7th European Conference on Mobility Management

ECOMM 2003

21-23. Mai 2003, Karlstad

Possibilities and Constraints for Mobility Management in Small Urban and Rural Communities

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In the past years mobility management in Germany has experienced a certain impetus due to the research program “Mobility in Metropolitan Areas“ financed by the Ministry of Research.

Apart from already existing concepts such as mobility centres, car-sharing and job-ticket, some promising new approaches have been developed and implemented up to now within this context.

As an introduction I will first mention some examples of MM-measures developed as part of the German program “Mobility in Metropolitan Areas”. The examples are taken from a project called “MOBINET” which is located in the metropolitan area of Munich.

Innovative approaches for MM in metropolitan areas

- the example of MOBINET Munich

- **Shopping box**
- **MOBIKIDS**

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Within MOBINET a so called

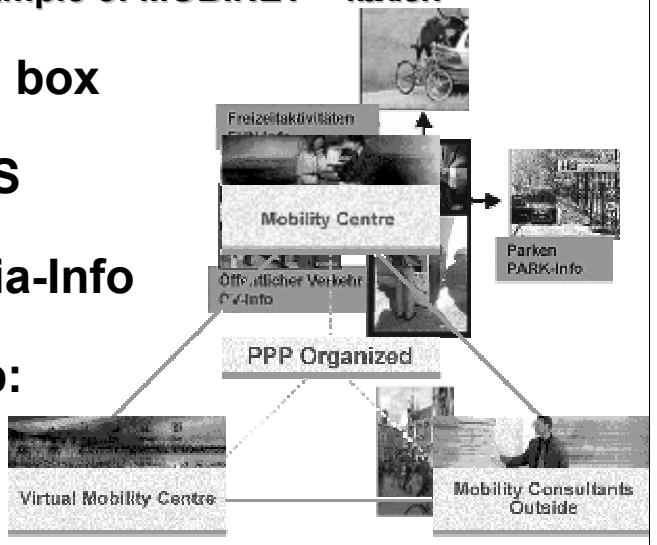
- shopping-box has been developed and tested. The concept enables a customer to order goods via phone or the internet. These goods are then delivered to a “shopping-box” close to the working place, so that shopping-traffic is lessened and avoided.

- Like in the EU-funded projects “MOST” and “SUN”, intermodal mobility education in schools has been part of MOBINET as well under the name of MOBIKIDS. “MOBIKIDS” aimed at sensitising children, parents and teachers to traffic and mobility problems. A primary school in Munich started a model scheme establishing meeting points for school children enabling them to go to school together. Furthermore there were lessons and excursions on alternative mobility possibilities. Bicycle parking spaces where upgraded and extended. On the whole “MOBIKIDS” managed to reduce the number of children driven to school by their parents to 20-30 per

