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## Mobility management outside metropolitan areas: case study evidence from North Rhine-Westphalia

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### Abstract

In recent years ‘mobility management’—a means of promoting modal shift and alternatives to the journey—has gained importance in continental Europe. Especially in metropolitan areas this approach is seen as a way of improving the effectiveness of traffic system management measures. This paper outlines some key options and constraints of transferring mobility management to rural regions, drawing on evidence gathered from a research and demonstration project currently underway in rural regions of North Rhine-Westphalia. Basic conditions for implementing mobility management in rural regions as well as preliminary findings are presented.

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**Keywords:** Mobility management; Transport; Rural areas; Germany; North-Rhine Westphalia

### 1. Introduction

In the past, transport planning in German metropolitan areas has mainly focused on ‘traffic system management’ (Beckmann and Witte, 2003). Until the early 1990s, the main approach to dealing with the negative impacts of transport, for example traffic congestion and air pollution, was large-scale infrastructure investment. This included the building of roads or parking spaces, or the construction of tramways or subways. The concentration on ‘hardware’—the construction and maintenance of roads, railway lines, canals and the relevant machinery—was motivated by the conviction that the demand for transport was to be served with the creation of the necessary infrastructure. It was generally supposed that a growth in the volume of traffic is linked with economic growth.

Particularly in the late 20th century the expansion of transport infrastructure was accompanied by a continual growth in demand, which has failed to reach saturation point and led to the considerable overloading and impairment of urban road and public transport systems. Even the introduction of electronic flow control systems, particularly in the last few years, has not fundamentally changed traffic conditions in cities. Traffic planners realised that hardware and supply oriented approaches are not the best ways to address the continually increasing demand for transport. This realisation coincided with the public sector’s need in most European countries to reduce its expenditure on sizeable infrastructure projects because of growing budget deficits: new solutions to the problems associated with the perpetual growth in transport demand had to be found.

In the mid-1990s the idea of influencing the demand itself emerged as a new element in transport science. Transport academics turned to new ideas and possible solutions in the humanities, since here the influence of individual decision-making processes on transport participation was emphasised. In essence, the result has

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55 been a call for the introduction of differentiated but effi-  
 56 cient ways of reducing the demand for transport by  
 57 managing the people's mobility needs. These demand-  
 58 oriented and 'softer' measures are usually now summa-  
 59 rised in Germany under the heading 'mobility  
 60 management'.

61 One of the most common definitions for mobility  
 62 management is that developed in two EU-research pro-  
 63 jects, (*Mobility Strategy Applications In the Commu-*  
 64 *nity*) and (*Mobility ManagemENT for the Urban*  
 65 *environMent*): the concept is an approach to passenger  
 66 and freight transport that involves new partnerships  
 67 and a set of tools to support and encourage changes  
 68 of attitude and behaviour in favour of both more sus-  
 69 tainable modes of transport and alternatives to travel.  
 70 In other words, the approach emphasises the notion of  
 71 *accessibility* alongside that of mobility (Farrington et  
 72 al., in press). EPOMM (2003a) (the European Platform  
 73 on MObility Management) adds that soft measures "en-  
 74 hance the effectiveness of 'hard' measures of traffic plan-  
 75 ning (e.g. new tram lines, new roads and new bike  
 76 tracks)" and are—compared to these hard measures—  
 77 cost effective because they "do not necessarily require  
 78 large investments measured against their high potential  
 79 to change mobility behaviour." Evaluations of the  
 80 cost-effectiveness of mobility management measures  
 81 are in preparation.

## 82 2. Mobility management research projects

83 Mobility management was first investigated and ap-  
 84 plied in metropolitan areas. Here the need to manage  
 85 transport demand is especially high because of high trip  
 86 densities and frequent congestion. As recent contribu-  
 87 tions to the annual European conferences on mobility  
 88 management have shown, measures such as mobility  
 89 centres, car-sharing and job tickets are common in the  
 90 large urban areas of most European countries  
 91 (EPOMM, 2003b).<sup>1</sup>

92 Innovative approaches in mobility management are  
 93 often developed during national or European research  
 94 and demonstration programmes (Wilhelm, 2003). A  
 95 German example is the *MOBINET* (2003) project,  
 96 which has been implemented in the metropolitan area  
 97 of Munich. Two main elements of the project are of  
 98 interest. The first is a so-called 'shopping-box' system.

