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Strategic transport planning in cities: Roles and attitudes of key stakeholders and barriers to sustainable mobility

Hana Brůhová Foltýnová*, Eliška Vejchodská, Kristýna Rybová

*Faculty of Social and Economic Studies, Jan Evangelista Purkyně University in Ústí nad Labem, Pasturova 3544/1,
400 96 Ústí nad Labem, Czech Republic*

Abstract

The paper summarises the first results of a research project focused on the strategic decision-making process in the field of sustainable mobility and development of municipalities in the Czech Republic. It analyses roles, attitudes and subjective perception of the sustainable urban mobility potential and development by chosen key stakeholders, conditions for strategic transport planning in cities, and main barriers to implementation of sustainable mobility measures. The paper further tries to identify attitudes and prospects on Czech transport policy, opinion coalitions of key stakeholders, and potential opinion coalitions promoting sustainable transport principles.

We use data collected during structured interviews with key stakeholders from different fields associated with urban mobility, such as local politicians, heads of relevant departments at city halls (such as departments of urban development, transport, investments, etc.), journalists, and representatives of NGOs. Our research focuses on larger Czech cities which are expected to prepare strategic transport documents (such as a Sustainable Urban Mobility Plan), but it also covers smaller cities (typically above 20 thousand inhabitants), in which such strategies can be effective too.

Results of this research will be further used by the research team to contribute to increasing the quality of strategic transport planning processes at the local level, and the quality of life in cities, above all by development of a sophisticated tool which will facilitate the decision-making process of municipalities in the field of sustainable mobility.

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Keywords: Sustainable mobility; strategic urban transport planning; Sustainable Urban Mobility Plan; roles of stakeholders; barriers to sustainable mobility

* Corresponding author. Tel.: +420 736 434 347; fax: +420 475 200 169.

E-mail address: hana.bruhova-foltynova@ujep.cz

1. Introduction

One of the principal current issues regarding sustainable development of cities is the nature of their transportation. In the Czech Republic's context, transport is understood primarily as one of the main sources of pollutants that frequently have a significant influence on local air quality as well as a factor that affects local quality of life with noise, transport congestion and increased morbidity and mortality rates as a consequence of traffic accidents and air pollution. As internal combustion engines of vehicles use fossil fuels, the negative impacts extend far beyond city limits by contributing to global climate change. Transport is also associated with the problem of lack of parking spaces and occupation of public spaces, which are problems faced by the majority of Czech cities.

Air quality in the Czech Republic has failed, for many years, to meet requirements set by national and European legislation on human health and ecosystem protection, and causes considerable health risks and ecosystem damage in strained areas (see *Střednědobá strategie zlepšení kvality ovzduší v ČR*, MoE, 2014). Transport is one of the main sources of emissions in urban areas. In addition, cities have to respond to stricter emission limits for main pollutants after 2020 (as a consequence of implementation of the Clear Air for Europe scheme), which they frequently fail to meet even today (MoE, 2014).

By 2020, each city with a population over 50 thousand in the Czech Republic has to have a Sustainable Urban Mobility Plan (SUMP) in place to be able to draw funds from EU Operational Programmes. The objective of a SUMP is to reduce the negative effects of transport and promote an efficient and multimodal transport system in urban areas. However, this strategic document is being developed by many smaller cities with between 10 and 50 thousand inhabitants (such as Litoměřice, Opava, Frýdek-Místek, Uherské Hradiště, Hranice, Přerov and more), even though they are not forced to do so by legislation or motivated by the need to have the Plan to obtain funds for investments. The cities mostly expect to attain a sophisticated and systemic approach to solving their chief transport problems.

A SUMP gives a city the ability to systematically plan its local transport policy from the vision to measures that support the vision. The basis is a long-term mobility vision and a continuous path towards it, not an approach based purely on measures responding to problems that occur. With this approach, the SUMP presents a brand new concept in the planning practice of Czech cities, which brings a number of positive expectations on the one hand, and causes cities to face numerous methodological problems on the other hand. Although a national methodology for SUMP development has existed since 2015 (Jordová et al., 2015), the document cannot fully cover all the specific aspects of cities, so the cities themselves often have to find a way for developing a good strategy.

