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Changing course in public transport: the car as a component of competitive services

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Changing Course in Public Transport: The Car as a Component of Competitive Services

Choice-Research, Report No. 2

By the Project Group on Mobility

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Contents

1. Overview

2. Problems and Perspectives of German Local Public Transport

Local Public Transport and Its Ecological Crisis of Legitimation
Unprepared for Competition

3. New Social Life Worlds—The Need for Local Public Transport to Respond to Social Trends

Changing Ways of Dealing with Space and Time
Demographic Development
The Family and New Life Styles
Blurred Boundaries between the World of Work and Leisure

4. Breaking through the Impasse—What is Expected of Sustainable Public Transport?

5. Modular Assembly and Design of Public Transport—News Kinds of Services and Products with a Car-sharing Module

Car sharing: From the “Alternative” Car to the “Public” Car
Revolution among Car-sharing Providers
Cooperation between Local Public Transport and Car-sharing
Old and New Target Groups
Learning from Experience: zuri mobil

6. Looking Ahead—Ideas in Summary

List of References

List of Abbreviations

The Project Group on Mobility

Abstract

Local public transport has long enjoyed special government protection and massive subsidies. It also plays a special role in transport and environmental policy. With increasing individualization in society, however, the needs of many road and rail user have changed. In a world where the automobile has become the measure of all things public transport companies in many places lack entrepreneurial skills and customer orientation. These shortcomings leave them ill equipped for the imminent European-wide liberalization of licensing procedures for public transport.

The present discussion paper by the WZB's Project Group on Mobility explores what must happen in business practice and transport policy in order to prevent the impending spiral of diminishing demand, worsening supply, and a further slump in demand. More than just organizational innovation is necessary. The key recommendation for improving public transport services is to expand them by adding car sharing and other alternatives centered on the automobile. The objective of adopting the car as a component of competitive services is to link traditional with modern, flexible transport and thereby create an integrated system.

Zusammenfassung

Bisher steht der öffentliche Personennahverkehr (ÖPNV) unter einem besonderen staatlichen Schutz. Seine Finanzierung basiert zu einem Großteil auf Subventionen. Dem ÖPNV kommt zudem eine besondere verkehrs- und umweltpolitische Rolle zu. Die Bedürfnisse vieler Verkehrsteilnehmer haben sich jedoch entsprechend der gesellschaftlichen Individualisierung verändert. Das Automobil ist das Maß aller Dinge geworden. Doch vielerorts hapert es bei den öffentlichen Verkehrsunternehmen an Kundenorientierung und ihre unternehmerischen Fähigkeiten blieben unterentwickelt. Gleichzeitig steht die europaweite Liberalisierung der Konzessionsvergabe im öffentlichen Verkehr vor der Tür.

Vor diesem Problemhintergrund geht die Projektgruppe Mobilität des WZB in dem vorliegende discussion paper der Frage nach, was unternehmerisch und verkehrspolitisch geschehen muss, um die drohende Abwärtsspirale sinkender Nachfrage, fortschreitender Angebotsverschlechterung und weiter sinkender Nachfrage zu verhindern. Notwendig sind nicht nur organisatorische Innovationen. Die zentrale Empfehlung für die Verbesserung des Verkehrsangebotes lautet vielmehr, Car Sharing und andere automobile Verkehrsdienstleistungen als "Autobaustein" in die Produktpalette von öffentlichen Transportunternehmen aufzunehmen. Ziel muss die Verknüpfung von traditionellen mit modernen, flexiblen Verkehrsdienstleistungen zu einem integrierten Verkehrsangebot sein.

1. Overview

Politicians and local public transport operators in Germany are unlikely to quickly forget July 26, 2000, the day a long awaited draft directive was circulated by the Commission of the European Union (EU). The document's technocratic title, "Proposal for a Regulation of the European Parliament and of the Council on action by Member States concerning public service requirements and the award of public service contracts in passenger transport by rail, road and inland waterway," belied its explosive content. A century of development in the practices of German local public transport was shaken to its very foundations. Adoption of the Commission's proposal would mean that Germany's local public transport system would have to be structured and run in a way completely different than it is today.

Responsibility for local public transport has traditionally been a more or less internal matter for local authorities and has stood under special government protection. In Germany, local public transport is considered an important element of providing basic public services (*öffentliche Daseinsvorsorge*) and is regulated by a number of laws. Much of it is financed through a complicated mix of subsidies, grants-in-aid, and equalization payments.

In addition, local public transport has played a special role in transport and environmental policy. With decision-makers having to make every effort to reduce the privately owned automobile's share of the transport market, the products and efficiency of local public transport companies will partly determine whether and how much the volume of motorized private transport, with all its problematic impacts, will continue to escalate. Although considerable progress has been made in detoxifying exhaust fumes, the mass operation of automobiles throughout the world remains one of the greatest environmental scourges of modern times. The infrastructure necessary for preserving the automobile's dominant function in society is both highly expensive and environmentally unsound. The consumption of land, the sealing of the ground surface, air quality, and noise emissions are only some of the expressions related to this account of the damages (Deutscher Bundestag, 1994).

For all these reasons, pondering alternatives to privately owned cars will stay high on the political agenda. But the lack of fundamental change in transport habits, policies, and systems (*Verkehrswende*) thus far raises doubt about whether the responses to the serious consequences of mass private transport have really been the right ones. Transport specialists, politicians, and scientists are gradually becoming perplexed about the steadily rising number of registered private motor vehicles (Prognos, 2000; Schmidt & Rade, 2001).

These concerns are sharpening interest in the alternative—local public transport. However, operators of local public transport operators in many places in Germany are obviously not particularly customer oriented. The wide-ranging official protection they enjoy has left them largely bereft of what they need more than

ever today—entrepreneurial skills. If regional protection disappears as called for by the EU Commission, highly competent and competitive foreign providers will crowd onto the German market. The liberalization of licensing could spell the end for many operators of local public transport in Germany.

Pressure is mounting from another side as well. The extensive measures taken to modernize local public transport service in the 1990s have not paid off. The number of customers has stagnated since 1990, even plummeted in some agglomerations such as Berlin. Lack of passengers despite massive investment in the infrastructure hurts the image of sustainability, too. Moreover, traveling with local public transport is no longer automatically more environmentally sound than car travel is. Recognizable trends toward individualization and pluralization in modern societies challenge the basic, nineteenth-century concept of local public transport, which offers nothing more than big busses and trains running fixed routes at fixed time intervals. Can it still meet the needs of the times? An adequate answer to this question is even more pressing for rural areas than for cities.

In light of these issues, the following text explores what must happen in business practice and transport policy in order to prevent the impending spiral of diminishing demand, worsening supply, and a further slump in demand. A second purpose is to show how the transport companies, which are still shielded, can assert themselves more effectively on an open market than they can with their current range of services.

Daily working time arrangements are diversifying as the importance of clocking and shifts wanes. Consequently, traditional services are lagging ever further behind the needs of modern target groups, whose life plans and life histories are individualizing. What can be done? How can local public transport operators appeal to people leading highly flexible lives and still run an economically viable business? One answer revolves around the recommendation to adopt car sharing as one of the products offered by public transport companies. If the car is conceived of as a “module” linking traditional and modern, flexible modes of transport, it can be integrated into the services of a transport consortium. Just how that approach might look—complications, goal conflicts, and all—is exemplified by a Swiss venture, “zuri mobil,” which is described later in this article.

2. Problems and Perspectives of the German Local Public Transport System

The organizational practice of local public transport in Germany is reeling from a proposal by the EU Commission—to redefine the modalities of franchising public transport companies (Ewers & Ilgmann, 2000; Püttner, 2000). The rule has been that bids must be solicited for a public passenger transport service whenever it

costs more money than it brings in. The intention is to minimize the need for public subsidies and to create unprejudiced access to the local transport market, hitherto known as "transport serving the public economic interest" (*gemeinwirtschaftlicher Verkehr*). If the local public transport system is able to cover its costs, that is, if it is economically self-sustaining, then the procedure for granting a franchise for the corresponding area is simple. Whatever the case, a license for the commercial operation of passenger transport is required by law.

To those responsible, economically self-sustaining transport is indisputably the more attractive alternative. The local authority, which the law places in charge of organizing transport, can issue the contract anywhere in Europe without elaborate procedures. Normally, the local operator receives the contract with few formalities. The local authority thereby contracts itself as it were, in effect guaranteeing local transport companies what amounts to regional protection.

The highly controversial question is which practice really can and cannot be defined as self-sustaining (Muthesius, 2000). The German local authorities and local public transport operators insist that transporting school children, unemployed people, the handicapped, and the elderly is of special political and societal importance and that the price of transport service is therefore a political matter. The argument is that the government should compensate the local public transport companies for the revenue reduction that this arrangement entails. This "allocation for operating costs" has not been considered a subsidy in Germany and therefore is not to be considered in assessing whether operations are self-sustaining.

The proposal by the EU Commission would end this distinction. As soon as 20 percent of the costs of a transport service are covered by public equalization payments, the operator of that service must publicly tender bids for it, regardless of whether these payments represent rebates, compensation for lost revenue, or other benefits. Only two exceptions exist. Public bids need not be solicited if (a) the transport services of a transport network for which bids are publicly tendered totals less than €800,000 or (b) an operator combines rail-transport systems and busses into a single operation.

The explosiveness of the Commission's proposal is that the hitherto largely "closed," but heavily subsidized market for local transport must be opened throughout the EU. No wonder that the actors who have so far benefited from the finance system are stubbornly resisting the Commission's desire to emphasize transparency and open up the market. A new alliance is emerging. The leading local organizations, the Association of German Transport Companies (VDV), and Germany's unions (especially the one for public services, transport, and traffic, the ÖTV) are up in arms against the proposal from Brussels. In August 2000 they formulated their position in a joint declaration:

Uniform availability of local public transport to citizens will continue to lie in the common interest. The Association of German Local Authorities, the VDV, and

the ÖTV will strive to ensure not only that the responsibility for planning and organizing local public transport remains with the municipal authorities but also that its operations can be run by them or one of their companies without having to solicit competitive bids. (Gemeinsame Erklärung, 2000, p. 22; our translation)

The transport ministers of Germany's *Länder* (federal states) and the *Bundesrat* (the upper house of the German parliament) have meanwhile decided to join the fight to defend the status quo. The defensive strategy centers on insisting that local public transport is a politically potent topic. According to §1 of Germany's federal law on the regionalization of local passenger traffic—the Regionalization Act of 1994—"ensuring that the population has adequate local public transport is . . . a responsibility to provide basic public services." To local operators and organizers, it thus seems justified to continue a high level of public transfer payments without calling for public bids to identify the lowest bidder first.

The idea of opening this market lacks endorsement from yet another group—the German manufacturers of large-scale technology for local public transport (i.e., busses and trains). At every opportunity they urgently recommend that the transport ministers of the *Länder* retain the present instruments for financing local public transport, a system that subsidizes 60 percent of all vehicle purchases, and in some *Länder* up to 80 percent.

This unusual combination of vested interest garners additional backing from environmental protectionists and critical transport experts. They see local public transport as the preferred solution to urban environmental and transport problems. There is general agreement among these groups that the local public transport companies have been disadvantaged by decades of massive assistance for motorized private transport and that they therefore need special political protection. According to this line of argumentation, basic criticism of local public transport and its finance structures is inappropriate (Monheim, 2001).

