



## **EUROPEAN PARLIAMENT**

### *Science and Technology Options Assessment*

**STOA**

## **URBAN TRANSPORT**

**Barriers and success factors for innovation  
pathways to sustainable urban transport**

**Phase IV**

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## **URBAN TRANSPORT**

### **User perception on technological developments and paradigms**

#### **Phase IV**

##### **Abstract**

This deliverable summarises the results of the citizen's consultation that has been conducted in this phase. So called interview meetings with young adults in three different cities (Karlsruhe, Copenhagen, Budapest) have revealed that - in spite of many differences - most participants showed rather positive attitudes towards policies supporting alternatives to car based transport. More than anything else, they desire a transport system that is flexible and convenient –an aspect that is increasingly applicable to cycling. However, attitudes towards certain transport modes in this group of people correlated closely with the condition of the respective mode and the infrastructure provided to it, with the status it enjoys and with the quantity of experiences one has gained with it. It can generally be said that the young people interviewed in this study were open for rather flexible, not car-oriented mobility patterns. Findings of the interview meeting further show that an attractive city is not only related to the transport system. In all three cities, factors such as green space and clean air were ranked very high when it comes to important factors for the quality of life. There were no strong claims for improving the situation for car transport. Many of the participants indicate that they can well imagine using the car more often in the future, due to children or the need for commuting. Also increases in income were seen as a potential factor for using the car more often in the future. However, many of these young people have become used to comparatively flexible and intermodal mobility patterns. It is likely that these rather positive experiences with cycling and public transport will also be of some relevance for their future transport behaviour.

This project has been carried out by the Institute for Technology Assessment and Systems Analysis (ITAS), Karlsruhe Institute of Technology (KIT) and Danish Board of Technology (DBT) as members of ETAG.

## **PROJECT LEADER**

Jens Schippl, ITAS

## **AUTHORS**

Nanna Engberg, DBT  
Ida Leisner, DBT

## **RESPONSIBLE ADMINISTRATOR**

Peter Ide-Kostic  
Science and Technology Options Assessment  
Directorate G: Impact Assessment and European Added Value  
DG Internal Policies  
European Parliament  
Rue Wiertz 60 - RMD 00J016  
B-1047 Brussels  
E-mail: [peter.idekostic@europarl.europa.eu](mailto:peter.idekostic@europarl.europa.eu)

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## **ABOUT THE EDITOR**

To contact STOA or to subscribe to its newsletter please write to:  
[stoa@europarl.europa.eu](mailto:stoa@europarl.europa.eu)

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## Preface

Urban transport is related to a wide range of unsolved problems and challenges that need to be tackled in order to guarantee a high level of quality of life in European cities and to make the transport system an even more efficient pillar of the European economies. More information is needed, especially on the potential of future or emerging technological developments and organisational innovations. To aid understanding and ensure the achievement of such potential it is important to get a better idea not only of technologies but also of the relationship between these technologies and concepts on the one hand and the different actors that are important for their successful development and implementation on the other hand. Against this background, this STOA project on urban transport considers technologies from an innovation-oriented angle. The overall aim is to highlight promising innovation pathways to a more sustainable urban transport system. Deliverable 2 of the project provided an inventory of both existing and future technology options in urban transport as well as an overview of the scientific knowledge concerning their impacts on health and/or environment. Deliverable 3 looks at the socio-economic context in which the technologies and concepts are, or will be, implemented. The document at hand is deliverable 4. It summarises the results of the citizen's consultation that was conducted in phase 4 of the project.

In June and July 2011, three so-called *interview meetings* were held; one in Karlsruhe, one in Copenhagen and one in Budapest. The hosts were Karlsruhe Institute of Technology, Danish Board of Technology and Medián Opinion and Market Research, respectively. In each country around 30 participants heard a presentation on the theme of urban transport, filled out a questionnaire and debated a number of issues in relation to the existing and the future transport system in their city.

The interview meetings took place in the evening and lasted 3 hours. They began with a short welcome and an introduction to the theme. The main focus during the presentation was urgent trends and challenges in the transport sector as well as fictive stories that had been sent to the participants prior to the meeting. After a short break, the participants were asked to form groups to carry out the debates. Groups were built in advance by the moderators seeking to establish the best possible equal distribution in sex, age and professional background. The group discussions were recorded and transcribed afterwards.

## Purpose of the report

The interview meetings are the central elements in the fourth phase of the STOA project: *Technology Options in Urban transport: Changing Paradigms and Promising Innovation Pathways*. The purpose of this phase is to take a closer look at the attitudes and perceptions of the citizens in European cities as far as urban transport is concerned.

ETAG (European Technology Assessment Group) is conducting the project on behalf of the European Parliament's Panel for Science and Technology Options Assessment (STOA) which funds the project.

This report is a synthesis report based on the three national reports. It sums up the most important attitudes and arguments presented at the three interview meetings. The three national reports give a more detailed description of the views presented at each national interview meeting.

## **Choosing participants for the meeting**

The participants in all three interview meetings were young people aged 20-30 living in the municipalities of Copenhagen, Karlsruhe or Budapest. Based on desktop research documented in previous deliverables and due to the fact that the necessary resources for covering a broader range of societal groups were not available, it was decided to focus on the travel behaviour and attitudes of young people. This group of urban citizens are used to quickly adopt new ICT solutions specifically and new ways of doing things in general and their views on a future urban transport system and new technologies and policy measures are therefore of great interest.

