekday and a weekend). What significant informants did you use?

Road layout, use and enforcement
Within the area itself what is the condition of roads and the extent of car parking? Are roads only for car-users, are they used also by pedestrians and/or cyclists? Is car traffic segregated from other traffic? Are roads in the area and its immediate vicinity barriers (ravines, tunnels of noise) or links? Are roads safe and/or welcoming for pedestrians and/or cyclists (clearly marked pedestrian crossings, cycle lanes etc.)? Are there physical restrictions on car speed (speed ramps)? Are cars driven fast especially on residential streets? What parking controls exist (e.g. no parking markings, residential parking permits) and do they appear to be enforced? Are there speed restrictions and to what extent are they enforced and by whom? Are there other road users: buses, lorries, taxis?

Cars
The simplest of all questions, but crucial. Are there many to be seen? How many per household? What sort of cars predominate (old or new, compacts or large saloons, etc.)? Are they parked, moving, jammed? Do residents appear to park their cars on-street (legally or illegally) or off the street (garages, car ports, driveways, etc.)? Are streets in the area heavily used by cars at all times of the day? Are there sometimes traffic jams within the area, or within the immediate vicinity? Any car repairing (garages), sales, petrol stations etc. in the area? And what about car theft and illegal car-use ('joy-riding')?

Public transport provision
What public transport is available in the area or nearby? What is the service by bus, tram, rail etc.? How near are people in the area to the nearest bus stop, tram stop, railway stations? Where does the service go to? How frequent is it? What is the provision of information and how easy is it to understand (are there maps and timetables of the service displayed? How do you buy tickets? What is the condition of bus stops, bus shelters and stations – are they safe, welcoming, attractive?

Local mobility observed
Do people walk around the area? Are streets public places in which people talk to neighbours and acquaintances? Do children play in the street and if so, is this safe? What other public spaces are there (playgrounds, parks, open ground)? Who if anyone can be seen using bicycles (children at play, children or adults to go places)?

Facilities and accessibility
What are the nearest facilities for health (doctor, medical centre, hospital etc), shopping (small 'corner shops', supermarkets etc), leisure (sports, libraries, restaurants), education (primary, secondary in particular), religion. How close are these facilities, can they be reached on foot and/or public transport if people choose to do so? Are they only accessible by car?

Mobility and transport modes
Please note that this topic will be covered in detail in the survey. At this stage we are just gathering initial impressions (from our secondary sources, observations and from significant informants).

When do people actually travel, by what mode and to where?
What is the form of travel to work and to what are the main destinations? To what extent do people who live in the area at work any way (unemployed, retired, housewives)? Do any people work from home some even some of the time (e.g. academics!)? What are the working hours? Is there a simple 'fordist' rush hour travel to work? Can work journeys be combined with other journeys (e.g. driving to work and dropping the children off to school on the way)? Does anyone come to work into the area (for example, shopkeepers, school teachers)?
What are the other journeys people make regularly (within a normal week or month)? What journeys do people make for shopping, education, relaxation, sport etc? To what extent are these journeys made by individuals or groups and to what extent are they multi-functional and untimetabled? To what extent do people's routine forms of sociability (seeing friends, relatives etc) involve mobility and to what extent is this dependent on the car?
Are there transport rich and transport poor within the area? Do some people within the area move around more than others? Do some people have more varied forms of transport than others? Are there multi-modal and single modal people? Not just car-owners and non-car owners, but households in which people have different modes of transport available?

Local politics and transport
A brief account of what (if any) local political organisations, pressure groups and voluntary organisations exist in the area. Do they have policies and even actions on transport issues (e.g. public transport provision, traffic restrictions etc.). Is there any input from the area into city wide transport planning, including road policy. Is there any land use policy for the area and what is the involvement, if any, of local organisations in this?

Conclusion
Initial characterisation of the area in terms of car dependency. To what extent do the normal activities of residents of the area require a car? What if any are the problems for those who do not have a car (or access to one)?
use of the focus groups is in work package 4.

Annex 5 Social survey documentation

Extracted from Report on Workpackage 3.2, Using Cars, Using Public Transport

Sampling procedures

The sample was drawn from a total of 12 areas (three in each of four cities). Each research team selected, on the basis of its local knowledge, areas of 'their' city that they considered be described as (a) inner city professional ('yuppy') (b) conventional middle class suburban (c) working class suburban. Each area was then subdivided into three sub-areas, and within these areas streets were selected for sampling. Either using a random walk or by sampling taking every *n*th address, households were then approached and the first available adult interviewed. Within each overall area interviews continued until the target of 50 interviews was achieved (100 in Bologna); the only quotas were for equal numbers of male and female interviewees.
The detailed sub-areas for each area in each city are described below.

Athens

In each area roads were classified into three different groups or strata as follows:

- Through roads ('arterial roads') traversing the centre of the area
- Long and large district roads in the area
- Roads that were a long distance from the centre of the area

Within each stratum of roads in each area one was randomly selected and interviews carried out through a random walk.

Bologna

Within each area roads were selected as follows:

La Barca

a) The 'periphery' of the area, using the two roads Via Emilia Ponente (the northern edge of the area) and the Via Battindarno.
b) The area around Via della Barca, the oldest and most residential part of La Barca, comprising small houses.
c) The area surrounding '*Il Treno'* shopping precinct comprising new buildings

Bolognina

This area was divided into three sectors starting with the area closest to the city centre (the South), then the central area of Bolognina, and finally the northern part (near to the *Ippodromo*).

Centro Storico

The whole of the city centre was divided in three different sub-areas using the main roads within the area:
a) The Eastern side between Via Indipendenza and Via S.Stefano
b) The Southern area from Via S. Stefano to Via Ugo Bassi
c) The area from Via S. Felice to Via Indipendenza
Respondents were then located using a random walk within each sub-area.

Dublin

Dublin interviews were carried out between Monday 22nd March and Monday 29th March 1999. Three diverse areas of Dublin were chosen: Docklands, Jobstown, Clonskeagh. The first area represents an inner-city area with potential yuppie residents; the second a working class suburb and the third a middle-class suburb. The geographical boundaries of these areas are as defined by the district electoral division (DEDs) of these areas. The latter two are heavily dependent on a city bus service, whilst most of the Docklands also has access to suburban rail. Within each of these areas, three further sub-areas (streets/housing estates) were chosen (giving a total of 9 sub-areas). An exact number of households in these streets was available from small area population statistics (SAPs) from Irish Central Statistics Office (CSO).

