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Implementation of Sustainable Urban Transport Measures and their Political Dimension

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1 ABSTRACT

Almost 80% of the European population lives in urban areas, which face more and more problems concerning energy consumption, a liveable environment as well as changes in economic patterns. All these issues are closely connected with the development of the transport sector and therefore it is a fundamental aim on European level to generate a decisive breakthrough of ambitious integrated sustainable urban transport strategies. The Green Paper "Towards a new culture for urban mobility" launched by the European Commission in 2007 and its Action Plan original planned to be due in December 2008 should give a detailed overview on actions proposed by the EC to be undertaken in the field of urban transport to ensure a sustainable economic development and the quality of life of the inhabitants of European towns.

Furthermore, the EC funds the CIVITAS Initiative (CIty-VITAlity-Sustainability) which supports the implementation of sustainable transport measures in more than 50 European cities. For example, restrictive and non-restrictive measures were accomplished to foster alternative car use, the purchase of clean vehicles or the introduction of access and parking management. The political dimension of CIVITAS is covered by the Policy Advisory Committee (PAC). This is a group of high-ranking European politicians, which identifies policy priorities, highlights pros and cons and stresses the policy relevance of sustainable transport measures implemented in CIVITAS. As a reflection on the Green Paper, the PAC has indentified recently the requests of cities from an urban political point of view.

Within the CIVITAS initiative a data base has been established collecting relevant information on pre-requisites for implementing sustainable transport measures in urban areas. In addition, based on workshops and discussions with members of the PAC as well as the reflection on the Green Paper valuable inside views on a political level have been gathered. This information forms the basis for the analysis of the relation between the implementation of sustainable transport measures and the importance of local politics. The paper will give an overview on Good-Practice-Examples implemented in the CIVITAS cities, their impacts and acceptance, in particular, the role of the political willingness and the support politicians are requesting (e.g. from the EC).

2 OBJECTIVE

The purpose of this paper is to highlight the traffic problems in European cities identified by urban politicians and which support is requested. Strategies will be shown how to foster solutions for a sustainable development of urban areas in order to counteract the raising traffic volume in cities and the dangerous consequences on human health and the environment. Best practice examples are described showing the relation between a successful implementation of innovative urban transport measures and the local politics in order to achieve a significant change in the modal split towards sustainable transport modes. The article will not only illustrate effective measures and their impacts but also the circumstances and prerequisites that influence a successful and rapid implementation.

3 URBAN MOBLITY IN EUROPE, WHAT IS IT?

3.1 Population and settlement structure of European urban areas

Before discussing transport problems in cities and their possible solutions it is necessary to get a clear picture about urban areas in Europe. Numerous definitions for these areas are known taking into account different indicators. For example, a settlement can be defined as an urban area when exceeding a threshold number of inhabitants. Also the existence of a certain infrastructure or a fixed density of buildings can indicate such an area. Depending on the definition of urban areas the percentage of the population living in European cities can vary. Table 1 gives an overview on the distribution of the European population according to the city size they are living in [European Commission 1998].

Number of Inhabitants	% of the population
> 250.000	20%
50.000 – 250.000	20%
10.000 – 50.000	40%

Table 1: Distribution of European population living in urban areas

Thus, if one uses more than 10.000 inhabitants as definition, almost 80% of the European population lives in urban areas. However, the settlement patterns in the European states vary strongly. In Western Europe large metropolises with some million inhabitants can be found, e. g. Paris and London. In the new member states only the cities Budapest, Warsaw and Prague have more than a million inhabitants [Altrock 2006]. Especially in the new member states the transition to a market economy and a capitalist society remains the dominant theme and consumption and production patterns have been fundamentally rearranged. Processes like suburbanisation, migration and economic restructuring changed the shapes of the cities in the last decades intensively.

3.2 Traffic situation in European urban areas

Several reasons have been identified why European cities are currently facing serious problems caused by traffic:

- Increase in the total number of inhabitants,
- increase of the car ownership per 1 000 inhabitants and the connected changes in the modal split,
- changes in the ways of life of citizens,
- the economic development,
- urban sprawl
- …

Over the past 50 years European cities have grown about 78 %, whereas the total number of inhabitants increased by only 33 % [Uhel 2008]. Quarters with a high population density and compact cities have been replaced by loose standing houses with more than a doubling of the space consumed per inhabitants [ibid]. This development as well as the construction of big shopping malls on greenfield sites along main arterial roads fosters a culture of car dependent society [Altrock 2006].