If the environmental impacts of travel by local public transport in Germany are measured in relation to the distance covered by car or bus, the results are in fact positive. But these calculations are based on the assumption that the bus or subway is fully occupied. Unfortunately, reality looks different. In the city with the largest system and the most passengers—Berlin—the rapid transit trains, subways, busses, and trams run at between 14 percent and 16 percent of their capacity on a daily average. Only 5 percent of the sections of the lines in Berlin achieve an average occupancy above 40 percent. The figures on environmental compatibility are accordingly negative.

Busses and trains, which already earn high marks for environmental compatibility, are making little ecological progress, whereas a few improvements in automotive technology will draw attention in the future. The gap between local public transport and motorized private transport will strongly decrease in the next few years. Seat for seat, especially fuel-efficient vehicles, such as 3-liter cars

[78 miles per gallon] equipped with particle filters, will soon almost match the environmental level of local public transport. (VCD, 2001, p. 19; our translation)

Local Public Transport and Its Ecological Crisis of Legitimation

Besides the acknowledged crises in supply and demand that local public transport faced several years ago, a third crisis of legitimation—the ecological one—has been looming since the late 1990s (Blümel, 2001). Disastrously enough, however, it has still not been recognized at all by the actors in local public transport.

Their assessment is slanted largely by their hostile stance on the automobile. Local public transport is considered the environment's friend; cars are the environment's polluters. The call to protect the environment by shifting from environmentally harmful private transport to public transport has been sounded for decades in every speech and program on environmental or transport policy at the EU, national, state, and local levels (BMVBW, 2000a; Deutscher Bundestag, 1990).

The thesis that public transport is environmentally friendly was supported in the late 1970s by initial, sound comparisons between the energy consumption levels of various means of transport (Golling, 1978). Environmental accounting methods developed since the mid-1980s have yielded more discriminating analyses that have taken account of different air pollutants and the environmental effects of different types of energy along the entire chain from the borehole to a vehicle's fuel tank (Höpfner, Schmidt, Schorb, & Wortmann, 1988). The accounts have been updated and elaborated to the point that assessments now include the vehicle manufacturing process (Deutscher Bundestag, 1994).

The development of the automobile as a comprehensive technical system has undeniably had major environmental consequences going far beyond classical damages from pollutants. Nevertheless, the inverse conclusion that local public transport is automatically always the better alternative for environmental policy has begun to crumble. Experts have long doubted and criticized the idea of simply equating local public transport and environmental protection. To mitigate the problems of noise caused by trams, transport specialists have recommended the use of trolley busses, which are much quieter than trams. Unlike other countries, though, Germany has largely forgotten this technology (Benz, 1995). Other studies show the energy-related handicaps that local public transport have entailed for the traffic conditions in the Stuttgart region (Liebscher, Fahl, Kolb, & Wacker, 1995).

Things began to change in early 2000, when the ecological crisis of legitimation spread to the politicoadministrative realm. A draft report for the conference of the environmental ministers of Germany's *Länder* expressly referred to the growing ecological drawbacks of using diesel busses (UMK-AG, 2000), especially with a dwindling number of users. As Germany's Minister of the Environment, Jürgen Trittin, stated in the preface of a legal review he had commissioned, "From

an environmental point of view, local public transport is facing an adverse trend in the competition with motorized private transport" (BMU, 2000, n.p.; our translation).

Both the success and unilateral perspective of environmental policies cause the tragic problem confronting local public transport today. Thanks to pressure created by environmental policy, cars outfitted with modern catalyzers are free of the classical noxious substances. Over time, the EU guidelines for automobile exhaust levels have been steadily tightened. By contrast, the diesel bus was not recognized as a source of noxious substances until the mid-1980s and was not regulated by the EU until 1996, so the technological development of this type of vehicle has not been as successful at reducing air pollution levels. Moreover, the life expectancy of city buses—and especially of trams and subways—is far longer than that of cars. Public transport vehicles with 18 or more years of service are often used, whereas cars have an average life expectancy of 12 years. Technical advances that help protect the environment therefore spread more quickly throughout the fleet of passenger cars using the roads than among busses, trains, and trams.

Because the environmental effects of local public transport largely depend on its operating to capacity, another problem arises for transport and environmental policy centered on local public transport. Attractive schedules—evening and weekend service and relatively short intervals between runs, for example—exacerbate environmental pollution because the extent of capacity utilization declines unless substantially more new passengers are gained at the same time. The same argument is true of the demand for attractive local public transport service in rural areas, where the average rate of utilization often drops well below 10 percent. Not inferquently, the bus driver travels from village to village without any passengers at all.

Local public transport companies and the representatives of their interests still cling to the notion that their services are by definition environmentally friendly. But this passivity—the claim to be doing something good for the environment without making any effort—undermines much of the legitimation for the sizeable subsidies, currently more than €16 billion annually, received by local public transport. Compliance with the minimum legal standards is little consolation. Where standards do exist, they are required for an operating license. But certificates issued decades ago are still valid, as is the case with the emission of pollutants. Where government standards do not exist, as with noise from trams, it is inexcusable to ignore the problem and pass the buck to legislators.

Be that as it may, the impending liberalization of the local public transport market is coming at the wrong time for the urban environment. Ecodumping will result if microeconomic interests are promoted over environmental compatibility. The liberalization of related sectors shows that this potential is being exploited. Quieter rubbish trucks, for example, have become difficult to sell, and companies

rarely apply for the stamp certifying their vehicles as environmentally sound. Of the four companies that used to manufacture noise–reducing superstructures and frameworks, only one is still in business. The same is true of collection containers for glass. A noise-reducing version exists for them as well, but their higher costs and a lack of regulations keep them from being set up.

Unprepared for Competition

If users of local public transport were wholly satisfied, one might understand why the leading associations, representatives of industry, environmental protectionists, and unions defend the way it is organized and financed. But the public is demonstrably indifferent. Carriers belonging to the Association of German Transport Companies (not counting Deutsche Bahn AG) reported 7.3 billion passengers a year in 1990, but by 1999 the figure had not changed significantly. Only the volume of regional transport had grown slightly. After dipping to a low of 1.3 billion people in 1992, the number of passengers climbed to 1.5 billion by 1999. In 2000 the number of local public transport fares also inched up—1.2 percent in a transport market that was expanding as a whole (VDV press release, 11 December 2000).

Shifting attention from absolute numbers to local public transport's share of the entire transport market, one finds a much bleaker picture. Whereas 16.3 percent of all people on the move outdoors in Germany used busses, trams, and subways for their journeys in 1991, only 15.5 percent were still doing so by 1999. Since then, the share of person-kilometers accounted for by local public transport companies has slid to below 10 percent. This result seems modest given that fact nearly DM 28 billion (€14 billion) was invested in local public transport during that period alone on the basis of the Local Community Transport Finance Act (BMVBW, 2000b). In Berlin, which is by far the largest local transport market, lack of efficiency is a great deal more dramatic than in the rest of Germany. Though more than DM 10 billion (€5 billion) were invested in modernizing and adding tracks for the subways, rapid transit trains, the regional railroad, and the tramlines, local transport lost a fifth of its passengers (Land Berlin, 2000).

In a nutshell, massive transfer payments to local and regional transport companies enjoying "regional protection" have not led to more attractive services and hence to more passengers. This point is precisely where the EU Commission comes in. The Commission seeks to require transparent and open competitive-bidding procedures the moment public funds are allocated, whether or not the service in question is intended to provide basic public services. Once the winner of the bid has been declared, the agreements are to be formalized as public service contracts (Werner, 1998).

In some countries of the European Union, the market for local public transport has been liberalized since the 1980s, albeit to different degrees and in differ-

ent ways. A variety of studies have shown that rates of bus use have clearly increased in the six countries that practice controlled competition in that market. In Denmark, Finland, France, Portugal, Spain, and Sweden, the number of bus passengers went up an average of about 14 percent between 1990 and 1997. By comparison, the average rise in the countries with largely closed markets—Germany, Austria, Belgium, Greece, Ireland, Italy, Luxembourg, and the Netherlands—was only 5 percent.

The leader in liberalization was Great Britain, where the regional transport markets, except for London, are almost completely subject to competition. However, the number of bus passengers declined about 5 percent between 1990 and 1997 because the different bus companies continued serving only the lucrative routes, where cutthroat competition precluded their having any interest in coordinating schedules and fares. There was little public bus transport of the sort that German local authorities generally provide in order to guarantee basic services even in times of reduced revenues.

On the other hand, consider the result when the costs of transport services are figured into the assessment. With the closed markets of 1996, an average bus kilometer cost €3.02. On markets with controlled competition, the figure was only €2.26. In Great Britain, an average bus kilometer outside London cost €1.44, not even half the sum in countries with closed markets. In summary, the Commission has come to the conclusion that "deregulated services are cheaper, but tend to be substantially worse from the point of view of attractive public transport; closed markets sometimes achieve similar standards of attractiveness for passengers, but at a higher price" (Commission of the European Communities, 2000, p. 5).

However, the Commission does not call for completely open competition. According to the Commission proposal cited at the beginning of this essay, the introduction of competitive elements can make services cheaper and more attractive if they are structured appropriately. Indeed, this stance is justified by the fact that the European market now has internationally operating corporations that provide such service.

One of the leaders in this area is the Connex group, a subsidiary of the French-based multinational corporation Vivendi. In Germany it already owns the German Railroad Company (DEG) and holds shares in the Aachen bus company Taeter. Connex is especially active not only in France but in Portugal, too. It runs a European-wide operation of 40,000 employees, 13,500 busses, and more than 3,500 rail vehicles. Even the Berliner Verkehrsbetriebe (Berlin Transport Services), easily the largest provider of local public transport in Germany, cannot compare in size with the Connex group. Another French organization in the European market for local public transport is the VIA-GTI, the subsidiary of France's national rail company SNCF. In partnership with several other companies, the VIA-GTI operates bus and rail networks in Spain and Scandinavia. The Stagecoach group, a

British organization, is a third upcoming European player. Stagecoach operates bus networks in Great Britain and Scandinavia and is active outside Europe as well. Even the Parisian giant, Régie Autonome des Transports Parisiens (RATP), set course for international involvement when it founded RATP International and RATP Investments (RMV, 2001, p. 41).

In Germany, no company can yet seriously challenge the financial strength and competitiveness of these internationally minded corporations. Germany's very size makes the country one of Europe's most interesting transport markets, so a great many aspirants are likely to respond if public bidding is opened to all of Europe. In order to stand up to foreign enterprises that are presumably offering cut-rate prices, German transport companies are beginning to found their own subsidiaries as bargain operators. Given the generally high level of skills and wage costs in Germany, however, it does not seem promising to start competing on costs.

In Germany, the government's responsibility for providing local public transport is anchored in the Passenger Transport Act of 1935. This legislation completely suspends freedom of trade for local passenger transport and puts the government in charge of all operations, schedules, routes, and fares related to it. The individual *Länder* are given the opportunity through their own local public transport laws to designate the actors—usually the local authorities—who are responsible for licensing and supervising the operations involved. However, the local authorities can also delegate the tasks associated with such functions, transferring them to transport consortia, for example.

The authorities responsible for licensing and supervising the operations of local public transport (*Aufgabenträger*) have a primary role. They define the specific standards that must be met before a franchise is granted. The chief instrument is the local transport plan, which has been required throughout Germany since 1996. Therein, these authorities set forth which services are to be provided at which quality and price. The local transport plans have not yet been used to enhance the attractiveness of those services or to widen their scope. Instead, the plans serve as an instrument for integrating public transport into a highly complicated regulatory framework, making the operational form and political organization of public transport seem like a relic of the nineteenth century. The powers that be define the services and both direct and authorize the operations.

