



## 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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### 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.

153 Before we could attempt to establish mobility man-  
 154 agement measures in Lemgo and Detmold, it was neces-  
 155 sary to examine the general potential for their success. It  
 156 was clear from the outset that the ‘framework’ condi-  
 157 tions for introducing mobility management initiatives  
 158 are less favourable than in metropolitan areas. As such,  
 159 our parameters were narrowed to incorporate only  
 160 schemes which have already proven successful in large  
 161 cities such as mobility centres. Even these, however,  
 162 had to be tailored to meet the specific circumstances in  
 163 rural areas.

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

174 measures are only now being tested, what follows re-  
 175 ports experience to date. The final evaluation of the pro-  
 176 ject will take place in late 2004.

### 3. Mobility centres 177

178 There are fundamental differences in the transport sit-  
 179 uation between urban and rural areas which impact  
 180 upon the potential for mobility centres to be introduced  
 181 successfully. First, there is a contrast in people’s percep-  
 182 tion of public transport. In metropolitan areas, buses,  
 183 trams and the like are seen as alternatives to the car,  
 184 even by non-users, but this is generally not the case in  
 185 rural regions. Whereas the main problem of public  
 186 transport in metropolitan areas is perceived as a lack  
 187 of information about the system, in small towns and vil-  
 188 lages there is a basic lack of acceptance for non-car  
 189 transport options. The first priority when introducing  
 190 mobility centres in rural areas would thus be to try to  
 191 establish public transport as a genuine alternative to  
 192 the car in the minds of potential users. It then becomes  
 193 important to disseminate information on the structure  
 194 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.

195 These already demanding conditions are exacerbated  
 196 by the limited financial resources available to public  
 197 transport in rural areas, and further problems arise be-  
 198 cause rural public transport services are generally oper-  
 199 ated by different companies. Furthermore, public  
 200 transport regionalisation laws issued by the European  
 201 Union in the 1990s resulted in the fragmentation of  
 202 administrative responsibility, especially in German rural  
 203 regions. The co-operation needed for the introduction of  
 204 mobility centres in rural areas is thus difficult to secure  
 205 given the number of bodies involved in planning and  
 206 providing public transport services, each of whom has  
 207 to assume some responsibility for financing the centres.  
 208 In addition, the low population densities and the result-  
 209 ing low demand often result in scepticism regarding the  
 210 need for such initiatives.

211 All of these constraints had to be taken into account  
 212 when developing a mobility centre concept for rural re-  
 213 gions, and it was clearly that case that simply reproduc-  
 214 ing the measures developed for urban areas would not  
 215 be appropriate. The high degree of population disper-  
 216 sion means that the notion of a single, large mobility  
 217 centre in a central location was abandoned. Instead, to  
 218 achieve an optimal perception of public transport, it is  
 219 necessary to develop small decentralised mobility centres  
 220 in a range of locations which offer the maximum prox-  
 221 imity to potential customers. Acknowledging the bad  
 222 financial situation of the public sector, the cost frame-  
 223 work for these small centres has to be realistic. "Public  
 224 grants or programmes for mobility management on dif-  
 225 ferent levels" as, for example, Müller (2001, p. 5) de-  
 226 mands as a basic need for the implementation of  
 227 mobility management measures are no longer practical.  
 228 To keep costs low it is essential that running costs such  
 229 as personnel and rent are kept to a minimum.

230 In the region of Paderborn, which is characterised by  
 231 a large number of small villages, a concept of mainly  
 232 self-help information services was chosen for a kind of  
 233 'micro-mobility' centre (Fig. 2). This concept mainly  
 234 uses self-help computer terminals to reduce the need  
 235 for individual guidance by staff. The terminals offer:  
 236 an audio-visual presentation of the local public trans-  
 237 port system; schedules for and leaflets about actual pub-  
 238 lic transport-system services; individualised schedules  
 239 for people's place of residence and digital schedule-  
 240 information; and details about the local public transport  
 241 system via an integrated telephone hotline. The compu-  
 242 ter terminals have been integrated within already-estab-  
 243 lished 'citizen centres', which offer a great variety of  
 244 public services to their citizens. They are part of the lo-  
 245 cal administration and are to be found in quite a few vil-  
 246 lages. Such integration ensures a high number of  
 247 customers who are already familiar with the centres' role  
 248 as an important source of communal information, and  
 249 at the same time enables these customers to ask for guid-  
 250 ance in using the information terminals.