In Karlsruhe and Copenhagen the participants were recruited by sending out a total of 2,500 invitations to randomly selected people in the target group. In Budapest randomly selected persons in the target group were phoned and asked to participate. All who signed up to participate had to give details about their educational level, profession and age. Out of the positive responses a group of participants were selected with regard to the best spread in age, gender and occupation.

Around three weeks before the meeting took place, the participants were sent additional information on some trends and challenges in transport in general, a fictive story illustrating different views on possible urban transport systems 10 to 20 years ahead as well as a list of words explaining the technologies and policy measures mentioned in the story.

## Executive Summary

Above all it can be concluded that there is a great agreement among the participants when it comes to the basic principles that determine their everyday transport patterns and their views on a future urban transport system. However, the actual urban transport realities that their cities offer are quite different and this has a big influence on how their transport patterns materialize and also on what tools they consider best fit to improve transport systems and take their city in a more liveable direction in the future.

The participants in the interview meeting on urban transport in Karlsruhe, Copenhagen and Budapest are all 20-30 years old. Most have a relatively low income and the international economic crisis has a considerable effect especially on the lives of the participating young Hungarians. A majority in all three cities however expect to earn more in the future.

The participants in the three cities have in common that they generally walk often and drive a car rarely. The German participants use public transport and bicycle quite often, the Danish participants choose the bicycle much more often than public transport, and the Hungarian participants hardly ever bicycle but use public transport often.

The participants in all three cities generally enjoy the many services and possibilities offered by their city and transport naturally plays a big role in their everyday life. The participants agree that urban transport more than anything else must be as fast and convenient as possible.

The participants are not blind to the environmental consequences of motoring, and basically they are very much in favour of making their cities more liveable by reducing CO<sub>2</sub> emissions, noise and air pollution. They support prioritizing environmental concerns in future urban planning, but if they themselves are to change behaviour towards using more eco-friendly means of transport the new transport means must to have other advantages than being green – preferably they must be just as quick or quicker, cheaper and/or easier to use than their current choice of transport.

As far as behavioural changes are concerned, the participants in all three cities generally prefer the idea of positive interventions that motivate the commuters to change their traffic behaviour in a more sustainable direction – the 'carrot' method, so to speak. When asked about actual technologies and policy measures however, especially the German and Danish participants support actions that make especially car travelling in their cities more expensive, slower and more vexatious. However, a majority of the participants in all three cities feel that it makes most sense to strengthen the possibilities of bicycling and public transport.

Many of the participants in all three cities think that they possibly or probably will move away from their city and many (especially Danish participants and Hungarians) also expect that they will come to drive a car more than they do now. For the German and Danish participants this mostly seems to rest on an assessment that the car will be the most convenient means of transport in the future, whereas the Hungarians rather seem to connect this expectation to a desired social status lift associated with driving a car.

A majority of the participants in Karlsruhe, Copenhagen and Budapest find that it is important to consider equality when promoting new ways to move about in the city. Mobility is seen as a basic right.

When the participants are asked to place the responsibility for leading urban transport in a more sustainable direction, the participants generally seem to agree that it is shared. The individual citizen, the city councils, the country, the EU and businesses/industry are all assigned a role and expected to contribute to the funding and promotion of more sustainable solutions. Agreement is not so clear however when it comes to saying who should carry most responsibility. Individuals are seen as more responsible by the Hungarian participants than by the German and especially the Danish. The opinion is expressed in all three cities that the EU can play an important role by designating a common course for all member-states; however, this must unfold as a flexible framework that the individual member-states and municipalities can adapt to their specific situation.



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## **Chapter 1 - Demography, urban characteristics and transport patterns**

### **1.1 Karlsruhe, Copenhagen and Budapest as transport cities**

Karlsruhe is a city in southwest Germany, close to the French border with a total population of around 290,000 inhabitants; the city has eight universities with more than 30,000 students. Karlsruhe is located in the Rhine valley and offers a relatively favourable climate and flat topography. Like most other European cities in the 1970s, Karlsruhe's urban planners were eager to optimize the city for motorized transport. Today the transport system in Karlsruhe is characterized by a co-existence of different transport modes. The public transport network includes 226 tram and bus lines, spread on an expanse of 3,500 square kilometres. This ensures fast connections from the suburban regions into the city-centre, and at most intersections the tram is prioritized and has the right of way, which enables faster connections.

In recent years cycling has gained increasing political importance. The city has set itself the goal to become cycling-city number one in South-Germany by 2015 (hence it has to "beat" Freiburg, which has a cycling mode share of 28 %). Special roads around the city centre are being identified that are primarily designated to cyclists and a bike sharing scheme (DB "Call a Bike") has been implemented in Karlsruhe with 350 bicycles at present. Furthermore, Karlsruhe has a well-developed car sharing system. No other German city provides more car sharing vehicles per inhabitant than Karlsruhe. The privately owned company "Stadtmobil" provides a total of more than 471 differently sized vehicles for its 7,356 customers at 135 stations around the city.

Copenhagen has been the capital of Denmark since the early 16<sup>th</sup> century, and today about 650,000 people live in the municipalities of Copenhagen and Frederiksberg. Copenhagen is a seaport city characterized by bridges, wharfs, canals etc. The city centre is old and filled with narrow, crisscrossing streets. Newer buildings and wider streets are found further away from the city centre.