Docklands area

a) Saint Mary's Road/Caledon Road
b) Seville Place area
c) Customs House Dock Apartments

Jobstown area

a) Bawnlea
b) Kiltalawn
c) Glenshane

Clonskeagh area

a) Roebuck
b) Whitebeam/Whitethorn Road
c) Mulvey Park

Within each of these 9 sub-areas, 18 houses were selected through a simple random sample. The simple random sample prescribed using every third house. Within the random sample we asked for candidates over 18 years of age only and issued one quota in relation to gender. 9 men and 9 women were sought within each quota.

Helsinki

Taka-Töölö

a) Mannerheimintie: One of the main traffic routes and an entrance route to the city centre with three to four tram-routes and various bus-lines.
b) The surroundings of the Töölö Market Square (Töölöntori) the streets of Töölönkatu, Pohjoinen Hesperiankatu, Välskärinkatu, Sandelsinkatu and Helsinginkatu. A central point of the area, closest to the centre, a crossroads of traffic and public transport routes.
c) In the North the area surrounded by the streets Topeliuksenkatu, Linnakoskenkatu and Stenbäckinkatu. The northernmost corner, tram lines mostly from each side, more residential.

Kontula:

a) Kontulankaari: The main inner traffic route starting from the shopping centre and the Metro station, with three internal bus routes.
b) The area to the west of Kontulankaari, beginning from the furthest point. Apartments mostly owner-occupied, houses in good condition. Two bus routes, walking distance from the shopping centre/metro.

c) Area to the north and east of Kontulankaari, beginning from the furthest point. . The 'problem' housing area, with social housing and rented apartments. Only one bus route, the furthest distance from the centre and other public transport connections.

Länsi-Pakila:

a) The area between Paloheinäntie, Pakilantie and Sysimäentie. Northwestern part of the area, with two (super)markets, the health-centre and two bus routes. Pakilantie and Kuusmiehentie in the North form the main traffic route through the entire area.

b) The area between Tuusulanväylä (motorway) and Sysimiehentie. Two bus routes within reach, one (super)market and the health centre.

c) The remaining (Muurarimestarintie) area North of Ring I (the inner city ring road). Three bus routes, local shops at some distance, but the shops on the other side of Ring I are closer.

Details of Helsinki sampling in general

The interviewers were instructed to use *random walk*, and call in Taka-Töölö and in Kontula on *every fifth* door, in Länsi-Pakila *every second*. They were supposed to obtain 16 interviews from every sub-area, half women half men; and to try to fill the quota of men first since this was known to be the hardest. If it seemed impossible to get all the men needed, they were instructed to get the necessary number of interviews. The interviewers' impression is that there may be slightly more women than men in the samples.

In the inner-city area the sampling method was very difficult to carry out, and in the sub area (b) the interviewer had to cross over the area to obtain the final three interviews. On relevant points of traffic routes and communications routes these three cases do not differ from the rest.

Class categories for coding

The respondent's occupation was initially coded using the International Standard Classification of Occupations (ISCO-88). This is a three digit classification with 10 major groups. These categories were then aggregated into a simple three class categorisation as shown below.

ISCO Major group number and title	SceneSusTech Class
1. Legislators, senior officials and managers	Service class
2. Professionals	
3. Technicians and associate professionals	Intermediate
4. Clerks	
5. Service workers and shop and market sales workers	Working
6. Skilled agricultural and fishery workers	
7. Craft and related trade workers	
8. Plant and machine operators and assemblers	
9. Elementary occupations	
0. Armed forces	Not coded

Questionnaire

SceneSusTech:
Mobility and access in four European cities
Questions and statements read out by interviewer are in plain text. Instructions to interviewer are in *italic*.

Preliminaries

1	City	Athens Bologna Dublin Helsinki	[] [] [] []
2	Area	Area 1 Area 2 Area 3	[] [] []
3	Case ID number	write in	[][][]
4	Interviewer ID number	write in	[][]
5	Interview date	dd/mm	[][]/[][]
6	Interview start time	hh/mm	[][]/[][]
8	Coder ID number	CODER write in	[][]
9	Address of interviewee	write in.....	

Introduction
Hello. I'm doing a survey on how people in this area use cars and public transport. It's part of a study that's being done in four European cities to try to develop new forms of urban transport. Would you mind answering some questions? The interview will last about half an hour. We will be sending a brief summary of our findings to everyone with whom we do an interview. Obviously everything you tell me will be confidential and treated annonymously.

Be ready to briefly explain:
The four cities are Athens (Greece), Bologna (Italy), Dublin (Ireland), Helsinki (Finland); and in each city we are studying three separate areas including this one.
How the respondent was chosen, stressing importance of randomness, so it does matter that we interview this particular person.
That the study is carried out by researchers from universities and research institutes in four different countries and is funded by the European Commission's research programme. It's academic research, we're not selling anything!

Section 1: Background

Our survey is about how people use transport in relation to their daily activities, so I need first of all to ask you some background questions about yourself:

1	*Enter gender*	male female	[] []
2	Your approximate age [if under 18 end interview]	18-24 25-44 45-64 65-	[] [] [] []
3	Are you currently employed in a full-time job?	Yes No	[]S2 []Q4
4	Do you have a part-time job?	Yes No	[] []
5	Which of the following best describes your situation?	Unemployed Retired Student At home	[] [] [] []

Section 2: Transport ownership and the household

I'll start by asking some questions about what means of transport you and other members of the household use and own.

Here's a list of different forms of transport that people often own.

Hand Card 1

For each of them, could you tell me how many there are in the household as a whole, whether you at least sometimes drive one yourself, and whether you own one?

		Total in house -hold *(number)*	Drives *(tick)*	Owns *(tick)*
1	Car	[]	[]	[]
2	Bicycle	[]	[]	[]
3	Motor cycle	[]	[]	[]
4	Scooter/velo	[]	[]	[]

Still looking at the card, here is a list of communication equipment that people often own. For each of them, could you tell me how many there are in the household as a whole, whether you at least sometimes use one yourself, and whether you own it?