Innovative approaches for MM in metropolitan areas

- the example of MOBINET Munich

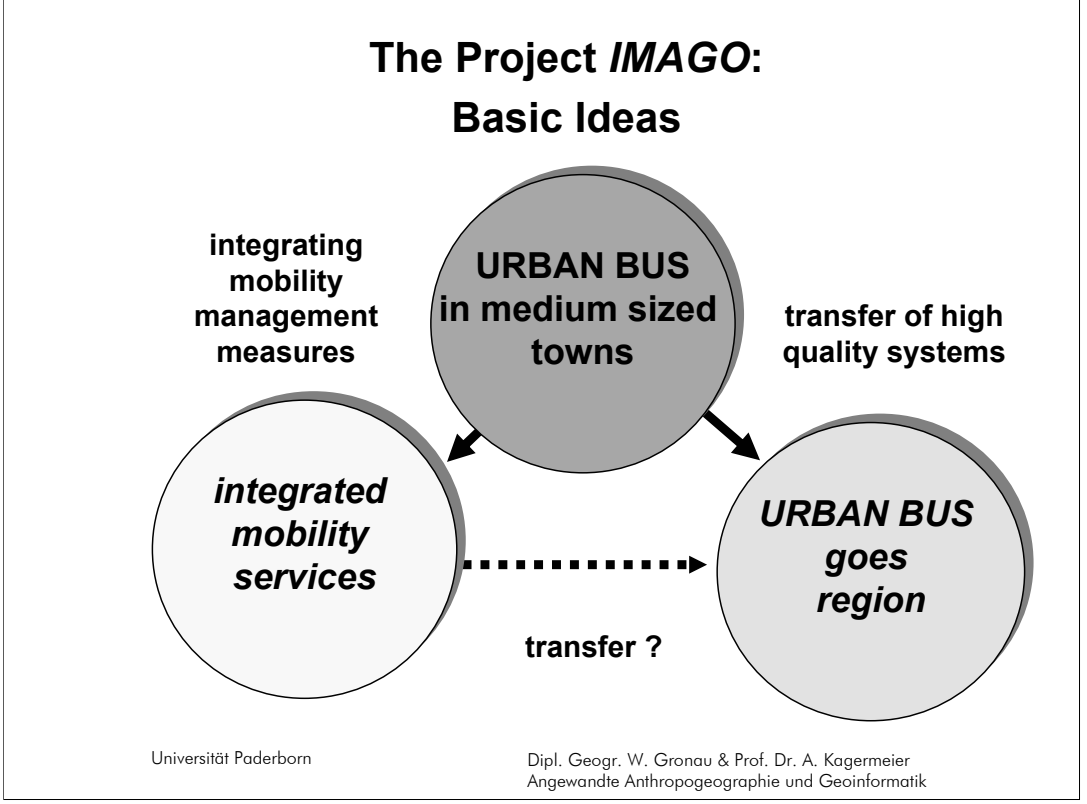
- **Shopping box**
- **MOBIKIDS**
- **Multimedia-Info**
- **Follow-up: IMBUS**



As in other metropolitan areas telecommunication facilities have been integrated into MOBINET to widen information possibilities. This meant the expansion of internet and the creation of mobile phone (so called WAP) services.

- MOBINET is mainly finished by now. But there are several follow-up projects which intend to promote MM in Munich in the future. One of them is the project “IMBUS” which aims at integrating different MM-measures and information systems. The goal is to introduce a “local mobility consultant” and an “interactive mobility centre” to improve and enhance the information on MM-measures.

To sum up this first introducing part, one can say that there is a lot of experience concerning MM-measures in German metropolitan areas – especially when financed



In opposition to the widespread presence of MM in metropolitan areas, up to now the matter has almost been neglected in rural regions.

Even market leaders in the rural public transport market like the small towns of Lemgo or Detmold – two small cities in rural areas with a high public transport quality standard – have so far not introduced MM-measures.

Our research project "IMAGO" financed by the German Ministry of Research focuses on small and middle-sized towns with a high quality public transport system

(The abbreviation IMAGO stands for: "Innovative concepts for transport systems and their marketing in small towns and rural communities with exististing local busses").

IMAGO deals with two main issues:

- the first question is whether and how to transfer the high service quality from within these small cities to the surrounding areas and achieve a better level of public transport in the whole region.

- The second intention is to look for new ways of promoting the existing urban transport systems by integrating mobility management measures.

Concepts to be tested

- **Job Ticket**
- **Car-Sharing**
- **Mobility-Centres**

In the following, the focus will be set on this second approach of “IMAGO”: implementing MM in these small and middle-sized towns.

“IMAGO” refers to measures which have already been successfully introduced in metropolitan areas and tries to identify the chances and possible methods for the adaptation and implementation of MM in rural regions.

In this context the project deals with the following concepts:

job-ticket

car-sharing

mobility-centres.

Framework Conditions for Mobility Management Measures in Urban and Rural Areas

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When trying to transfer and adapt MM-measures from metropolitan areas to rural regions one should first assess the framework for the introduction of such measures.

In the following section the differences between the framework conditions of both spatial contexts will be pointed out.

Furthermore, solutions and implementations developed in the project “IMAGO” will be presented by my colleague Werner Gronau.

Framework conditions: Job Ticket

URBAN	RURAL
+ high costs for parking	- marginal or no costs
+ low availability of parking space	- high availability of parking space
+ congestion during rush hours	- easy access during rush hours
+ concentration of big companies	- small enterprises, often widespread
+ high population densities	- low population densities

Different aspects are important where the job ticket is concerned:

one has to consider the varying costs for parking lots. From a solely economical point of view high parking costs and a general scarcity of urban parking space areas favour the introduction of job tickets by companies.