Copenhagengers have access to a variety of public transport, including busses, trains and a relatively new subway system with a limited network which, however, is currently being extended. Today, 36 % of all travel to and from work or school in Copenhagen takes place on a bike and, in its 'Bicycle Strategy 2011-2025', the city plans to increase this share to as much as 50 %. In addition, 28 % of this kind of traffic is handled by public transit services and 29 % takes place by car.

Budapest is the Hungarian capital with 1.7 million inhabitants and the city is cut through by the river Danube. Urban transport in Budapest has been a very hot topic several months prior to and also at the time of the citizen meeting. Although, the country has received extensive EU funding for infrastructural investments in the cities, the news about urban transport usually covers examples of corruption and misuse of taxpayers' money. A few months before the last general and local elections (both were in 2010), it was been revealed that the vice mayor of Budapest responsible for the public transportation company gets donations for his party from possible bidders for public procurements and local firms.

According to urban transport statistics, Budapest has the oldest vehicles in the region. The average age of a bus in Budapest is 16 years and one out of three buses breaks down every day. Prices for using public transport are high, and monthly tickets for a family with two adults and two children cost 20 % of the average monthly salary. Although Budapest had the first metro line on the continent in the 19<sup>th</sup> century and presently has the longest tram vehicle in Europe (only on one tram line), car traffic is rather high and approximately 1.5 million cross the city every day. The city leaders implemented some measures to limit these negative effects, for example separate bus lanes, free-car areas, bicycle and pedestrian infrastructure in the city centre. The number of cyclists is increasing in Budapest, but in most parts of the city cyclists have to drive alongside cars or pedestrians and not on separate bike lanes.

Economic crisis hit Hungary very hard and as most investments have been postponed because of the extended costs of the construction of the fourth metro line, it is not clear when these measures will be introduced.

## **1.2 The participants' backgrounds**

In all the cities just around 30 participants came to the interview meeting. All the ages from 20 to 30 years were represented quite evenly. In Denmark the participants consisted of 50 % men and 50 % women. In Hungary and Germany there were more male than female participants, about one third were female. In Germany and Denmark about half of the participants were students while the other half was wage earners, self-employed or job-seeking. Generally, the participants at the interview meetings in Karlsruhe and Copenhagen had or were about to have a high level of education, higher than the average in the age group in the respective cities as such. In Budapest, the educational level among the participants was somewhat lower and also closer to the average Hungarian level of education. Only four participants were students and the rest were working or unemployed.

The large share of students in Germany and Denmark was reflected in the income conditions: About half the participants in Denmark and two thirds in Germany stated that they had the lowest category of annual income (Germany: € 0-20,000, Denmark: DKK 0 – 150,000). In Hungary, where about 2/3 of the participants were working, about half still indicated to be in the lowest category of income (Hungary: HUF 0-100,000). More than two thirds of the participants in all three cities however had positive expectations to their future income conditions, expecting to earn more in 5 years. Few participants had children yet, 1 in Germany, 3 in Denmark and 7 in Hungary. Some participants still lived with their parents; this was especially the case with the young Hungarians.

## **1.3 Transport habits among the participants**

The transport habits of the participants in the three cities differ quite a lot except when it comes to walking. Walking is used as a means of transport on a daily basis by about 2/3 of the participants in all cities. In general, it can be said that while German and Danish participants use the bicycle, the Hungarians use public transport to move about in the city.

Cycling is used by 4/5 on the Danish participants on a daily basis and by half of the German participants. No Danish participants and only one German never bicycle, but 2/3 of the Hungarians never do so or do it less than 1-3 times a month. Only two of the young Hungarians bicycle every day.

The Hungarians use public transport more than the German and the Danish participants. More than half use public transport every day, while less than 1/10 of the Danish participants and 1/5 of the German participants do this.

Driving a car is not common among the young people in any of the cities. No more than 1/10 drive a car every day and 1/3 or more of the participants from each country never drive a car. There were 8 German, 6 Danish and 6 Hungarian car owners among the participants.

Driving a motorbike and using taxis is very uncommon among all three nationalities.

The participants in all three cities move about a great deal, and their trips in the city are an important part of the urban life they lead today. A trip through the city often has more than one purpose. Half or more of the participants in all three cities state that they 'always or almost always' combine several purposes when they move around in the city going to school or work, visit friends and relatives, go shopping, run errands or participate in various leisure activities.

## Chapter 2 - General attitudes to urban life and transport – today and in the future

### 2.1 Views on living in the city

Both the German participants and the Danish participants are clearly very happy about living in their city, and also the Hungarians see advantages in the city compared to the countryside. Many have moved to the city from other parts of the country and have a vivid memory of what it was like to live in a smaller town or in the countryside where public transportation services were rather poor in some cases and where the available activities were generally much more limited. For them, quality of life is have to a choice of different offers and possibilities; for instance not to have only one cinema, but a variety to choose from.