Placed under direct government control in the national socialist era, commercial local passenger transport was inundated by regulations in the decades thereafter. The "quality of service" was stipulated in detail. Officials indulging their love of minutia pored over local transport schedules, creating a maze of regulations to determine specifically what it meant to provide basic public services. Ever since, they have dictated details ranging from the exact distances between stops to the patterns of the seat upholstery and the colors of bus drivers' ties.

Planning is based on the motto "Give a lot, get a lot" (*Viel hilft viel*). To government representatives, quality service means first and foremost offering the broadest possible range of train, tram, or bus mileage delivered by large-volume vehicles. The financing instruments have often misled planners into thinking only that big is best. This misconception is the main reason for the image widely associated with local public transport—large busses carrying few passengers.

By classifying local public transport as one of the basic public services to be provided, the legislature has divested the local transport companies of the basic ingredient of business thinking: independent product development and pricing at its own risk. Hence, the transport companies show little initiative. The basic conditions are reflected in their organizational structures and the attitudes of their employees. Impersonal service is the frequently observed result.

In effect, then, the welfare state is sending "its" local transport companies into competition for which they are utterly unprepared, a practice that borders on tragedy. They have little experience in strategic product development, and few, if any, processes within the companies are oriented to competitive situations. According to the head of the International Union of Public Transport, it is possible

> to earn money in this system, too. But it is very doubtful whether the administrative design, which leaves little room for innovative entrepreneurship, allows one to expect long-term quality in local public transport. It will only come down to competing over costs, not over the quality we need in order to withstand the competition with private transport. (Groenendijk, 2001, p. 4; our translation)

In principle, the proposal put forward by the EU Commission opens a number of interesting perspectives also for German local public transport services. One possibility, for example, is to extend competition to products and types of products. Comparatively large local transport companies customarily have a planned, integrated system and the skill to link different carriers in one operation. Therein lies their competitive advantage. The classical, intramodal forms of service alone are no longer enough, though. Combining busses and trains purposefully is basic. In the future, a core competence will be the ability to bring other "components" together into a comprehensive intermodal service. Such integration is the only way to increase the attractiveness of public transport. The most important element to add now is the car.

The "car as a mobility machine" has dominated space-time structures for decades and is compelling a fundamental revision in what local public transport has afforded. Companies seeking to survive on the transport market today must be able to meet the changed needs of users. Transport from train station to train station, from stop to stop, is no longer enough. Customers do not live in train stations or at bus or tram stops, nor do their journeys there. The same was true in the heyday of public transport in the mid-twentieth century, of course, but at that time

standards and expectations had not yet been set by motorized private transport. By contrast, early twenty-first-century demands for transport are unequivocally for door-to-door service. Companies able to provide the entire chain have a chance to survive the competition. Those that concentrate only on parts of that chain are not first-rate competitors.

The shift in product policy must be orchestrated proactively. The existing fleet of vehicles and the logistics of their deployment cannot remain the orientation point. Instead, the focus must be on the actual development of demand on the transport market. This change raises the question of core entrepreneurial and operational competence, which must henceforth go beyond the running of bus and rail lines. The transport concept must be inclusive. Local public transport operators have a long tradition that offers them a substantial competitive edge. Private organizations must first spend vast sums on elaborate advertising campaigns in order to achieve what many local providers have almost too much of—familiarity. Admittedly, some of the "household names" of local providers are already well worn and urgently need redefinition, but their ubiquity is one of the major market advantages on which many providers of local public transport can build.

In summary, the operational parameters of local public transport are dramatically shifting because of changes in the political and social environment. The heretofore largely unquestioned practice of subsidization unchecked by competitive conditions or any other effective measure of success is being challenged. The EU Commission will compel more transparency and access for international competitors. The outcome will certainly have its positive sides. As cartels lose their hold on this sector of the economy, latitude for redesigning local public transport will widen.

Local transport will continue to receive public funds, but their allocation will be measured against results more closely than in the past. Another worthwhile point for discussion is whether operators should receive *any* politically motivated aid that is granted as compensation for loss of revenues. Wholly different models of transfer payments are conceivable. It could make more sense to pay out the subsidy directly to the groups of passengers concerned, making them attractive customers whose preferences local public transport must take seriously. In other words, bureaucratically organized transport is metamorphosing into a market actor competing for approval and popularity. Rechanneling the money is unlikely to pose an insurmountable problem. Existing transfer payments such as child benefits, support for education and training, housing benefits, welfare, and unemployment benefits could be broadened to encompass a "mobility allowance."

The authorities responsible for licensing and supervising the operations of local public transport figure prominently in the redefinition of local public transport. To ensure the development of customer-centered service, further intermodal components should be part of the reconceptualization. This about-face requires a fun-

damentally different philosophy of public bidding. The idea should not be to decide on substantive matters but rather to agree only on general objectives. The question of how to manage the rest of the task should be left to the transport company. Swedish experience with controlled competition (Palm, 2001) may have a good deal to teach about developing innovative public bidding that avoids fragmenting existing consortia services and keeps competitors from picking only the most lucrative elements on offer. These two concerns justifiably occupy the skeptics of liberalization most. In abidance with the rule "you pay for what you order," each request for bids must make the objectives explicit, including the politically defined minimal standards (Werner, 2001).

The licensing and supervisory authorities must also clearly distinguish between the ordering agent and the provider. Even if there is a protracted legal dispute over the status of local public transport as part of the government's responsibility to provide basic public services, the operators, most of whom have been the local authorities, should be gradually changed into companies that think and act entrepreneurially. To this end, organizational restructuring is essential. There is no way around legal forms of the private sector, for only that framework enables a business to run under its own responsibility. Corporate reorganization is not all, however. In a competitive environment, entrepreneurial independence is a must.

The proposed measures for restructuring fully conform to EU regulations and give local providers with new products and forms of production the chance to develop new sales markets.

3. New Social Life Worlds—The Need for Local Public Transport to Respond to Social Trends

The EU's initiative to liberalize its transport markets has currently refocused debate on the political and legal context involved. But the parameters of supply are certainly not the only decisive aspect of reforming local public transport. Vast changes have taken place in society itself since the late nineteenth century, rendering basic characteristics of the local public transport system anachronistic. The impacts on human travel are enormous but have received far too little attention in the discussion of shaping attractive local public transport services.

Expressions such as enhanced flexibility, individualization, and pluralization of life styles and life circumstances sum up many different and far-reaching processes of social change. Greater flexibility has primarily to do with the patterns of actions that take place in work, training, leisure, recreation, and consumption (Sennett, 1998). Individualization refers to a weakening of the bond between the individual and the family, colleagues, neighborhoods, and other enduring affiliations that make up the fabric of society (Berger, 1996). More and more, people are

shaping their own lives according to standards of their own choosing (Beck & Beck-Gernsheim, 1994). The pluralization of life styles and life circumstances means that society is diversifying into different milieus and scenes—the mirror image as it were of the process of individualization (Schulze, 1992). The question of how, and how dynamically, these new social life worlds develop has important implications for future transport services.

Changing Ways of Dealing with Space and Time

For many years, social scientists have observed that individual action is becoming removed, displaced—disembedded—from traditions and social role behavior (Giddens, 1988, 1990). That is, human activities are being divorced from their places of origin and from temporal rhythms such as day, night, and season. Simultaneously, the choices of what to do when and where are multiplying, triggering a general acceleration that often intensifies loss anxieties, orientation difficulties, and the feeling of personal strain. New time regimes are supplanting old ones.

These changes are manifested in many different ways. An example is the demise of the seniority principle, one of the cornerstones of the Fordist structures within companies and administrations in all industrialized countries since the mid-twentieth century. It reflected the value attached to the experience of the employees and represented a calculable incentive for employees to demonstrate loyalty to their employer. Aimed at achieving continuity and mutual security, the principle resulted in a stable organizational culture. It is now being sacrificed on the altar of extreme flexibility and horizontal corporate networking (Heuser, 2000).

The subjective feeling of acceleration is growing as spatial boundaries vanish. What for centuries used to be a privilege of the rich and powerful is becoming a desired and encouraged life style for many people in the developed societies of the West: ever more places at ever greater distances to live, work, or relax. Local, regional, and national borders are losing relevance. The monopoly that a relatively constant center of life used to have is under persistent threat. Beck (1997) has spoken of “locational polygamy” and has emphasized the crucial part that transport and communication technology have in its triumphant advance.

> Life is no longer local, settled, sedentary. It is . . . a life in the car, in the airplane, in the train or on the telephone and the Internet, a transnational life supported and shaped by the mass media. These technologies are daily media for bridging time and space. They eradicate distances and produce [both] proximity across distances and absence in the same place. (pp. 129–130; our translation)

The French presidential advisor Jacques Attali succinctly and aptly calls the technical equipment of modern contemporaries *objets nomades*—nomadic objects. They

are objects worn on the body, no matter where one is on the go. In addition to traditional gear such as clothing, weapons, jewelry, and watches, there is now the Walkman, the cell phone, the credit card, the heart pacemaker, the computer notebook, and the handheld organizer. They all enable one to take part in things without actually being there. They all dissolve the bonds of place.

Society's interaction with time and space is subject to the trend toward individualization as well. People behave more diversely and idiosyncratically than they used to. Institutionally determined time structures are being steadily undermined by personal perceptions of time (Knie, 1997). The erosion of classical forms of community is manifested partly in the fact that timetables are losing their disciplining function.

In 2000 every second gainfully employed person worked on weekends, at night, on shift, or in some combination of the three. Full-time employment with standard working hours represented less than 20 percent of labor force (Schulze Buschoff, 2000). Over time, so-called normal working hours have ceased being normal, and work intensity has increased. Psychologists note that work motives have shifted from extrinsic to intrinsic. One's individual sense of time and how to organize it dominates more than ever, even when that time is fully occupied by external demands.

The way people deal with space has changed analogously. As the desire mounts for places under the individual's own control, the need for room is intensifying. The average size of a dwelling in Germany has expanded from 71m^2 (765 sq. feet) in 1967 to more than 86m^2 (925½ sq. feet) in 1998, providing the statistically average citizen in Germany with 39.3m^2 (423 sq. feet) of floor space (Statistisches Bundesamt, 1999). A great need for privacy in protected spaces controlled by the individual exists in sphere of transport also. Passengers are frequently very sensitive about physical proximity. In collectively used vehicles, the desire for social separation often arises. Given the strong stress factors caused by the personal organization of time, the importance of having one's own spaces that seem available and safe and that guarantee an intimate atmosphere is clearly very great (Beutler, 1996).

New phenomena in consumer behavior support the theses that individual perceptions of time and the availability of one's own space have become more important than they once were. Recent consumer research has shown a general trend from "having" to "being." Growing segments of the population are bent on seeking adventurous experiences. Consumer researchers summarize this trend by saying that customers are becoming more demanding and selective, their behavior is becoming more spontaneous and ever less predictable. The new consumer seeks self-actualization and an eventful, enjoyable life. This new type of person is embodied in the so-called individualized, multioptional consumer, or hybrid customer." These new trendsetters belong in different categories. They comprise

young double-income couples without children (the famous DINKS) and career women; well-to-do, established people between 40 and 50 years of age; the youthful elderly; and senior citizens with above-average incomes.

