Summary:

Transport profiles and lifestyles

Travel activity in society is steadily increasing. This increase matches the general development in society as a whole. Many of the opportunities open to us assume the availability of transport in order to be exploited. Individual opportunities for mobility are regarded as a social benefit, while at the same time transport activities lead to a number of environmental problems. There is therefore a need to develop measures which can influence people towards adopting more environmentally friendly transport behaviour. The basis for choosing the correct measures is knowledge of different factors which affect the choice of transport.

Focus on the significance of people's lifestyles for transport behaviour

Transport research has shown that both demographic and socio-economic characteristics and structural framework conditions (which will here be characterised as influence factors) connected with transport provision are important determinants of people's transport behaviour. In order to obtain a wider understanding of what lies behind people's choice of transport, we also want to study whether lifestyles can indicate differences in the use of different modes of transport.

A fundamental consideration in this study is that lifestyles, as they are generally defined, can influence and themselves be influenced by different structural framework conditions (public transport provision, road networks, the location of the workplace, leisure activities or parking opportunities) and individual characteristics (education, income or transport resources). In the study, these factors are described as "influence factors". The primary purpose of the study is to describe the extent of phenomena and to look at influential factors and transport – related lifestyle factors in connection with each other. In this way, we can obtain a unified picture of the different conditions which may be significant for transport behaviour and the use of different forms of transport.

Lifestyle factors related to transport

Only a limited number of travel behaviour studies featuring a lifestyle perspective have been carried out. As a result, no consensus has been reached on how to define lifestyle, or which lifestyle indicators should be included in a transport-related lifestyle concept. Each lifestyle indicator should be justified on the basis of its relevance to the field.

The study is based on the following transport-related lifestyle indicators:

* use of different modes of transport, travel behaviour
* activities and patterns of activities
* outdoor /indoor orientation
* consumer orientation
* environmental orientation

We have also looked at the use of ICT (the internet and cell phones).

The data has been collected by Norsk Gallup Institutt A/S through their Consumer and Media Survey for 1999/2000. The study covers people over the age of 18 across the whole country. The data has been analysed using simple statistical methods, exploratory factor analysis and correspondence analysis.

Transport profiles defines transport usage over time – and combinations of different forms of transport

In the survey, people were asked how often they used different forms of transport during a month. This allows for a more precise segmentation of the population than is found in travel habit surveys which ask about yesterday's journeys. When one only looks at journeys on a given day, the variations in the use of transport do not stand out very clearly. A common classification is therefore car user, public transport user, cyclist and pedestrian.

We find that the population can be divided in to 9 transport profiles, (journeys on foot, for which we have no data, are excluded):

1. *High car usage exclusively– 50 per cent of the sample:*
   People who use cars more than 3-4 times a week, and who use no other form of transport more than 1-3 times per month.
2. *Low car usage exclusively – 3 per cent of the sample:*
   People who use cars at least 1-2 times per week and no other forms of transport more than 1-3 times per month.
3. *Public transport users exclusively– ca 4 per cent of the sample:*
   People who use public transport at least once a week and who do not use any other form of transport more than 1-3 times per month.
4. *Cyclists exclusively - ca 2 per cent of the sample:*
   People who cycle at least once a week and who do not use any other forms of transport more than 1-3 times per month.
5. *Car and public transport users – 9 per cent of the sample:*
   People who use both cars and public transport at least once a week and who do not cycle more than 1-3 times per month.
6. *Car and cycle users – 21 per cent of the sample:*
   People who use cars and bicycles at least once a week but who do not use public transport more than 1-3 times per month.
7. *Public transport and bicycle users – 2 per cent of the sample:*
   People who use public transport and bicycles at least once a month but who do not use cars more than 1-3 times per month.
8. *Multi users – 5 per cent of the sample:*

People who use cars, public transport and bicycles at least once a week
9. *Seldom use forms of transport – 4 per cent of the sample:*
   People who do not use any forms of transport more than 1-3 times per month

We see that the car is the form of transport which is used most. 88 per cent of the population use either a car or a car combined with other forms of transport. Corresponding figures for public transport are 20 per cent. 37 per cent use several forms of transport. This more nuanced distribution of transport profiles is suitable for defining targeted measures with intention of influencing transport behaviour.