Our research focuses on what decision-makers at the city level refer to when using the term “sustainable mobility” and what long-term mobility vision they prefer for their cities. An important component of the planning process is involvement of the public and systematic work with the public, be it in the form of education and presentation of conclusions from analyses and studies or identification of preferences, needs and interests of the various groups of transport users. The SUMP requires interest and active involvement of the political representatives of cities. However, what priorities do these players have? Do these players identify with visions based on the definition of sustainable mobility, or do they favour a different direction in transport policy? How are opinions of sustainable urban mobility distributed among key players (how do various players perceive their partners and opponents in opinion)? It is these players that will decide whether cities will move towards the sustainable mobility vision.

The objective of the paper is to present the first results of a research project focused on the strategic decision-making process in the field of sustainable mobility and development of municipalities and urban mobility in the Czech Republic, related to analysis of roles and attitudes of selected key players, their view of sustainable urban mobility, requirements for strategic transport planning, and main barriers to implementation of transport measures.

The next chapter presents in more detail the research methodology and theories that support the research. Chapter 3 summarises the results of the research in the area of analysis of roles of various players. Part 4 summarises the results of the research in the area of barriers perceived by the players as fundamental for implementation of their own vision of transport policy. In the conclusion of the paper, we sum up the most important research results and formulate topics for next research steps.

2. Methodology

The term sustainable mobility is used in connection with the nature of transport and sustainable development. There are various notions of sustainable mobility and a great number of definition of the concept and how to implement it. The most common concept of sustainable mobility is based on the sustainable development definition as formulated of the UN Brundtland Commission (WCED 1987), i.e., it defines sustainable mobility as such that satisfies the needs of present generations without compromising future generations' ability to satisfy their own needs. It builds on three pillars: the economic, environmental and social. The social pillar reflects the demand for intrageneration and intergeneration equity, i.e., everyone in the current and the future generations should have equal opportunities. The environmental pillar reflects environmental protection. The economic pillar expresses material wealth and contribution of transport to the GDP.

For our research, we defined our own vision of a city moving towards sustainable mobility, namely a city that motivates its inhabitants to change their transport behaviour towards minimising their emission and noise impacts on the environment. When formulating the vision, we built on other definitions of sustainable mobility that further develop Brundtland's concept shown above; see, e.g., Brůhová Foltýnová and Máca (2007), Gerike (2007), Janic (2006), Jeon and Amekudzi (2005), Jourmand and Gudmundsson (2010), or Marsden et al. (2010). A proactive approach is important in this concept, consisting in a change in transport behaviour, not only in technical and organisational improvements.

Our qualitative analyses are based on data collected in structured interviews with key players in urban transport policy. Our research focuses on the largest cities in the Czech Republic, which are required to develop long-term strategic documents on mobility (SUMP in particular) – these are cities with more than 50 thousand inhabitant; it also covers smaller cities (approximately upward of 10 thousand), for which it still makes sense to make a long-term transport strategy based on the main principles of the SUMP.

2.1. Analysis of players and their roles and selection of key players for analyses

The player/stakeholder analysis may attain various forms. In the context of political research, the stakeholder analysis is seen as a tool used for understanding the attitudes of relevant players and discovering their capacity for affecting a specific policy area (Brugha and Varvasovszky, 2000).

Definitions of stakeholders or relevant players in stakeholder analysis are very diverse. Freeman (1984) defines stakeholders as those who can affect a specific decision or be affected by it, which ultimately is a very broad concept. In the transport policy context, the form of the policy directly affects every citizen in the city, and indirectly everyone else due to the global impacts of use of fossil fuels. For our analysis, relevant players/stakeholders are defined as those who can directly affect, from their job position, decisions relating to transport policy at the city level. These players include persons in various institutions that affect urban mobility, such as local politicians, senior employees of municipal authorities (departments of spatial planning, transport, environment, etc.), and representatives of public transit authorities as well as researchers, employees of relevant ministries, employees in the private sphere (notably companies offering novel services in urban mobility), and employees of non-governmental non-profit organisations active in the area.

