Future urban and metropolitan mobility strategies – Five crucial issues

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Introduction

Entering the new millennium for some advanced urban mobility experts means an essential shift in assessment criteria of future urban mobility approaches. Considering some of the historically unknown characteristics especially of the emerging mega-cities, several parts of the conventional transportation planner’s toolbox might reach their expiry date soon. Are we moving towards a new co-ordinate system for evaluating future urban mobility strategies? Five selected topics with major future relevance are discussed.

Although mobility and transport are at present (and probably will remain for the next years) very relevant societal and political issues, there is no general rule or solution how to get along with typically problematic situations. Moreover, the willingness of national, regional, and local administration to support public transport by subsidies is dropping considerably. The main driving forces in this context are deregulation and privatization, establishing a new phase of competition between different modes of passenger and freight transport.

It can also be seen that conventional measures as in the 80’s and 90’s as traffic calming etc. are becoming less popular, and drivers of private motorcars are rather looking for some kind of intelligent support of their mobility intentions. Anyway, the former rules of transport as a „monopoly“ game are changing with different speed and intensity throughout different countries, leading probably to a reassessment of values, objectives, and planning processes in this field of policy.
1. Compatibility: Much emphasis during recent research and development has been put on the issue of gaining compatible mobility sub-systems, e. g. between public and private transport, different modes of public transport, comprehensive information flows, ... Although these efforts can be valued as successful to some extent, without any doubt these increased inter-systems efficiencies are pre-requisites for high-performing mobility systems, but they are no general problem solvers.

Without any doubt the compatibility problem will keep the community busy for two reasons: 1) More (independent) actors come into the game, via privatization, intensified use of information and communication technologies, and international cooperation (especially supra-national logistics provider in long-distance freight transport); 2) Higher degree of penetration of telecommunication into each part of everyday life, thus fostering a high level of expectation in how mobility systems should operate. One might agree that these views are either commonplace or future dreams, but it seems quite likely that positive projects, models, and examples will be realised and then soon find imitators. If actors in and around the mobility business find themselves in a highly competitive environment, they will look for smart and intelligent solutions and approaches permanently, for obviously passenger satisfaction means passenger attraction. DaimlerChrysler as an industrial producer of cars and other mobility systems is not only experiencing increasing demand in this context, but furthermore is supporting this trend by investing into research and development of future mobility systems heavily.

2. Reliability: Under several aspects urban mobility systems are more vulnerable or can be disbalanced easier than they should be. Furthermore, general subjective perception is that public transport (rail systems in particular) is less flexible and therefore sometimes less reliable than self-driving modes. Increased system reliability – maybe under bad circumstances at a reduced performance level (speed, comfort) – could be important to enhance public transport image.

Reliability of mobility systems is to be seen as a very basic requirement. People who want to move to their intended destination normally are not prepared to accept or take into account major disturbances, delays, or threats of that kind. In fact, most parts of the present mobility and transport systems are quite reliable, but it should be assumed that standards would be higher throughout the next years. Main driving forces hereby are for example just-in-time requirements in industrial production networks, fixed capital of goods as resources underway, and increasing speed and/or comfort levels. Realising the objective of 100% reliable and disturbance-free urban and regional transport systems can be seen as a central challenge, that – in time with requirements of high-level safety and security – could open the doors for public transport resurrection.
3. Acceptability: People’s mobility behaviour to a large extent is determined or at least influenced by societal values, perceived economic potential, and lots of constraints. Recent strategies of increasing public transport ridership (and, by means of that, solving transport and congestion problems), are not entirely promising. It does not seem to be purposeful to fight against people’s positive attitude of private car use, but rather approaches of integrating the car into a comprehensive and attractive mobility system are required.

As pointed out elsewhere (1), people’s mobility behaviour is reflecting on one side societal value structures, and on the other side is determined by real and perceived constraints, some of them of economic nature. In some cases it seems that a lack of understanding the situation and the conditions under which travelling persons form their decisions is the reason for acceptability problems, transport systems specifically. Recent research on the quality of service offered by public transport organizations and customer’s perception shows that the subjective feeling of being satisfied is a care factor of how customers value the „product“ mobility (2). The authors suggest an acceptability profile which has been applied to assess the impact of different route or network alternatives. Anyway, treating people as customers rather than „cases of transport“ should constitute future strategies of mobility providers. Focussing on customer orientation might also lead to an introduction of personal travel assistance systems (however they will look like), and to demand controlled services in rural areas.