*"In reality, everything is accessible: the nature and the other things you mentioned, the opportunities for entertainment, medical services, and schools. And this is big advantage for the citizens of Budapest in contrast to those living in the countryside." (Hungary)*

*"Well, I went to grammar school in a town called Kalundborg. I lived 30 km from Kalundborg and I had to take the bus every single day and, if you were lucky, there was one bus every hour. Saturdays only four times a day and no service at all on Sundays. So of course it's wonderful to come to Copenhagen where public transport is available all the time". (Denmark)*

*"Karlsruhe offers this [different possibilities], because it is a big city and a small city at the same time, with only short distances. And yet you don't feel as if you have already reached the end of the city after a short ride. And you find all the things you need to be happy." (Germany)*

*"I am from the countryside, from the far Borsod [one of the poorest parts of Hungary in the North East, close to the Ukrainian border]. And it has a feeling when I go to the bus stop and I wait 50 minutes. I cannot imagine this here in «Budapest-country»." (Hungary)*

Measured in hours and minutes, transport obviously takes up a significant part of the participants' lives, because they move around a lot. This means that transport can also generate a lot of frustration if it is hard to get around in the city. Even though the young people in the three cities have different transport patterns, they all agree on the most important factors that influence their choice of transport mode. The Top 3 is minimal waiting time/high accessibility), travel time all together and cost of travel. Quality of transport, then, is primarily a question of being able to move from point of departure to destination as fast, as easy and preferably as cheap as possible.

*"I guess one of the major advantages of taking the bike is that it will bring you from A to B faster than any other mode of transport." (Denmark)*

*"Well, I live right on the motorway, so it takes me half an hour, door to door, to get to work. But my car is being repaired right now, so I use public transport and that takes an hour and a half door to door and that is simply not good enough in everyday life." (Denmark)*

*"And due to the good public transport you feel as if you are living right in the city centre (...). Although we have only one tram line [connecting our neighbourhood], it stops only one minute away from our house and runs every ten minutes and the whole night. Perfect. I can't imagine it any better."* (Germany)

*"The simple reason why I changed to bicycle is that I have to travel on Hungária [a major, very busy road of Budapest] and I get back home earlier than my colleague who takes the bus. I wave to him "Bye!" and they are standing in the traffic jam."* (Hungary)

## 2.2 Environmental concerns

In general, it can be said that most of the participants in all three cities wish that environmental concerns are prioritized in their city in the future but also that these concerns are a part of a complex field of different concerns that often collide when the participants make their choices regarding transport in the city.

When the participants talk about environmental considerations, they mostly do so in relation to issues and consequences that are felt directly in their own everyday life. Some participants mention health problems, the unpleasantness of cycling through the exhaust smoke along an expressway or the noise generated by car traffic. Global warming is not mentioned, it is more about having a cleaner and more liveable city.

A big majority of the participants in all cities feel that it is important to include reduction of CO<sub>2</sub> emission in their cities' future development and planning. When it comes to the individual participant's choice of transport however, environmental concerns are not a primary factor. When asked to select the three most important factors in the choice of transport means, only 1 Hungarian and 4 Danish participants include how much the transport means pollutes. 8 of the German participants see the pollution level as one of the three most important factors but, as mentioned, the Top 3 in all cities is minimal waiting time/high accessibility, travel time all together and cost of travel.

The bicyclists in Copenhagen and Karlsruhe are happy that their primary means of transport is green, but this is far from the main reason for their choice. This general attitude among the participants from the three different cities means that the Hungarian participants probably would be willing to bike more if it was easier, safer and quicker. And that the biking Danish and German participants would not be biking as much if it was less easy and quick.

*"CO<sub>2</sub> is not something we can touch and feel. When it comes down to it, you don't think 'are electric cars the smartest and most eco-friendly choice?' You think 'which is the quickest and easiest way to get to work?' "(Denmark)*

*"I don't know, I used the public transport in Vienna a lot and I was very happy to do so, it is very up-to-date. There are many and very good trams, a lot of trolleys as guided transport, and the buses are also much more modern and environmentally friendly than in Budapest where 30-40-year old Ikarus buses fill the streets. If public transport here was like that [in Vienna], I would think about changing."* (Hungary)

That environmental concerns only have a limited impact on the participants' choice of transport means that they only tend to change to a mode of transport with low CO<sub>2</sub> emission if it also involves other advantages. Half of the German and more than 2/3 of the Danish and Hungarian participants would see a shorter or equal travel time as one of the strongest arguments when it comes to changing to transport modes with lower CO<sub>2</sub> emission. Also a lower price would appeal to more than half in all cities. A little more than 1/3 of the participants in Denmark and Germany and a little more than half on the Hungarians state the transport means' ability to help limit climate change as one of the strong arguments.

### **2.3 Thoughts on personal future transport**

In general, the participants do not expect the life they lead today to remain unchanged in the years ahead. A majority in all three cities expect that they will make more money within the next 5 years than they do now. These figures are probably due to an expectation of getting a job after completing an education or, for people who are already employed, of benefitting from career development which will improve the financial situation and allow people to change residence.

Half or more of the participants in all cities are not sure that they will still be living in their city 10-20 years from now. Only few of the participants (1 in Germany, 3 in Denmark and 7 in Hungary) have children, but many of them expect that starting a family will influence their wish to stay in the city.

*"If I ride my bicycle, next to the four-lane road ... and even if I do not pedal as hard as I can, but just with a normal speed, I need more air, so I breathe more smog than if I was just walking there. Air is not fresh. We used to cycle a lot in the countryside and it was totally different. I take the subway, go out of the city and the air is different there, it can be smelled. If I had a child, I would like him/her not to grow up in the city. Because of the people and because of the smog and the environment." (Hungary)*

Just as the participants expect their circumstances to change in relation to income, family status and place of residence in the years ahead, a lot of them also expect their transport pattern to change. Between 1/3 and 1/2 of the participants in the three cities expect to drive a car more than they do today. Not more than about 1/3 of the Hungarian participants who hardly ever bicycle today expect to do so more in the future. Only about 1/6 in all three cities expect to use public transport more. In the group debates the potential difficulties related to travelling with children using public transport and bicycles were discussed.