Reed et al. (2009) provide an overview of methodological approaches to stakeholder analysis, divided by the stakeholder analysis stage into methods for identification of relevant players, their categorisation, and description of relationships among the players.

For the purposes of our research, we chose focus groups as the method for identification of relevant players, in combination with the snowball sampling method. The objective of the focus group (comprising a transport economist, politician, geographer and a demographer) was to define the potential relevant stakeholders. Those stakeholders were then invited to an interview, which was structured and included questions aimed, among other things, at a categorisation of the players and description of relationships among them. Thanks to the interviews made with these players, we used the snowball sampling method to identify additional relevant stakeholders, who were then also included in the research.

2.2. Data collection

Structure interviews with key players were the chief source of data for our analyses. The data from the structured interviews were then transcribed into response forms for a qualitative evaluation. The interview was divided into five parts. In the first part, the respondents were introduced to the research objective and process. The second part identified the respondents' opinions on the state of transport planning in their city or in cities whose transport policy then can affect, the cities' main transport problems and their opinion partners and opponents. The next part dealt with the respondents' attitudes to long-term urban mobility development; specifically, they were asked to formulate their own mobility vision for the city and to express their attitude to our mobility vision described in the introduction to this paper.

The fourth part of the interview dealt with identification of main barriers to planning and implementation of measures in sustainable mobility throughout the planning cycle (i.e., planning and preparation of measures, implementation of measures, and evaluation of measures implemented). The final part recorded some basic data about the respondent and the interview progress (education, sex, age, job position, interview duration).

In total, we made 36 interviews between July and September 2018.

The respondent structure is described briefly in the tables below. In terms of the basic sociodemographic characteristics, men prevailed in the sample; the majority of the respondents had university education and a relatively long practice in the sector as well as in their current job position. A greater part of the interviews were conducted with respondents who had a relation to Prague; representatives of ministries that we approached spoke about the situation in Czech cities in general.

Table 1. Respondent structure.

Characteristics			
Sex		Men: 31	Women: 5
Age	45 on average		
Education		Secondary: 6	Tertiary: 30
Practice in the sector	14 years on average		
Practice in the position and institution	9 years		
Size of city where active		25 Capital City Prague	7 mid-sized city, 4 national institution

The goal of the interviews was to cover the issues in question with the broadest possible range of views and attitudes. That is why the sample of experts approached included representatives of all areas related to urban mobility (see Table 2).

Table 2. Division of respondents by area of activity.

Characteristics	
City politicians	10
Municipal authority representatives	9
City-run public transport authority representatives	3
Ministry representatives	4
Consultants, transport experts, academia	3
Non-governmental organisation representatives	4
Representatives of companies offering mobility services for cities	2
Representatives of companies offering mobility services for cities	1

3. Analysis of players' roles

To discover the positions of the players approached, we faced the important question how the respondents view themselves as players affecting a specific policy, and how important they think other transport policy actors are. To better understand their own idea of urban transport policy development and deviation from the sustainable mobility vision if any, we asked the players what transport problems they regard as important and about their own idea of the urban transport policy vision. Questions focusing on main opinion partners and opinion opponents completed the overall picture of relationships among the players.

3.1. Ability of players to actively influence urban transport policy

The respondents evaluated themselves on a scale from 0 to 5 depending how significantly they can affect the transport policy of the city in which they work, or how they can affect the transport policy of cities from the position outside the city administration structure.

The most frequent response was 1, i.e., “I can only affect it moderately”. Respondents who answered 0 (i.e., they cannot affect city transport policy at all) or 1 either work in national institutions, i.e., they only affect transport policy indirectly through national strategies or setting of subsidy schemes, or consider their position very weak (for example, some politicians voice criticism of the transport committee on which they work as being absolutely ineffective or purely formal, or they have only succeeded in pressing partial measure of little significance). Surprisingly often, managerial employees of municipal authorities evaluated their capacities in this way. The self-evaluation with mark 1 may be related to limited capacities of individuals within a comprehensive decision-making process that involves numerous persons. Even some top-level politicians considered their influence very limited.