This enables a customer to order goods via phone or  
 the internet, which are then delivered to a shopping-  
 box close to his or her place of work. The result is that  
 shopping-related traffic is lessened and, perhaps, ulti-  
 mately avoided (see Römmelt, 2002). Second, as in the  
 EU-funded projects *MOST* (*MObility management*  
*STrategies for the next decades*) and *SUN* (*Saving en-*  
*ergy by Using mobility managemENt in schools*), an in-  
 ter-modal mobility education in schools has been  
 introduced. 'MOBIKIDS' is aimed at sensitising chil-  
 dren, parents and teachers to transport problems. A pri-  
 mary school in Munich started a model scheme  
 establishing meeting points for school children enabling  
 them to travel to school together (a 'walking bus'). Les-  
 sons and excursions dealing with alternative mobility  
 opportunities were also set up, and bicycle parking  
 spaces were upgraded and extended. On the whole,  
 MOBIKIDS reduced the number of children driven to  
 school by their parents by 20–30% (see Zängler, 2002).

MOBINET has now been completed, but several fol-  
 low-up projects have been designed to promote mobility  
 management in Munich in the future. One of them, *IM-*  
*BUS* (*Information, Marketing, Beratung (consulting)*  
*Und Service*), aims to integrate different mobility man-  
 agement measures and information systems. The goal  
 is to introduce a local mobility 'consultant' and an inter-  
 active mobility centre to improve and enhance available  
 information on mobility management measures (Schre-  
 iner, 2002).

### 2.1. The IMAGO project

MOBINET and IMBUS are two examples of an ar-  
 ray of projects which between them have gathered con-  
 siderable experience of mobility management measures  
 in German metropolitan areas. In contrast to the situa-  
 tion in cities, however, mobility management in rural  
 areas has until now been largely neglected. Even towns  
 reputed for progressive thinking on transport matters  
 such as Lemgo or Detmold—settlements in rural regions  
 with a high standard of public transport (*Verband Deut-*  
*scher Verkehrsunternehmen*, 2000)—have so far not  
 introduced mobility management measures.

Our research project, *IMAGO* (*Innovative Concepts*  
*for Transport Systems and their Marketing in Small*  
*Towns and Rural Communities with Existing Local*  
*Buses*), focuses on small and middle-sized towns in rural  
 regions with a comparatively high quality public trans-  
 port systems. Financed by the German Ministry of Re-  
 search as part of the *PNVRegion* (local traffic in the  
 region) research programme (see *PNVRegion*, 2003),  
 the project deals with new ways of promoting the exist-  
 ing transport systems by integrating mobility manage-  
 ment measures (*IMAGO*, 2003). There are two  
 demonstration regions for *IMAGO*, both of which lie  
 in North Rhine-Westphalia (Fig. 1).

<sup>1</sup> Mobility centres, translated from the German *Mobilitätszentrale*, provide inter-modal information on transport alternatives, especially to the use of a private car. A job ticket is a special season-ticket for commuters, based on a contract between an employer and a local public transport company. Job tickets offer cheaper use of the public transport system for commuters because the contract effectively ensures the 'bulk buying' of tickets, and a subsidy from the company is not necessary.



Fig. 1. The demonstration regions for the IMAGO project, North Rhine-Westphalia.

Before we could attempt to establish mobility management measures in Lemgo and Detmold, it was necessary to examine the general potential for their success. It was clear from the outset that the 'framework' conditions for introducing mobility management initiatives are less favourable than in metropolitan areas. As such, our parameters were narrowed to incorporate only schemes which have already proven successful in large cities such as mobility centres. Even these, however, had to be tailored to meet the specific circumstances in rural areas.

The remainder of this paper discusses in detail the generally unfavourable conditions encountered in the IMAGO study areas for establishing mobility management schemes, and the particular schemes adopted to overcome these conditions—mobility centres, job tickets and individualised marketing.<sup>2</sup> (It should be noted that at this early stage of investigation, each of these schemes is primarily concerned with promoting modal shift rather than accessibility-based alternatives to the journey.) As IMAGO began in 2002 and our suggested

measures are only now being tested, what follows reports experience to date. The final evaluation of the project will take place in late 2004.