*"I think I will probably leave Copenhagen at one point and then a car would be the obvious way to get to and from work, I guess. At least compared to a bike. If you move more than 15-20 km. away from the city, the bike becomes less and less of an alternative. Then it depends, if you have easy access to the train, well, then that is certainly a possibility (...), but if wasn't easy to come from door to door, I would probably end up buying a car." (Denmark)*

*"It is also related to starting a family. You should not entrust your family to public transport or you should not transport your three kids on a bicycle. And if you build your career or your salary demands increases, then, obviously, you want to take this opportunity. Then, probably, many people will need to take a car, so will I. I will be a real car driver. I think I will not use that car in Budapest, because I plan to move out from the city and the car would be for commuting." (Hungary)*

*"I think this is a general problem. If you have children, then travelling is a problem. I think I would prefer to rather take the car, because it is...I mean you wouldn't have the stress with changing trains, getting off, especially with a pram and so on." (Germany)*



## Chapter 3 - Attitudes to different technologies and policy measures – positive and negative consequences of future urban transport

### 3.1 Policy measures – “carrot” or “stick”

There are different tools that can be used if the purpose is to change road-users' behaviour in a more sustainable direction. Some of these work as “carrots” by improving the environmentally sound transport services and the conditions of their use (for example by way of new and improved alternatives, cheap or free public transport, and coordinated green lights on the bicycle lanes etc.). Other tools work like a “stick” by punishing environmentally unsound behaviour (for example by way of congestion taxes, fewer parking spaces, increased tax on polluting cars etc.).

The participants in all three cities look more favourable upon the idea of the carrot than the stick when it comes to behavioural change. Generally, it is probably easier for most people to back the improvement of some modes of transport rather than making the problems in other modes worse. Also, the participants from Hungary specifically argue that if people feel too strained and too much uncertain about their future, mainly because of the economic crisis, these measures might have a counter-effect through inspiring free-riding and non-cooperative actions.

When it comes down to what the participants think will work however, they don't rely entirely on incentive “carrot” measures. Some favour free public transport or image campaigns, others would rather make road use more expensive and restrict motoring through pricing and regulation. Many however think that only a combination of both is able to encourage users to use alternative modes of transport more often.

*“I think I lean towards (...) rather than punishing those who do the wrong thing – making it easier for people to do what we want them to do. Making it more attractive and cheaper to use public transport.” (Denmark)*

*“I think it is very hard to motivate people to change to public transport. I actually think it requires some pretty strong financial incentives or even prohibitions. And that's a shame, but otherwise I don't think it will work.”(Denmark)*

*“In my opinion, prohibition would lead to crime and it would also generate tension. Similarly, if I prohibit something for a child, s/he will definitely not do that but somehow try to avoid it. If I have to pay, then, I try to cheat in this or that way but one will avoid it.” (Hungary)*

*“[...] we have an increase [of gasoline prices] of over 100 %. And of course, at the beginning everybody complains, but now hardly anyone complains when fuel prices are getting five cents more expensive. Ten years earlier, people went on the warpath when fuel prices exceeded 1 D-Mark [€ 0,5]. And that's why I think that you can't reach people via their wallets, but rather by saying: This is a now a pedestrian and bicycle zone.” (Germany)*

*“I think the argument „we have to change the way of thinking” is factually true, but I think it is unrealistic. To be honest.” (Germany)*

### 3.2 Bicycling and public transport

When the participants are asked to assess which means of transport should be made more attractive in the future, public transport and improved cycling and walking infrastructure have the most support in all three cities. These are also seen as the most appropriate measures to limit CO<sub>2</sub> emissions.

The present conditions for travelling by bicycle and by public transport are very different in the three cities. The public transport system in Budapest is very highly criticized by the participants as being run down, dirty and slow. The prices however are rather high compared to the average income level in Hungary.

*"Public transport should be made attractive, the present public transportation in Budapest is just a constraint, (...) one does not use the vehicles of the BKV [public transport company of Budapest – E.B.] with pleasure. This is the truth about it." (Hungary)*

*"I work, I pay the taxes, the VAT ... and then, the BKV has deficit or the money is stolen or both and then, Father State gives them my money, my taxes ... After this, why should I buy a ticket if it will always be paid from my money anyway?" (Hungary)*

*"The quality of the public transport vehicles is not acceptable, they are totally broken down". (Hungary)*

In Copenhagen and especially in Karlsruhe satisfaction with the public transport system is higher. Especially those German participants that live a bit further away from the centre emphasize the importance of the tram-train for their everyday life. But the young people still have critique and recommendations for improving the system. Among other things the Danish participants mention a more developed subway network and more public traffic services in general, lower priced or completely free public transport and more room for bikes on the trains. And some of the German participants feel that the extensive tram system is somehow disrupting the cityscape and that it should offer more service in order to become more attractive.