		Total *(number)*	Uses *(tick)*	Owns *(tick)*
5	Ordinary phone [line not apparatus]	[]	[]	[]
6	Mobile phone	[]	[]	[]
7	PC	[]	[]	[]
8	PC with modem/ internet access	[]	[]	[]

Take back card 1

9	Who apart from yourself lives in this household? *Tick all that apply*	parent(s) spouse / partner own children other children other adult relatives adult friends no-one else	[] [] [] [] [] [] []
10	In your household how many adults are there apart from yourself?	*enter number*	[][]
11	How many very young children are there (i.e. pre- school, possible kindergarten age)?	*enter number*	[]
12	How many children of elementary school age are there?	*enter number*	[]
13	How many secondary school children (under age 18) are there?	*enter number*	[]
14	Do you personally have a car driving licence?	Yes No	[] []

Section 3: Household Car Use

If no car in household, go to section 4

All questions refer to journeys in which the respondent drove the car him/herself.

I'd like to ask you about journeys for which you drove a car yourself

1a	Apart from today, when did you last drive your car /the car?	yesterday during the last week over a week ago over a month ago /never	[] [] [] [] S4
1b	Within the last month, have you driven your car /the car on a weekday?	Yes No	[] []Q10
2	*If at work, school or college* Thinking of the last weekday [Monday to Friday], when you drove your car / the car, did you use it to travel to work, school or college?	Yes No	[] []Q6
3	Did anyone come with you for at least part of the journey / one of the journeys?	Yes No	[] []Q6
4	And who were they?	Adult from household Child from household Relative Friend Neighbour other.....	[] [] [] [] [] []
5	And how did you organise this?	A routine arrangement organised at home before the journey organised by phone other.....	[] [] [] []
6	Thinking of the last weekday [Monday to Friday], when you drove your car what journeys did you make apart from travelling to work or college? *tick all that apply*	shopping visiting taking children to/from school taking children to/ from hobby/ activity entertainment (e.g. film, sports match) hobby / activity other..... none	[] [] [] [] [] [] [] []Q9
7	Did anyone come with you for at least part of the journey / one of the journeys?	Yes No	[] []Q9

8	And who were they?	Adult from household Child from household Relative Friend Neighbour other.....	[] [] [] [] [] []
9	On that weekday, for about how many hours in total were you actually in the car?	*write in*	[][]
10	Thinking of the last Saturday when you drove the car, what journeys did you make? *tick all that apply*	travel to/ from work travel to/ from college or school shopping visiting taking children to/from school taking children to/ from hobby/ activity entertainment (e.g. film, sports match) hobby / activity other..... none	[] [] [] [] [] [] [] [] [] []Q14
11	Did anyone come with you for at least part of the journey / one of the journeys?	Yes No	[] []Q13
12	And who were they?	Adult from household Child from household Relative Friend Neighbour other.....	[] [] [] [] [] []
13	On that Saturday, for about how many hours in total were you actually in the car?	*write in*	[][]
14	Thinking of the last Sunday when you drove the car, what journeys did you make? *tick all that apply*	travel to/ from work travel to/ from college or school shopping visiting taking children to/from school taking children to/ from hobby/ activity entertainment (e.g. film, sports match) hobby / activity other..... none	[] [] [] [] [] [] [] [] [] []S4

15	Did anyone come with you for at least part of the journey / one of the journeys?	Yes No	[] []Q17
16	And who were they?	Adult from household Child from household Relative Friend Neighbour other.....	[] [] [] [] [] []
17	On that Sunday, for about how many hours in total were you actually in the car?	*write in*	[][]

Section 4: Public transport use

I'd like to ask you now about public transport in the area where you live.

1	How long does it take you to reach the nearest usual bus [Helsiinki: or tram] stop?	enter minutes	[][]
2	Which parts of the city can you reach within an hour from this stop? *tick all that apply*	nearby neighbourhood neighbourhood on the other side of the city city centre don't know	[] [] [] []
3	When did you last use a bus [tram] from this stop?	today yesterday during the last week over a week ago more than a month ago/ never	[] [] [] [] []Q5
4	What was the purpose of this journey? *tick all that apply*	travel to/ from work travel to/ from college or school shopping visiting taking children to/from school taking children to/ from hobby/ activity entertainment (e.g. film, sports match) hobby / activity other.....	[] [] [] [] [] [] [] [] []
5	*Athens, Helsinki only* How long does it take you to reach the nearest usual metro stop?	enter minutes	[][]
6	*Athens, Helsinki only* Which parts of the city do you reach within an hour from this stop? *tick all that apply*	nearby neighbourhood neighbourhood on the other side of the city city centre don't know	[] [] []
7	*Athens, Helsinki only* When did you last use a metro from this stop?	today yesterday during the last week over a week ago more than a month ago / never	[] [] [] [] []Q9
8	*Athens, Helsinki only* What was the purpose of this journey? *tick all that apply*	travel to/ from work travel to/ from college or school shopping visiting taking children to/from school taking children to/ from hobby/ activity entertainment (e.g. film, sports match) hobby / activity other.....	[] [] [] [] [] [] [] [] []

9	When did you last use a taxi?	today yesterday during the last week over a week ago more than a month ago / never	[] [] [] [] []Q11
10	What was the purpose of this journey? *tick all that apply*	travel to/ from work travel to/ from college or school shopping visiting taking children to/from school taking children to/ from hobby/ activity entertainment (e.g. film, sports match) hobby / activity other.....	[] [] [] [] [] [] [] [] []
11	*Ask all* When did you last use a train?	today yesterday during the last week over a week ago more than a month ago / never	[] [] [] [] []S5
12	What sort of journey was it?	suburban inter-city	[] []S5
13	*For suburban train journey only* What was the purpose of this journey? *ttick all that apply*	travel to/ from work travel to/ from college or school shopping visiting taking children to/from school taking children to/ from hobby/ activity entertainment (e.g. film, sports match) hobby / activity other.....	[] [] [] [] [] [] [] [] []

Section 5: Public transport quality

Here are some statements people often make about public transport in this city. For each one of them, please tell me whether you:

strongly agree, agree, have no view, disagree or strongly disagree

Hand card 2

1	Public transport is dirty strongly agree, agree, have no view, disagree or strongly disagree [] [] [] [] [] code 1-5:	 []
2	Public transport is over-crowded [] [] [] [] [] code 1-5:	 []
3	Public transport workers are polite and friendly to customers [] [] [] [] [] code 1-5:	 []
4	Public transport makes any part of the city easily accessible to me [] [] [] [] [] code 1-5:	 []

5	The public transport routes are useless for me [] [] [] [] [] code 1-5:	[]
6	Public transport is reliable and punctual [] [] [] [] [] code 1-5:	[]
7	Public transport is frequent enough for me [] [] [] [] [] code 1-5:	[]
8	The public maps show clearly how you can reach your destination [] [] [] [] [] code 1-5:	[]
9	The timetables are clear and easy to understand [] [] [] [] [] code 1-5:	[]
10	In general, public transport in this city is badly managed [] [] [] [] [] code 1-5:	[]
11	The cost of fares puts me off using public transport [] [] [] [] [] code 1-5:	[]

Take back card 2

Section 6: Forms of mobility

Now I'd like to ask you some questions about how you reach different places in the city and how much you travel for your normal activities.

