Mobility in conurbations 2030
—basics and results of a scenario-project

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I n 2007, for the first time in its history, more than half of humanity lived in urban areas. In Germany, this level of urbanisation was and continues to be at an even higher level than the worldwide average. Germany’s eleven agglomeration areas of more than one million inhabitants add up to approximately 23.6 million people in total. Extending the scope to metropolitan areas and also taking into account major rural areas, 44.3 million of the country’s population are accounted for. The existence of an appropriate conurbation infrastructure – especially water and energy supplies and transport – is important.

For cities in particular, an efficient transport system is of a competitive advantage. It allows access to the work place, educational and health institutions. Conclusively, conurbations largely depend on the quality of their transport and mobility systems. Naturally, a limited capacity of existing transport systems often can be seen in these conurbations. At the same time, this allows the city the chance to be innovative in these areas. That, of course, needs to be considered in long-term contexts – like in most infrastructural change-processes do. In the period of time focused on from now until 2030, the following questions arise: How will urbanisation in Germany further develop? What are the consequences of Demographic Change? How do commuting and migratory flows change? What is characteristic of the balance between work, leisure time, and public resources? Which are the dominant concepts for mobility and logistics? How does interaction between the responsible public offices in that field look like? Which role do public authorities play in this context?

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How the scenarios were developed
‘Not being carried away by the mainstream but pointing out plausible paths of development.’ – eight companies and organisations made a point of that in their joint scenarios elaboration concerning mobility in urban areas in the year 2030. SCMI supported the project attended by the Hamburg Transport Association (HVV), Innovation Centre in Lower Saxony, Lower Saxony Logistics Initiative, MAN Nutzfahrzeuge, METRO-Group, Deutsche Post DHL, Market Research Service Centre, Rhein-Main-Verkehrsverbund passenger transport association (RMV) and Siemens. They developed scenarios within a five-month process following three phases of scenario creation supplemented by the scenario assessment (see Figure 3): System analysis and detection of key factors (phase 1). The environment of urban mobility consists of a large number of influence factors. To avoid unwanted concentration, this environment has been structured by a system image (see Figure 2) and described by 86 influence factors. However, to use the full number of identified factors during scenario creation would have led to scenarios that were too complex and blurred. Thus only those factors have been selected that are relevant to the development of the whole environment. Those so-called ‘key factors’ have been extracted with the help of an influence analysis. Based on the analysis of subsystems, dominant factors, and critical feedback loops, 23 key factors have been identified, e.g. the development of city centres, commuter flows, traffic infrastructure and economic growth and wealth.

Foresight of alternative projections (phase 2). This is the heart of the scenario development process where the view into the future is carried out. Therefore possible developments for all key factors – so-called ‘future projections’ have been identified. This has been done in a two-day workshop with participants from all partnering companies. The aim of this step was not simply to find one projection deemed most likely to take place, but to identify a number of plausible alternatives that can be used more broadly to describe the so-called ‘window of opportunity.’ To avoid black-and-white thinking, four or five projections per factor have been worked out.

Calculation and formulation of scenarios (phase 3). Two goals determine the third step: On the one hand, each scenario should represent a possible and consistent future – like in an illustrated book. On the other, the set of scenarios should ideally reflect the entire ‘window of possibilities.’ – like in a map or a navigation system.

The number of scenarios is not fixed in advance. In fact, the more different perspectives a team adopts for thinking into the future, the more possible scenarios appear. In this project, seven scenarios have been developed to describe the possible development of mobility in conurbations in Germany. These scenarios have been visualised in a ‘map of the future’ (see Figure 3).

Seven scenarios for mobility in German conurbations

Scenario 1: Complete Gridlock
Traditional individual mobility reaches its limits whereas public transport fails to close that gap. Individual transport is still the dominant means of transport within the framework of traditional urban structures and transport systems. Being furthermore embedded in a critical economic environment, public transport is cut and the road infrastructure suffers from neglect. Especially with regard to conurbations, that leads to infrastructural bottlenecks and consequently, gridlocks become a part of everyday life.

Scenario 2: Back to the roads
Predominance of traditional individual mobility due to a severe extension of agglomeration areas. Today’s conurbations maintain their desirability. However, they are primarily growing peripherally – regarding the so-called exurbs. Greater commuting distances are tied to that, which are largely bridged by means of individual road traffic instead of public transport. The prospering car industry meets those new demands by new vehicle concepts – mostly based on innovative driving systems and energy sources.