*„[...] That's decisive for me, that connections by public transport are optimal – you can really reach everything. That I find very good. [...]" (Germany)*

*What's interesting, I think, is that there actually are a few cities where public transport is free in the city centre. I cannot help but wonder: "How do they support this, and how do they manage to break even?"(Denmark)*

*"And due to the good public transport you feel as if you're living directly in the city centre (...). Although we have only one tram line [connecting our neighbourhood], it stops only one minute away from our house and runs every ten minutes and the whole night. Perfect. I can't imagine it any better." (Germany)*

*„I think, in terms of accessibility by bus and train, we are definitely the showcase city. However, this has the disadvantage that – well, that is going to change now – but that you just stumble across the tram everywhere in town and that somehow destroys the city's flair. So, accessibility is top, but it destroys the cityscape somehow."(Germany)*

Cycling is of great importance to many German and Danish participants. A considerable number of participants mentioned that they can travel through the city much faster by bicycle than by car. Especially the cycling streets in Copenhagen where you can go from one end of the city to another, without being interrupted by traffic lights are considered very attractive by the Danish participants and the bicycle ride can sometimes be an experience and not just moving from A to B.

*"To me, riding a bike is an incredibly nice way to get rid of the drowsiness you feel in the morning. Some winters I have taken the subway instead, and when I do that I'm not as fresh and awake, so for me bicycling is very much a way to wake up along the way, and it makes you feel really good – especially in the summertime with fresh air and sun. It's really wonderful". (Copenhagen)*

*"Well, I believe it is positive for urban transport here in Karlsruhe that they finally got the idea to do something for the cyclists. [...]" (Germany)*

Even if the Danish participants generally have very positive things to say about bicycling in the city, they also have many suggestions for improvement: More respect for each other among cyclists, better possibilities for moving at different speeds in different lanes on the bicycle track, better bicycle tracks through the green areas instead of along major, highly polluted roads, improved parking facilities for bikes and a more considerate attitude amongst the road-users.

*"There are so many cyclists in this city, and Copenhagen has a lot of students and young people who don't own a car, so I really think it's important that these people have good traffic conditions." (Denmark)*

*"Actually, I sometimes think what bothers me is not really bicycling as such, but rather the other road-users. There are a lot people who behave completely irresponsible in traffic" (Denmark).*

The highly limited bicycle infrastructure in Budapest seems to be an important thing to change according to the Hungarian participants. The cyclists have to share the pavement with pedestrians or the lanes with cars, which makes it difficult and dangerous to get quickly from one place to another by bicycle.

*"Cycling in the city centre..., I am sitting in the air-conditioned car, I do not breathe that stench that cyclists breathe... (...) Why don't you cycle? Because it is life-threatening. I buy a bicycle, how nice it would be to do some activity, but my woman said that she did not consent to this idea of cycle, because my kid needs a father and she is right." (Hungary)*

*"In my opinion, it [bicycle-sharing system] could be extended widely and people would get used to it by good marketing, strategy and good commercials". (Hungary)*

### **3.3 Cars and identity**

How much identity is linked to modes of transport seems to differ in the three cities – especially when it comes to cars. Even though quite a lot of the German and Danish participants expect to drive a car more in the future this seems to have more to do with an expectation that this will be the easiest and most convenient way for them to get around than with an ambition to own a car for status reasons.

*"For me, accessibility is of the essence. It must be easy, and it must be quick to get from A to B. I don't care that it's public, but I think that's because I've never had my own car. That makes a big difference, I think." (Denmark)*

*"Yeah, the few times that I have borrowed my parents' car and been able to drive to work, well, it's fantastic of course. I only save 7 minutes or so, but I can listen to the radio and stuff like that. So I'll do it when I have the chance, sure. I think everybody can relate to the element of convenience, but of course it's something one can do without." (Denmark)*

*"Well, I'm working a little outside the city. And that's why I have decided to use the car in the mornings, because tram would include walking and a mountain, unfortunately this affects the bicycle as well. But I would not dream of driving into the city centre by car. This is all so easy to do by public transport and bicycle. [...]" (Germany)* Many of the Hungarian participants however seem to see the car much more as a symbol of economic welfare and social status. Car ownership symbolizes a social move upwards that the young Hungarians wish for and expect of the future.

*"Many companies even support it [the use of cars – E.B.] ... those who hold a leading position or who do a certain job, they get a car ... a big car which also functions as a symbol." (Hungary)*

*"Positive examples should be shown... for example, Vienna... – I tell you, I have already been to the Netherlands and in Amsterdam, for example, people leave their cars on the outskirts of town, they get on bicycles and cycle into the business centre, the office, and it works. Although, I tell you, this process may slow down there as well, but communication has an enormous role in it." (Hungary)*

### 3.4 Conditions for cars

Since there is limited room for traffic in the city, the conditions for cyclists, pedestrians and public transport cannot be improved without hindering car traffic to a certain degree. But more than half of the Hungarian participants support the building of new roads to reduce congestion. Amongst the German and Danish participants more than half of them find this solution unacceptable. However, there is no general support for all the different car limiting measures.

Only few of the participants from Karlsruhe, Budapest and Copenhagen see congestion charging as a desirable solution, but many state that it is an acceptable solution. Altogether more than 2/3 state that it is desirable or acceptable.

*"I don't believe that limiting traffic will harm the growth potential of the city (...) I think we can easily have a good, vigorous city in spite of a toll ring (...)." (Denmark)*

In all three cities there is support for the idea of car free zones, more than half find this measure desirable. Some however are concerned that housing rents would increase in these districts, so that only more privileged people could afford to live there. It is also mentioned that car-free zones are only an adequate solution if enough possibilities are being set up to keep the city centre accessible (such as Park&Ride).