(a) work and education

1a	*If has full or part-time job:* What is your job?	write in .....occ code sector code	[][][] [][]
1b	And is your employer?	A private firm Part of the government or public sector Yourself or a member of your family	[] [] []
1c	*Ask all employed or in education* How do you normally get to work / college?	drive own car get lift in someone else's car bus tram metro train cycle motor cycle/ scooter walk taxi	[] [] [] [] [] [] [] [] [] []
2	And about how long does the journey to work / college take?	*enter minutes*	[][]

Thinking about this journey, here are some of the things people say about their journey to work/college. For each one of them, please tell me whether you:

strongly agree, agree, have no view, disagree or strongly disagree

Hand card 3

1	The journey to work is unpleasant strongly agree, agree, have no view, disagree or strongly disagree [] [] [] [] [] code 1-5:	[]
2	On the journey to work I have time to think [] [] [] [] [] code 1-5:	[]
3	When I start my journey I know I'm going to get there on time [] [] [] [] [] code 1-5:	[]
4	On the journey to work I often read [] [] [] [] [] code 1-5:	[]
5	On the journey to work I enjoy listening to music or the radio [] [] [] [] [] code 1-5:	[]
6	I am able to work at home to reduce commuting time [] [] [] [] [] code 1-5:	[]
7	I am able to change my journey times to work to avoid congestion [refers to time at which person starts journey to and from work] [] [] [] [] [] code 1-5:	[]
8	On the journey to work I need to wear clothes that are suitable for work [] [] [] [] [] code 1-5:	[]
9	*For car users only* For me, travelling to work by public transport would be impractical [] [] [] [] [] code 1-5:	[]
10	*For car users only* I don't have time to use public transport [] [] [] [] [] code 1-5:	[]
11	*Non-car owners only* If I had a car, I would use it for this journey [] [] [] [] [] code 1-5:	[]
12	*Non-car owners only* I would buy a car if only I could afford one [] [] [] [] [] code 1-5	[]

Take back card 3
Ask car owners only:

13	Which **one** of the following **most** applies to you? *Car owners who use car* I use my car to travel to work/college because	*read out and tick one* it is cheaper it is quicker it avoids bad weather it is more comfortable	 [] [] [] []
14	*Car owners who do not use car* I do **not** use my car to travel to work / college because	*read out and tick one* it is cheaper it is quicker I can't get parking if I use the car it is more comfortable it avoids worry about theft or damage to car	 [] [] [] [] []

(b) School (where young children in household)

1	Are any of the children in the household at secondary school?	Yes No	[]Q2 []Q4
2	*If some school children at secondary school* Is this school in walking distance?	Yes No	[] []
3	How do these children normally get to school?	walk public transport car driven by parent car sometimes driven by other parent cycle other.....	[] [] [] [] [] []
4	Are any of the children in the household at elementary school?	Yes No	[]Q5 []Q7
5	*If some school children at elementary school* Is this school in walking distance?	Yes No	[] []
6	How do these children normally get to school?	walk alone walk accompanied by adult public transport car driven by parent car sometimes driven by other parent cycle other.....	[] [] [] [] [] [] []
7	Are any of the children in the household at kindergarten?	Yes No	[]Q5 []S(c)
8	*If some school children at kindergarten* Is this school in walking distance?	Yes No	[] []
9	How do these children normally get to school?	walk accompanied by adult public transport car driven by parent car sometimes driven by other parent cycle (with parent/ adult) other.....	[] [] [] [] [] []

(c) Shopping

Thinking now about shopping, I am going to read a list of some of the things people buy: For each one of them, could you please tell me how you travelled to where you bought it on the last occasion.

1	small amounts of food	*tick one* drove own car [] got lift in someone else's car [] ; bus [] ; tram [] ; metro [] ; train [] ; cycle [] ; motor cycle/ scooter [] ; walk [] ; taxi []	code []
2	food for several days or a week	*tick one* drove own car [] got lift in someone else's car [] ; bus [] ; tram [] ; metro [] ; train [] ; cycle [] ; motor cycle/ scooter [] ; walk [] ; taxi []	code []
3	clothes	*tick one* drove own car [] got lift in someone else's car [] ; bus [] ; tram [] ; metro [] ; train [] ; cycle [] ; motor cycle/ scooter [] ; walk [] ; taxi []	code []
4	electronic goods (e.g. mobile phone, stereo)	*tick one* drove own car [] got lift in someone else's car [] ; bus [] ; tram [] ; metro [] ; train [] ; cycle [] ; motor cycle/ scooter [] ; walk [] ; taxi []	code []
5	Do It Yourself (house maintenance) equipment	*tick one* drive own car [] got lift in someone else's car [] ; bus [] ; tram [] ; metro [] ; train [] ; cycle [] ; motor cycle/ scooter [] ; walk [] ; taxi []	code []

(d) Sociability

Turning now to visiting people, how do you normally travel in order to meet:

1	relatives in their house	*tick one* drive own car [] get lift in someone else's car [] ; bus [] ; tram [] ; metro [] ; train [] ; cycle [] ; motor cycle/ scooter [] ; walk [] ; taxi []	code []
2	friends in their own house	*tick one* drive own car [] get lift in someone else's car [] ; bus [] ; tram [] ; metro [] ; train [] ; cycle [] ; motor cycle/ scooter [] ; walk [] ; taxi []	code []