Scenario 3: Growth of the suburbs
Multi-faceted concepts in a privately funded environment. The urban areas are particularly growing along their edges, which results in sharply increasing requirements towards mobility systems. In a mostly commercial surround, the variety of transport concepts keeps growing and boosts the spread of diverse

Figure 1: Scenario development © SCMI

Figure 2: The possible development of mobility is set out in a system image. The identified ‘future projections’ have been visualised in a ‘map of the future’.
services tied to mobility. That puts both public transport and the car industry at an advantage.

Scenario 4: Broad Growth of the Conurbations
Integration of cars into the extended range of public transport facilities. Both centres and suburbs areuring people into agglomeration areas. This growth is faced by specific promotion of the public transport and well-directed control of the individual mobility. Consequently, efficient and interrelated traffic management systems lead to a growing integration of private and public transport.

Scenario 5: Growth of the Centres
Public transport grows due to rises in the cost of mobility. Germany’s urban centres are considerably attractive to the citizens frequently prefer the public transport and well-directed control of the individual mobility. Consequently, efficient and interrelated traffic management systems lead to a growing integration of private and public transport.

Scenario 6: Rejection of Mobility
Change in values, environmental policy gains importance in contrast to transport policy. On the whole, road and freight traffic volume is decreasing while public transport benefits offering a variety of universal mobility concepts.

Scenario 7: New Business Models
Rises in price of individual mobility facilitate the advent of new mobility concepts. Traditional drive systems are dominant due to a lack of ground-breaking innovations in motoring technology. At the same time, the cost of mobility is significantly high and public transport systems lack alternatives. That development is embedded in an economically critical environment, which leads to many people abstaining from individual mobility in favour of new, collective mobility concepts. Naturally, the market for car-sharing concepts and other innovative business models in that field is experiencing a boom.

The use of scenarios in planning processes
The main objective of scenario processes is to support the assessment of current strategies or the development of new strategies which cope with uncertainties in corporate or business environments. With the aid of a multiple view of the future, companies, organisations and countries/regions can plan on the basis of single scenarios (focused planning) or include several scenarios in their decision making (future-robust planning). For most cases a middle course is chosen. Therefore the expectations regarding the different scenarios has to be evaluated. In our scenarios project, seven partners have commonly worked out a scenario evaluation and discussed the results in a Transfer-Workshop. In addition to the strategies formulated in strategic planning processes, scenarios could be used for several other purposes: Development of orienting knowledge: Formerly planning periods and thinking horizons have been developed mostly parallel. Today we are realising that flexible plans can only be used for a short period of time while we need strategies for a much longer period in the future. Because this planning periods and thinking horizons are falling apart it is important to cope with the growing number of ”fuzzy decision situations”. Therefore it has a positive effect to develop orienting knowledge - even together with partners. Scenarios are an important instrument which can purposefully create orienting knowledge since each a company can fall back later (‘Stock up thinking’). Creation of a forum for strategic dialogue: A central characteristic of promising management processes are creative and open dialogues about the perspectives and strategies of the company. They overcome traditional limits in thinking, lead the decision makers to new questions and increase the tolerance of different points of view. Scenarios are the right instrument to initiate, carry out and document such strategic dialogues or strategic conversations. At the same time they enable decision makers who are “trapped in operative daily business” to free themselves and systematically broaden their perspectives. Building a basis for strategic early warning process: Scenarios are not only used to support decision making processes. A second important use case of scenarios are strategic early warning processes where they are used to detect critical environmental indicators and to monitor the overall environment. This strategic early warning-process could include collaboratively developed scenarios too. Overcoming limits of the own industry:

Lots of traditional incorrect guesses are based on the automated use of ‘muddled’ thinking routines which are often related to a strong orientation of the branch. For this it is helpful to integrate people from outside the own area in the scenario team. Handling complex questions: Well-known management instruments like program models, simulations or simple projections often fail when it comes to complex issues like mobility in conurbations. Because qualitative developments of single key factors are observed and linked within the framework of scenarios, collaborative strategizing is a suitable instrument for complex questions.

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