4. Manageability: Some of the more spacious current and future agglomeration processes cannot be controlled or even monitored by administrative bodies comprehensively. This will require some „fuzzy“ approach of local or regional government, doing without sufficient information base. This way new styles of strategic planning and implementation procedures become much more important.

One critical consequence of those widespread multi-actor planning procedures is that at each and every time new and unexpected problems tend to occur, which in many cases are difficult to handle because of dispersed responsibilities and control of resources. In a way comprehensive planning and control approaches can help to avoid those complicated conflict situations, but there is no guarantee for this assumption. From other areas such as strategic management, production planning etc. evidence is given that only a certain control level should be aimed at, leaving too difficult or volatile subsystems out of consideration. Anyway, the main focus should be given to more strategic approaches. To a high degree this applies to new challenges as will be appearing in the emerging mega-conurbations, especially in Asia. These kind of developments cannot be planned in a "classic" approach, but new methodologies and procedures like scenario-based planning, public simulation workshops etc. have to be designed and performed consequently.
5. Sustainability: Still a quite iridescent idea or conception, the basic philosophy seems to be on the way to become accepted generally. Some important factors for mobility issues are: Flexibility, modularity, integrated services, life-cycle-costs, emphasis on freight transport.

It is just a question of time and extent, but not in principle: increasing societal demand for better environmental conditions will constitute one main trend influencing the mobility and transport sector essentially (3). This once again can be understood as an important example of how changes in societal values function as a force of shifting weights in the objectives of socio-technical systems. The vision of sustainable mobility is about to come into the game again in nearly every region quite likely. From today’s point of view several possible alternative concepts can be imagined, so we shall experience new definitions and interpretations of this iridescent issue. Transport systems and vehicles with minimized environmental impact will be required, giving additional drive for redesigning both vehicles and systems essentially. To what extent energy issues are going to be influenced, has to be addressed as an open question.

6. Classification and assessment of potential measures: Using the preceding headlines as basic evaluation criteria for different urban or metropolitan mobility strategies, some selected strategy elements are discussed with regards to their potential impacts: Planning methodologies, market research/marketing instruments, passenger satisfaction objectives, LCC-calculations, integrated freight transport schemes, integrated passenger transport schemes, modularized systems, advanced traffic management algorithms, communication technologies, new propulsion technologies.

The tendencies briefly discussed above are building a framework for designing and evaluating future measures. It has to be stressed that most of the future impacts determined by today’s decisions indeed will have effects over the next 10 to 15 years, in some cases even longer. For example: the generation of urban and regional transport systems being in the design phase right now, such as buses and light rail vehicles, will be in operation over the time period already mentioned, and cannot be changed according to basic conceptional or structural design parameters, unless enormous costs are accepted. This way it is absolutely necessary to consider future requirements into today’s decisions. Some selected trends from my point of view are:
- higher degree of consideration of life-cycle-costs (LCC) in relation to initial investments;
- modularization and platform concepts to enable effective service policies, flexible operation according to possible demand changes, and easy upgrading and retrofit of the rolling stock;
- a movement away from owning vehicles towards using them, supported by leasing, financing, or BOT/BOOT schemes.
7. Conclusions/Research Outlook: Future global challenges in mobility and communication will require global know-how development and transfer, disregarding any borders such as states, continents, disciplines, and organisation types.

In many regions – Eastern and Western Europe, NAFTA, MERCOSUR – deregulation and privatization of the transport and mobility sector are the dominant driving forces of the entire scenery. From a conventional point of view it might seem as if the classical, state-administration controlled public transport operators were in a better position to cope with the co-operative and strategic issues sketched in this paper. There is some truth in this argument, but the other side of the coin also applies: Private operators are forced to learn and to develop their enterprise quickly by competition, and this learning and know-how building process will take place on an international level. This way it can be expected that at least some of the topics discussed above can be found on the future research agenda, as a manifestation of the know-how demanded by these types of actors. This also implies that the scientific community will have to take part in this know-how transfer process, providing professional support for these operators helping them to be more effective, successful, and sustainable. But this also has to be performed in a highly competitive environment, bringing other disciplines and actors like corporate consultants into the game. From my point of view the core task will be to concentrate the efforts on the people and their needs, which requires much more than just technical answers. The opportunity for transdisciplinary approaches and innovative solutions is given.

References