Life phase and life situation affect the transport profile

The main conclusion of an analysis of different socio-demographic factors is that people's transport profile is dependent on the individual's life phase/age and life situation, i.e. the extent to which people live together with other people or not, see figure S.1. Life situations are reflected through the placement along the horizontal axis in the figure. The further to the right a profile group is located, the more people make up the household. The same axis also differentiates between differences in income (household and personal income). Profile groups where there is a preponderance of couples/families have a car based week, as opposed to groups with a preponderance of singles and couples.
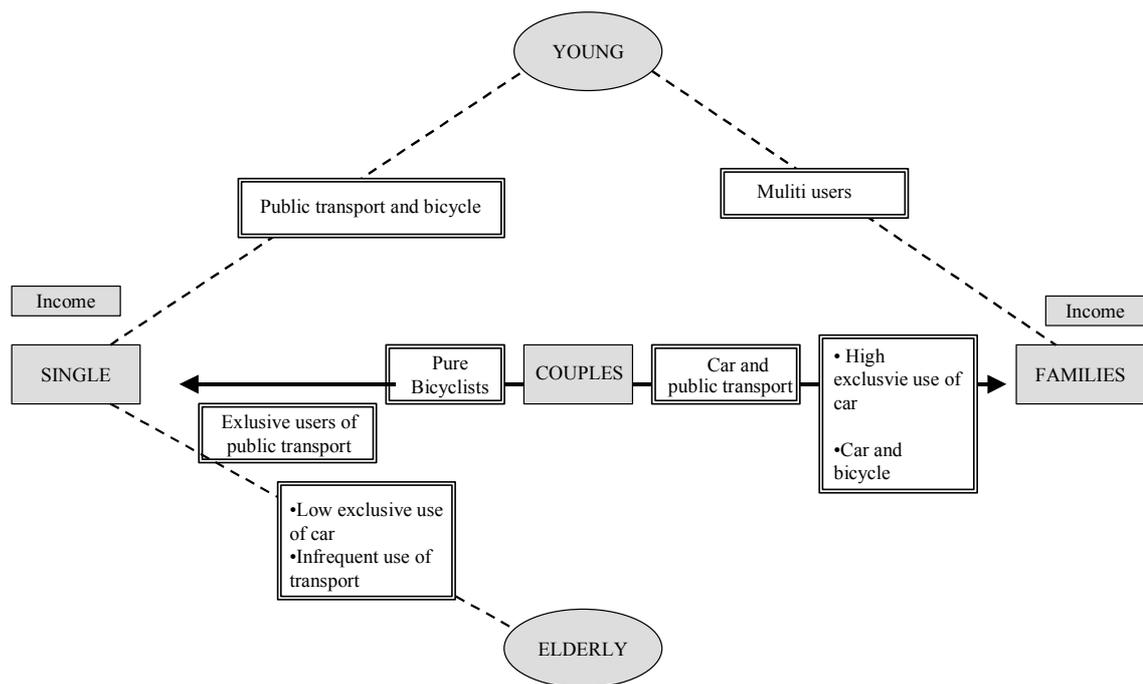
Source: TØI-report 579/2002

Figure S.1. Different transport profiles placed according to life phase/age (vertical axis) and life situation (horizontal axis)
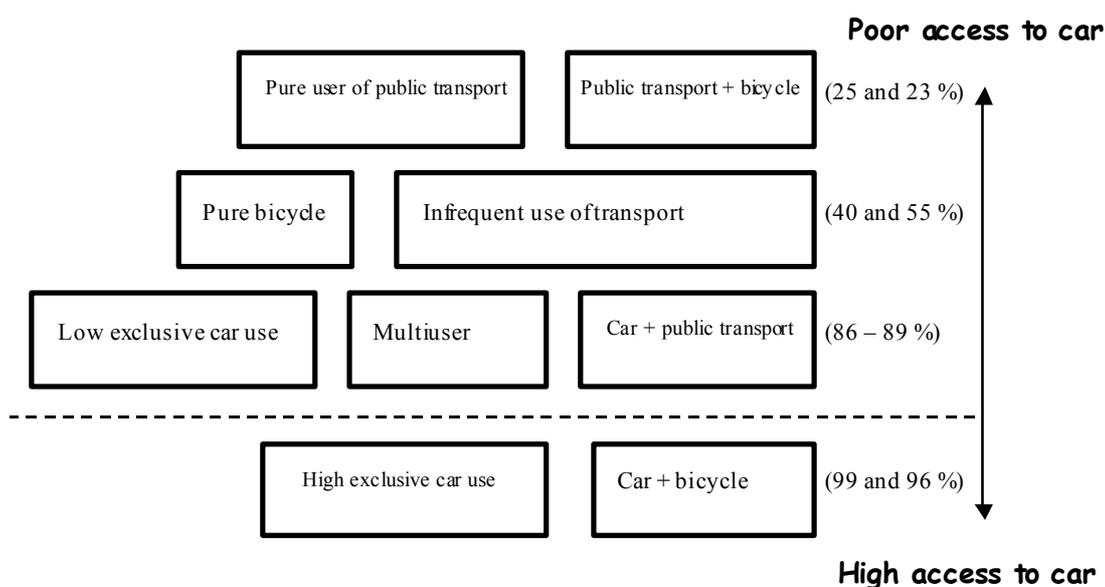
The profile groups are also located in relation to each other according to age/life phase along the vertical axis. In profile groups which are located in the middle, there is preponderance of people between the ages of 30 and 59. Profile groups which are located in the upper part of the figure are younger (preponderance of

those under 45) while those who are located in the lower part of the figure are older (preponderance of those over 45).