Furthermore, the accessibility rate in the rush hour can be better guaranteed by a good urban public transportation system than by cars.

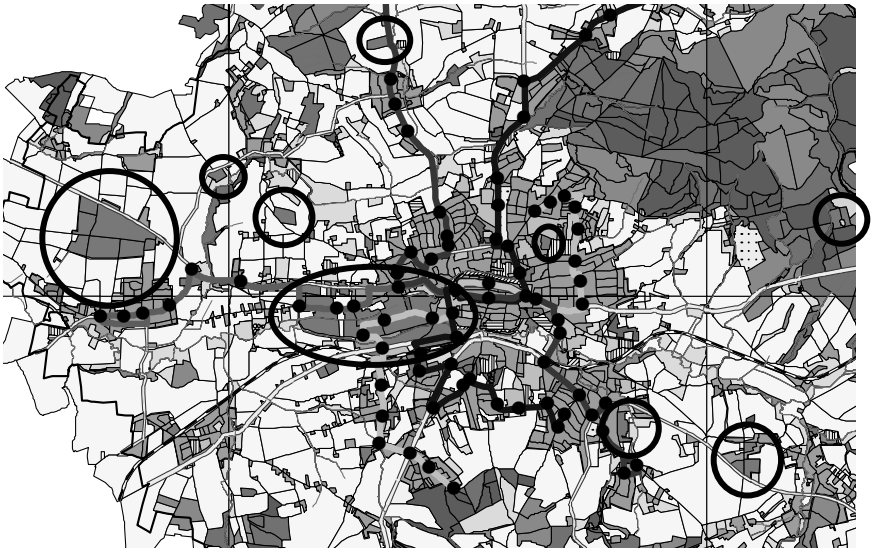
in rural areas the parking costs are only marginal and normally companies lying on the outskirts can be easily accessed by car.

in urban areas there is usually a strong agglomeration of big companies leading to a strongly focused spatial demand. There are fewer big companies to be found in small rural towns and these are usually spatially widespread.

this is an important issue when one considers the much lower density of the public transport system in a rural area. Problems are also created by low population densities accounting for a

The example of Lemgo:

industrial estates are only partially linked to the bus system



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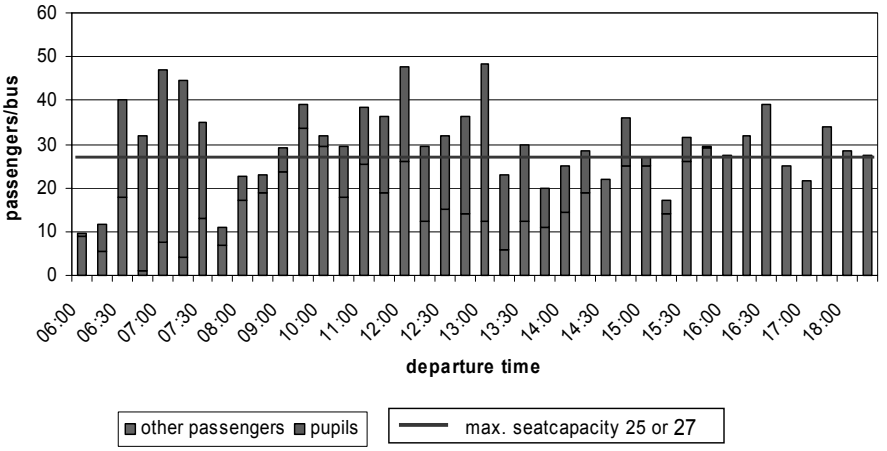
Exactly these framework conditions were detected during the project work of “IMAGO” in Lemgo, a case study town with a population of about 40.000 inhabitants.

The survey showed that public transport infrastructure covered only a minute part of the small and widely scattered industrial estates on the outskirts of the city. Due to the current public finance situation, possibilities to upgrade and enhance public transport infrastructure are rather small.

This means that other target groups for the job ticket scheme had to be identified.