*"So, I think that a restriction... a car-free zone is more effective than congestion charging, because for many the financial burden hurts, but they would still pay, because they have already invested so much in their car." (Germany)*

*"(...) in itself the concept of a car-free city won't solve all problems. Basically, I think, it must be possible to enter the city by car if you have a valid reason to use a car. And I don't think we can simply cancel that possibility just because we want a car-free city." (Denmark)*

*"If there are small shops and the goods don't get there, then, it is obviously harmful. (...) In my opinion, zones with decreased traffic should be set up. – Not car-free, just decreased traffic."(Hungary)*

The participants do not seem to consider reduction in the number of parking spaces a good solution. 1/3 of the Danish participants find this solution unacceptable, a little more of the Germans agree and 2/3 of the Hungarian participants refuse the idea.

### **3.5 Electric vehicles**

Electric vehicles were seen as a desirable solution and about half of the participants in all three cities find it necessary to support the development of electric vehicles and infrastructure particularly for these. Electric cars are eco-friendly and they decrease noise pollution. Many of the participants also stress that it will be easier to make car-owners change to electric cars than to completely different means of transport. In spite of this general support to the idea of electric cars however, the participants are aware that the technology is not yet a really attractive alternative to conventional cars due to the limited mileage and the fact that electric cars cannot solve the congestion problems.

*"Like in Norway and Sweden where electric cars are allowed to drive in the bus lanes and park for free. That's really, really good for the CO<sub>2</sub> problem, but it won't do away with congestion, which I think is the biggest problem." (Denmark)*

*"But I think tax exemption for electric cars is incentive enough. I don't think we need much more than that. And then we'll probably need to improve the technology a bit, before we can convince people to buy one."(Denmark)*

*"I think electric cars are lucrative. Because I wonder what happens to those people who really enjoy driving, who just want to get in the car on Sunday afternoon and just want to cruise through the city. This is a certain lifestyle, that you fulfill yourself." (Germany)*

*"We would like to make it more environmentally friendly ... the main point here is that we should travel with electric engines. But the problem is that, obviously, they do not pollute in the city, but ... they still generate pollution during the production of the energy. (Hungary)*

### **3.6 Car sharing and bicycle sharing**

Car-sharing appeals most to the German and Danish participants. Car-sharing is quite common in Karlsruhe but still not very common in Copenhagen and not available at all in Budapest. Several Danish participants point out that it is still too expensive and guaranteed accessibility is considered a crucial condition for the feasibility of car-sharing. The Hungarian support is very limited, and the participants doubt that the users would take care of the cars the way a sharing would require. Bicycle sharing has good support in all three cities.

*Car-sharing works really well, it's just terribly expensive (...) It costs an arm and a leg to use the car for a couple of days. It's a really smart deal, but it's certainly not cheap. (Denmark)*

*You need to know that you can have a car when you need one. It doesn't work, if you risk having to wait for one to become available. (Denmark)*

*“But here it [car sharing] is implemented quite well. There are quite a lot of stations; you can easily book it on the Internet. There's always a car available. And I think it is especially interesting that you do not need to buy a second car; that you could say: One could drive the train then and additionally you take a car sharing car when you need it. I think it is a perfect replacement - can be. But as a second car replacement, I find it quite good.” (Germany)*

*“– On the basis of human behaviour, I simply can't imagine cars as shared, community vehicles. ... – Unfortunately, it is a general thing that people do not take care of the things. Just have a look at the BKV, what they look like.”(Hungary)*

### **3.7 ICT and intelligent transport systems in public transport**

In Hungary almost half of the participants find the kind of ICT technology that can replace part of the existing urban transport with improved possibilities of hooking up in cyberspace desirable. The German and especially the Danish participants show a more limited backing of these solutions. Some of the participants indicate that it has a special value to meet face to face.

*“There are certain positions which do not need to be in the office. So in our computerised world, these can be done at the computer at home as well. Of course, I know that there are people who like company and dislike being alone.” (Hungary)*

*“I'm sure that there are situations where it would be really helpful, but it's rather on an international level that you would need to have a video conference between Japan and Denmark. On the other hand, I don't think we should underestimate how much it means to be personally present and how much the company or whatever would want it to be like that, so I think it would probably be better to make transport more climate-friendly ...” (Denmark)*

The Danish and German participants show a much broader support when it comes to the development of the kind of ICT technology that can improve the conditions for the existing urban transport e.g. e-ticketing in public transport. Barriers however were also discussed; older people might have problems with the introduction of this new technology and data protection and a lack in transparency were also considered as a barrier for the introduction of e-tickets.

*“Well, what I wouldn't like with the e-ticket is the monthly debit, that I as a consumer do not have control over the amount I have already driven in a month, whether it was 10 or 20 €. So if I would want it, then on a prepaid basis. For me it is important that I could charge my account which I can use then” (Germany)*

### **3.8 Equality**

When the participants are asked to assess which future possibilities are attractive and why, they are generally quite concerned with equality in all three cities. It is important to them that the various future traffic solutions do not contribute to increased inequality in people's possibilities to move around and take part in city life. Almost all of the participants in all cities say that it is very important or important that all citizens have equal access to move around in the city.