Figure 3 1 shows the car the car ownership rates of some European Member States and their capitals, illustrating that in New Member States this rate on average is still lower than in Western Europe. However, after 1989, car ownership exploded in the New Member States whereas the use of public transport decreased considerably. The car ownership rate in prosperous cities of New Member States like Bratislava or Ljubljana is underlining this development, where the car ownership rate has been nearly doubled from 1991 to 2004.

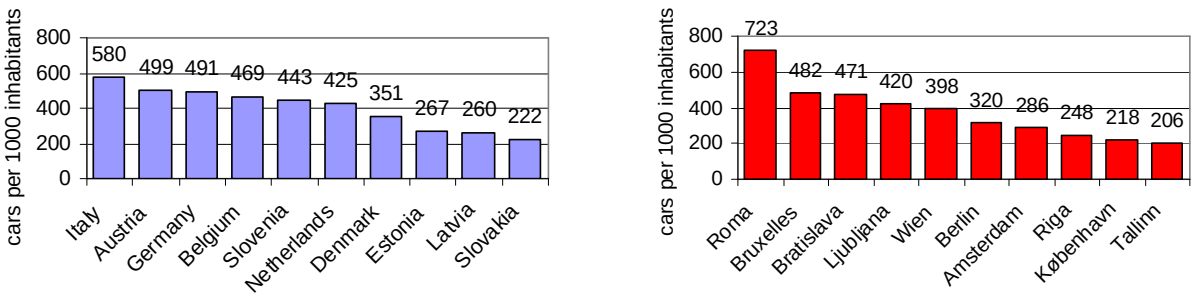

Figure 3-1: Comparison of the car ownership rate in some European countries and respective capitals [Eurostat 2009 (1)]

Most of the cities in Eastern and Central Europe had traditionally high developed and effective public transport systems but since the countries are focusing on individual transport modes the infrastructure of public transport and the equipment are in poor conditions [MVV 2007]. Many systems have now become outdated and unattractive, for example, only 2,4 % respectively 4,1 % of the Regional Development

Operational Programme in Hungary and Poland, which is the only programme in these countries which foresees the funding of local public transport, are used to support this sustainable transport mode in cities. Nevertheless, the proportion of passenger using public transport means is still higher than in Western European cities [UITP 2004].

3.3 Negative impacts of road traffic in urban areas

3.3.1 Pollution from road transport

Air pollution in European cities is influenced by the traffic volume intensively affecting the quality of life as well as the health of the citizens. The CO2 and the ozone pollution as well as the content of particulate matter on the air are mainly a result of traffic. Between 1996 and 2005, 13 to 60% of the European citizens were exposed to ozone concentrations which exceeded the target value set by the EU [EEA 2008]. The concentration of particulate matter in the air (PM10) exceeded the EU limit quite often in the time period from 1997 to 2005 [ibid]. About 16-45% of the European urban population was potentially exposed to concentrations of particulate matter which endanger human health (Figure 3 2).

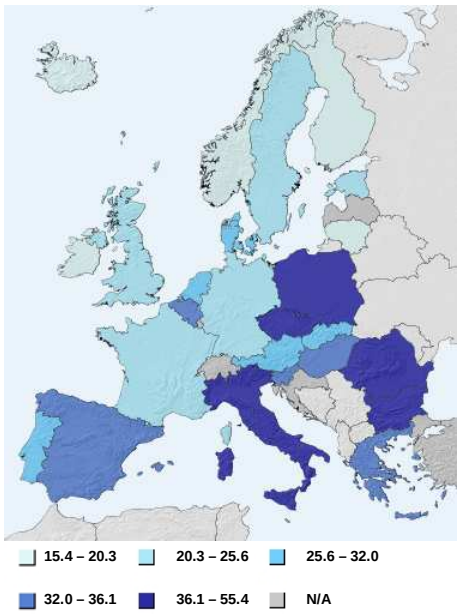

Figure 3 2: Exposure of the urban population to air pollution by particulate matter (PM10) in 2006 (annual mean of PM10 in µg/m³ weighted according to the population), [Eurostat 2009 (2)]