The example of Lemgo:

during the morning peak hour the capacity is filled by pupils



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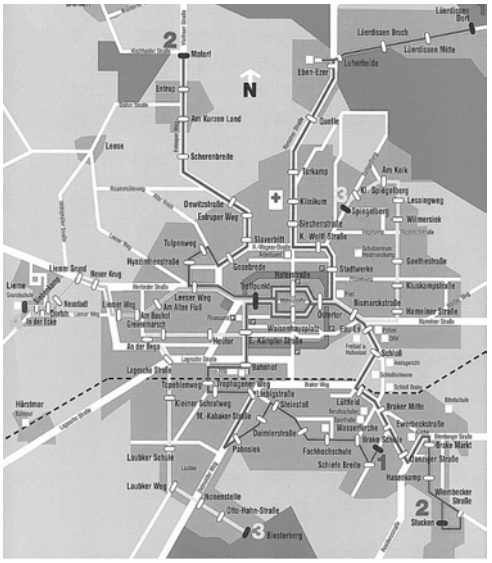
Moreover, it has been detected that – as in many smaller towns – the public transport capacities are strongly orientated at the demand of school traffic

Here we see that the “ordinary” passengers are “pushed out” of the buses in the rush hour by the high number of school children. This means that during the peak traffic hours in the morning there are nearly no capacities for commuter traffic, in other words the working people are discouraged from using the buses due to the large numbers of school children.

„Stadtbus“ Lemgo



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Whilst trying to introduce a job ticket concept for Lemgo one also has to consider the strong orientation to the city centre of the transport system, which meant utilising the good accessibility of the inner city area especially the pedestrian zone. In Lemgo all four bus lines pass through the old inner city and the pedestrian zone.

The consideration of the general framework lead to the introduction of a job ticket designed especially for people working in the retail and service sector; most of these sectors start work after 9:00 am and are also situated in the city centre. Higher accessibility of the inner city area with public transport can be seen as an advantage of the system which can be used to balance out capacity and infrastructure deficits.

The strongly structured retail system in Germany and the strong involvement of the local umbrella association enables the introduction of a broad and diversified job ticket system. Since the project has only just been started it is hard to assess the quantitative results – up to now, the response is very encouraging.

This example clearly points out the importance of establishing new coopera-tions and of finding solutions for small structures when trying to apply MM-measures in rural areas. Whereas in urban areas the big companies constitute the main customers for the job tickets, – public transport enterprises usually do not consider companies with less than 100 employees – in rural areas it is often necessary to find new co-operation partners in smaller companies. Besides it is

Car Sharing:
distribution according to community size

Community Size	Up to 10.000 in.	Up to 50.000 in.	Up to 100.000 in.	Up to 200.000 in.	More than 200.000 in.
Communities with Car-Sharing Services	**0,01%**	**7%**	**30%**	**71%**	**100%**
Proportion of Cars deployed for Sharing Car in Germany	**0,4%**	**6,5%**	**6,2%**	**11%**	**75,9%**
Population Proportion per Community Size	**17%**	**26%**	**22%**	**35%**	