### 3. Mobility centres

There are fundamental differences in the transport situation between urban and rural areas which impact upon the potential for mobility centres to be introduced successfully. First, there is a contrast in people's perception of public transport. In metropolitan areas, buses, trams and the like are seen as alternatives to the car, even by non-users, but this is generally not the case in rural regions. Whereas the main problem of public transport in metropolitan areas is perceived as a lack of information about the system, in small towns and villages there is a basic lack of acceptance for non-car transport options. The first priority when introducing mobility centres in rural areas would thus be to try to establish public transport as a genuine alternative to the car in the minds of potential users. It then becomes important to disseminate information on the structure of the system.

<sup>2</sup> Individualised marketing, or 'Direct Marketing', is an approach to raise the use of public transport by contacting potential public transport users via (as examples) phone, letter or e-mail.

These already demanding conditions are exacerbated by the limited financial resources available to public transport in rural areas, and further problems arise because rural public transport services are generally operated by different companies. Furthermore, public transport regionalisation laws issued by the European Union in the 1990s resulted in the fragmentation of administrative responsibility, especially in German rural regions. The co-operation needed for the introduction of mobility centres in rural areas is thus difficult to secure given the number of bodies involved in planning and providing public transport services, each of whom has to assume some responsibility for financing the centres. In addition, the low population densities and the resulting low demand often result in scepticism regarding the need for such initiatives.

All of these constraints had to be taken into account when developing a mobility centre concept for rural regions, and it was clearly that case that simply reproducing the measures developed for urban areas would not be appropriate. The high degree of population dispersion means that the notion of a single, large mobility centre in a central location was abandoned. Instead, to achieve an optimal perception of public transport, it is necessary to develop small decentralised mobility centres in a range of locations which offer the maximum proximity to potential customers. Acknowledging the bad financial situation of the public sector, the cost framework for these small centres has to be realistic. “Public grants or programmes for mobility management on different levels” as, for example, Müller (2001, p. 5) demands as a basic need for the implementation of mobility management measures are no longer practical. To keep costs low it is essential that running costs such as personnel and rent are kept to a minimum.

In the region of Paderborn, which is characterised by a large number of small villages, a concept of mainly self-help information services was chosen for a kind of ‘micro-mobility’ centre (Fig. 2). This concept mainly uses self-help computer terminals to reduce the need for individual guidance by staff. The terminals offer: an audio-visual presentation of the local public transport system; schedules for and leaflets about actual public transport-system services; individualised schedules for people’s place of residence and digital schedule-information; and details about the local public transport system via an integrated telephone hotline. The computer terminals have been integrated within already-established ‘citizen centres’, which offer a great variety of public services to their citizens. They are part of the local administration and are to be found in quite a few villages. Such integration ensures a high number of customers who are already familiar with the centres’ role as an important source of communal information, and at the same time enables these customers to ask for guidance in using the information terminals.



Fig. 2. Computer terminal within a ‘micro-mobility’ centre in Salzkotten.

In the medium-sized town of Hürth—which is characterised by a more compact settlement structure and a higher population density than the Paderborn region—there was the possibility to use an approach much more similar to that employed in metropolitan areas. The mobility centre was implemented as a ‘real’ (as opposed to ‘virtual’) information agency with specialised staff, and set up in co-operation with a local bank (Fig. 3).

An important difference from the Paderborn example is that the banking services were integrated into the mobility centre, rather than the other way around. The bank pays the rent for the property and in return can be sure that customers encountering problems using its ATMs will be assisted by mobility centre staff. These staff at the same time ‘look after’ the cash machines and protect them from possible vandalism. In order to further ensure the efficient use of human resources, the staff also run a travel agency in the mobility centre. As well as traditional tourist services, the agency offers tick-



Fig. 3. The mobility centre in Hürth.

ets for the German railway system and local events. The multi-functionality of the centre enables it to open for long hours at a low cost and guarantees a high number of customers. These factors help to improve the perception—and indeed stress the existence—of the public transport system to the local population.

The implementation of these two very different initiatives demonstrates the potential for transferring the concept of mobility centres developed in metropolitan areas to the spatial context of rural regions. It also, however, identifies the need for co-operation between different partners and institutions, both to ensure the required through-flow of customers and to establish a solid financial base for such services. Securing such co-operation is not easy given the complicated structure of institutional responsibility and the fragmented nature of public service provision identified earlier. The disadvantageous state of public transport finances also means there is little chance of initiatives such as mobility centres being supported if they are likely to induce deficits, so planned projects must generally be set up to operate without the need for additional public subsidy. As such, we did not search for what we regarded as the *perfect offer* to enhance mobility management measures, but instead the *best possible offer* within a constrained budget. Clearly this is sub-optimal in an area in which the population—and, indeed, much political opinion—strongly favours car use and views high quality public transport as unnecessary.

