**Introduction**

In Germany shopping mobility causes about 12 percent of all passenger kilometres, which are approx. 120 billion kilometres; the car is used for more than 80 billion shopping kilometres per year. A crucial benefit of private car use for shopping purposes is the possibility to carry the shopping back home conveniently.

This paper focuses on the connection between passenger and freight transport (e.g. goods) in shopping mobility. It summarises the current situation of delivery services (DS) in Germany and the results of the pilot project “Goods Delivery Service of a Public Transport Company (Bonn)”. For an environmental mobility management DS are interesting concerning their potential to decouple shopping mobility and private car use.

Effects of ecological relief by DS can be achieved if a sufficient quantity of goods is delivered and the delivery routes are logistically optimized, the delivery cars are comparatively environmentally friendly (e.g. gas engines) and customers can easily reach shops by environmentally friendly modes of transport (on foot, by bike, by public transport).

**Delivery Services and Retailers in Germany – an Overview**

There are hardly available any systematic empirical findings on the importance of delivery services by retailers in Germany (not considering mail-order business and e-commerce), for the market, their traffic impacts and the resulting effects on the environment yet. Following different kinds of DS are introduced as relevant for shopping mobility.
DS run by individual retailers in different sectors

A relevant number of retailers offer their customers already DS as an alternative to the private car. These services are either operated by themselves or special transport organisations are charged for the service. Normally DS are used for the transport of heavy and bulky products; the use is also quite common if installation or erection of products at home is necessary. The enhancement of customer loyalty or the development of USP (Unique Selling Proposition) might be additional reasons for the retailer to offer such a service.

According to the German lobby organization of retail traders in 2001, about 60% of German retail shops offer a DS. A case study carried out in Erfurt in summer 2002 showed that in the city centre about 44% of the retailers offer a DS.

In the field of trade with furniture, big electric appliances and electronic equipment DS is usually expected by customers and is offered by the retailer as a matter of course. The goods are delivered to the customer’s address by a delivery van of the individual retailer whose staff is in most cases needed for mounting and installing appliances.

In Do-it-yourself stores, garden-centres and pick-up furniture stores like IKEA, businesses in which often heavy and cumbersome goods are sold, home delivery services or rent-a-van-services for delivery by the customer himself are part of the regular service and are not especially pointed out and advertised.

In German cities, department stores, usually offer their own DS. Because of the great number of customers and the corresponding high quantity of deliveries these retailers run a company-owned delivery-system with personal staff and delivery-vehicles, which they recommend as a special service. According to investigations of the Consumers' Agency of North-Rhine Westphalia, however, these DS are usually only offered if customers ask for such a service, they are hardly ever actively promoted by the selling staff.

In typical central urban retail stores selling smaller products retailers do not usually offer a DS. It is usually not advertised or recommended as a special service. Also from the side of the customers in inner cities there is usually no high demand for such services. The lack of

Ruhr Nachrichten Dortmund, 27/11, 2001
service-orientation from the side of the retailers corresponds to the lack of interest in those services from the side of the customers.

In the food sector, many retailers of supermarkets, neighbourhood shops and specialized beverage trade offer DS for a small delivery fee or as a free service for goods exceeding a specific price limit. Usually this DS is offered upon inquiry of certain groups of people, e.g. aged, handicapped, or car-free customers. The service is usually not actively advertised as a special service.

**DS run by extra-company providers**

In comparison to the DS above mentioned which are related to a single retailer there are few examples of DS organisations which offer their transportation service a larger number of retailers within a city or region. Aims of these services are besides an efficient and economical operation the promotion of environmentally friendly transport modes. Thus most of these services get financial support by public funding. One example for such a service is the DS in Bonn.

In Germany, between 1997 and 2003, eight pilot projects of DS run by extra-company providers (e.g. taxi companies, forwarding agencies, parcel services, public transport companies and non-profit employment initiatives) have been developed. These extra-company providers offer logistic solutions for several retailers and their customers. Three of these eight pilot projects have already stopped operation; one was finished preliminary during the planning phase; only four of them are still running, partly modified.

The number of the logistic actions achieved by these DS and therefore also possible traffic reduction and environmental improving effects are very modest. The experiences show that it is at present difficult to operate these kinds of DS economically. The lack of cost coverage was the main difficulty. The seven comparable projects confirm the experience of the Bonn pilot project (see below).

**Sales concepts similar to DS**

Only few retailers offer their goods in mobile sales vans in residential districts. In this case the distance between customer and store is shortened, so that goods may easily be transported home on foot either by the salesman-driver or by the customer. Regarding the process of concentration in retail trade the supply of goods in residential districts might
gain importance in future. In some rural districts, these “shops on wheels“ have already been established as part of a regular retailers’ system.

Another type is the selling concept of markets which take place once or twice a week on central squares that can easily be reached on foot, by bike or by public transport. Thus, retailers and/or producers meet their customers halfway.