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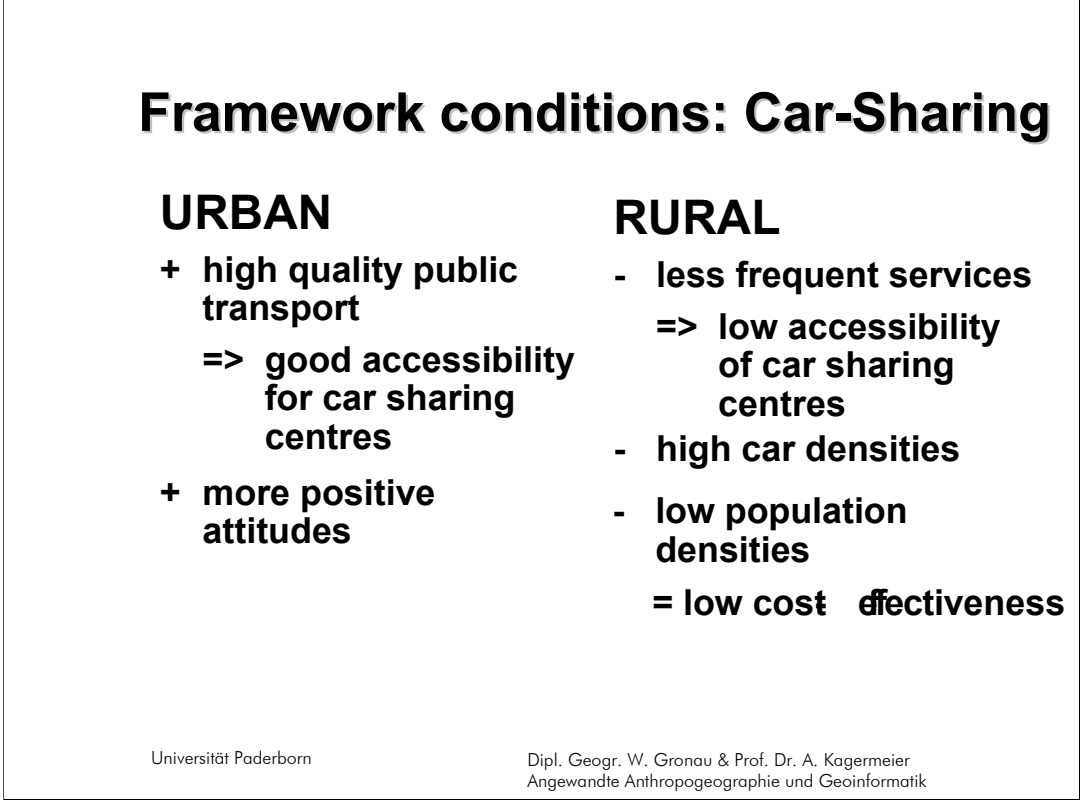
In the past years the concept of car-sharing developed positively. However, car-sharing is mainly restricted to large cities and urban areas.

Up to today there are hardly any car-sharing services in cities with a population of less than 50,000; these cities represent 43% of German national population. Considering the proportion of cars used for car sharing purposes, it is noticeable that that 87% of these cars are accessible to only 35% of the population living in cities with more than 100,000 inhabitants.



This phenomenon can be explained by the following conditions:

high quality public transport systems in urban areas facilitate good accessibility for car sharing centres even on weekends and holidays.

n contrast to that public transport systems in rural areas offer less frequent service in these days which results in a low accessibility of the centres. The main aim for the introduction of car sharing – which was to provide better services on weekends and holidays – cannot be reached because of the low accessibility of the car sharing centres.

The greater car density per resident in rural areas notably decreases the demand for car sharing services.

The low demand for car-sharing services in rural areas is even reinforced by the low population densities.

Both aspects are the cause for a low cost-effectiveness of each single car sharing locations, when supposing that the catchments area can not exceed several hundred meters.

Different surveys have shown that there is a greater number of people prone to car sharing activities in urban areas than in rural areas; this has had a further disadvantageous effect on the demand side in rural areas. These mentioned framework conditions also formed the starting situation for the project in Lemgo. The first priority of the project was to introduce long-lasting and economically feasible solutions, thus in this case it was necessary to develop a cost effective alternative.

The precondition for an economically feasible venue includes finding

The example of Lemgo:

possible car-sharing locations

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In a household survey performed in this context it was constituted that due to the high car disposal in rural areas the demand for car-sharing services is only moderate.

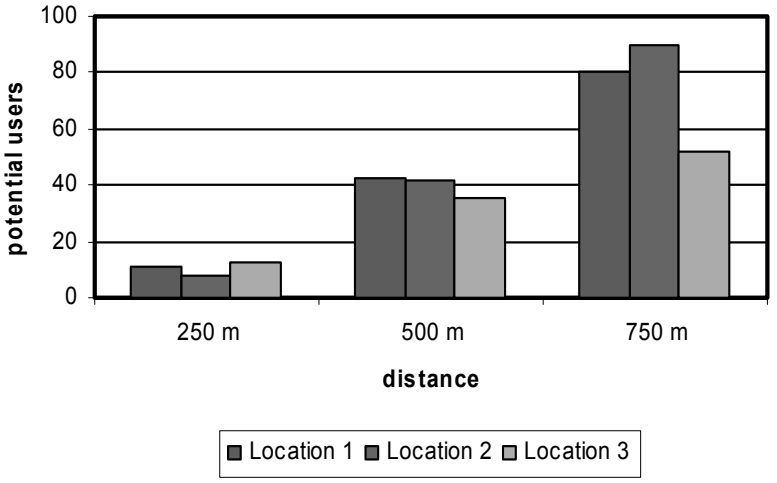
Car sharing services were only requested for the seldom case where an additional car was needed to the existing family cars. Furthermore, it was not possible to detect a spatial pattern in these requests.