#### 4. Job tickets

Our experience with the introduction of job tickets is discussed as the second example. Different issues are significant when considering job tickets as opposed to mobility centres. In urban areas, the cost of car parking is important. From an economic point of view, high parking costs and a general scarcity of parking spaces favour the introduction of job tickets since they increase the attractiveness of travel by public transport. Furthermore, the extent of rush hour traffic congestion means that accessing the workplace can be quicker and easier by a good urban public transport system than by car. In rural areas, however, parking costs are only marginal, traffic congestion is less, employers are fewer in number and those situated on the outskirts of towns are more easily reached by car than public transport. There are, also, fewer large employers in small rural towns and these are usually spatially dispersed. Problems are also created by low population densities.

These framework conditions were identified during the IMAGO project in Lemgo, a case study town with about 40,000 inhabitants. Our survey showed that public transport services offered very limited coverage of the small and widely scattered industrial estates on the outskirts of the city (Fig. 4). Subsidy constraints mean that the likelihood of the public transport infrastructure being upgraded is rather small. As such, other target groups for a job ticket scheme had to be identified.

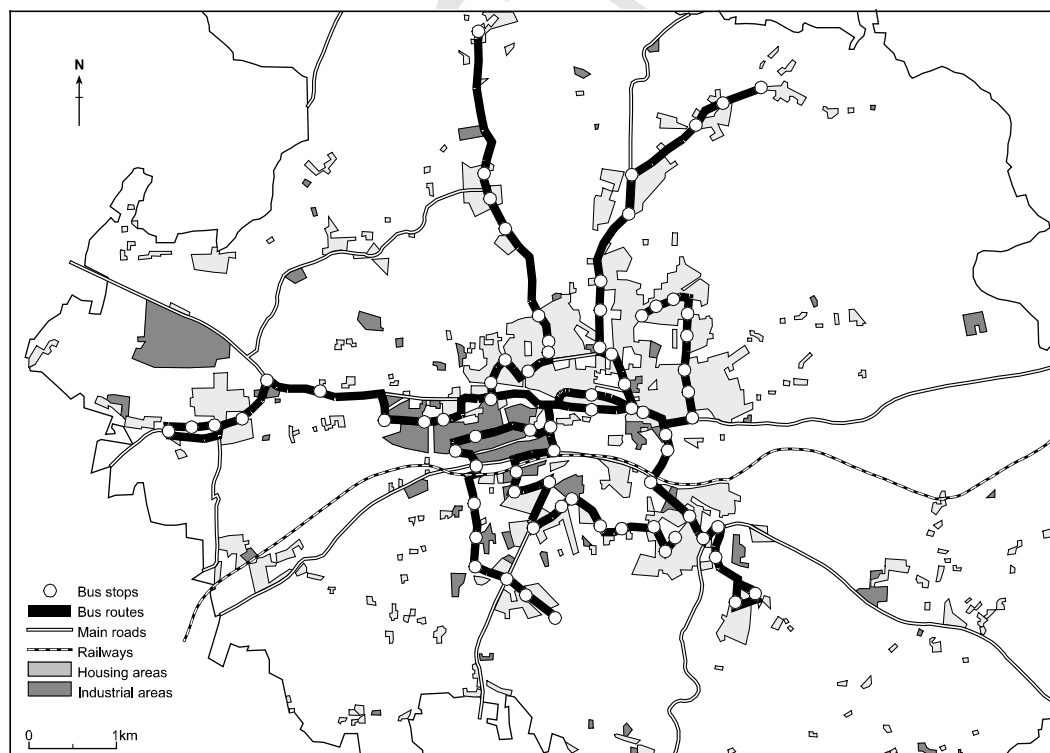


Fig. 4. Location of industrial estates in the town of Lemgo in relation to the existing bus network.