Conversely, some city councillors, managerial employees of public transport organisations and authorities involved in urban planning and development declared a significant effect on the transport policy of their cities. Again, it has to be noted that when choosing this reply (high level of capacity to influence transport policy), the players may not have realised the wide range of transport-related decisions that they cannot affect.

Table 3. How can you affect city transport policy?

	0	1	2	3	4	5
City politicians	1	2	1	2	1	3
Municipal authority representatives		4	2	1	2	
City-run public transport authority representatives		1		1		1
Ministry representatives		3	1			
Consultants, transport experts, academia		1	1	1		
Non-governmental organisation representatives			1	1	2	
Representatives of companies offering mobility services for cities	1		1			
Representatives of companies offering mobility services for cities		1				
TOTAL	2	12	7	6	5	4

3.2. Main players

The Capital City Prague has a specific position among Czech cities; it essentially functions as a region, which is why the research paid increased attention to it. The majority of the respondents understood the most important players to be the governing political representatives of the city, for which the limits set by the Ministries of Transport and of Industry and Trade and the regional authority, if any, define the powers for setting the transport

policy direction. Players at the Prague level did not show any clear agreement between their responses regarding the effect of players in the constituent city districts on the tendency of local transport policy.

In addition to politicians, formulation of transport policy is also effectively influenced by top-level officials mostly in transport departments, and in big cities, representatives of city-run transport development institutions. Formally, these authorities have independent powers and mostly play a support role for the political representatives and work based on political assignments. If they enjoy political support, they may actively introduce their own recommendations to transport policy. However, they can also significantly influence the form of transport policy by long-term development of materials from which politicians draw. Larger transport projects are planned for many years, so the politician has to base their work at least partly on their predecessors' studies and materials submitted by officials. According to some of the players, they influence the form of transport policy in this way more than some politicians would admit. Experts from universities may play a consultation role; cities and politicians may invite them as independent consultants in certain stages of the discussion or development of plans.

3.3. Opinion partners and opponents

The respondents were also asked to divide the key institutions formulating transport policy that they have selected into so-called “partners”, i.e., persons or institutions that agree with their opinions, and so-called “opponents”, i.e., persons or institutions that guide transport policy in a direction different from the respondent's opinions.

Several of the respondents regarded such a division as difficult, because the issues regarding transport strategies and promotion of various transport measures are rather complex, and they find agreement with various institutions on various constituent topics. At the same time, individual institutions that formulate and implement transport strategies include people with diverging opinions, often very different. It was also noted that city-funded institutions or companies often simply perform assignments made by politicians, unable to influence it themselves.

Partners of players who identified with the sustainable mobility vision included non-profit organisations, planning institutions (such as Prague Institute of Planning and Development) and the academia. Inclusion of institutions or persons in the “opponent” category was also significantly dependent on the respondent's preferences. Respondents endorsing alternatives to single car use see property developers, some municipal organisations and some politicians as their main opponents. Conversely, those who see construction of large infrastructure projects as the key included environmentally oriented political parties and non-profit organisations as their opponents.

3.4. Satisfaction with urban transport policy

The most frequent response to the question “How satisfied are you with your city's current transport policy?” was the medium mark 3. Most of the respondents said that partial positive transport measures have been implemented or that they see a shift in the desirable direction in some activities, but on the other hand, numerous transport problems are not reflected sufficiently or at all, or much more should be done to resolve them. Only two respondents expressed the highest level of satisfaction with transport policy; six voiced dissatisfaction.

Many of the players saw the city's strategic planning as a shortcoming. Some admitted that a good development plan has been prepared, but is not implemented and reflected in practice. The difference between the policy/strategy on paper and in practice (its implementation) was mentioned frequently. Some of the players spoke of insufficient attention to non-motorised traffic modes or even preference of single car use over more sustainable transport modes in practice. On the other hand, insufficient infrastructure for motorised transport was seen as a problem (players from Prague mostly mentioned the incomplete ring road).

Table 4. How satisfied are you with the city's transport policy?