Another problem in this case was that due to financial and organisational deficits it was not possible to offer these services at more than one location; the potential demand in all suggested locations was found to be insufficient to guarantee an economic feasible solution

The potential demand was determined using the population figures of the surrounding radii and the average potential use per resident which was calculated based on the results of the house-hold survey. These figures corresponded to other research studies performed in this field.

The example of Lemgo:

potential demand for car-sharing locations



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Taking the previously mentioned conditions into account, it was impossible – in this case – to recommend any of the suggested locations for the introduction of car sharing.

The low population densities characteristic for rural areas and the low demand for car sharing services can mainly be held responsible for the failure of the project in the case study area.

These two reasons lead to very large catchment areas when trying to introduce car sharing locations. Unfortunately, in rural areas these are necessary to achieve sufficient demand for the service.

Large catchment areas, however, combined with a deficient public transport system outside the peak traffic hours, lead to unacceptably long travel distances for the customers. In addition to private customers it would be necessary to include companies and local administration to ensure a cost covering use of the cars. In the project

Framework conditions: Mobility Centres

URBAN

+ **public transport perceived as a transport alternative**

  => lack of information

RURAL

- **basic lack of acceptance for inter modal choices**

  => priority on influencing perception

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In the following there will be shown the framework conditions for the introduction of mobility centres in rural and urban areas:

There is a fundamental difference in perception of public transport in urban areas and public transport in rural areas. In opposition to rural areas public transport in urban areas is perceived as a transport alternative even by non-users.

The main problem of public transport in urban areas is the lack of information about the system, whilst in rural areas there is a basic lack of acceptance for this alternative. The first priority when introducing mobility centres in rural areas would thus be to try to establish public transport as a perceived transport alternative and the second priority to disseminate information on the

Framework conditions: Mobility Centres

URBAN

+ **public transport perceived as a transport alternative**

  => lack of information

RURAL

- **basic lack of acceptance for inter modal choices**

  => priority on influencing perception
- **unsufficient financial resources**
- **greater need for cooperation**
- **low population densities**

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The already existing demanding preconditions for mobility centres in rural areas are further enhanced by the bad financial resources of public transport in these areas. Problems also arise because services offered in rural public transport are mostly shared by different companies.

Public transport regionalisation laws issued by the European Union in the 90ies resulted in a strongly varied constellation of administrative responsibility structures, especially in German rural areas.

The cooperation needed for the introduction of mobility centres in rural areas is harder to achieve because of the large number of small and very small enterprises which offer public transport and consequently are responsible for the financing of these centres.

Low population densities and the resulting low demand are often reason for doubts concerning the necessity of such services.

All these constraints had to be taken into account when developing a mobility centre concept for rural areas. The high degree of dispersion of the population has been the reason to look for new solutions instead of adopting the already existing ones within the metropolitan areas, i.e. in form of great mobility-centres at one central location. To achieve an optimal perception of public transport it is necessary to develop small decentralised mobility centres which offer the maximum vicinity to the potential customers. The cost framework for these small centres has to be realistic.

To keep costs low it is essential that running costs such as personnel and

Solution 1: nph-centres

integration in existing structures

Basic principle:
intensive use of information technology

- **audio-visual presentation**
- **schedules of public transport**
- **individualised schedules**
- **telephone-hotline**

In the region of Paderborn, which is characterised by a large number of small villages, a concept of mainly self-explanatory information offers was chosen for the mobility centres.

This concept mainly used digital and audio-visual communication-channels to lower the need for individual guidance by staff. These computer-terminals have been integrated within the so called “citizen centres” which offer a great variety of public services to their citizens. These institutions are part of the local administration and are to be found in the municipalities. This integration ensures a high frequency of customers and at the same time enables these customers to ask for guidance in using the information terminals.

The aspect that the citizens are already familiar with these “citizen centres” as source of important communal information makes these centres a very good platform for new information services. In detail, these terminals offer the possibility to get:

an audio-visual presentation of the local public transport system

schedules and leaflets of actual public transport-system services,

individualised schedules for their place of residence and also digital schedule-information.