New bewildering life worlds and postmodern consumption patterns are coinciding with fundamental changes in the demographic composition of German society. Types of families and ways of life are diversifying, and the relation between work and leisure is being redefined. These changes bear heavily on the future need for local public transport services and thus constitute an important contextual factor to be considered by transport providers.

Demographic Development

The age structure of German society is undergoing profound change. The traditional image of the pyramid is coming to resemble a tree instead, with thin cohorts of young people carrying an outstretched crown. The baby-boomers, the people born in the 1950s and 1960s, will become senior citizens in the first decades of the twenty-first century. People born during the 1980s and 1990s are not entering the labor market in great numbers (Deutscher Bundestag, 1998). But not only is the number of elderly people soaring; they are a wholly new generation of seniors. For example, the vast majority of them are accustomed to driving, and they are financially and physically able to use their cars extensively (Mollenkopf & Flaschenträger, 1996).

As birth rates stagnate and decline even further, the share of young people in the total population of Germany continues to shrink. Even a rise in foreign immigration will be unable to reverse this graying of German society in the coming decades. It can only mitigate the demographic structural shifts. The consequences for social safety nets will be dramatic if regulations are not amended appropriately in time. In order to protect social security benefits and ensure affordable health care, the generational contract must be renegotiated.

The significance of the change in society's age structure goes beyond fiscal matters. The effects on all societal life are likely to be enormous. Just as Germany's educational system has felt the demographic dynamics leading to an "aging society," so will other areas of public life. Two traditional groups of public transport users have already undeniably shrunk—school students and trainees. There are simply fewer children and young people to carry than there used to be. Local public transport profits little from the burgeoning customary group of users, senior citizens, because nearly all the "new seniors," unlike their counterparts of earlier generations, possess a driver's license, have years of driving experience, and generally can afford a car. Future retirees, too, will have a much greater action radius than was usual in the past. All indications are that the car will be their most important means of transport. Because of its attractiveness, the willingness to pay for it

will remain high even if fuel costs keep climbing. Moreover, automotive manufacturers will attune themselves to the needs of the various target groups and will modify technology accordingly. For example, one can expect wider use of intelligent transport services (ITS), which help drivers find efficient routes.

The Family and New Life Styles

Although the signs are that the family-oriented life model will stay stable in the coming decades, the form the family takes is heading for major changes (Bertram, 2000; Peuckert, 2000). Family size will continue to contract. Single-child families are already the most frequent type of German family today, and a trend toward more than one child is unlikely. With persistently high divorce rates and declining marriage rates, "single-parent families" will presumably proliferate more and more. Only single-child, double-income parents must manage child-raising and gainful employment simultaneously.

The percentage of new "family" patterns will probably grow. Same-sex partnerships and residential communities now account for large shares of living arrangements, particularly in large cities. The trend is also toward having multiple centers of life and several "family" residences, for the number of double households and is increasing, as is the practice of splitting time between several places by season or week.

The changes in family structures and the multiplication of ways of life interact closely with individualization, as clearly shown by the sharp rise in the number of commuter households in recent years. Germany is presently assumed to have more than 1.3 million weekend commuters, and the trend is rapidly accelerating. The reasons for this development vary. Commuting is often the only way for family members to pursue their own career aspirations or specific kind of training. And high disposable incomes make it possible to afford comfortable residential retreats and vacation houses where work can be done at times, especially if they are well equipped with communication technology.

The way one lives is expected to change considerably among high-income earners in the coming decades. Along with the overall trend toward increased floor space as a result of growth in prosperity and rising aspirations, other trends are already having an effect. It may be assumed that the government will continue granting allowances for owner-occupied dwellings and fixed tax deductions for travel to work. A house in the country is definitely within the financial reach of this generation's heirs and will remain a common dream. At the same time, the share of secondary residences will increase because many people moving to a new area for professional reasons do not want to give up a home they have come to love. In addition, singles will make up a substantial share of the residential population, especially in big cities. "Voluntary existence as a single" will presumably stabilize

at its current level, particularly among young and middle-aged people. The group of "senior singles," however, will keep growing, partly because the life expectancy of men is still approximately five years less than that of women and partly because the high divorce rate will have a great effect in the future.

The impacts that all these trends will have on transport are obvious. Almost all the expected changes in present ways of life will affect transport behavior. Take the increase in the number of single-parent families as an example. The combination of child-raising and gainful employment usually involves a great degree of coordination. The everyday life of a single parent consists of tightly scheduled daily calendar. Time is of the essence, so the person must take multiple routes from home to work, the store, the day-care center, the gym, and the locations of other recreational activities. On top of that come dates with friends, appointments with the second parent, and nondaily activities such as birthday parties and trips to the doctor.

Blurred Boundaries between the World of Work and Leisure

Tomorrow's world of work will be more frazzling and unstable than it was in the decades after World War II. Despite a slightly increasing level of employment, full employment is probably a thing of the past; structural hard-core high unemployment will persist. The social exclusion of the unemployed will therefore be perpetuated.

Deep-seated change in employment is important for the national economy and transport policy. The share of "classical" jobs—those with fixed places of work and regular working hours five days a week—will continue to contract. As employment in factories and public administration recedes, the service sector is growing with flexible places of work and working hours. Temporary, project-related tasks and part-time jobs are the everyday reality of the future (Kocka & Offe, 2000; Priddat, 2000). By granting a legal claim to part-time work as a measure to cut unemployment, the federal government has helped pave the way for this trend. Germany may be catching up in Europe, but in the Netherlands approximately twice as many women and up to four times as many men per 100 gainfully employed persons already have part-time jobs (DIW, 2001). The number of people in temporary employment has changed as well, reaching a level 2.4 times higher in 1999 than it was in 1993.

The new jobs are in personal services and in the sectors of the New Economy. New service providers and their computer, telecommunications, and media companies are unexpectedly forming clusters (Sassen, 1996). Paradoxically, working in and for the net does not lead to the locational freedom that the system is technologically being equipped to provide. Instead, physical proximity to other companies of the same sectors or neighboring ones is being sought. Physical

presence is more important than ever. Mobile networking, the communications link between one's main residence and one's vacation home, is being used only as a complement.

Against this background, leisure is expanding considerably, and the boundaries between work and leisure are blurring. The financial and temporal budget for leisure is mounting along with transport-intensive activities, chiefly because leisure is being combined with other activities, such as shopping. The liberalization of retail business hours is reinforcing this trend. E-commerce can be conducted around the clock, with immediate delivery expected as a matter of course. Vacation as a special form of leisure will also be different in the future, for the classical annual vacation is losing significance. Demand for shorter, more frequent trips and more distant destinations is rising. New vacation opportunities are emerging (Dierkes & Rammler, 2000).

Like the observable trend toward more frequent short vacations, the dissolution of distinctions between the working world and leisure is indisputably associated with increased travel. The volume of traffic is escalating if only because people's activities rarely take place at or near the same location. The demand for transport is becoming more individualized because it no longer follows collective schedules. The falling number of school children is perceptible on the travel market, too, for road and rail congestion at the beginning of vacations is easing. People simply presume there is a great deal of spatial and temporal flexibility. This mentality necessarily complicates route combinations, once again positioning the car as the ideal means of transport.

In summary, the social trends outlined above have crucial implications for local public transport, for they are slowly eroding classical potential demand for such traditional services. The need for transport is steadily diversifying, as are the purposes of travel and the complexity of the routes used. The means for responding to the demand for mobility are thus increasingly difficult to cluster, apart from major events and the lack of regular lines within and between conurbations. Local public transport providers have no choice but to find radically new responses to change. Just as with social security and health insurance, timely and far-reaching adaptations are required, even to the point of renegotiating the social contract on which public transport is based. Like the generational contract regulating social security systems, public transport faces a fundamental debate about its mission, limits, and financial feasibility.

4. Breaking through the Impasse—What is Expected Of Sustainable Public Transport?

The car offers the greatest comfort, availability, accessibility, and efficiency. Strategies to modernize public transport in a business-like way therefore must center on a technological product that has led to ever greater motorization of society for nearly a century. The car has been, and is widely expected to remain, of utmost significance in the history of civilization and mentality (Canzler & Knie, 2000; Fack, 2000; Rammler, 1999, 2000). Sociological studies on the car's function in modern societies show that transport technology and the development of society have fostered each other (Burkart, 1994; Canzler, 1996, Krämer-Badoni & Willke, 1997; Kuhm, 1997; Rammler, 2000; Schmucki, 1999). Some authors even speak of an "affinity between mobility and modernism," by which is meant that "the desire for the availability of cars can be understood as a constitutive feature of modern societies" (Knie & Rammler, 1999, p. 356). The motor vehicle, apart from its negative environmental impacts, appears more and more as the optimal solution for individual mobility. As a kind of spatiotemporal integration machine, it enables one to manage relatively complex patterns of routes in diverse kinds of spatial structures. Transport systems based on rail and regular bus service cannot compete with such variety. The capacity for self-locomotion, the literal meaning of automobility, conceptually captures the modern need for autonomous, flexible movement in time and space. This trend has marked the development of transport since World War II (Buhr, Canzler, Knie, & Rammler, 1999).

The independence facilitated by the motor vehicle is not only spatiotemporal but societal and sociopsychological as well. The attraction of the automobile is thus also explicable in terms of its function as a "shield against sensory stimulation" (Rammler, 2000, p. 110). It guarantees personal space and reduced interpersonal contact, satisfying precisely the desires and standards of comfort that public transport has been largely unable to achieve. Travel in one's own car allows the occupant to define his or her personal boundaries of shame and embarrassment. Moreover, it can convey the feeling of protection from physical violence and permits a measure of control over sensory stimulation, such as the fragrance of the car's interior; the kind of music being played, if any; and the color of the upholstery. Even when using a car saves neither time nor money, as when the stop for the bus directly to one's destination is located right outside one's door, when a traffic jam is likely, or when there is little or no parking at the destination, the car retains its overriding significance as a shield against sensory stimulation. In the car, the user can be sure that he or she will not be confronted by subjectively trying circumstances. It is possible to avoid the nervous overstimulation that pervades aesthetically desolate public space, especially many of the places where passengers transfer from one public bus or train to another (Rammler, 2000).

Whoever designs transport services should keep in mind the importance of habit in the transport behavior of individuals. Many daily activities take place routinely, and transport behavior is no exception. Habits disencumber a person by reducing the need to make decisions constantly and thus reduce the complexity of everyday actions. In an increasingly complex and fragmented world, the attraction of means of transport depends largely on whether they can be used habitually. The automobile, with its unlimited availability and high reliability, meets this need in every way. A privately owned car requires much less planning and organization to use than local public transport does. One of the principal reasons that cars have been such a success is that people can "use them without thinking twice about it" (Franke, 2001, p. 173).

These findings have a simple, though not trivial, implication for the design of alternative mobility services: Means of transport are broadly accepted and used daily if people perceive them to make life easier—that is, if they are convenient and comfortable (Franke, 2001). Convenience, comfort, and the capacity to become routine are hence essential for each means of transport not intended as a niche product. These requirements, however, appear to be at odds with diversification and enhanced flexibility of service, for the car sets the standards for these factors as well. Providers of public transport systems will succeed only if they manage to develop flexible and diverse services and imbue them with new societal meaning (Canzler & Knie, 1998). As noted in the previous section, social life worlds are increasingly shaped by an individualized appropriation of space and time. Public transport services must therefore become more individualized than they currently are. The following proposals address this necessity.