3	friends or relatives in a pub/ cafe / bar /restaurant	*tick one* drive own car [] get lift in someone else's car [] ; bus [] ; tram [] ; metro [] ; train [] ; cycle [] ; motor cycle/ scooter [] ; walk [] ; taxi []	code []
4	Thinking of those people whom you would consider your closest friends, where do they live?	Local neighbourhood Elsewhere in the city Elsewhere in country Abroad	[] [] [] []
5	Similarly, where do your closest relatives live?	Local neighbourhood Elsewhere in the city Elsewhere in country Abroad	[] [] [] []
6	*Car owners only* In the last month, have you made a journey but not driven your own car because of drink driving laws?	Yes No	[] []Q8
7	*If yes to Q6* How did you travel?	*tick one* drove own car [] got lift in someone else's car [] ; bus [] ; tram [] ; metro [] ; train [] ; cycle [] ; motor cycle/ scooter [] ; walk [] ; taxi []	code []
8	*Ask all* How do you travel in order to: use leisure facilities such as cinema or sport	*tick one* drive own car [] get lift in someone else's car [] ; bus [] ; tram [] ; metro [] ; train [] ; cycle [] ; motor cycle/ scooter [] ; walk [] ; taxi []	code []
9	attend hospital for emergencies or major surgery	*tick one* drive own car [] get lift in someone else's car [] ; bus [] ; tram [] ; metro [] ; train [] ; cycle [] ; motor cycle/ scooter [] ; walk [] ; taxi []	code []
10	doctor for general medical care	*tick one* drive own car [] get lift in someone else's car [] ; bus [] ; tram [] ; metro [] ; train [] ; cycle [] ; motor cycle/ scooter [] ; walk [] ; taxi []	code []
11	If you have a free day which you are going to spend away from home, how do you travel?	*tick one* drive own car [] get lift in someone else's car [] ; bus [] ; tram [] ; metro [] ; train [] ; cycle [] ; motor cycle/ scooter [] ; walk [] ; taxi []	code []

Section 7: Walking around

Now I'd like to ask you about places you can reach on foot from here.

1	Is there any sort of shop in walking distance from here?	Yes No	[] []Q4
2	*If yes to Q2* When did you last use it?	today yesterday during the last week over a week ago more than a month ago / never	[] [] [] [] [] Q4
3	And how did you actually get there?	*tick one* drove own car [] got lift in someone else's car [] ; bus [] ; tram [] ; metro [] ; train [] ; cycle [] ; motor cycle/ scooter [] ; walk [] ; taxi []	code []
4	Is there a pub/cafe/bar in walking distance from here	Yes No	[] []Q7
5	*If yes to Q4* When did you last use it?	today yesterday during the last week over a week ago more than a month ago / never	[] [] [] [] []
6	And how did you actually get there?	*tick one* drove own car [] got lift in someone else's car [] ; bus [] ; tram [] ; metro [] ; train [] ; cycle [] ; motor cycle/ scooter [] ; walk [] ; taxi []	code []
7	Did you meet anyone you know there?	Yes No	[] []
8	Is there any facility for your hobbies in walking distance from here?	Yes No	[]Q9 []Q11
9	*If yes to q8* When did you last use it?	today yesterday during the last week over a week ago more than a month ago / never	[] [] [] [] []
10	And how did you actually get there?	*tick one* drove own car [] got lift in someone else's car [] ; bus [] ; tram [] ; metro [] ; train [] ; cycle [] ; motor cycle/ scooter [] ; walk [] ; taxi []	code []

11	Are there any of the following in walking distance? (a) Church (b) Doctor's surgery (c) Cinema *tick in box below all that apply*
12	And when did you last visit them *ask only of those in walking diatance*
13	And how did you get there last time *ask only of those in walking distance*

	(11) In walking distance	(12) When last visited	(13) How did you get there
(a) Church	Yes [] No []	today [] during last week [] more than a week ago [] more than a month / never []	drive own car [] lift in someone else's car [] bus [] tram [] metro [] train [] cycle [] motor cycle/scooter[] walk [] taxi []
(b) Doctor	Yes [] No []	today [] during last week [] more than a week ago [] more than a month / never []	drive own car [] lift in someone else's car [] bus [] tram [] metro [] train [] cycle [] motor cycle/scooter[] walk [] taxi []
(c) Cinema	Yes [] No []	today [] during last week [] more than a week ago [] more than a month / never []	drive own car [] lift in someone else's car [] bus [] tram [] metro [] train [] cycle [] motor cycle/scooter[] walk [] taxi []

Section 8: Walking Environment Quality

Thinking now about this neighbourhood, here is a list of statements people sometimes make about where they live. For each one of them, please tell me whether you:

strongly agree, agree, have no view, disagree or strongly disagree

Hand card 4

1	There is too much traffic going through this area strongly agree, agree, have no view, disagree or strongly disagree [] [] [] [] [] code 1-5:	[]
2	In this area cars are a danger to children playing outside [] [] [] [] [] code 1-5:	[]
3	I personally feel safe from any physical attack (e.g. mugging) while walking around this area [] [] [] [] [] code 1-5:	[]
4	I personally would not feel safe walking around this area in the evening [] [] [] [] [] code 1-5:	[]
5	In this actual area there is too much traffic noise [] [] [] [] [] code 1-5:	[]

6	In this actual area cars make a lot of pollution [] [] [] [] [] code 1-5:	[]
7	In this area roads are too dangerous for children to walk to school by themselves [] [] [] [] [] code 1-5:	[]
8	If I walk around this area I nearly always meet someone I know [] [] [] [] [] code 1-5:	[]

Take back card 4

Section 9: Choice

I'm going to read a list of the main activities we've talked about. For each one of them, could you tell how you normally travel to do it, if there is any other form of travel you **sometimes** use, and whether there is another form you personally **could** reasonably use.