	1	2	3	4	5
City politicians	3		4	2	1
Municipal authority representatives		1	5	3	1
City-run public transport authority representatives			2	1	
Ministry representatives	1		1		

Consultants, transport experts, academia	1	1	1		
Non-governmental organisation representatives	1	2	1		
Representatives of companies offering mobility services for cities		1	1		
Representatives of companies offering mobility services for cities				2	
TOTAL	6	5	17	6	2

Furthermore, respondents quoted specific problems in cities that they consider the most important in connection with transport. They were notably as follows:

- lacking long-term strategy on which politicians agree regardless of their political affiliation and which they will promote;
- lacking comprehensive approach, nonexistent multimodal perspective, and attitude to improvements to quality of life;
- absence of parking areas in general + park-and-ride (P+R) facilities;
- inadequate funding for infrastructure maintenance;
- outdated legislation;
- poor communication between Prague and Central Bohemian Region;
- traffic jams, emissions from transport, mainly dust pollution;
- need to expand public transport and strengthen railways;
- lacking repressive measures against car traffic; overly support to car traffic; lacking plan to restrict car traffic in Prague city centre;
- reluctance to change transport behaviour, public preference to car use;
- technological backwardness of Czech cities compared to others.

3.5. *Urban mobility vision*

Each of the players approached offered their own vision for development of urban mobility; they differed vastly. Only a smaller part of the visions were built on reduction of negative impacts of transport (“city favourable to health”, “city without transport emissions”, etc.); most of the visions provided own solutions to perceived transport problems – these included predominantly between connection between spatial planning and transport, “short-distance city”, stricter rules for property developers, completion of missing transport infrastructure of its improvement, treatment of city logistics, as well as specific solutions such as promotion and development of alternative vehicle propulsion systems. The stakeholders approached spoke considerable less about technology changes and innovations and supply of novel transport services such as MaaS.

After formulating their own mobility visions, the respondents were introduced to our definition of the mobility vision as “such that motivates inhabitants to change their transport behaviour towards minimising their emission and noise impacts on the environment”. Although they had mostly not mentioned a proactive citizen approach – citizens’ change of transport behaviour – when formulating their own visions, all but four of the respondents identified with this definition.

4. Analysis of barriers to planning and implementation of sustainable mobility measures

Each stakeholder’s opinions of the main barriers to city transport development towards the desirable state were elicited. The literature frequently analyses barriers that hamper faster change in cities towards reduction of environmental impacts. The barriers in connection with the transition to alternative fuels and modern engine designs mentioned include barriers in technological development, insufficient infrastructure of charging stations and alternative fuel stations; the institutional barriers highlighted include uncertainty regarding environmental impacts of alternative propulsion systems, insufficiently supportive policy in terms of promotion of novel technologies (Farla et al., 2010). Banister (2008) quotes as an important factor for implementation of sustainable mobility in cities broad

and active public support and setting of correct communication between transport experts and the public in order to establish such support.

Jordová and Brůhová Foltýnová (2016) focused on political barriers; they analysed CIVITAS projects to identify as the main factors low politician support, difficult coordination of different concerned groups, low awareness and knowledge of novel transport measures among both users and transport experts, and the fact that their potential users are not aware of the benefits or even the existence of such measures.

The purpose of our research was to identify specific obstacles perceived by the key players that hamper faster implementation of transport policy tools. We therefore focused primarily on barriers in each stage of transport policy – barriers hampering planning and preparation of transport measures, barriers hampering implementation of measures, and barriers hampering assessment of impacts of measures implemented.

Several types of perceived barriers can be identified in the stage of planning and preparation of urban development measures in the area of transport. The most important problem is the insufficient communication among the players involved in the preparatory stage (territorial self-governments, institutions established by them, the non-profit sector, planning institutions and individual citizens). There is usually a low level of confidence and agreement among those players (i.e., the players' ideas of finding solutions and implementation of appropriate measures differ significantly), which is connected to deliberate and unintended project delays that follow. The negotiation and approval process, including reaching political consent, is extraordinarily difficult. That is further potentiated by the four-year election cycle, which is frequently not long enough for implementing all the necessary steps in the preparatory stage. We have noticed countless cases of projects that were started but then stopped by the city-level political representatives. According to the players, the qualification standards for human resources in institutions (public administration in particular) are also vastly different. Barriers arising from disparate communication, ideological and qualification aspects at the individual level are complemented by legislative barriers. In this case, they include particularly the lengthy spatial and building permit proceedings, which hamper the process of preparation and planning of extensive measures in urban transport.