3.3.2 Congestion due too many vehicles for urban areas

The economic prosperity of cities seems always to be linked with an higher car ownership rate leading to more cars on the road. Cities in Europe are facing the dilemma between economic prosperity and traffic growth under the framework condition of limited resources of road space. From a superficial point of view it seems to be the vicious circle that more traffic than can be efficiently carried might lead to a congested road network which might cause a barrier to economic growth, an increase of business costs, environmental damage, and a reduction of the quality of life. Traffic congestion results in external costs due to driver's and good's delay, pollution or a higher risk of accidents. Estimates of congestion costs have been documented in various studies, e.g. costs of about 268 billion € caused by delays due to congestion were calculated in 2000 for the EU-17 countries, this is about 3% of the GDP. Considering that European New Member states countries are on the way to a similar development as the Western European countries of the past, one can image the negative impact on the future economy.

3.3.3 Fatalities on urban roads

In 2006 almost 43.000 people were killed on the road in the 27 countries of the European Union [Eurostat 2009 (4)]. However, the number of deaths per million inhabitants from road traffic injuries is up to 5 times greater in the countries with the highest rates than in those with the lowest (Figure 3 3).

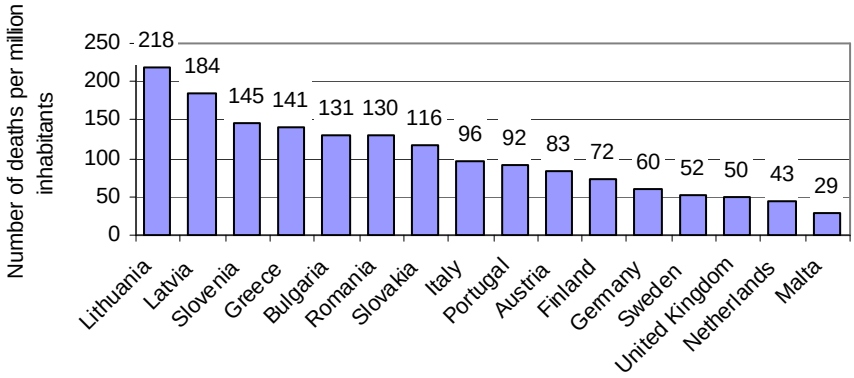

Figure 3 3: Number of people killed in road accidents per million inhabitants (2006), [Eurostat 2009 (4)]

Almost one third of all traffic accidents with fatalities are counted on urban road. Although the total number of fatalities has decreased by one third since 1997 the proportion between urban and not urban areas stays almost the same. In particular, the percentage of persons younger than 14 and elder than an age of 60 years old is much higher inside than outside urban areas, as most of the trips of these persons are usually short and mostly done as pedestrians, who are one of the endangered road users [Erso 2008].

4 EU - GREEN PAPER "TOWARDS A NEW CULTURE FOR URBAN MOBILITY"

4.1 Introduction

Being aware of these facts described above, the European Commission declared urban transport as one of the strategic priorities. After the publication of the Transport White Paper in 2006 the EC launched a broad public consultation in order to receive valuable input for drafting a Green Paper on Urban Mobility with the intention to initiate a public debate about the role of European policy on a local level of urban mobility. Results of this consultation process confirmed the existence of strong expectations for the formulation of a genuine European urban mobility policy and the request for coordinated activities on an European level. Finally, the Green Paper was published in September 2007 providing a set of policy options and 25 open questions addressed to stakeholders on an urban level. Those answers shall lead to the formulation of an Action Plan identifying a series of concrete actions and initiatives towards better and sustainable urban mobility in line with the principle of subsidiarity.