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

251 In the medium-sized town of Hürth—which is char-  
 252 acterised by a more compact settlement structure and  
 253 a higher population density than the Paderborn re-  
 254 gion—there was the possibility to use an approach much  
 255 more similar to that employed in metropolitan areas.  
 256 The mobility centre was implemented as a 'real' (as op-  
 257 posed to 'virtual') information agency with specialised  
 258 staff, and set up in co-operation with a local bank  
 259 (Fig. 3).

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



Fig. 3. The mobility centre in Hürth.

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

277 The implementation of these two very different initia-  
 278 tives demonstrates the potential for transferring the con-  
 279 cept of mobility centres developed in *metropolitan* areas  
 280 to the spatial context of rural regions. It also, however,  
 281 identifies the need for co-operation between different  
 282 partners and institutions, both to ensure the required  
 283 through-flow of customers and to establish a solid finan-  
 284 cial base for such services. Securing such co-operation is  
 285 not easy given the complicated structure of institutional  
 286 responsibility and the fragmented nature of public serv-  
 287 ice provision identified earlier. The disadvantageous  
 288 state of public transport finances also means there is lit-  
 289 tle chance of initiatives such as mobility centres being  
 290 supported if they are likely to induce deficits, so planned  
 291 projects must generally be set up to operate without the  
 292 need for additional public subsidy. As such, we did not  
 293 search for what we regarded as the *perfect offer* to en-  
 294 hance mobility management measures, but instead the  
 295 *best possible offer* within a constrained budget. Clearly  
 296 this is sub-optimal in an area in which the popula-  
 297 tion—and, indeed, much political opinion—strongly fa-  
 298 vours car use and views high quality public transport as  
 299 unnecessary.

#### 4. Job tickets

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

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

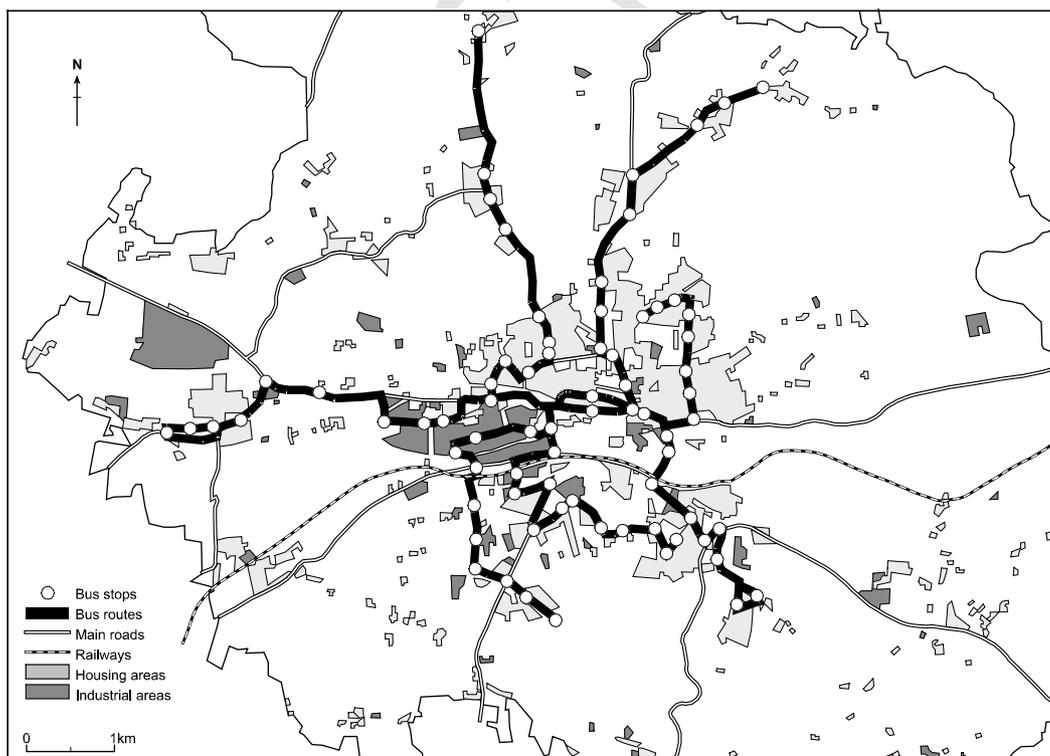


Fig. 4. Location of industrial estates in the town of Lemgo in relation to the existing bus network.