In Germany, there are several examples of manufacturers (e.g. of beverages, frozen products, organic food) who operate a direct sale and distribution system. The additional costs for the operation of their own system of orders and distribution, for advertising and sales promotion are lower than the costs they would have to pay for distribution services of the intermediate trade.

*New logistical concepts for shopping mobility*

New logistic projects address mainly the “last mile problem” in order to reduce transport costs. Goods ordered via phone, fax or internet are delivered to stations located more or less near to residential districts where they are stored until the customer picks them up. Usually the customer gets a message via e-mail or SMS that his goods has arrived and a PIN-code to receive them.

Examples for these kinds of logistical concepts in Germany are as following.

*PickPoints* which are usually staff attended are mostly petrol stations. Tanning salons, video-tape libraries or kiosks-convenience stores are possible stations too. There are about 1,300 PickPoints in Germany and about 250 in the Ruhr Region\(^2\). A similar system is used by staff-attended packet shops of big mail-order firms.

*PackStations* are automatic lockers at central urban places (e.g. at the main station, in the city-centre or at suburban fast train stations) operated by the German postal service. There are pilot projects in the cities of Mainz and Dortmund with 15 lockers.

*Tower24* is a concept of the Fraunhofer Institute which is the largest system at present. It is a tower with about 300 standard boxes which offer three different temperatures for the storage of fresh and frozen products. The first tower as a test was built in Dortmund.

There are, however, not yet any preliminary results from evaluations of these logistical experiments.

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\(^2\) Ruhr-Nachrichten Dortmund 9/4; 21/4, 2001
Results of the pilot project in Bonn: an example for a DS for urban shopping

The objective of the pilot project Bonn was to assess options and restrictions of a DS (run by a public transportation company) and to receive general information about the perspectives of DS. The Wuppertal Institute initiated this pilot project, advised the development and implementation of the project concept and evaluated the results of the model project by several surveys. Methods and findings are documented in a final report (only available in German). The focus is to show the elements of success and failure, to describe the responsible key factors and to derive conclusions for the development of new approaches of DS.

The goods delivery service of the public transportation company of Bonn - Stadtwerke Bonn Verkehrs-GmbH - SWBV, with the brand name “EasyShop”, was offered the retailers in the city of Bonn for 30 months (from September 2000 until March 2003). Participating retailers could offer the service their customers. Staff of the SWBV delivered the shopping if requested the same day even after closing time to the customers’ home, which should be located within the region of the public transportation association. The region has an approx. size of 5,150 square kilometre, 3.2 million inhabitants and 1.4 million users of bus, tram and train per day. The price for the service was quite moderate (2, 3 or 5 Euro). Users of public transport paid even less. Target figure of deliveries per day was 20.

Number of deliveries and kilometres driven

From October 2000 to December 2001 EasyShop had 3,492 deliveries. Three third of the deliveries were charged by only five retailers. 40 of the 78 retailers who participated did not use the service once.

The development of the frequencies shows an increase in the number of deliveries during the survey. The highest number was reached due to Christmas shopping in December 2000 und 2001, which assembled 24% of all deliveries. Generally, the demand of the service refers to business activity, which is characterized by high and low sales figures. It has also to be considered that the economic situation in Germany was tense when EasyShop started.

On average 9 deliveries per working day were made. On Saturday only half of the deliveries were ordered. With the number of participating retailers and consumers on a relatively low level EasyShop remained behind the goals and expectations.
Table 1: Operated kilometres and delivery organisation

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<tbody>
<tr>
<td>Number of deliveries</td>
<td>3,492</td>
</tr>
<tr>
<td>Driven kilometres all together</td>
<td>62,763 km</td>
</tr>
<tr>
<td>Logistic actions</td>
<td>610</td>
</tr>
<tr>
<td>Average kilometres driven per logistic action</td>
<td>103.2 km</td>
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<tr>
<td>Average kilometres driven per delivery</td>
<td>18.1 km</td>
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Logistic and distribution was organised by the drivers themselves. The results of the kilometres driven show the relatively high number of kilometres driven per delivery if it is considered that 65% of deliveries were distributed within the city of Bonn. This fact is relevant for controlling of costs.

User and Non-User of EasyShop

Major consumer group of the service were women and elderly people. Their level of income was relatively high. In comparison to the non-users the customers were regular users of public transport; their availability of a private car was therefore lower. The typical user visited the city centre more often and was more familiar with alternative shopping modes like online shopping. Also 50% of the non-users have heard about the service which proofs the effect of the marketing measures undertaken by the SWBV.

Main motivation for using the service was the character of the shopping goods which were in most of the times big, heavy and/or bulky (85%). The reasonable price of the service has definitely supported the usage. Non-users preferred to carry their shopping on their own. Even 55% of non-users could have thought about using the service in future.

The level of contentment with the service was high but surprisingly most of the users (95%) ordered the service only once. This is an effect of the specifics of products (periodical demand) offered in the city centre but could also be an indicator for a lack of consumer loyalty. Politeness of the drivers and prices were considered positive; but image of the service and quality of information were criticized.