4.2 What are the key issues addressed by the Green Paper?

The European added value may take various forms: promoting the exchange of good practice at all levels (local, regional or national); underpinning the establishment of common standards and the harmonisation of standards if necessary; offering financial support to those who are in greatest need of such support; encouraging research the applications of which will make it possible to bring about improvements in mobility safety and environmental; simplifying legislation and, in some cases, repealing existing legislation or adopting new legislation. Finally, the Green Paper addresses the main challenges related to urban mobility by 5 themes

- Free-flowing towns and cities;
- Greener towns and cities;
- Smarter urban transport;
- Accessible urban transport, and
- Safe and secure urban transport.

In addition, the creation of a new culture for urban mobility, including knowledge development and data collection, and addressing the issue of financing are considered.

4.3 The Action Plan

The Action Plan should have been released in autumn 2008, however, it has been postponed as internal quality checks took more time than expected. In a presentation at the CIVITAS Forum in Bologna representatives of the EC gave a first introduction on the content of the Action Plan. In order to fully respect the subsidiary principle, it is intended not to provide unique solutions, but more a set of tools offered to cities to be decided on a local level.

5 EU - CIVITAS INITIATIVE AND ITS POLICY ADVISORY COMMITTEE

With the CIVITAS Initiative, the EC aims to generate a decisive breakthrough by supporting and evaluating the implementation of ambitious integrated sustainable urban transport strategies. Almost 370 measures in 36 European cities have been co-financed by the European Commission since 2002 already and a reasonable number of sustainable transport measures in further 25 cities are funded currently within the CIVITAS plus initiative started in late 2008.

Main objectives of the CIVITAS initiative are

- to promote and implement sustainable, clean and (energy) efficient urban transport measures
- to implement integrated packages of technology and policy measures in the field of energy and transport
- to build up critical mass and markets for innovation

In order to identify policy priorities, highlighting pros and cons and to emphasis the policy relevance of the CIVITAS goals and achievements a group of high-ranking politicians (mayors, vice-mayors, aldermen) from CIVITAS cities has been established. This Policy Advisory Committee (PAC) is mainly concerned with the political validity of the CIVITAS results and represents the political steering group of the CIVITAS initiative aiming to deliver valuable input for policy recommendations. The current PAC was elected in 2007 (with a two-year mandate) based on general criteria of representativeness and proven record of the individual candidates and consists of 15 members coming from “old” member states as well as new member states of the European Union.

6 REQUESTS OF URBAN POLITICIANS

6.1 Introduction

Results of the consultation process along the production of the EU Green Paper give a clear picture of the needs and requests of stakeholders of urban areas and the respective problems and barriers they are facing. Summing up it can be said that problems caused by traffic in European cities are almost the same all over Europe, such as pollution and noise as well as ensuring the quality of accessibility of urban areas as more road traffic goes in line with more congestion as urban space is limited. All these facts are leading to a decrease of the living quality in European cities. Insufficient political support and leadership, inadequate strategies and policy, and deficient funding are often identified as significant barriers for the successful implementation of sustainable transport measures.

6.2 Statement on the Green Paper formulated by CIVITAS politicians

Based on the contribution given by PAC members as well as views collected from politicians of other CIVITAS cities the CIVITAS Statement on the European Green Paper on Urban Transport has been published in 2007 formulating framework conditions required for successful implementation of sustainable urban transport measures. Experiences and needs have been discussed at several internal PAC meetings since 2004 and further meetings were arranged on a broader European level with other urban politicians and representatives of the European Commission. Generally, PAC members pointed out that especially local decision-maker can influence the development of their cities sustainably as they know best about concrete problems and about the local condition. Additionally, they have the power to initiate measures and to involve stakeholders as well as the inhabitants concerned. The following paragraphs summarise the main important topics to be taken into account at an European level [CIVITAS-PAC 2007].

Regulations on EU-level

EU regulations are seen as basis to support a sustainable balance of different traffic modes. Requirements and regulations for clean vehicles have to be fixed in order to minimise their harmful emissions and to create a market for environmental friendly vehicles. Rules for a fair competition between different transport modes and conditions to protect public transport from excessive congestion as well as transport taxes based on the true economic and external costs are needed. It has to be pointed out that urban sustainable transport policies do not conflict with EU principles of competition.