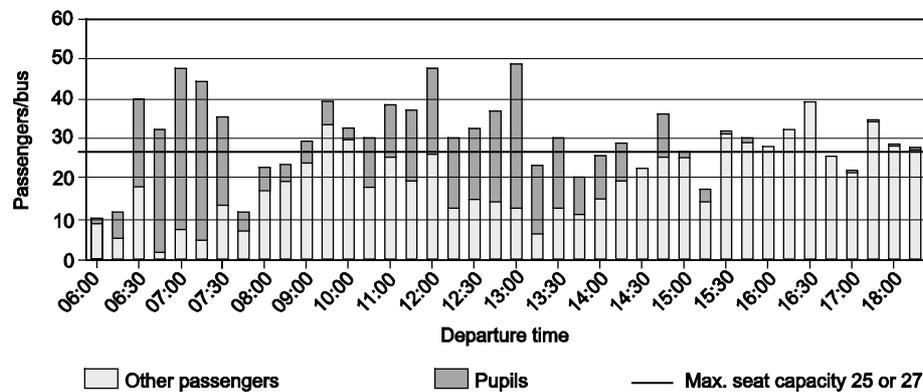


Fig. 5. Passengers of the 883 bus route in Lemgo during the course of a weekday.

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.

## 5. Individualised marketing

382  
 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

407 for the local public transport system. In general the reac-  
 408 tion of the participants was very encouraging. The  
 409 opportunity to receive personal and individualised infor-  
 410 mation, and the different tickets, was especially wel-  
 411 comed. Participants stressed the importance of the free  
 412 trial ticket, as it enabled them to form their own impres-  
 413 sion of the public transport system before deciding  
 414 whether or not to buy a 'real' ticket. People who were fac-  
 415 ing a major change in their life situation—e.g. retirement,  
 416 childbirth, or a change of their working place—were par-  
 417 ticularly interested in the new public transport offers. The  
 418 survey stressed that such vicissitudes are likely to bring  
 419 about change to related behaviour, such as car use.

420 The direct marketing programme was also evaluated  
 421 by a second household survey undertaken by the Uni-  
 422 versity of Paderborn. The main aim here was to find  
 423 out more about the results of the programme, as the  
 424 goal was to improve the perception of the local public  
 425 transport system as well as raising its patronage in the  
 426 long run. Patronage of the public transport system by  
 427 programme participants was found to amount to  
 428 around four trips per week. Nearly 60% of public trans-  
 429 port trips were made for shopping purposes; 'private'  
 430 trips such as going to the doctor followed with about  
 431 20%; and lastly 'spare time activities' amounted to  
 432 15%. Trips to work, however, were only of marginal sig-  
 433 nificance. More than 80% of the trips were performed to  
 434 the pedestrian zone in the city centre. These results are  
 435 quite similar to the first evaluation of the whole system  
 436 in 1995, undertaken just a few months after its introduc-  
 437 tion. This stresses the argument that people need time to  
 438 familiarise themselves with the system, and to learn to  
 439 use it for other purposes such as their journey to work.

440 When taking the goals of the marketing project into  
 441 account, i.e. to improve people's perception of the sys-  
 442 tem and increase its patronage, the results were very  
 443 positive. Ninety-three per cent of participants stated  
 444 that their experience of the buses was good, and fully  
 445 a third of these were very pleased. Different criteria led  
 446 to this assessment, but two in particular should be high-  
 447 lighted: 43% of the participants were of the opinion that  
 448 the bus is a real mobility alternative, and 36% praised  
 449 the operational infrastructure (punctuality, good facili-  
 450 ties at stops, etc.). This strongly suggests that it was only  
 451 through the free use of the system that people were able  
 452 to understand the potential for public transport to con-  
 453 stitute a genuine alternative to the car.

454 At first glance it does not seem plausible that after  
 455 such a positive assessment only one in 14 persons  
 456 bought a long term ticket. Taking a closer look at some  
 457 of the negative statements of participants, however, a  
 458 major criticism was the pricing structure. More than half  
 459 the participants viewed the system as too expensive, and  
 460 most people did not believe they would make sufficient  
 461 use of the system to justify the cost of a season ticket. In  
 462 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 market-  
 ing 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 manage-  
 ment measures in rural areas even if the framework con-  
 ditions 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 tick-  
 ets and individualised marketing—was tailored to the  
 demands of the local situation in order to provide  
 appropriate solutions for particular problems. By imple-  
 menting new solutions, the perception of public trans-  
 port 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 cer-  
 tain constraints in rural regions which difficult to ad-  
 dress. 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 unfavour-  
 able conditions in rural regions might at some point be-  
 come a model for improving the existing solutions in  
 metropolitan areas.

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