According to the players, the project implementation stage is most commonly limited by factors and barriers at the legislation level, as well as institutions and individuals in part. In the stakeholders' view, the Act on Public Procurement is a significant limit; it results in an excessive preference to bidding prices rather than quality of solutions offered. Other parameters should be taken into consideration as well. In some respondents' view, extra work of contractors with the lowest bidding prices cause an overall overpricing of projects in reality. The second most frequent limit identified in the interviews was obstacles associated with purchase of land necessary for implementation of transport construction projects. There have been cases of wilful land purchase by a third party, which then caused delays or even general thwarting of the investment projects. Even in the implementation stage, there are frequent and continuing problems in communication among the stakeholders (see measure planning and preparation stage). Differing ideas, opinions and deficient will to reach agreement may cause considerable delays in the implementation stage. In general, it can be summed up that the measure implementation stage is limited primarily by the process and formal lengthiness (partially due to legislation), limited communication and the associated wilful stonewalling by institutions or individuals.

The research results associated with barriers hampering assessment of impacts of measures implemented are not very favourable. Across institutions and stakeholder types, there is agreement that this type of evaluation (ex-post) is not well-developed yet in the Czech Republic and its cities. Ex-post evaluation after implementation of transport measures frequently fails to occur for objective reasons such as insufficient appropriate data or money for quality evaluation. However, the reasons are also entirely pragmatic and tendentious. The stakeholders agreed that there is frequently no will and interest to evaluate newly implemented measures ex-post. In particular, political representatives of territorial self-governments have no interest in revealing the actual effects of measures. Moreover, it becomes obvious that there are not enough qualified companies or experts on the market that would be capable of making such evaluation methodologically correctly and objectively. Ex-post evaluation thus proceeds at the level of elementary indicators that are publicly available (e.g., data on traffic intensity counts in cities, traffic performance of public transport – if the carriers submit them). Generally speaking, it has been confirmed that the Czech Republic has not yet developed a fundamental evaluation culture in connection with financing from public sources.

5. Conclusions

Our interviews with key players affecting transport policy in cities have revealed their significantly different approaches to perceived problems, priorities and visions for further transport development. Although the majority of the players agree that long-term sustainable transport development has to be built on a change in citizens' transport behaviour and promotion of active transport (walking and cycling), their own formulated visions showed that there is a great difference in how the individual players imagine these things.

A smaller part of the players (respondents in our research) disagreed with our definition to various degrees, mostly because they do not see a change in transport behaviour as realistic, they do not favour restrictions on citizens' behaviour, or they even regard this approach as the "opposite extreme to the current situation". Visions formulated by more than a fifth of the respondents focused solely on infrastructural measures (notably on car traffic, but some also mentioned cycling trails and infrastructure for public transport). We also came across a "techno-optimistic" vision, describing a mobility vision built on transport individualisation and vehicle sharing, with rapid and reliable rail transport forming the transport backbone. However, there was a predominance of opinions emphasising the necessity of restrictive measures against car traffic combined with promotion of alternatives to it.

Planning and implementation of transport measures in cities are hampered by complex relations among players, lack of qualified experts in public administration who would follow world trends and novelties, and complex legislation. The latter plays the main role in the complication implementation of measures. Ex-post evaluation of transport measures in cities either lacks completely according to our respondents, or is significantly limited to elementary indicators.

The results of the present research project will be applied in further research focused on support and increasing efficiency of the strategic transport planning process at the municipal level and promotion of evaluation of transport measures and transport strategies. Among other things, we will develop an electronic tool that will facilitate local self-governments' decision-making as part of planning measures to promote sustainable mobility and improve urban quality of life.

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