		Normal *tick one*	Sometimes *tick all that apply*	Possible *tick all that apply*
1	Travel to work / college (if applicable)	[] drive own car [] lift in car [] bus [] tram [] metro [] train [] cycle [] motor cycle/scooter [] walk	[] drive own car [] lift in car [] bus [] tram [] metro [] train [] cycle [] motor cycle/scooter [] walk	[] drive own car [] lift in car [] bus [] tram [] metro [] train [] cycle [] motor cycle/scooter [] walk
2	Shopping for small amounts of food	[] drive own car [] lift in car [] bus [] tram [] metro [] train [] cycle [] motor cycle/scooter [] walk	[] drive own car [] lift in car [] bus [] tram [] metro [] train [] cycle [] motor cycle/scooter [] walk	[] drive own car [] lift in car [] bus [] tram [] metro [] train [] cycle [] motor cycle/scooter [] walk
3	Visit doctor or hospital	[] drive own car [] lift in car [] bus [] tram [] metro [] train [] cycle [] motor cycle/scooter [] walk	[] drive own car [] lift in car [] bus [] tram [] metro [] train [] cycle [] motor cycle/scooter [] walk	[] drive own car [] lift in car [] bus [] tram [] metro [] train [] cycle [] motor cycle/scooter [] walk
4	Visit friends	[] drive own car [] lift in car [] bus [] tram [] metro [] train [] cycle [] motor cycle/scooter [] walk	[] drive own car [] lift in car [] bus [] tram [] metro [] train [] cycle [] motor cycle/scooter [] walk	[] drive own car [] lift in car [] bus [] tram [] metro [] train [] cycle [] motor cycle/scooter [] walk

5	Go out for entertainment (e.g. sports, cinema)	[] drive own car	[] drive own car	[] drive own car

Accessing the city and beyond

9	Which of the following places have you visited in the last four weeks by **any** form of transport? *tick all that apply*	nearby neighbourhood neighbourhood on the other side of the city city centre somewhere outside the city somewhere outside the country	[] [] [] [] []

What if (open ended question)

10	*For car owners* I'd now like to ask you to imagine what sort of things you would not be able to do if you did not have a car of your own:	....	
11	*For non car-owners* I'd now like to ask you to imagine what sort of things you would be able to do if you did have a car of your own:	....	

Section 10: Close of interview

Thank you very much for your time. Once again, we will be sending everyone who answered our questions a brief summary of what we have found out.

1	Would you be interested in joining an informal discussion group with other people from this area to discuss what we have found? *(If necessary, explain the 'focus group' will take about two and half hours and be held locally in the evening or at the weekend).*	Yes No	[]Q2 []end
2	Do you have a telephone number at which we could contact you?	[][] [][][][][][][][][][]	
3	Interview end time	hh/mm	[][]/[][]

Card 1

Car
Bicycle
Motor cycle
Scooter/velo

Ordinary phone
Mobile phone
PC
PC with modem /internet access

Card 2

1	Public transport is dirty
2	Public transport is over-crowded
3	Public transport workers are polite and friendly to customers
4	Public transport makes any part of the city easily accessible to me
5	The public transport routes are useless for me
6	Public transport is reliable and punctual
7	Public transport is frequent enough for me
8	The public maps show clearly how you can reach your destination
9	The timetables are clear and easy to understand
10	In general, public transport in this city is badly managed
11	The cost of fares puts me off using public transport

Card 3

1	The journey to work is unpleasant
2	On the journey to work I have time to think
3	When I start my journey I know I'm going to get there on time
4	On the journey to work I often read
5	On the journey to work I enjoy listening to music or the radio
6	I am able to work at home to reduce commuting time
7	I am able to change my journey times to work to avoid congestion [refers to time at which person starts journey to and from work]
8	On the journey to work I need to wear clothes are suitable for work
9	*For car users only* For me, travelling to work by public transport would be impractical
10	I don't have time to use public transport
11	*Non-car owners* If I had a car, I would use it for this journey
12	I would buy a car if only I could afford one

Card 4

1	There is too much traffic going through this area
2	In this area cars are a danger to children playing outside
3	I personally feel safe from any physical attack (e.g. mugging) while walking around this area
4	I personally would not feel safe walking around this area in the evening
5	In this actual area there is too much traffic noise
6	In this actual area cars make a lot of pollution
7	In this area roads are too dangerous for children to walk to school by themselves
8	If I walk around this area I nearly always meet someone I know

Annex 6 Holding the focus groups

The focus group meetings

Extract from Report on Workpackage 4, Experiencing Mobility, Chapter 1

[The meetings began by asking participants to draw maps of their recent journeys]

For the drawing of the maps the participants were given a sheet of paper and told to mark on it their home and all the places visited on foot or by any vehicle for any motive during yesterday, differentiating motorised transportation from journeys by bike or on foot and private car journeys from public transport journeys. The participants were then asked to present their drawings, which gave them possibility to comment on how recurrent certain journeys and patterns were, and whether there were any exceptional journeys, etc. If the participants had a car which they had not used yesterday they were asked to draw in different colour the last day when they had used the car.

The maps provided a good parting point for the discussions, though in some groups, especially with elderly people, the briefing and explaining took some time. The patterns which were drawn also point to interesting differences and discrepancies in the way the patterns were experienced. For instance, travel by private car is always drawn with straight lines between the points, whereas travel by foot follows a route winding through the environment. Furthermore, even if most participants see the car as a means of combining different errands and travelling long distances, the maps show that the car is just as often used for various separate, often very short distance local journeys.

The basic story we were interested in Workpackage 4.1 was “stories of your normal day and normal mobility and the role played by the car in it”. The meetings began by mapping out a normal weekday and the actual journeys made on that day. Then they proceeded to discuss the normal day and covered the given list of topics [see below].

The focus group topics

Extract from team briefing; 'Guidelines for focus groups'

Here is a list of questions and introductory sentences for you to use to introduce the topics into the discussion. You do not need to ask all these questions, only the ones which get the group talking. However, to ensure some comparability, there is **in bold** a question within each theme that we should all cover. You can put the questions again to use when analysing your focus group meetings, and when writing out the report. If you think of a question that better introduces the topic to your group, use it; but address nevertheless also these themes:

WP 4.1 The experience of mobility

1. Time-management and mobility

- Most people have some places they visit daily, like their work-place or taking children to school or shopping food./ In all these maps we had some places everybody seemed to be visiting daily. **What places do you think you *have to* visit daily?**
- Which of these places (you have referred to in your maps) do you visit at your leisure? Which you must get within a time-limit?
- Have you ever had a feeling that you are always in a hurry, without a specific reason?
- Is time important? Do you organise (plan) your day according to a time-table? Let's talk about the way in which time is important in your day..
- It is said that people in cities think of distances as so much time, for example the school is ten minutes on foot or the nearest cinema is 20 minutes by bus – what is your experience?
- Could you manage without the car? / How important is the metro for getting in time to places?/
- Do you feel you are spending too much time in traffic?
- What is an efficient way of travelling? How can you save time travelling? Do you need to save time travelling?