- Small-scale services that complement the classical mass-transport approach to transport. When the need for protection from sensory stimulation is high, effective concepts are those that make it possible for passengers to stake out their personal space in trains and rapid-transit carriages. Individual work carrels located in special quiet zones are a possible remedy, for example.
- Increased flexibility, especially in suburban areas and during hours of slack demand (e.g., evening and night hours).
- Clearly presented, understandable, and easily accessible services for targeted groups of customers. The bureaucratic culture of public transport providers, which has persisted in defining passengers primarily as "transport cases," must be replaced by a service-oriented perspective. This change is especially necessary in the interest of the "captive audience"—the transport users who have no alternative to the local public system. The quality and spatial accessibility of the service should be attractive.

In addition, it is expedient and necessary to improve the ways of orienting passengers as they board or transfer within the public transport system must be improved.

Access to schedules, details about routes, and "on-site" directions must be facilitated with information systems that are as straightforward as possible. Wherever passengers transfer, whether it be to a different means of transport altogether or only from one vehicle to another, they should be able to do so effortlessly. The siting and design of bus and train stations can be based on scientific knowledge about space (e.g., Downs & Stea, 1982). General information signs and other aids to making one's way should be designed in such a manner that passengers can comprehend them quickly. When combined with universally understood symbols and pictographs, these devices vastly increase the ease with which the public transport network can be used. This improvement is particularly important given the continued growth of travel from one region and culture to another.

Lastly, the different transport carriers should mesh optimally. Along with "intramodal" integration—a purposefully synchronized deployment of all public transport services—priority must be placed on improving "*inter*modal" integration. The concept of intermodality, or integrated mobility, which has surfaced at regular intervals in the professional literature since the 1920s (Cerwenka, 2000), is aimed at fitting coexisting transport carriers into a higher-order whole and thereby overcoming their "monomodal competition" to achieve "intermodal" cooperation. An overall transport system of that kind should be optimized across all transport carriers.

Transport specialists assume that this approach can boost efficiency considerably. The objective is to decouple the growing demand for transport services from an increase in traffic volume and its costs. Environmental impacts could thereby be reduced without restricting mobility. To users, the main advantage of intra- and intermodal integration is to permit them to get them to where they want to go as smoothly as possible. First, there must be no long waiting times; direct connections are optimal. Second, the stations should have as few physical and mental obstacles as possible. The close integration of transport technology is the sine qua non for meeting the requirements of users.

The car sets the standard for this type of integration strategy also, for the road users accustomed to a privately owned motor vehicle are prepared to transfer only if they are unlikely to experience seriously disadvantages. For that reason, special attention must be given to the interfaces between means of transport, including not just physical transfer but also the information, booking, and clearing system covering all means of transport. The less mental effort one must expend in order to use transport services, the more they will be accepted.

Putting this integration strategy into practice is easier said than done, for the interfaces are the central design problem. They demarcate what providers consider their traditional "jurisdictions," their specific brand identity of the companies providing the various modes of transportation. A workforce that has tried for decades to improve a specific means of transport is now expected to join forces with

competitors in order to afford a smoothly functioning and reasonably priced whole? That change inevitably takes time to learn.

Two further dimensions are important in the design of future public transport.

- The physical layout of train stations and all other elements in the "interface hardware." Anyone who has stood in the wind channel of the Kassel's intercity express train station in winter knows how relevant this issue is. Even a scheduled five-minute wait extended by a three-minute delay can cause extreme irritation, but traffic jams delaying drivers and passengers in their cars for up to ninety minutes are often tolerated without a word. Measures to improve subjective well-being are as necessary in rail stations and all other parts of this interface hardware as anywhere else. In addition to the quick and effortless orientation that should be possible everywhere, the smooth transfer of luggage is an important facet. Secondary uses of transport infrastructures can also be increased in many places, as is the case with train stations selling luxury items and sundries.
- The informational and communicational engineering of the interfaces—the "interface software." Unlike the ITS, this dimension is about customizing information technologies and communication technologies to the individual user. It ranges from the new door-to-door schedule on the homepage of the Germany Federal Railroad to the latest development of wireless application protocol (WAP) cell phones, which enable one to plan a route and pay the fare while the journey is in progress. Public transport still suffers from the fact that travel outside the bounds of one's routines always requires extensive planning and information, but with modern information technologies the use of collective transport systems, too, can become second nature. In principle, new terminals such as personal travel assistants (PTAs) and personal digital assistants (PDAs) greatly reduce the effort entailed.

Of these two design dimensions, physical layout is the least amenable to quick change. Most of the transport infrastructure consists of steel and concrete. The outlined design requirements can be acted upon immediately only where large-scale projects are about to begin. Upgrading the informational conditions seems more feasible. It could be simply a matter of pulling a kind of flexible "second skin" of information technology over the hard, inflexible body of infrastructure. Reality looks different, though. All too often, information and communication technologies continue to be used as ITS for optimizing traffic flows of discrete systems. Intermodal linkages are rare and rather random.

Nonetheless, the conditions for an expanded use of ITS are basically favorable. Assessing the situation in German agglomerations, Prognos AG estimates that about one fifth to one third of the adult population is potentially interested in

using integrated mobility services (Prognos, 1998; Schad, 2000). In sociodemographic terms, a disproportionately high number of young adults belong to this group. The greatest interest is found among the New Economy's innovative, highly mobile people who are willing to learn and oriented to information technology. The employees in the sectors of the network economy are used to thinking in terms of discretionary access options and less in the traditional categories of ownership. This frame of mind is spreading in other parts of the population also (Rifkin, 2000). The trend toward simple and quick access to services through modern information technologies could foster the intra- and intermodal optimization of public transport services, despite all the political and structural obstacles described above. The chances for "new mobility" hinges largely on whether this trend will hold only for a few milieus or for the everyday world of society at large. This critical question needs to be answered by means of empirical sociological studies on transport.

5. Modular Assembly and Design of Public Transport—New Kinds of Services and Products with a Car-sharing Module

Whoever wants to make it into the future needs innovations. If the transport system is viewed as a modular entity, the only component for serious consideration as a complement to classical bus and rail lines is a new role for the car. Future successful providers of local public transport will have to expand the familiar product spectrum—officially authorized regular transport services—by including the car as a component that can be calculated and marketed quite separately. A basic problem, however, is that the local transport companies are currently subsidized but their new activity competes against that of privately financed providers, who could be forced out of the market by subsidized prices. The services therefore must be positioned in such a manner that they cannot be used as individual products. They must be perceived as "product improvement" and must be offered only in combination with the classical services of local public transport. Furthermore, the car as a component of this sort must be developed in a way that it does not cannibalize the other means of transport. The challenge is to create an integrated transport system with use-centered mobility services by making public transport more individualized and private transport more public. This juncture is where car sharing comes in to link the different transport carriers and types of use:

> Car sharing means the organized joint utilization of an automobile. Vehicles are made available for common use at decentralized locations. As the owner of the cars, the provider is responsible for purchasing, repairing, insuring, and maintaining them. To use this service, one must conclude a contract stipulating the rates and other conditions (e.g., membership registration fees, monthly premiums, and security deposit).

> The cars can be booked by telephone round the clock and by Internet for anywhere from an hour up to several weeks of use. The user usually gains access to the vehicle by picking up the key from a safe at the stations. Some companies use chip cards as well. Invoices for the trips are based on a distance or time rate covering the fuel and the fixed costs for depreciation, taxes, maintenance, repair, and insurance. (Franke, 2001, p. 17; our translation)

The purpose behind this new field of business is thus not to replace old business but rather to intensify customer ties and to win customers. To do so, the car as a component must be a flexible, complementary service. In areas into which car sharing is to be introduced for the first time, the brand leadership of the local public transport provider can be used as an umbrella for the car-sharing services. A familiar provider will thereby be perceived by its customers to be offering a new, additional product. The car-sharing service will be established more quickly and cost-effectively than if an entirely new market campaign must be developed for it. Moreover, this approach uses existing marketing and distribution channels and thereby creates synergy.

Car sharing: From the "Alternative" Car to the "Public" Car

What are public transport companies letting themselves in for if they include car sharing as an innovative component in their system? And how did car sharing actually emerge? In Germany, the organized joint utilization of cars started just before the fall of the Berlin Wall. A dynamic phase of growth began with the founding of Stattauto in Berlin in 1988 (see Petersen, 1995). In the start-up period the innovative car sharers received a great deal of attention from transport policy-makers and in the media. Until the mid-1990s, though, the venture remained a primarily West German phenomenon.

Car sharing arose from several factors in that society. Widespread protests in the late 1960s and left-of-center reforms in the early 1970s led to a diversified alternative and environmental movement, which peaked in the 1980s. This milieu gave rise to car sharing, an idea that emphasized an alternative approach to transportation. For many car sharers, joint utilization of automobiles was a specific departure from prevailing social policy. Although comparable alternative milieus existed in the former German Democratic Republic (chiefly in the cities), they were on a much smaller scale for the most part. Ideas and products of the West German alternative movement made little headway there because the socialization and experience of the East German population was totally different.

After German unification the focus in the *Länder* formed on the territory of former East Germany was on coping with enormous social and economic upheaval. Although the transport system and the infrastructure were high on the political agenda, there was little room for small, alternative solutions. Pent-up

demand for private motorized self-locomotion was articulated in a soaring number of car registrations and an explosion in the availability of cars.

As the 1990s wore on, not only did the alternative movement largely crumble but both the chosen means of transport and the transport infrastructure at large in western and eastern Germany became more similar. More than a decade after the unification of the two German states, the standard reference works on transport statistics (BMW, 1997; BMVBW, 1999a, 1999b; Technische Universität Dresden, 1998) show that the conditions of the transport system as a whole and of motorized private transport and the modal split in the eastern part of the country have largely caught up with the conditions in the western part. Private ownership of a car is leveling off in already highly motorized households, bicycle travel is on the rise, and the proportion of local public transport and pedestrian traffic continues to decline. As in western Germany, there is additional need for temporary auto-mobility in eastern Germany (Frick, Diez, & Reindl, 1998; Prognos, 1998), where the financial wherewithal for it now exists.

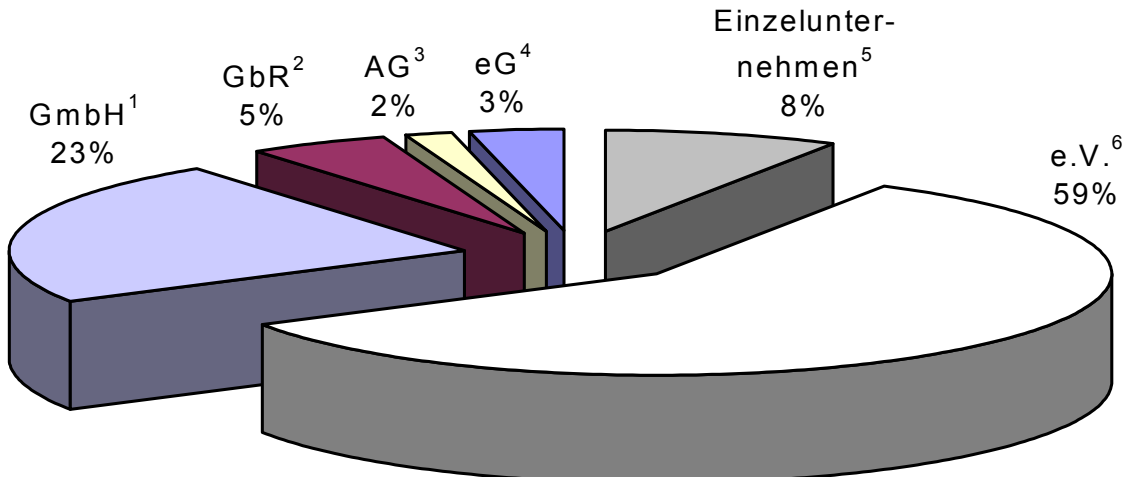
Intra-German sensibilities and overarching fundamental processes have altered the political and social framework in eastern and western Germany in ways crucial to new concepts of mobility. The environment for car sharing has changed. It is increasingly market-oriented, with East-West differences playing ever less a role. On the demand side, the traditional car-sharing clientele is no longer the same, for the type of user from the heyday of the alternative movement is vanishing. On the supply side professional and commercial structures are emerging from the tension between ecological concerns and mobility services (see Franke, 2001).