Transport profile and access to car – a nuanced picture

The majority of the respondents (90 per cent) owns a car. One third belong to households who own or use more than one car. There is clearly a high probability that a person will use a car on a daily basis if he or she has easy access to a car. This corresponds with previous studies (see for example Berge 1994 and 1999, Hjorthol 1999).

Analyses of relative differences between the different profile groups with regard to access to cars gives a more detailed picture than earlier studies, see figure S.2. Amongst other things, we see many people who combine car and bicycle in the course of a week cycle in spite of having very good access to a car. Given that their economic situation is good, it is probably not for economic reasons that they also use a bicycle. One hypothesis is that this group cycles for fitness and for the sake of their health. This indicates that this transport profile can best be understood from a lifestyle perspective.

Poor access to car

Pure user of public transport	Public transport + bicycle	(25 and 23 %)
	Pure bicycle	Infrequent use of transport	(40 and 55 %)
Low exclusive car use	Multiuser	Car + public transport	(86 – 89 %)
	High exclusive car use	Car + bicycle	(99 and 96 %)

High access to car

Source: TØI-report 579/2002

Figure S.2: Transport profiles ranked according to degree of access to a car in the household. The dotted line indicates average access to a car amongst the population (90 per cent). The figures in brackets show access to cars in different profile groups as a percentage.

Those with exclusive low car usage, those who combine cars and public transport and multi-users do not necessary have access to a car in their household. This shows that some of them get lifts with others who own or use a car or that possibly they may rent a car. These groups could possibly be open to measures such as lift sharing or carpooling.

Exclusive car users – most home loving

The car is associated with great freedom. It is not necessary to keep to timetables, it is usually possible to travel direct to a given place and it is easier to travel long stretches in a short time. However, it is not the case that those who only use cars every day and who have good access to cars, utilise this opportunity to be more active than others. Exclusive car users have the least active lifestyle and are more home loving than the other profile groups.

Home loving car users – high use of ICT ?

An interesting question is whether people who are more home oriented are more adept users of ICT than those who are less home oriented. As a measurement of the use of ICT, we have looked at how often a person uses the Internet and a home PC/computer in the course of a week. In general, the results indicate that there is little connection with the level of activity outside the home and the use of ICT. Being active outside the home does not preclude being an active user of the Internet. Rather, use of ICT appears to come *in addition* to activities outside the home.
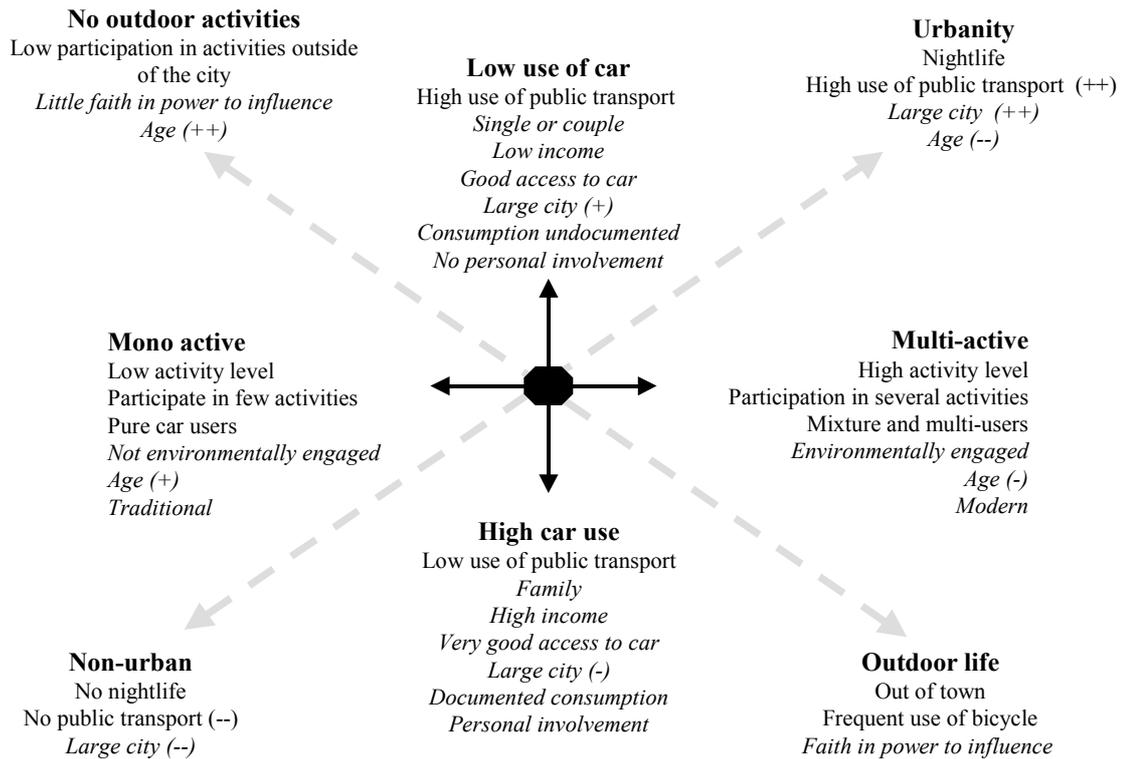
There is a connection between the level of activity outside the home and the use of transport. Exclusive car users are more home oriented than those who combine different forms of transport. Our analyses show that the exclusive car users are less active also with regard to the use of ICT.