2. Multi-functional mobility

- Let's take this journey on this map = if any/ let's take a journey of escorting children to hobbies/ dropping in at some friends etc.) **Would you normally make a journey only to do this?**
- >From the maps it would seem that many of you combine – and – and - . Do you think this the typical way you use the car? / Do you think this is typical of your normal day?
- Could you combine these errands without a car?/ Could you do all these things in one journey without the metro (or whatever public means used)?/ Could you combine these if you had to travel separately to each?
- Does taking care of some specific errand mean making a specific journey for you?
- Do you feel not having a car makes taking care of things (attending to business i.e. shopping, but also paying bills, visiting doctors or dentists, visiting some communal offices etc.) more complicated for you?

3. Multiple meanings of mobility

- **What does mobility mean to you? How important do you think being able to move around is to your life?**
- many people keep their personal things in their cars (decorate their cars), what is your experience of this?
- What does your car mean to you? Do you talk about your car as it were a person?
- Is there any special reason you bought the model you now have? What do you think is the best kind of car? What car would you get if you could afford it? (Why)
- What would your life without car/ metro/ tram/ bus/ bike be like?
- What is the most important property of the car/ etc?
- What makes driving the (vehicle) interesting?

4. Mobility as a pleasure and mobility as a constraint

- **do you enjoy driving your car?/ do you enjoy travelling in the metro etc?**
- what is the best thing about having a car?/ what is the best thing about using the metro/ etc?
- what is the worst thing about using the car?/ what is the worst thing about using the metro etc?
- what is the worst thing about not having a car?
- Me and my car is a convenience, other car-drivers and their cars are a nuisance, what do you think about this?

5. Mobility skills

- **has your family always had a car?**
- **When did you learn to use the car?/ when did you learn to use the metro/ the tram/ the bus?/ the bike?**
- Do you see the car/ metro etc as easy and convenient?
- If you had to get to a place in the Metropolitan Area (i.e., the greater extension of the city) that you have not visited before, how would you do that? Would it be easy to find out? What would you need to find out?/ If you had to visit a place you have not visited before using the car? Using public means? (Ask friends? Consult timetables? Use maps?)
- Have you ever got lost while trying to find some place?/ have you ever got lost when driving your car/ using the metro, the tram etc? How did you resolve the situation?
- Car-users: would you know how to get yourself a monthly ticket for the public means? Non-users: would you know how to get a car registered in your name?
- Can you maintain your car yourself?
- (Where relevant) How do you manage in a traffic jam? Do you know how to avoid them? What do you do if you cannot avoid a traffic jam?
- What kind of journeys do you make if the car is not part of your daily life (here use the mappings if they give possibility)? What kind of journeys do you make if the car is part of your daily life?

6. Mobility and life-style

- **Has having a car made it possible for you to choose hobbies, shopping, cafes, leisure travel etc. that you cannot find in the area where you live/ within walking distance?**
- How did you get "hooked" on the car? What was the reason you got the car originally? Are you keeping the car because of that reason?
- in what way is mobility part of your life?
- Does not having a car restrict your possibility to choose hobbies, shopping, cafes, leisure travel etc. that you cannot find in the area where you live/ within walking distance?
- Does the public means you use enable you to choose .. etc?
- Does living in the area enable/ restrict you to choose..?
- Would you have to change your life-style if you gave up your car/ if you moved to another area/ if you did not have the present public means available?

WP 4.2 The imaginations of accessibility

What if

1.1. Remember when the transport system last went on strike? your car broke down/ was out of use for a period of time. (You can also include in the conversation other situations in which you have to do without a car: what about special traffic restrictions and parking restrictions, e.g. for marathons, street carnivals etc – how does this effect people's mobility?) Look out also for incidental advantages and innovations!

- what difference did it make for your everyday-life?
- What problems did it cause?
- How did you solve them?

a. strike of public means

- what difference did it make for your everyday life?
- What problems did it cause?
- How did you solve them?

b. taxi strike

- what difference etc?

c. other possible reason for transport system not functioning for a period of time?

- what difference etc?

1.2. What if the price of gasoline rose significantly?

(the cost of using the car increased significantly? Litre of gasoline the price of good cognac?)

- what difference would it make for your everyday life?
- What problems would it pose?
- What would you do about it?

1.3. What if the use of cars was restricted by law, and

a. the network of public means and/or the network and safety for bikes and walking expanded and significantly bettered
- what difference would it make for your everyday life?
- What problems would it pose?
- What would you do about it?

b. need for mobility decreased because of better local services, possibilities for workplaces etc provided by the city and other institutions?
- what difference etc.?

c. need for mobility decreased because of possibility to work at home?
- what difference etc?

2. What would it take

2.1. Mobility skills

What would it require of you to

a. reduce/ abandon the use of private car (= change your mobility pattern in general)?
b. reduce your mobility?

2.2. Mobility and life-style

What would it mean for your habits (hobbies, where you shop, where you go for leisure etc.)

a. reduce/ abandon the use of private car = change your mobility pattern?
b. Reduce your mobility?

2.3. Mobility and urban and environmental structures

What would it require of the area where you live to

a. reduce/ abandon the use of private car = change your mobility pattern?
b. Reduce your mobility?

Annex 7 Holding the scenario-building meetings

Guidelines for scenario-building meetings

Extract from team briefing, 'Guidelines for scenarios', December 1999.

1. Ask individual participants to outline their scenarios along all 8 axes of the model if possible (figuratively if they wish).

For example, under spatial, ask the experts if it is expected that large urban cities in their countries will/should continue to expand at the expense of rural depopulation. Secondly, do they think their cities will/should move towards compact high-density urban forms?

Under, economic factors, ask experts to think about the general framework of the economy – whether it will/should move more towards market principles and lesser subvention for poorer areas. Secondly, under economic factors, ask experts to evaluate whether they think public transport will/should operate on profitable terms only or, whether transport should be subsidised where necessary to ensure universal service (accessibility).

2. Decision-making criteria

Ask the experts to what extent their scenarios (expected and desired) take account of environmentalism and social exclusion. For example, encourage experts to think in terms of how their choices affect:

Quality of accessibility
Development of the car-system
Development of public transit
Land-use.
Sectors of society that stand to gain or loose (socio-economic groups, age, gender).

3. Direction of Change: Business as usual vs. change

Ask the experts think that their desired and expected scenarios can be attained within the business as usual decision-making processes or will they require radical change?