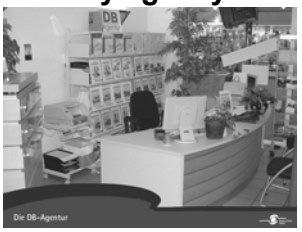
very detailed information about the local public transport system via

Solution 2: SVH-Service-Centre

integration of other functions

Basic principle:
cooperation to achieve effective utilization of employees

- **banking functions**
- **travel agency**
- **tourist services**
- **ticket agency (events)**
- **railway agency**



Stadtverkehr Hürth

In the second regional context – which is characterised by a more compact settlement structure and a higher population density – there was the possibility to use a concept which is pretty similar to the concepts used in urban areas. In an intensive co-operation with a local bank the mobility centre was implemented as a real information agency with a specialised staff.

In other words the concept worked right the other way round than it did in Paderborn. In this case the mobility centre was not integrated in an already existing bank agency, but bank services were integrated into the new mobility centre. This co-operation is necessary to ensure the needed customer frequency.

The co-operation is based mainly on the aspect that the bank pays the rent for the agency and can therefore be sure that if any problems should arise whilst customers are using these computer terminals, the staff of the agency will be present to offer some guidance and at the same time “look after” the terminal. This procedure also protects the bank terminals from possible vandalism. A travel agency is also part of the centre to ensure a more efficient use of the mobility centre staff. Beside classical tourist services the agency also offers tickets for the German railway system and a ticket service for local events. This multifunctional use of the centre staff ensures long opening-hours with a quite low cost level. Apart from these financial advantages, the multifunctional concept guarantees a great number of customers, which also helps to improve the perception of the public transport system and stress its existence to the citizens.

These two different successful implementations show the principal possibility of transferring the concept of mobility centres developed in urban areas to the spatial context of rural areas.

However, they also stress the need for cooperation between different partners and institutions which is necessary to ensure the needed customer frequency.

Conclusions

- **unfavourable financial and organisational conditions**
- **small numbers of potential users & unfavourable perception on the demand side**
- **appropriate solutions have to be developed by preventing any extra costs**

As a first conclusion one can say that, compared with metropolitan areas

- The small budgets for public transport in rural regions are a major constraint when trying to implement MM-measures in rural areas. The disadvantageous financial situation for public transport is often enhanced by a complicated structure of responsibilities.

- Furthermore the public transport in rural regions has to deal with large service areas where only a very limited number of potential users live. The situation is furthermore unfavourable because of the strong attitude of the rural population towards private car-use. This corresponds often with common political opinions in the regions that high quality public transport is just not necessary.

- Under this conditions there is little chance for innovative approaches which are likely to induce deficits. This means that all projects which were planned had to work almost without any extra costs. So it is not the ***perfect offer*** we looked for, but the *best offer* possible with a certain budget. The presented examples may give an idea of possible solutions under these framework conditions.

They prove that despite great financial problems, innovative

Conclusions

- **unfavourable financial and organisational conditions**
- **small numbers of potential users & unfavourable perception on the demand side**
- **appropriate solutions have to be developed by preventing any extra costs**
- **developed solutions always include certain constraints**
  - **limited transfer possibilities**
  - **creative solutions are necessary**
  - **low degree of standardization**
  - **adjusting the solutions to the local situation need a lot of work and offers a comparatively low potential**
- **one day the developed solution may become a model for optimizing solutions in metropolitan areas**

The developed projects had to deal with the local situation and find appropriate solutions for the regional context. By implementing new solutions the perception of public transport systems as well as the local knowledge of alternative mobility measures can be improved in the long-run.

- Otherwise, this presentation also wanted to stress on certain constraints in rural areas which are very hard to cope with. Not all of the MM-measures which are used in urban areas can also be transferred to rural regions.

Furthermore they have to be designed in a much more creative manner and the solutions have to strongly focus on the local conditions. This means that MM-measures in rural regions can not be as highly standardised as they are in urban areas.

- Nevertheless, MM-measures developed under the quite unfavourable conditions in rural regions might one day become a model for optimizing the nowadays existing solutions in the metropolitan areas towards a higher degree of effectiveness.