Revolution among Car-sharing Providers

More than ten years after car sharing was launched in Germany, the business is still highly variegated and its particularistic structure bewildering. In the summer of 2000 more than 80 organizations were offering car sharing at some 235 locations (43 in North Rhine–Westphalia alone). According to the National Car-sharing Association (BCS), the nearly 50,000 people availing themselves of this service have access to more than 1,800 vehicles (Franke, 2001). The scene is undergoing radical change, however. The following analysis of the most recent developments draws especially on experiences in eastern Germany. Because the providers there could not build on the classical “alternative” clientele familiar in western Germany, they are a source of clues to new trends.

A look at the organizational and legal forms involved shows that a few highly professional providers account for more than two thirds of all car-sharing agencies (see Figure 1). Aiming for growth, many associations and cooperatives are reorganizing to formalize and professionalize their operations. Start-ups are particularly keen on this strategy.

Figure 1 "Number of car-sharing organizations by legal form."



(1. *Gesellschaft mit beschränkter Haftung*: a type of close corporation under German law; 2. *Gesellschaft bürgerlichen Rechts*: civil corporations; 3. *Aktiengesellschaft*: joint-stock corporations; 4. *eingetragene Gesellschaft*: Incorporated companies; 5. *Einzelunternehmen*: sole proprietorships; 6. *eingetragener Verein*: registered associations).

The products are changing as well because car sharing is said to have considerable potential if it offers appropriate services. Many providers are trying to expand and standardize the products in order to appeal to new private and business customers alike. Innovations such as "combicar," "Cashcar," "Mietermobile," and "car-Pool" have come mainly from new enterprises. These products are going a long way toward diversifying car-sharing services and improving their quality (Beutler & Brackmann, 1999).

Another decisive factor determining the degree of modernization is the size of the regions served. Most of the organizations for car sharing are located in areas ranging from 20,000 to 50,000 inhabitants, but small providers are especially prevalent in rural and provincial areas. They are strongly oriented to private car sharing. The multiplicity of car-sharing organizations, with their legal varied form of organization and the nature of their presence on the market, is also definitely reflected in their annual balance sheets. More than half of the car-sharing organizations currently active in Germany have an annual volume of business less than €50,000.

People living in a German city of more than 100,000 inhabitants may assume that there is a local car-sharing provider. Below that level, the availability of car sharing steadily diminishes. In areas with fewer than 20,000 people, it is all but impossible to run commercial, profitable car sharing. In cities of over one million inhabitants—Berlin, Hamburg, and Munich—there are more than 10,000

car-sharing users all told, a figure equivalent to 25 percent of all customers in Germany. However, improvement in the services could no doubt attract a far greater number of customers there. Although the basic conditions in towns and cities are obviously more favorable than in rural areas, experience in Switzerland indicates that nowhere near all the potential of car sharing has been tapped. The circumstances in Germany are admittedly different, but the Swiss have shown in principle that car sharing can be successful even outside major cities. Operating across a wide area significantly enhances the accessibility and visibility of the service being offered (see Muheim, 1998).

Although the shift from ecological concerns to innovative transport services has markedly accelerated among providers in Germany, a new and professional kind of car sharing has been slow to develop. Standardization of the services offers new perspectives, but building a new clientele calls for lowering the thresholds to market entry by cutting back deposits and arrangement fees. To reduce the diseconomies of car sharing in comparison to those of privately owned cars, increasingly flexible forms of use are being tested, including immediate access to a vehicle without reserving it far in advance, open-end use, one-way trips, and an expansion of combined options and package services.

Cooperation between Local Public Transport and Car sharing

Strategic partnerships and cooperation is another promising possibility for professionalization, with local public transport companies becoming increasingly important players. In the summer of 2000, the BCS reported that car-sharing companies and public transport operators had entered into 19 cooperative arrangements in which customers of either signatory to the agreement could claim reduced rates for services of the other. Such collaboration has been launched in several German cities, such as Aachen, Bremen, Dresden, Halle, Karlsruhe, and Bielefeld. The Rhine-Main Public Transport Association (RMV) explicitly promotes mobility service providers, including car sharing (see the Internet web site www.rmv.de).

In former East Germany, attention is focused on Halle, where teilAuto attracted more than 2,500 car sharers within two years and, Dresden, where stadtmobil reached the same level within three years. The rapid growth is so encouraging that these two companies are extending their services to other locations. The “Dresden model” has meanwhile spawned a comparable concept in Jena. Eyes have most recently turned to Leipzig, where the city’s public transport authority, the LVB, followed up teilAuto’s dynamic entry to the local market by announcing car-sharing services of its own.

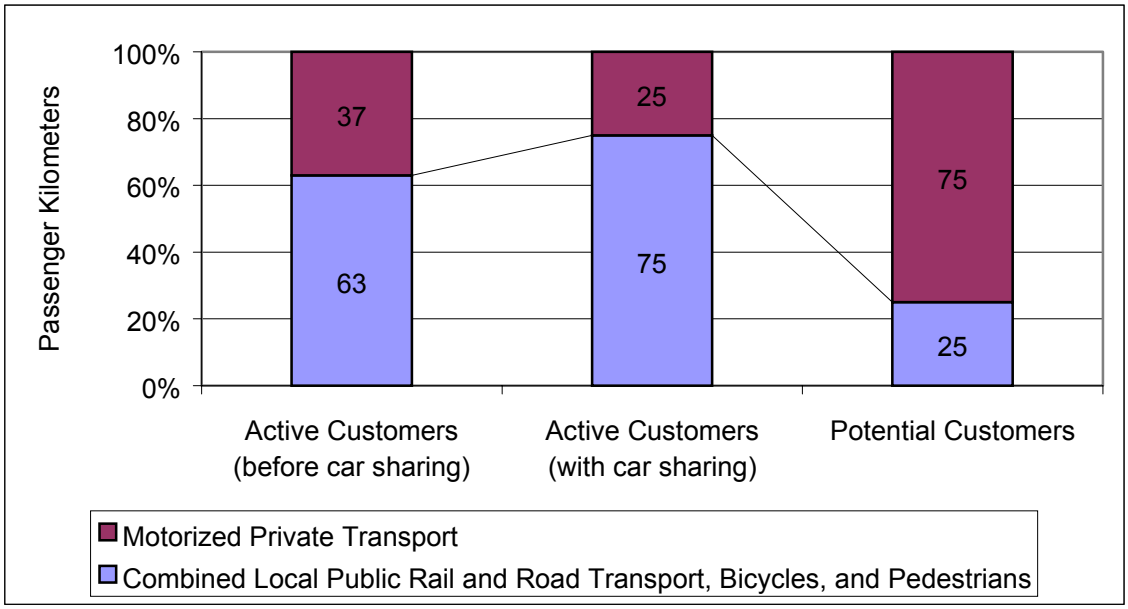
Cooperation between car-sharing companies and local transport providers is based on the assumption that both will profit together. Cooperative arrangements and strategic alliances can entail a variety of advantages, including an improved

and expanded range of services and the possibility of networking fleets. The two parties can project their respective images onto each other's products through joint advertising strategies, and offices and stations can be combined, not only meshing the target groups but also generating public interest by offering something new.

There is indisputably considerable potential for raising efficiency and cutting costs. The key determinant, especially for the volume of the core business, is ultimately the actual behavior of car sharers and of people using local transport. The two providers of mobility services can complement each other well in this respect. Both compete against privately owned cars. As many studies have documented, car sharers have an affinity for public transport (Krietemeyer, 1997; Muheim, 1998; Perner, Schöne, & Brosig, 2000; Universität Bremen, 1993, 1995). Even before these people began sharing cars, they traveled most of their distances on busses, trains, bicycles, or foot. This proportion grew even greater with the advent of car sharing.

Muheim (1998) reported that the proportion of car sharers in Switzerland's combined modes of transport, or *Umweltverbund* (local public rail and road transport, bicycles, and pedestrians), rose from 63 percent before they joined the Swiss car-sharing organization to 75 percent afterward because many of them had gotten rid of their own cars (see Figure 2). Public transport accounts for about 60 percent of this expansion, or 1,450 kilometers (901 miles) per person per year, with the average car sharer traveling 900 kilometers (560 miles) per year with a car.

Figure 2 "Car sharing (CS) and modal split—The transport system's use and potential car sharers." (from P. Muheim, 1998, Car Sharing—der Schlüssel zur kombinierten Mobilität: Synthese (Programmleitung Energie 2000, ed.). Bern: Eidgenössische Drucksachen- und Materialzentrale (EDMZ), p. 64.)



Krietemeyer (1997) reported a similar experience in Munich, where car sharers use season tickets three times more than the rest of the population does. He went on to show that the car sharers were more likely to buy a season ticket rather than pay individual fares increases when they join a car-sharing organization. He found that car sharers spent an average of €45 a month to use busses and city rail transport, and that car sharing cost them approximately €39. Surveys in Dresden (Perner, Schöne, and Brosig, 2000) and Bremen (Universität Bremen, 1993, 1995) also concluded that car sharers were already enthusiastic users of public transport prior to their membership in a car-sharing organization and that they now travel with public transport even more often than before they joined.

What these figures can mean for the volume of business by providers of public transport is documented by studies from Switzerland. According to their figures, 20,000 customers involved in the start-up phase of the car-sharing company Mobility have spent 23.2 million Swiss francs (about €15.3 million) for public transport—2.6 million Swiss francs (about €1.7 million) more than they had before they became members, or an increase of 12 percent. Among persons who switched from their privately owned cars to car sharing, spending on season tickets rose as much as 80 percent.

However, these before-and-after comparisons are based on studies of customers who were mostly the pioneers of car sharing. The new target groups generally feel less bound to public transport, so the increase in business volume to be expected from them is likely to be smaller. Nevertheless, the transport behavior of these users, too, may well change, as demonstrated by zuri mobil in Switzerland (see “Learning from Experience,” below).

On the whole, people who choose different means of transport for different purposes also remain mentally mobile, and vice versa. A shared car is a vehicle used for particular purposes and at particular times in order to meet certain needs, which may have a recreational or expressive character and may enhance the value of the experience. But unlike the privately owned car, a shared vehicle is not by nature a perpetual invitation. Other means of transport simply seem more suitable for other routes, and many car sharers take the opportunity to use those other ways of getting around. By contrast, many car owners often cannot imagine using any other vehicle but their own.