Low car usage – no barrier to participating in ”out of town” activities

In order to participate in ”out of town” activities, it is normally necessarily to get out of the city centre. This applies to activities such as walking in the woods and fields, jogging, running, cycling trips, skiing trips, alpine or slalom skiing or Telemark skiing /snowboarding in the winter season. The availability of public transport is for the most part best towards the city centre, while it is poorer across border regions and poorest out of town (Engebretsen 1996). However, this does not appear to prevent people who use cars less on a daily basis from undertaking such activities. Those who use cycles alone or combined with public transport / car are much more active with regard to out-of-town activities than those who use cars on a daily basis (”high car usage exclusively”). This indicates that there are conditions other than the availability of transport which affect the use of activities available outside the city centre.

The transport space – main tendencies

Using a multivariate correspondence analysis, we have looked at the different transport related lifestyle factors in context. On the basis of this, we have constructed an access system which we have designated the *transport space*, see Figure S.3.

No outdoor activities
Low participation in activities outside
of the city
Little faith in power to influence
Age (++)

Low use of car
High use of public transport
Single or couple
Low income
Good access to car
Large city (+)
Consumption undocumented
No personal involvement

Urbanity
Nightlife
High use of public transport (++)
Large city (++)
Age (--)

Mono active
Low activity level
Participate in few activities
Pure car users
Not environmentally engaged
Age (+)
Traditional

Multi-active
High activity level
Participation in several activities
Mixture and multi-users
Environmentally engaged
Age (-)
Modern

High car use
Low use of public transport
Family
High income
Very good access to car
Large city (-)
Documented consumption
Personal involvement

Non-urban
No nightlife
No public transport (--)
Large city (--)

Outdoor life
Out of town
Frequent use of bicycle
Faith in power to influence

Source: TØI-report 579/2002

Figure S.3: Main dimensions and axes (intermediate dimensions) in the transport space, characteristics which define them. Descriptions in standard font style define the dimensions, while descriptions in italics describe other differences along the dimensions.

The greatest differences in the population with regard to the questions covered by the survey are found along the horizontal axis – *the activity dimension* and the vertical axis – *the transport dimension*. The activity dimension distinguishes between those who are "mono-active" and those who are "multi-active". The mono - active participate in few activities in the course of the week, have a low level of activity outside the home and a high preponderance of exclusive car users. The multi-active, on the other hand, have a high level of activity outside the home, participate in numerous activities and are more flexible with regard to use of transport (mixed and multi-users). The transport dimension distinguishes first and foremost between different degrees of car usage and public transport usage in the course of a week.

In the transport space, we can also see clear differences along the diagonal axes (also known here as the intermediate dimensions) which show connections between types of activities and use of transport. The urbanity axis/dimension shows a connection between the degree of participation in outdoor activities and public transport usage, while the outdoor axis/dimension distinguishes between degrees of participation in "out of town" activities and the degree of bicycle usage in the course of a week.

Both the bi-variate and multi-variate analyses indicate that there is only a weak, but nonetheless systematic correlation between individuals' expressed environmental and consumer orientations and the use of transport. Whether this is

due to the questions which were asked, or whether environmental and consumer orientation is actually of little significance, cannot be answered here.