Principle of Subsidiarity

A clear EU-statement is needed saying that subsidiarity is compatible with charging for the road network by the cities (in accordance with the "polluter pays" principles) and that cities are to decide the use of the revenues, e.g. to pay for safer, better and more efficient transport provisions in the city). Rules and policies on EU-level should support local politicians on urban level as solving transport problems has to start on the city level.

EU funding of transport infrastructure

Decision criterion for EU funding should be based on the provision for economic growth without traffic growth and enhanced environmental protection. New Member States should receive a greater share of resources and attention in order to support the development of their transport infrastructure in a sustainable way and to protect against excessive growth in (unsustainable) traffic.

EU support of mobility management

Exchanging experiences and knowledge is a pre-requisite for supporting the successful implementation of sustainable transport measures. Initiatives like CIVITAS need to be prolonged in order to explain the effect of these measures and to support the more efficient treatment of funding rules and evaluation procedures

Congestion and accessibility

Cities are the centre and driving force of social advance, and are increasing in importance. Cities and citizens need to be protected from the negative economic and environmental consequences of excessive traffic, and at the same time facilitate good access to activities, goods and services which is essential for quality of life. Therefore one of the central tasks for sustainable urban transport policy has to be the provision of better access to opportunities, without increases in vehicle kilometres travelled. This general principle requires a new definition of 'access', and a firmer evidence base on how to do so. Therefore it is essential to find ways of providing good quality access to activities, goods and services which make an economical use of fuel, resources and vehicles as well as a reduction of the negative impacts possible.

7 ANALYSIS OF CIVITAS MEASURES AND THEIR POLITICAL DIMENSION

7.1 Method

In this chapter the focus is on the measures of the CIVITAS II initiative to figure out how local politicians combated already congestions, pollution and other negative consequences of high traffic volumes successfully in cooperation with stakeholders, the public and other partners. It will be illustrated which barriers had to be overcome, which stakeholders and organisations were involved in the implementation and operation processes and which drivers influenced the measure positively. For each measure data was collected throughout the whole process to obtain a good picture of the implementation process, to understand why some measures are more successful than others and to identify good practice examples.

7.2 Categorisation of measures

Most of the actions accomplished within the CIVITAS II programme were measures in the field of information and marketing, alternative fuels and vehicles as well as public transport. Furthermore, the participating cities influenced the urban transport by introducing access control, offering car pooling and car sharing platforms, regulating freight transport, supporting non-motorised transport modes and establishing mobility agencies (Figure 7 1).

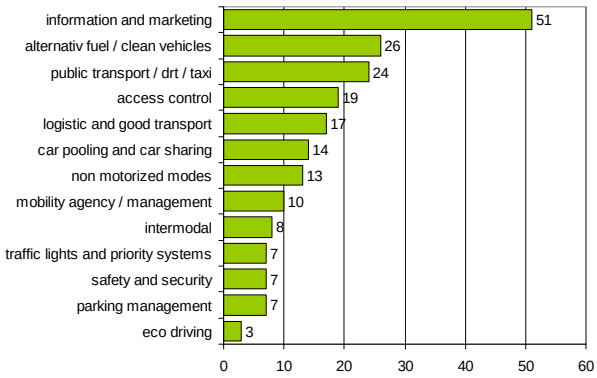

Figure 7 1: Number of CIVITAS II measures per type (Status: February 2009)

The majority of the actions tend to offer an optional services respectively to support and prioritise a specific mode and not to restrict a single transport mode. Most of the decision-makers of cities involved in the CIVITAS II initiative tried to influence the mobility of citizens not by restricting access but by changing the supply side in traffic and offering alternatives.

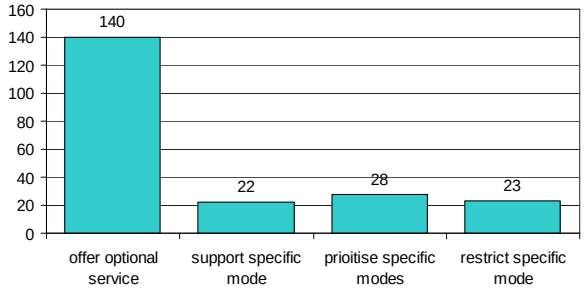

Figure 7 2: Sensitivity of CIVITAS II measures according to support/restriction of modes (Status: February 2009)