No matter what, flexible transport behavior by car sharers depends on a functioning public transport system. If this condition is met, then both sides will probably benefit. Well-developed public transport offers an alternative to driving a privately owned car and thereby enhances the attractiveness of joining a car-sharing organization. In return, car sharers increase the frequency with which they use public transport instead of a car, especially if they do not (or no longer) own one. Between and 40 percent and 50 percent of the people who practice car sharing

take public transport even for the trip to the mobility stations (Krietemeyer, 1997; Muheim, 1998).

Public transport profits most from car-sharing members outside rush hours. These people use busses, trams, and trains mostly for recreational, business, and shopping trips. Fuller use of local public transport means that its operators increase their revenues without having to provide additional capacity.

Car-sharing services can even win over entirely new groups of users for public transport. The very fact that a traditional bus and rail company advertises car sharing generates contacts with customers who never would have sought out the office or station. Once the customers are there, they may be persuaded by an attractive local public transport service.

Just how great an advantage public transport companies actually have is difficult to tell. Various aspects must be considered. As the preceding examples show, the core business of public transport providers benefits when the vehicles are relatively full on their routes. Turnover also improves notably from the sale of additional season tickets. It is more difficult to measure the proceeds resulting from an increase in the number of customers attracted for long periods by improved service.

An initial systematic survey conducted in Dresden (Perner et al., 2000) gives some insight. Information about personal transport behavior was received from 300 of the 1,031 people who use the car-sharing services provided by stadtmobil, an enterprise cofounded by the Dresden Public Transport Authority (DVB). The trends in the Saxon capital are the same as in Munich and Switzerland: The passenger mileage covered by public transport is increasing, and the users are switching from single-fare tickets to passes valid for a specific duration (day, week, month, and so forth). People are especially tending to subscribe to season or commuter tickets in order to take advantage of car-sharing services without having to pay additional basic fees. This price advantage is probably the primary reason that the share of stadtmobil customers buying passes for specified durations rose from 71 percent before they joined to 78 percent afterward.

It is particularly important in this context to consider what would have happened without the additional offer. The DVB was able to retain or gain 18 percent of the car sharers as regular customers, 12 percent bought passes for the first time, 6 percent reported that they would not have used their DVB pass if it had not included car sharing as an additional service, and just under 33 percent of the respondents reported that they would otherwise have bought their own car.

The individual behaviors and changes in those behaviors give rise to a number of cost-effective impacts. A new customer who usually used single-fare tickets on his or her rare trip by bus, tram, or train and who now subscribes to a monthly pass because of cooperation between the DVB and car-sharing companies clearly boosts DVB earnings whether or not that customer actually does travel

more with public transport than in the past. By contrast, a person who used to purchase a monthly pass and who subscribes instead to the more economical annual pass incurs short-term losses in revenue for the DVB. The survey of stadtmobil members took detailed account of interactions changed intensities of use and types of tickets, the potential losses that would have been incurred if the car as a component had not been an additional service, and the proceeds from prolonging the business relations between the DVB and customers.

The economic effects of cooperation between the DVB and stadtmobil are very positive. There are substantial increases in total earnings. Projected over seven years (the average duration of a car-sharer's membership), the increase in stadtmobil's total earnings from the 1,031 people who were members of the organization in its first year of business netted the local public transport companies additional revenues ranging from DM 457,000 (€233,664) to DM 978,000 (€500,051), depending on whether or not these members ceased buying passes for local public transport (with or without buying a car instead). These enhanced earnings for public transport companies stem solely from the cooperation with the car-sharing company and not to the service itself, which in stadtmobil's case is independent of the earnings situation.

In short, experience shows that wherever a professional car-sharing scheme exists, there is corresponding demand. The instances of successful cooperation between car-sharing organizations and public transport companies signal that other and considerably larger groups of customers beyond the classical, alternative clientele can be cultivated for new forms of mobility. In a highly regarded study on market potential, Baum and Pesch (1994) plausibly estimated that Germany could have as many as 2.45 million car sharers. Their report, however, took the car-sharing clientele to date as the point of departure in their report. By contrast, Muheim's 1998 study on Switzerland went further by having the forecast also include the linkages with public transport companies. Muheim identified a potential of 1.7 million customers in the country's 6.5 million inhabitants. Indeed, the Swiss car-sharing company Mobility, which was formed by merger, reported nearly 40,000 people on the road in shared cars in early 2001—almost as many in Germany thus far with its 80 million inhabitants.

The fact that new target groups can be addressed with greatly modified services has been reflected in two studies with representative samples in Germany. The Rhenish-Westphalian Institute for Economic Research (RWI) (Frick et al., 1998) and Prognos (1998) asked which new mobility services could attract new groups of customers. Replacing the idea of car sharing with a new car-rental concept, Frick et al. proposed "Kilometer Leasing: Car on Call" [*Auto auf Abruf*]. The product is similar to a telephone card representing a stated number of kilometers that can be used as needed. According to the authors, a potential clientele of more than 7 million people exists for such an offer honored throughout Germany.

In a study commissioned by Germany's Federal Ministry for Education, Research, and Technology, the Swiss organization Prognos AG researched the market for "new integrated mobility services" and identified car sharing as a component of mobility packages in this concept (Prognos, 1998). Services of regional public transport providers and conventional car-rental companies are also included along with special rates in intercity travel and transport consortia. All participating companies are expected to offer the entire package, which is to be available simply and uniformly by means of a multimodal customer card. The researchers concluded that 376,000 customers would most probably respond to an offer of this kind. In any case, the number of "interested" users was estimated to be 1.88 million.

Both studies, which were based on surveys of representative population samples, clearly showed little difference between the volume of demand across reunited Germany. What really matters is the infrastructure and mobility patterns of a population concentrated in urban centers with more than 200,000 inhabitants. With appropriate services, the demand for kilometer leasing in such locations would approach 25 percent, well above the 17 percent in places with fewer than 200,000 inhabitants (Frick et al., 1998). In a survey of car-sharing organizations at more than 200 locations, the possibility of opening up new target groups was pointed out also by the North Rhine–Westphalian Institute for Research on Regional and Urban Development (Freudenau & Kanafa, 2000). Offers of additional car use "in portions" have been warmly received in circles outside the clientele served up to now. This response has not been observed only in places where the integration of car sharing and local public transport services has advanced the furthest. A pilot project in Aachen called "Car Sharing for Companies" and intensified cooperation with the home-building industry are examples showing that a large market does in fact exist for car sharing—if the customers are not confronted by inflexible "all-or-nothing" choices.

The studies cited above and others (e.g., Brandt, 1995) make out a new type of user. Unlike members of the founding generation, the people who opt for car sharing today or who show interest for the first time have few, if any, ideological motives. Most of them are young and have been drawn to organized car sharing for pragmatic reasons. They are less concerned with sharing an idea than with using products and services. The level of education and income of this group is not as high as that of classical customers.

Old and New Target Groups

Just as conflicts pit traditionalists and modernizers against each other within car-sharing organizations, equally conflicting backgrounds and needs exist within the clientele being served. The new users do not develop as close a relationship to

the providers as the older users do. Winning the commitment of the new users takes more flexible services and greater resource input than in the past. But for car-sharing companies, most of which are economically squeezed, these exigencies also bring about advantages and opportunities to improve their volume of business. For as the previously cited research indicates, the new users tend to travel more than the first generation of car sharing. In work commissioned by the RWI, the Consumer Research Society (GfK) found in 1998 that demand for leasing more than 5,000 kilometers (3,100 miles) of driving per year would be more than twice as great in the eastern part of Germany (40.6 percent) than in the western part (18.8 percent). It was also found that the "public car" was driven approximately 160 kilometers, or 99.5 miles, per customer per month in its first two years of operation in Dresden, distances far greater than those hitherto recorded by "statt"-Auto organizations, whose members are concerned more with membership than with driving cars.

The "classical car-sharing clientele," as it has been characterized several times above, has changed little over the years. According to Franke's (2001) synopsis of several studies and surveys on car-sharing organizations, the average customer is between 30 and 40 years old—and is aging with his organization, so he is now close to his fortieth birthday. Men account for 65 percent of the customers and are thus overrepresented, as are employees and civil servants, who together make up 60 percent of the traditional car-sharing community. Other groups represented are the self-employed (18 percent) and students and trainees (12.3 percent). Blue-collar workers, the unemployed, and retirees are nearly absent altogether. The net household income of a classical car sharer ranges from DM 3,400 to DM 4,300 (€1,738 to €2,199), with the household consisting statistically of 2.22 persons—slightly below the average in the general population.

Another defining characteristic of people who currently use a car-sharing organization is their motives for joining such an organization. Traditional users have an idealistic, if not ideological, tie to the alternative project and exhibit socially critical environmental awareness. Whether they actually make use of the services depends largely on the structure of the settlement in which they live. If they live in a city with adequate public transportation, they feel only an occasional dependence on a private owned car. Traditional car sharers therefore reserve a car chiefly for shopping and running errands. Car sharing is also used for recreational activities and brief vacations. Otherwise, the people take busses, trains, and bicycles, or they go by foot.

This pioneering group will remain relevant for all new forms of car-sharing and its combinations with other means of transport. But additional customers are unlikely to come from these circles. New potential must be developed. The new users must therefore be drawn from other, broader segments of the population. That change will entail a shift in the main motives for becoming a car sharer, for

neither the affiliation with an alternative project nor the appeal to environmental awareness will attract many new users. Flexibility, expediency, and economic considerations now more salient to such customers. The expanded services must respond to these desires, and the transport-related behavioral patterns of the new clientele must be reflected in product development. A change in attitudes toward the car is essential. Both ideological repudiation and the role of the car as a status symbol are diminishing, and a less intense, more rational kind of relation to the car is emerging (Canzler & Knie, 2000).

As with previous car sharers, however, an urban residence, a pronounced affinity for pubic transport, and a basic sensitivity for ecological concerns are crucial if the new target groups are to develop a serious interest in car sharing. Nevertheless, environmental protection has less influence on their actual behavior than it did with earlier users, although knowledge about the interactions is widespread. The new car sharers no longer seek moral justification to ease their minds. From the ecological perspective, their practical transport-related behavior is highly contradictory, as documented by the Federal Environment Agency's most recent report on environmental awareness in Germany (Kuckartz, 2000). Large, fast cars, for example, are by no means taboo among people espousing traditional ecological lines of argumentation. To accommodate this trend, it could make sense to emphasize an orientation to fun and adventure in the range of vehicles offered.

In a nutshell, classical and new members of car-sharing organizations have quite different interests. The traditional customers are keen on the idea of car-sharing and see themselves explicitly as members of an organization. They use the service little—and with ever less frequency the longer they remain members. By contrast, customers on the "new market" are interested in a service that is reasonably priced and practical. Ecological considerations rank only third in priority (Franke, 2001).

In other words, companies seeking to offer new, professional, custom-made services must know the customers. For example, an interlinkage of public transport operators and car-sharing providers is more attractive to relatively young people, women, highly educated people, and people with slightly below-average incomes than to the classical clientele. Prognos (1998) reported that package solutions, which offer the services of public transport companies in combination with those of either alternative or conventional car-rental organizations, attracted an above-average level of interest within certain groups. This kind of offer was found very attractive by 44 percent of the 18–25 year olds, whereas the survey-wide average of its appeal was only 25 percent. The only other age group in which more than 25 percent of the respondents signaled interest in such combined services was the 36–45 year olds. Marketing by providers of such packages should continue to concentrate on people with a relatively high level of education, for

43 percent of those interested hold university entrance qualifications, and 30 percent hold a degree from a polytechnic college.