Different segments in the transport space

While the transport dimension first and foremost reflects differences in life situations, the activity dimension, the urbanity access and the outdoor axis can indicate differences in transportrelated life styles. In other words, the transport space can be a separate starting point for distinguishing between different transport - related lifestyles among the population.

From the background of these dimensions, we have created nine different lifestyle segments, see figure S.4. Each dimension is divided into three with a neutral segment in the middle. Those who do not stand out in relation to any of the dimensions, "the neutrals" are located in the middle. These correspond more or less to the average amongst the population.
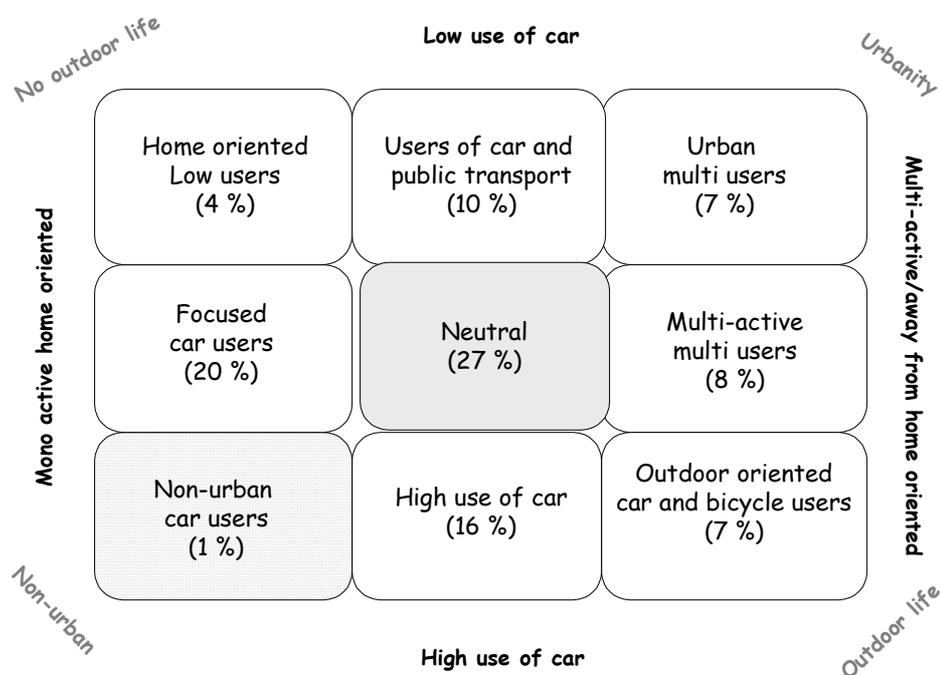
Source: TØI report 579/2002

Figure S.4: Nine different life style segments and their relative size. People over 18 years of age (N=10 988). Percentage

Life styles - new questions, new answers?

In this study, we have seen lifestyle is significant for understanding differences in the use of transport. One essential finding is that the activity dimension reflects the biggest variations with regard to both activities and use of transport, even after controlling for place of residence, age and life situation.

Distinguishing segments with different transportrelated life styles forms a basis for asking *new* questions with regard to measures on the basis of the type of life styles which people have. With regard to affecting people's transport behaviour in

a more environmentally friendly direction, there are many completely different challenges in relation to the different lifestyles segments.

The home oriented low users of transport already have environmentally friendly behaviour and thus it is not necessary to influence this segment. The same applies to the urban and the multi-active who have developed competence and habits in relation to public transport. The key question in relation to this group is how to open the way for maintaining a spontaneous and flexible situation when life situations change.

Those who combine cars and public transport have relatively environmentally friendly transport behaviour. The challenge in relation to this group is to ensure good, easily accessible public transport.

A number of those who are major car users, together with the outdoor-oriented car and bicycle users, often have environmentally friendly attitudes. Even though they regard their health as more important than the environment, they may well experience a social dilemma in everyday life, given that they use the car a lot, partly because they often have children. The challenge here is to create more time for these people in relation to time shortages, for example through public transport measures connected with children's schools and leisure activities.

Focused car users are not more active than others, even though they have good access to a car. This finding paves the way for questions on how dependent these groups really are on a car in modern society, and who is able to manage everyday life without a car. Since the focused car users are also, to a large extent, creatures of habit, the key question here is whether their fixed habits can be changed and how we can deliver "training" in the use of other forms of transport.

As illustrated above, the focus of life styles could form the basis for new questions with regard to the choice of transport. It could also offer new answers and alternative solutions with regard to the design of measures.