Main result of the survey of the consumer was that consumer were mostly people, who need help with their shopping goods because of different mobility restrictions. These people had definitely won individual autonomy. As a consequence DS could be important for the improvement of accessibility for special target groups like elderly (keyword: greying
society) and handicapped people and families with children. Because of a better participation of these target groups in social and economic life the DS has an added value, which can not be quantified. This result proofs the importance of mobility management concepts achieving equity and social justice. If such concept should be part of social welfare they would need political support and funding because economical operations of the services are difficult under the given general conditions.

It has also to be stated that target groups like young, employed people having purchasing power and lack of time have not been reached by the service. If a service is limited to the city centre this target group seems to be important to address.

*Participating retailers*

Key factor for the use of the service like EasyShop are the retailers who have direct contact to the consumer. They are responsible for the offer of the service their customers when people do not asked for the service on their own. Therefore a survey was carried out to ask the participating and not-participating retailers about motivation and restrictions using the service. All in all the awareness of the service within both groups was high.

For the participating retailers the service was an additional service but not part of their core business. Main motivations for participation were positive effects on costs and staff. Most of them did not feel responsible for the marketing of the service. Because customers seldom ask for the service it was only ordered occasionally. There was a high content to the costs of the service but organisation especially reliability and intricateness, the staff and the marketing were criticized.

Main reason not to participate was the use of other, comparable services. Most of the not-participating retailers specified that the necessity for such a service is generally low because customers prefer to carry their shopping back home by themselves.

Key results of the survey were that retailers are generally a quite sensitive partner with high expectations towards professional organisation and benefits which are first of all reduction of costs. Any kind of deficiencies are not accepted. Even most of the retailers offer different kinds of goods delivery services, the tenor is that the customer himself is mainly responsible for the transport of the shopping.
There is no alternative – for urban shopping services retailers are the key factor. The service needs the support and marketing of the retailers; so acquisition of retailers and target oriented communication is crucial.

Ecological findings and proposals for changes

In order to enhance productivity and ecological effects different possibilities to change the organisation of the service have been analysed. Especially the figure of 18.1 kilometres driven for only one delivery on average was alarming. A special survey has also shown that EasyShop did not reduce kilometres - but quite the contrary. It must be assumed that additional kilometres have been driven according to the high percentage of users who used public transport.

Core of EasyShop was to install a consumer oriented service which should meet to a large extent the requirements of the users. In consideration of consumer orientation versus efficiency, consumer orientation has always been favoured. Analysing the possibilities (reduction of hours for deliveries, reduction of the area of deliveries, price increase) how to optimize the economic and ecologic result of EasyShop it became clear that every measure would mitigate consumer orientation.

In comparison to professional parcel services EasyShop had only a limited scope of action. Professional parcel services dominate the market with concept, prices and a high number of clients. But consumer orientation is low. Because of that they can benefit from logistic and efficiency principles to operate as cheap as possible. EasyShop has been a niche product which gained attractiveness and it’s customers with low prices and convenience.

Résumé of the urban shopping project in Bonn

Due to economic results the project was stopped by the SWBV end of March 2003. Reasons for the failure were the partly difficult general frame conditions (key words: Euro-adjustment, lack of service culture) and the reservation of large numbers of consumers and retailers towards the service. It must also be stated, that a fast success with a high number of consumers could actually not be expected. Innovative and new mobility services need time and strong marketing efforts to reach potential consumers and to become an established product on the mobility market. The challenge is to change shopping and mobility routines.
Public transport companies are currently under pressure to concentrate on their core business “transportation of passenger” and to sustain their service while reducing production costs in a more competitive and liberalised market. So they are obviously economically not the appropriate partners in providing low-priced delivery services. Other professional providers like parcel delivery companies, taxi companies or providers of newly developed 24-hours-goods-store-towers might check their market chance.

Recommendations

- DS should be run by professional providers, e.g. specialized couriers, express- and parcel-services.
- There has to be a balance between optimisation of logistics and customers’ interests. Prices must be calculated to cover all costs.
- Processes of order and payment must be smart: understandable, transparent and easy to realize.
- The interest of retailers for participation is low especially if they operate their own DS. Acquisition should address customers but as well retailers.
- Information, special campaigns and personal recommendation are crucial to reach customers. Within the first phase of operation realistic numbers of users should be expected.
- Patience and public money is needed to overcome the long haul to establish the service.

Perspectives of DS

Increasing individualisation, pluralisation and flexibility of lifestyles as well as diffusion of technical options like shopping via Internet, fax or telephone might increase the demand for DS, too. Probably we face a transition into a more service-oriented and a more technically based culture of shopping. Both factors might increase the demand for modern types of DS. To manage the transition towards a sustainable and less-car-dependent urban shopping mobility DS could be one tool to promote the using of environmentally friendly transport modes. If the demand for transportation of small, individual goods will increase as expected, there might be a new chance for extra-company providers like in Bonn.