The RWI has identified many of these typical traits among the potential clientele of kilometer leasing. "Car on Call" and other services not meshed with public transport address a rather car-oriented public. Just less than half of the people interested in such services are car owners who occasionally need an additional vehicle beyond the one or two cars they already have.

Overall, the studies on the "new market" point to three outcomes:

- There are definite differences between the clientele of the new market and the clientele of classical car sharing. If the different groups are offered appropriate products, the range of customers is likely to expand dramatically.
- There are great additional mobility needs that new forms of use can satisfy.
- Where people can combine different kinds of transport efficiently according to their own needs, there is a realistic possibility for reducing the general fixation on the privately owned car. The way to "public personal transport" can open up.

Learning from Experience: zuri mobil

Car modules could soon set a precedent in local public transport companies. With the foreseeable liberalization of the transport markets, the topic has gained considerable momentum. Several transport companies have begun testing whether they should also offer car-sharing. If they opt for this additional product, the next step would be to decide who provides it. They could either cooperate with a car-sharing organization or manage the service on their own.

For experience in putting innovative mobility concepts into practice, one might turn to a pioneer in this field—Zurich. Since 1995 the Zurich Public Transport Authority (Verkehrsbetriebe Zürich, VBZ) has been linked with a car-sharing product known as zuri mobil. The service is provided to the VBZ's regular customers, who can pay an additional 150 Swiss francs per year to become users of zuri mobil and receive reduced rates for car sharing. Any second person accompanying the member on VBZ routes is included in this arrangement at no extra charge, except for the hours before 9 A.M. on workdays.

Car sharing is offered by a company called Mobility, which provides its approximately 40,000 customers (early 2001) more than 1,450 vehicles at 250 railroad stations and 600 other locations in 350 towns and local communities through Switzerland. Zurich alone has 270 cars available at 46 locations affiliated with the public transport system; the canton of Zurich has 370 vehicles. They can be rented by the hour, day, or week, and the fleet encompasses a wide variety of models, from the Smart to family limousines, convertibles, motor scooters, minivans, and

transporters. The cars can be booked by telephone around the clock or over Internet. The reserved vehicle is opened with a personal smart card. The annual premium for zuri mobil includes comprehensive insurance plus collision coverage for the use of the car. Only the costs related to time, distance driven, and fuel are billed. The vehicle can be fueled without cash by means of the smart card.

For long-distance journeys, such as vacation trips, it is also possible to use Hertz rent-a-cars, which are booked through Mobility at a 30-percent reduction and are received at one of four staffed stations in Zurich. Customers can track their mobility costs by means of a detailed statement that arrives every other month. It is issued by Mobility, but the letterhead bears the trade name zuri mobil.

Zuri mobil is thus a trade name under the aegis of the BVZ, and the cooperation with Mobility is contractual. The partners possess a brand identity for the customer. Questions received by telephone, for example, are answered over Mobility's own information hotline.

Zuri mobil was created in 1995 by the VBZ, the car-rental agency Europcar, the Agentur Energie 2000, and other partners. Originally designed as a research project, zuri mobil was only moderately successful. After attracting the cooperation of the car-sharing cooperative ATG, which later became Mobility, zuri mobil was relaunched in January 1997. It had 1,500 customers in the first two months alone. Just six months thereafter, 3,500 people made use of zuri mobil, an enormous growth in membership for car sharing (Muheim, 1998). The upswing continued in 1998, but demand then declined. Today there are only approximately 2,400 zuri mobil customers among the more than 100,000 subscriptions to Switzerland's transport consortium. About 50 percent of those zuri mobil customers hold an annual subscription to the VBZ, about 40 percent occasionally buy a monthly pass, and 10 percent joined without subscription to the regular annual premium of 250 Swiss francs. For the same price, the last-named group could become direct users with Mobility; it is only a different trade name. What counts is which organization appeals to the customer most, Mobility or the VBZ. Financially, it does not yet matter to Mobility which of the two organizations the customer is affiliated with, but that situation may change after conclusion of current negotiations over modification in the agreement.

The reason for the decline in the number of people using zuri mobil is that customers have been gravitating directly to Mobility in the last two years. This shift can be attributed to the fact that the VBZ has not continued to develop the product since the broad launch in 1997. But Mobility *has* continued to develop. In 1998 it started cooperating with the Swiss Federal Railroad (SBB), whose regular customers, too, are now offered car sharing at preferential conditions under the name Abo mit Auto ("subscription with car"). Presumably, some VBZ annual subscribers have received reduced-rate car sharing through this product instead of going through zuri mobil. Besides, satisfied zuri mobil customers who frequently use the car-

sharing option find it more advantageous to become members of the Mobility cooperative directly, for they then make a one-time payment of 1,250 Swiss francs instead of 150 francs annually. When they resign their membership, they not only receive 1,000 francs back but also save the annual contribution.

Mobility points to the clientele's great acceptance of and satisfaction with zuri mobil. This reception has enabled this nationwide company, to position itself locally. The dual presence of the brand name has proven opportune because the VBZ has helped advertise for zuri mobil, and Mobility has profited from the high visibility. For example, the VBZ at first spent up to 300,000 Swiss francs a year for marketing, a budget that shrank to 50,000 Swiss francs annually in 1999 and 2000. The company Micro Concept Car (MCC), which has the compact car Smart, invested 500,000 Swiss francs as a cooperating partner but has since withdrawn.

The VBZ, the first transport operator in Switzerland to create a cooperative venture of this kind, call the introduction of zuri mobil a stroke of fortune. Cooperation at the outset need not even be linked to direct advantages for the transport company. What matters is whether such cooperation pays off in the long run. Studies have documented that public transport has profited immensely from car sharing and that the revenues of local public transport are increased by "combined mobility" (Muheim, 1998). Most Swiss transport companies and consortia, many of which have come to work with Mobility, have acknowledged these facts.

Now that zuri mobil is established and the car has been integrated as a component, planners within the VBZ and the cooperating partners are thinking strategically about what combined mobility could look like in the future. Additional networking, such as an integration of transport by taxi, bicycle, and motor scooter, are the next step in innovation. It is not known whether these services will eventually be offered by the VBZ itself or by Mobility. Negotiations with the taxi business are in progress. The transport operators imagine a product with which a person may take a taxi at a reduced rate or at no charge at certain times—say, at night.

6. Looking Ahead—Ideas in Summary

One can take widely different stances on all these efforts to reform public transport and can defend each well. The various actors do just that. Whether it is the EU Commission, leading local associations, unions, or the businesses themselves, they are all struggling for a new arrangement.

The main thing is for local public transport to return to entrepreneurial responsibility. In order to think and act in a businesslike way, it must be organized as an enterprise. The Passenger Transport Act, which dates from the national socialist era, and the local public transport laws passed by the *Länder* must be replaced by a new structural agreement. Until such a revision has been achieved,

the clause permitting a measure of experimentation anchored in §2, par. 7 of the Passenger Transport Act can be used for projects and pioneer work. The aim of entrepreneurial reorganization is to establish a wholly new concept of the customer: the "transport cases" of the past must become "market participants." The concept of competition must not confine to the granting of concessions; it must include service as well. Rules for playing the game can be introduced to ensure that proper service is provided. An important task for the responsible authority will be to differentiate clearly between the customer and the provider of transport services. That agent already has an instrument, the local transport plan, that can facilitate the development of a range of services integrated into a regional context. The past practice of having schedules, rates, and routes officially prescribed and approved should be dispensed with. Such qualitative improvements in local transport plans can help reestablish freedom of trade in local transport for the first time since 1935. Of course, that change depends on the rules of competition, which must be defined.

What does more competition mean for the transport companies? As they see it, the only modern approach is for them to create the structural prerequisites for operating as viable businesses. Appropriate legal forms and collective-bargaining arrangements are required, so standards of ownership oriented to the law of public service and the public tariff system must be converted into agreements on performance-oriented objectives that can be developed as needed.

The social trends described above must be kept in mind when developing services and positioning new products. People today, especially those living in major urban centers, organize their transportation today against an established worldwide background of travel by car. The need for set routes traveled at set times has dropped dramatically as a consequence of increasing individualized patterns of mobility, making it necessary for transport companies to redefine their main tasks. Including the car as an integral component of their transport services is an important element in this redefinition. The goal is to enable customers to use a car flexibly without incurring the financial commitment to long-term use that the purchase of a vehicle inevitably entails. Initial modules of such components include car-sharing models that can be developed separately from or in combination with classical alternatives as integrated services.

Of course, these ideas still fall far short of a modern, competitive program of services. A future-oriented range of services offered by public transport companies should include bicycles in addition to cars. It is not just a matter of deciding whether, when, and at what price a bicycle may be taken onto busses and trams. For many people in agglomerations, the bicycle has long since become part of the daily routine in the summer months and has developed into an important complementary means of transport. The bicycle has become a "natural" ally of local public

transport providers in the competition with motorized private transport, but suitable ways to integrate it and make it accessible are still lacking.

Both users and current “nonusers” of local public transport would welcome a reformed system in which every mode of transport is offered under one roof and billed on a single invoice. The formula for success is “Effortless Use of Customized Public Transport.”

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List of Abbreviations

BCS: National Car-sharing Association (*Bundesverband Car Sharing*)
BMU: Federal Ministry of the Environment, Nature Protection, and Reactor Safety (*Bundesministerium für Umwelt, Naturschutz und Reaktorsicherheit*)
BMV: Federal Ministry of Transport (*Bundesministerium für Verkehr*)
BMVBW: Federal Ministry of Transport, Construction, and Housing (*Bundesministerium für Verkehr, Bau- und Wohnungswesen*)
DEG: German Railroad Company (*Deutsche Eisenbahn Gesellschaft*)
DIW: German Institute for Economic Research (*Deutsches Institut für Wirtschaftsforschung*)
DVB: Dresden Public Transport Authority (*Dresdner Verkehrsbetriebe*)
EU: European Union (*Europäische Union*)
GfK: Consumer Research Society (*Gesellschaft für Konsumforschung*)
LVB: Leipzig Public Transport Authority (*Leipziger Verkehrsbetriebe*)
MCC: Micro Concept Car
MIV: Motorized private transport (*Motorisierter Individualverkehr*)
ÖTV: Union for Public Services, Transport, and Traffic (*Gewerkschaft Öffentliche Dienste, Transport und Verkehr*)
PDA *Personal digital assistant*
PTA: *Personal travel assistant*
RATP: *Régie Autonome des Transports Parisiens*
RMV: Rhine-Main Transport Consortium (*Rhein-Main-Verkehrsverbund*)
RWI: Rhenish-Westphalian Institute for Economic Research (*Rheinisch-Westfälisches Institut für Wirtschaftsforschung*)
VBZ: Zurich Public Transport Authority (*Verkehrsbetriebe Zürich*)
VCD: Transport Club Germany (*Verkehrsclub Deutschland*)
WAP: *Wireless application protocol*
WZB: Social Science Research Center Berlin (*Wissenschaftszentrum Berlin für Sozialforschung*)

Project Group on Mobility

The project group on mobility was created at the Wissenschaftszentrum Berlin für Sozialforschung (Social Science Research Center Berlin). It arose from a lengthy research project on the development of engine technologies in automotive engineering. Working through the project-development organization known as Choice mobilitätsproviding GmbH Berlin (Company for Highly Integrated City Traffic Elements), the project group has been closely linked to the design and implementation of the CashCar-Model since 1998.

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