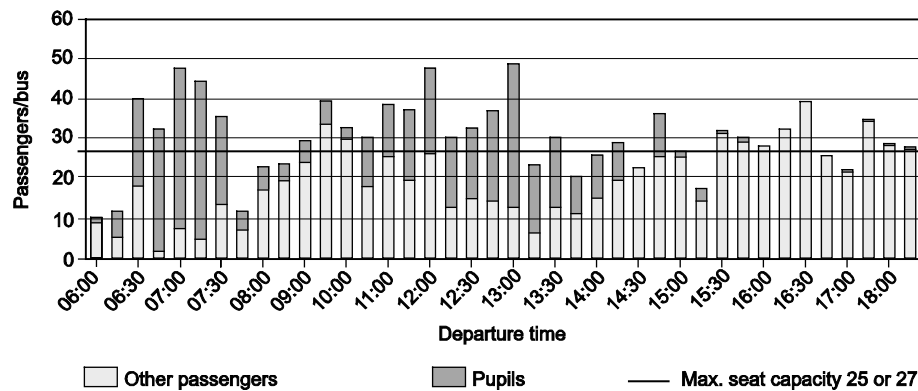


Fig. 5. Passengers of the 883 bus route in Lemgo during the course of a weekday.

328 An additional constraint in Lemgo, which is common  
 329 for many small and middle sized towns as well as rural  
 330 counties, is that those public transport services which  
 331 do exist orientate themselves towards school traffic.  
 332 Fig. 5 shows the patronage of bus route 883 in Lemgo  
 333 during the course of a weekday. It can easily be seen that  
 334 school children ‘push out’ other passengers during rush  
 335 hours. As a result, working people are discouraged from  
 336 using the buses since there is virtually no spare capacity  
 337 for commuter journeys. Such low capacity at rush hours  
 338 is characteristic of most public transport systems in rural  
 339 areas which have developed purely out of school trans-  
 340 port needs, and in large part are still aligning themselves  
 341 with these needs. It is not possible to accommodate fur-  
 342 ther demand from other groups at peak traffic hours  
 343 without introducing parallel systems or larger buses,  
 344 and these are seldom economically feasible options.

345 A final factor is that most public transport systems in  
 346 small and middle-sized towns operate to and from the  
 347 town centre rather than connecting other parts of the  
 348 settlement by way of, for example, non-radial routes  
 349 (Verband Deutscher Verkehrsunternehmen, 2000). All  
 350 four of Lemgo’s bus lines pass through the pedestrian-  
 351 ised old inner city, making this the most accessible part  
 352 of town.

353 These framework conditions in Lemgo led to the for-  
 354 mulation of a job ticket concept designed particularly  
 355 for people working in the retail and service sectors, since  
 356 most of the jobs in these professions begin after 9.00 am  
 357 and are situated in the town centre. The greater accessi-  
 358 bility by public transport of the inner city area can be  
 359 used as an advantage of such a scheme, and can balance  
 360 out capacity and infrastructure deficits. In October 2003  
 361 a survey was carried out covering 257 employees in se-  
 362 lected administrations and enterprises along public  
 363 transport corridors and with working hours which al-  
 364 lowed employees to avoid the pupils’ morning peak hour  
 365 of between 7 and 8 am. Almost 30% of the respondents  
 366 were interested in participating in a job ticket experi-  
 367 ment on a trial basis, and three quarters of these ‘inter-  
 368 ested’ employees currently travel to work by car. Even

369 though the job ticket experiment is yet to begin, this re-  
 370 sponse was quite encouraging.

371 This example demonstrates the need to devise and ap-  
 372 ply bespoke approaches when trying to implement mobil-  
 373 ity management measures in rural regions. Whereas in  
 374 metropolitan areas large companies are the main custom-  
 375 ers for the job tickets—public transport enterprises do not  
 376 usually consider companies with less than 100 employ-  
 377 ees—in rural regions it is often necessary to find different  
 378 types of co-operating partners. It is harder to convince  
 379 small companies in rural regions to buy job tickets, espe-  
 380 cially if they are located in the outskirts of a town and, as  
 381 such, do not face major parking problems.