7.3 Organisations and Stakeholders involved

The local politicians tried to achieve their goals by involving different organisations and stakeholders during the implementation and operation processes in order to make the measures effective. Local and regional administrations as well as the transport departments of the cities were part of the organisational team of the measures most frequently. This fact is underlining that sustainable and innovative transport measures in cities won't be possible without the support of these administrative authorities. Without the political willingness of the local and regional levels the change in the mobility culture is hardly possible. Further, also universities and other research institutions were involved quite often providing the know-how about latest technologies and concepts. In average, most organisations were integrated in the project team in measures dealing with non-motorised modes, public transport, intermodality as well as information and management. But also for more technical issues like clean vehicles and fuels as well as freight transport and logistics a higher number of supporting institutions were involved in the projects. Less project partners were necessary for measures dealing with mobility and parking management as well as car sharing or car pooling.

The number of directly involved project partners does not inform about the external stakeholders which should be involved in every measure. It can be pointed out that the general public was asked for contributions most often. Additionally, residents, users of different transport modes, commuters and other persons affected were involved. This underlines the assumption that for a successful implementation of urban transport measures the opportunity to participate in the processes has to be provided to the whole public affected. Furthermore, transport operators and local or regional administrations were invited to take part quite often. Especially when the CIVITAS II cities introduced car sharing or car pooling, access control zones and measures supporting non-motorised modes the opinions of external stakeholders were taken into account frequently.

7.4 Barriers and Drivers from a political point of view

When introducing innovative urban transport measures it is predictable that different barriers will occur during the planning, implementation and operation phases. Within CIVITAS II measures organisational

barriers occurred frequently which points out that from the beginning actions have to be clear structured and planned to avoid these obstacles. Furthermore, technical barriers often hampered the implementation processes which in general are dependent from the type of the measure. Problems occur also due to missing acceptance among the public. This applies especially to the restrictive measures like access control or parking management. Introducing new transport offers (e. g. demand responsive transport, car sharing or car pooling) is hampered by the missing demand (market barrier). Of course, the financial barrier was named often by the responsible persons as a crucial problem. This illustrate that a comprehensive funding in the field of urban transport measures will be needed in the future (Table 2).

Type of barrier	Number of barriers occurred in CIVITAS II measures
Acceptance barrier	62
Delays during the project	30
Financial barrier	66
Institutional barrier	40
Lack of labour resources	10
Legal barrier	27
Management barrier	18
Market barrier	7
Organisational barrier	110
Political barrier	63
Spatial barrier	11
Technical barrier	81

Table 2: Total number of barriers occurred within CIVITAS II measures

The measures implemented within the CIVITAS II programme had not only to cope with barriers but were also supported intensively by different persons and circumstances. Without these driving forces innovative transport measures can't be implemented successfully. Especially a strong political support, the personal commitment of the measure leader and a good cooperation between the responsible authorities and local partners were named frequently as driving forces by the responsible persons of the CIVITAS projects. Further on, the surrounding circumstances like bad environmental conditions, the economic pressure (e. g. fuel costs) or the upcoming introduction of environmental zones (e. g. in Stuttgart) were reasons why the measures were implemented relatively fast. Also pressure from the public entailed some of the measures. Additionally, good marketing, promotion and information strategies and an intensive exchange of information concerning good practice examples supported the successful realisation of the measures.

7.5 Success

The CIVITAS II initiative showed that with providing some financial support and defining a fixed time frame for the implementation it is possible to introduce different innovative transport measures at the same time in the cities successfully. Some of the responsible persons of the CIVITAS II participants stated that without the programme the measures were not realised at all or the implementation would had last significantly longer. It can be pointed out that initiatives like CIVITAS will play a decisive role for urban transport in the future and more support like this has to be provided by the EU and also from national and regional levels of the European states. Information about the good practice examples from CIVITAS has to be spread all over Europe and especially the new European member states have to be supported in influencing the modal split, the fluidity of traffic as well as the quality of the urban environment and life.