4. Elements in producing expected and desired Scenarios

To ask the experts to identify potential opportunities and barriers, promoters and opponents, winners and losers (drawing on their current knowledge of the field).

Sample questions:

Why do you think a policy like that might succeed?
Where do you think problems might arise in carrying through such a policy?
Who/what (what agencies) would support you?
Who/what might oppose such a move?
Who stands to benefit in the development of such scenarios?
Who stands to lose? [62]

[62] The question of winners and losers here refers more to institutional winners and losers as opposed to social groups which is addressed above.

Remember to also think in terms of technologies and technological systems here.
How might new technologies alter relationships in the system?
How might old technologies (the car-system) remain obdurate/stable?
What are the problems in altering the purpose of infrastructure (road-space)?
What are the problems in introducing new infrastructure – light rail/metro/new roads?

Questionnaire for scenario-building exercise

Preliminaries

1	City	Athens Bologna Dublin Helsinki	[ ] [ ] [ ] [ ]
2	Organisation Affiliation **We will regard your views as your own and not those of your organisation.**	Public Sector Private Sector Other	[ ] [ ] [ ]
3	Organisational Affiliation	Local authority/regional government Government department Community development group Private company Academic institution Media Lobby group Political Party Other	[ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ]
4	Your name (if you wish)		

5	Sex	Male Female	[ ] [ ]
6	Age	18-24 25-44 45-64 65+	[ ] [ ] [ ] [ ]

In the following, the two extreme reference points (two possible outcomes) are marked on either end of the scale 1-5. You are asked to identify what you think will be the expected scenario in your city in the year 2030 and what you think is the desired scenario.

Examples from the reference scenarios (two extreme outcomes) are given in order to elaborate on what the too extreme points might imply.

Section 1: Spatial Organisation of City in 2030

7. In the case of *urban concentration,* large urban cities continue to grow at the expense of rural depopulation. By contrast, in the *chains and zones* scenario, population is dispersed across the national area, connected by chains and zones.

Concentration Chains and zones 1……..2……..3……4…….5	Expected
1……..2……..3……4…….5	Desired

8. In the compact city scenario, cities will become increasingly dense and concentrated. In the *diffuse city*, extensive suburbanisation to green suburbs will continue.

Compact City Diffuse city 1……..2……..3……4…….5	Expected
1……..2……..3……4…….5	Desired

Section 2: Institutional management of transport

9. In the *regulatory* scenario, car-usage is controlled by transferring public space away from the car towards pedestrianisation and public transport (e.g. bus-lanes, tram-lines). In the *market-based intervention* scenario, regulation of car-usage depends only on market measures such as road-pricing, cordon pricing and parking fees.

Regulation Market-based intervention 1……..2……..3……4…….5	Expected
1……..2……..3……4…….5	Desired

10 In the *public provision* scenario, the government will provide the whole transport network. In the *private provision* scenario, governments withdraw from transport provision. Infrastructure will be owned, financed and operated on a commercial basis, implying user fares.

Public provision Private provision 1……..2……..3……4…….5	Expected
1……..2……..3……4…….5	Desired

Section 3: Economic Organisation of Transport

11 In the *subsidised* scenario, there will be a dense network of urban public transport making all areas of the city accessible (provision) and the prices of public transport will be kept low by subsidisation (operation). In the *profitable transport* scenario, public transport links will only run where there is high demand.

Subsidised transport Profitable transport	
1……..2……..3……4…….5	Expected
1……..2……..3……4…….5	Desired

12 The co-ordination scenario, implies, in the EU as a whole, an increase in taxation and protectionist policies for poorer regions. By contrast, the market-principles scenario implies a general trend in the economy – and thus also in the transport sector – for governments to step back and favour fiscal decentralisation.

Co-ordination Market Principles	
1……..2……..3……4…….5	Expected
1……..2……..3……4…….5	Desired

Section 4: Societal Factors

13 In the *social inclusion* scenario, social security systems will be expanded. Transport will be kept cheap by providing subsidies. By contrast, in the *social exclusionist* scenario, social security systems will largely be privatised and minimised.

Social Inclusion Social Exclusion	
1……..2……..3……4…….5	Expected
1……..2……..3……4…….5	Desired

14 In both the social cohesion and individualist scenarios, it is widely accepted that environmental measures are necessary. However, in the individualist scenario, it will be argued that everyone should be able to choose his/her living area and his/her way of transport – so that travel and living spaces will only be restricted by income. In the *social cohesion* scenario, it will be argued that people will accept regulatory measures restricting private choices, thus, increasing social cohesion.

Social Cohesion Individualisation 1……..2……..3……4…….5 1……..2……..3……4…….5	Expected Desired

Finally, we would like you to consider a range of transport policies and technologies.
Please evaluate increases in the following for your city:
1= no further increases 5= substantial increases

15	Urban Ring-Roads 1……..2……..3……4…….5 1……..2……..3……4…….5	Expected Desired
16	Road-Widening/Extensions 1……..2……..3……4…….5 1……..2……..3……4…….5	Expected Desired
17	Road Pricing 1……..2……..3……4…….5 1……..2……..3……4…….5	Expected Desired
18	Parking Fees 1……..2……..3……4…….5 1……..2……..3……4…….5	Expected Desired
19	Reducing Park Places 1……..2……..3……4…….5 1……..2……..3……4…….5	Expected Desired

20	Pedestrianisation 1……..2……..3……4…….5 1……..2……..3……4…….5	Expected Desired

21	Suburban Heavy Rail Links 1……..2……..3……4…….5 1……..2……..3……4…….5	Expected Desired
22	Pedestrian Subways 1……..2……..3……4…….5 1……..2……..3……4…….5	Expected Desired
Please evaluate increases in the following for your city: **1= no further increases 5= substantial increases**		
23	Overground Light rail 1……..2……..3……4…….5 1……..2……..3……4…….5	Expected Desired
24	Metro 1……..2……..3……4…….5 1……..2……..3……4…….5	Expected Desired
25	Bus Lanes 1……..2……..3……4…….5 1……..2……..3……4…….5	Expected Desired

26	New Fuels 1……..2……..3……4…….5 1……..2……..3……4…….5	Expected Desired
27	Electric Cars 1……..2……..3……4…….5 1……..2……..3……4…….5	Expected Desired