*"I think we have a real dilemma here, because on the one hand I think the urban development will force us to introduce some kind of toll ring to reduce congestion. But on the other hand I think the price is too high, if it leads to a major social divide in traffic. And I simply don't think I can come up with a good solution. But I must say I'd really hate to see a development in which it becomes kind of low-status to take the bus – with a real divide between us and those who can afford to have a car." (Denmark)*

*"Pedestrians usually do not have a chance against cyclists and cars. They are also very discriminated in the city centre by now. Then you have to treat everybody equally. Everybody has the same right to enter the city and to exit it." (Germany)*

*About the polluter pays principle: "But it may have the same result as car-free zones and the congestion charge that obviously, those who pay more have worse cars and they have worse cars, because they have less money". (Hungary)*

## Chapter 4 - Responsibility – politicians, individuals, industry

### 4.1 Financing of urban transport initiatives

In all three cities the participants were asked to emphasize three among a range of possible uses of money collected by way of toll ring, taxes etc. A majority chose improved public transport and better bicycle and pedestrian infrastructure. A difference between the three cities is that almost half of the Hungarian participants support also using some of these funds for investments in new roads in urban areas whereas none of the German and only two of the Danish do the same. The Danish and German participants lean more towards supporting investments in research and development of CO<sub>2</sub> lean technologies. The Hungarian participants seem to mostly prefer to allocate public funds to the implementation and introduction of existing tools and support research and development to a smaller extent.

The participants differ in opinion when it comes to the question of who is supposed to pay for new and less polluting forms of transport. Generally, most Danish and German participants want everyone to pay through taxes or feel that only the users of the various transport services should pay. To a much larger extent the Hungarian participants support the polluter pays principle.

*“Those who cause pollution should pay for the drawback. ... – It is absolutely fair, in my opinion. Not those who live as green as possible, but those who drive around on a sports motorcycle in the city. It is fair but somebody must ensure that it is enforced.” (Hungary)*

### 4.2 Shared responsibility

When asked to place the responsibility for reducing CO<sub>2</sub> emission on up to three players, the participants are not quite in agreement, neither among themselves or from country to country. Most support for individual responsibility is found among the Hungarians where more than 2/3 say that each individual bears the main responsibility. In Denmark and Germany about half of the participants agree. The numbers are almost the same when it comes to corporations and industry.

When it comes to placing the political responsibility in each country, the German and Hungarian participants see the municipalities as bearing the larger responsibility (about 2/3) compared to the national politicians (about 1/3), while Danish participants see this the other way around.

*“It [responsibility – E.B.] is definitely ours, because we bring up children and what will I say to my kid after 30 years? That I cannot take you into the forest, because your father was stupid? ... – Yes, it is not up to the politicians but up to us. We should not point to others, let's make a difference from tomorrow! ... – You can change those things which are your personal responsibility... And you can blame others but it will not make your life better. ... – It's a Hungarian custom to point to “him” and “her”. Okay, they do not do a good job. Then, we, let's do it well. So it is about the bottom-up stories.” (Hungary)*

*We can't be supposed to save world as individual citizens so, I mean, it must be up to the state to regulate our behaviour. (Denmark)*



*This whole thing has to do with a change of attitude and outlook, and I think that's something that partly comes from above, in the form of regulation, but I also think it has a lot to do with being more prepared to sacrifice things than we are our today (...) I don't think change will come only from above; if it does, I think we will lose a lot of learning, and I also think we will see a lot of strife. (Denmark)*

*"But for us environmental and in a way also sustainability concerns are much more present than, say for my grandfather and grandmother. That does not interest them at all." (Germany)*

### **4.3 The role of the EU**

The participants have rather different ideas of the role of the EU in creating less polluting and polluted cities in the years ahead. Half or more of the participants in all three cities agree, either fully or to certain extent, that decisions on urban transport are to be handled nationally and not left to the EU whereas the rest are in doubt or disagree, completely or to a certain extent. This disagreement may be due to certain haziness in relation to the level of detail at which EU decisions take place.

Quite a lot of the participants think that the EU is too far away from the specific challenges faced by different cities within the member states while others think that the EU-level is too narrow and that global solutions need to be found, because initiatives by the EU wouldn't encourage other nations to change their transport patterns. But in general many state that the EU can play a role designing the overall structures and as a tool for initiating good ideas and best practices on a more general level without interfering in the detail planning of each city.

*"I think it must be up to the individual nation-state to do the regulating. I also think the EU should outline some regulatory guidelines, but if you ask me I think it's really a bad idea for the EU to impose concrete plans of action, because the cities in the EU are so very different." (Denmark)*

*"I believe it's a good idea bring this thing up on a European level – not that the EU should necessarily issue 'regulations' and more or less decide the whole thing – but more in order to sort of have a debate between the cities, because, as it is today, we're trying to deal with these problems in Denmark, and they're trying to figure the same thing out in Germany, so I mean, maybe we could learn from each other's experiences from country to country." (Denmark)*

*"In the EU they do not know what a mayor knows concretely about his own city, so the mayor should lead on the city-level. ... – I agree, the leaders of the EU should issue recommendations and directives that, for example, 60-70 % of the cars should be banned from the city centre in 10 years but the municipality of Budapest and the districts should decide how and what is exactly the area of the centre. ... – For example, In Brussels they do not know if District 6 is busy or not." (Hungary)*

*"[...] Of course the EU, because otherwise it's just, I mean, with respect to globalization, it doesn't work to simply solve it on a national basis. But to a certain extent individual states must be respected; the state or the parliament or the political authorities in general in each nation-state need to intervene, I think." (Germany)*