8 IMPLEMENATION PROCESS OF SUSTAINABLE TRANSPORT MEASURE

To achieve the reduction of congestions, of the impacts on the environment as well as of the number of injured persons due to traffic accidents different measure types can be implemented. The goals of the measures are the same but for their realisation there exist a number of possibilities. Some local politicians try to influence the mobility culture of the residents with supporting ("soft") measures by offering new alternatives and informing about their advantages. Implementing restrictive measures is another possibility to

influence the travel behaviour of the residents. These might be more effective but sometimes hard to realise. The differences of these two measure types influences the process of the implementation, barriers occurred as well as stakeholders to be involved.

Preconditions

If innovative urban transport measures should be implemented, it is important to analyse all circumstances which could influence the success of the realisation in advance. For example, the establishment of soft measures like introducing a car pool or car sharing service will only be successful if the surrounding circumstances of transport feature serious problems, e. g. congestion and lack of PT or scarce parking spaces. Further on, such a scheme can be implemented effectually if it is planned to introduce environmental zones in order enhance the air quality there. Additionally, it is conducive if the measure will be targeted at businesses within the urban area, which express a high interest in developing voluntary car sharing proposals. Without the pressure of external conditions or traffic problems soft measures will miscarry due to missing demand. The risk that the measure could fail is mainly related to the resistance of potential users in changing their mobility habits. Nevertheless, in general, soft measures are widely transferable throughout European cities.

IN contrast, restrictive measures should be implemented only if no negative consequences are foreseeable. For example, access control zones can be accomplished if there is no risk that important entrepreneurs or the retail industry will relocate their locations to suburbs or other areas without access control. The local politicians have to be certain of the measure. All affected persons should be informed about the advantages because otherwise the formal decision of the new traffic system will be endangered due to the opposition of shopkeepers, local businesses or residents. Furthermore, the technical feasibility has to be assured.

Organisation

Concerning the organisation team differences between these two types of measures can be identified. The leading role for the introduction of a car pooling/sharing platform is usually assumed by the local or regional administration, a company or an organisation, which wants to provide the mobility service to the citizens or the employees. They are responsible for designing, coordination and evaluation of the measure. For the implementation and planning of restrictive measures like access control zones primarily local or regional administrations respectively the city or county councils are responsible.

Barriers

The numbers of barriers per measure differentiated by restrictive and non-restrictive measures do not differ very much but a great variation concerning the types of the barriers has been recognised. In access control measures mainly political barriers are the causes for delays or other problems during the implementation and planning processes. In contrast: the acceptance barriers are almost uniformly distributed for restrictive and non-restrictive measures. Furthermore, financial and institutional barriers occur most often within access control measures. Legal, organisational and technical barriers hamper the implementation of both measure types (Table 3).

Type of barrier	access control measures	car pooling and car sharing measures
acceptance barrier	7	5
delays during the project	3	3
financial barrier	8	3
institutional barrier	8	2
lack of labour resources	1	1
legal barrier	3	3
management barrier	0	2
market barrier	0	1
organisational barrier	7	8
political barrier	14	4
spatial barrier	2	0
technical barrier	5	7

Table 3: Number of different barriers occurred in access control and car pooling/sharing measures

8.1 Stakeholder involvement

For the implementation of restrictive measures like access control zones more involved external stakeholders had a deprecatingly attitude towards the measures. For the most part business associations, local businesses and residents affected were invited to participate actively in the processes. Stakeholders involved in soft measures like car pooling/sharing measures had predominantly a supportive attitude towards the measure. Mostly potential users were invited to participate who have of course a positive position towards additional offers for their mobility.

9 CONCLUSION

Since the last decades urban areas are becoming more and more important, as they are the centre point of the European economics of the future where most of the population lives and works. However, this developments have a great impact on the environment, as economic growth is often linked to an extensive growth of individual motorised traffic causing external costs due to pollution or congestion on the road as space is limited in urban areas. It is the challenge of the future to decouple traffic growth from economic growth, as it should be primarily the goal to protect cities and citizens from the negative economic and environmental consequences of excessive traffic, and at the same time to provide good access to activates, goods and services to make the cities liveable. Strong co-operations between European cities and an extensive exchange of knowledge has to be provided on an European level as well as regulations supporting sustainable and innovative transport measures on a local level.

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