## 382 5. Individualised marketing

383 Similar to the situation faced when introducing  
 384 mobility centres, efforts to establish individualised mar-  
 385 keting programmes in rural areas encounter difficulties  
 386 resulting from the local population’s generally unfavour-  
 387 able perceptions of public transport. As already men-  
 388 tioned, the main problem of public transport in  
 389 metropolitan areas is the lack of information about  
 390 the system, whilst in rural regions there is a basic lack  
 391 of acceptance for these modes. Just as with the introduc-  
 392 tion of mobility centres in rural regions, therefore, a  
 393 principal concern of individualised marketing is to im-  
 394 prove people’s perception of public transport. It is not  
 395 enough simply for the system to exist; it has also to be  
 396 perceived as a genuine transport alternative, and often  
 397 people must use the system before this will happen. As  
 398 such, individualised marketing efforts have to provide  
 399 potential customers with both information about the  
 400 system and an incentive for them to use it.

401 Personal interviews, conducted by staff from the local  
 402 public transport administration, were used to introduce  
 403 the concept of individualised marketing to volunteer par-  
 404 ticipants. The interviewers provided personalised infor-  
 405 mation, such as details about tickets and special offers,  
 406 and offered participants free month-long ‘trial’ tickets

for the local public transport system. In general the reaction of the participants was very encouraging. The opportunity to receive personal and individualised information, and the different tickets, was especially welcomed. Participants stressed the importance of the free trial ticket, as it enabled them to form their own impression of the public transport system before deciding whether or not to buy a 'real' ticket. People who were facing a major change in their life situation—e.g. retirement, childbirth, or a change of their working place—were particularly interested in the new public transport offers. The survey stressed that such vicissitudes are likely to bring about change to related behaviour, such as car use.

The direct marketing programme was also evaluated by a second household survey undertaken by the University of Paderborn. The main aim here was to find out more about the results of the programme, as the goal was to improve the perception of the local public transport system as well as raising its patronage in the long run. Patronage of the public transport system by programme participants was found to amount to around four trips per week. Nearly 60% of public transport trips were made for shopping purposes; 'private' trips such as going to the doctor followed with about 20%; and lastly 'spare time activities' amounted to 15%. Trips to work, however, were only of marginal significance. More than 80% of the trips were performed to the pedestrian zone in the city centre. These results are quite similar to the first evaluation of the whole system in 1995, undertaken just a few months after its introduction. This stresses the argument that people need time to familiarise themselves with the system, and to learn to use it for other purposes such as their journey to work.

When taking the goals of the marketing project into account, i.e. to improve people's perception of the system and increase its patronage, the results were very positive. Ninety-three per cent of participants stated that their experience of the buses was good, and fully a third of these were very pleased. Different criteria led to this assessment, but two in particular should be highlighted: 43% of the participants were of the opinion that the bus is a real mobility alternative, and 36% praised the operational infrastructure (punctuality, good facilities at stops, etc.). This strongly suggests that it was only through the free use of the system that people were able to understand the potential for public transport to constitute a genuine alternative to the car.

At first glance it does not seem plausible that after such a positive assessment only one in 14 persons bought a long term ticket. Taking a closer look at some of the negative statements of participants, however, a major criticism was the pricing structure. More than half the participants viewed the system as too expensive, and most people did not believe they would make sufficient use of the system to justify the cost of a season ticket. In Lemgo this perception is also strengthened by the fact

that it is possible to buy strip, or *carnet*, tickets which can be used as and when they are needed over long time periods.

It can none the less be said that very positive results have been achieved through the individualised marketing project in Lemgo. There has been an improvement in the overall perception of the public transport system and a corresponding increase in the use of the buses. On the other hand—due to the reasons mentioned above—it was also shown that schemes such as these are not a guaranteed means of increasing the number of season ticket holders.

## 6. Conclusion

The examples presented in this paper have shown that the potential exists to introduce mobility management measures in rural areas even if the framework conditions are quite unfavourable. Despite financial disadvantages, innovative solutions can be developed. The most important aspect is to find innovative partners with an interest in improving public transport systems in rural regions. Each example—mobility centres, job tickets and individualised marketing—was tailored to the demands of the local situation in order to provide appropriate solutions for particular problems. By implementing new solutions, the perception of public transport systems, as well as the local knowledge of mobility alternatives, can be improved in the long run.

On the other hand, this paper has also outlined certain constraints in rural regions which difficult to address. Not all mobility management measures used in metropolitan areas can be transferred to rural regions. Those which are must be designed in a creative manner and focus on local conditions: schemes in rural regions cannot, therefore, be as highly standardised as they are in metropolitan areas. Nevertheless, those mobility management measures developed in generally unfavourable conditions in rural regions might at some point become a model for improving the existing solutions in metropolitan areas.

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