

Innovative Approaches in City Logistics

# Alternative Solutions for Home Delivery



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# *Policy notes*



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SIXTH FRAMEWORK PROGRAMME

# What is it about?

## Characteristics

E-commerce and home delivery are increasing rapidly each year in many European countries. The physical distribution of goods to the consumer is a critical factor in the success of alternative solutions for home delivery.

The solutions:

- Include innovative approaches for organising “last mile” processes efficiently;
- Consider - compared to traditional doorstep deliveries - alternative delivery locations (pick up points like e.g. locker boxes), time windows and alternative redelivery strategies;
- Must be supported by an efficient transport planning and fleet monitoring system, ensuring the time windows provided and achieving significant savings in urban vehicle km driven;
- Can be found in different forms across Europe (delivery of parcels by postal services, new approaches for e-commerce). Several examples of home delivery solutions are given on page 9 and 10.

## Key benefits

The implementation of Alternative Solutions for Home Delivery...

- improves the quality of life: more independence for users as delivery time and location can be adjusted to personal routine; less traffic-induced pollution in the inner-city;
- improves efficiency of transport: less congestion in the inner-city;
- improves efficiency of delivery tours: less stops, avoidance of unsuccessful delivery attempts, reduction of last mile costs, more independence for the operators in planning tours, lower energy consumption;
- provides more alternatives for private individuals (open 24 hours 7 days, and choice of location).



Personal delivery profile:

The customer can indicate via internet when and where he wishes to receive the goods following his personal preferences and availability. The tour planning system of the logistics service provider makes direct use of the information integrated in the delivery profiles of all customers.

Source: VMTL

“PACKSTATION, the free locker box service of DHL available since 2002 to customers in Germany, has already attracted more than 500,000 subscribers. As an optional alternative to home deliveries with currently 700 stations, PACKSTATION is instrumental in ensuring timely deliveries to receivers, and hence also contributes to the reduction of delivery traffic particularly in urban areas.”

Peter Sonnabend, DHL Express

## Is this something for us?

Alternative Solutions for Home Delivery include a wide range of solutions from rather simple approaches to innovative and complex systems.

Key conditions for implementation are:

- A stakeholder champion (i.e. a private company) with strong interest in implementation. The company or group of companies is responsible for a critical mass of deliveries which allows an establishment already on an economic scale;
- A sufficient number of users who are signing up to make use of a new system;
- A detailed perception of the user needs and constraints.



User interface for tour planning  
Source: Planung Transport Verkehr AG



Example PACKSTATION in Germany  
Source: DHL Express Germany

"The city is not the major stakeholder who initiates a home delivery solution but the city plays a very important role as a mediator with regard to the realization and installation of pick up points (e.g. planning and building permission for locker boxes)."

*Peter Sonnabend, DHL*

## Check list

<b>City size</b>	Not relevant.
<b>Costs</b>	Low cost or even no costs for cities, only if some infrastructure adjustments are necessary.
<b>Implementation time</b>	Short term (<3 years).
<b>Stakeholders involved</b>	<ul style="list-style-type: none"> <li>• Private company;</li> <li>• Private users;</li> <li>• Public authorities;</li> <li>• City planners.</li> </ul>
<b>Undesirable secondary effects</b>	Possible increase of the use of private cars due to self pick-up.

# Benefits & Costs

## Benefits

Alternative Solutions for Home Delivery contribute to the following policy goals:

- **Reduction of energy consumption:**
- **Improvement of transport efficiency;**
- **Improvement of quality of live.**

For the transport operators the main benefits derive from the bundling of deliveries, the increase of the number of successful first-time deliveries, optimisation of delivery tours and lower operational costs. In total a **decrease of transport costs** can be expected.

The optimisation of the transports leads to a reduction of unnecessary trips in the city centre. The results are **less pollution and energy consumption**, and improved quality of life for all citizens.

Furthermore, the customers can expect **better service** conditions from the new systems.

*Example:  
PACKSTATION, DHL,  
Germany*

Studies from 2006 in Cologne (1 m inhabitants, 29 stations) revealed that in that city alone 35,000 trip-km are saved annually as a result of the PACKSTATION scheme. These result from less delivery traffic and stops as well as from the reduced necessity of private car trips to collect shipments from postal outlets or depots, rather than from the lockerbox as part of the client's daily routine.

## Results of scenario calculations (Source: VMTL)

Within the VMTL project scenario calculations have been done for different issues related to home delivery. Basis for the scenarios are real customer and tour data from Hermes Logistik Gruppe.

**Scenario 1** - Transport planning including alternative delivery locations. Fuel stations in Munich are used as alternative delivery locations. Results: Reduction in km driven of up to 12% compared to a doorstep delivery, saving in delivery time of up to 5%.

**Scenario 2** - Transport planning including the introduction of a personal delivery profile. Customers and depot/transport structures from the city of Berlin are used. Results: Significant improvement of the number of successful first-time-deliveries decreases the number of second/third/fourth time delivery attempts and the number of vehicles needed can be reduced by up to 4%.

In general a better customer service with slightly higher prices plus optimisation potential can lead to a general cost reduction.

## Costs

There are no cost for the city administration but in some cases an income is possible from renting out public space for the installation of pick up points.

Concerning the implementation of the hardware and possibly a supporting transport planning and fleet monitoring system the cost differ heavily.

Practice shows that the increase in customer satisfaction and savings of operational costs can overcome in the medium term the expenses for the installation of a locker box service.

The locations for pick up points should be well chosen, in order to avoid additional passenger car trips.

# Users & Stakeholders

## Users and target groups, user acceptance

Besides the private customers also companies that work in the field of maintenance and service are targeted by home delivery solutions.

In general alternative delivery locations as well as delivery time windows can offer a significant improvement of the service level of a parcel service. Especially the fact that the clients' wishes can be considered in a very flexible way is seen as a big advantage of the solutions for both the operator and for the clients.

The supporting tour planning and monitoring solutions are an important tool for the dispatcher in organising the delivery tours.

**It is important that a new home delivery service including e.g. the use of locker boxes represents an additional alternative for the customer. The customer needs to have the free choice to make use of the new service or not (no obligation).**



Public space

Photo: PTV Planung Transport Verkehr AG

## Key stakeholders for implementation

In general the key stakeholders with regard to the implementation of an Alternative Solution for Home Delivery are not city administrations but **private companies**.

In most cases **express and logistics service providers** are the driving force. They can push the implementation of concepts and the related transport planning and fleet monitoring systems within their existing cooperation e.g. with one or several distance sellers.

It might also be possible that a **city administration** initiates and promotes the set up and installation of pick up points e.g. within a public transport promotion strategy.

The city administration is an important stakeholder with regard to the provision of the public space needed for the installation of pick up points.

# From concept to reality

A clear and user friendly design and layout of the solution is key for good user acceptance. Deliveries of inbound items should be supported as well as the drop-off of outbound shipments, including returns, along with facilities for the associated payment. Reliability of all elements is indispensable.

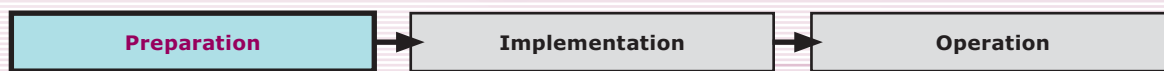
The last mile solution must be backed up with a matching transport planning and monitoring system including the proof of delivery.

Transport planning systems on the operator's side can help to integrate both pick up points and other delivery locations in an overall transport planning and provide data for e.g. communication with the client.



Example Hermes PaketShop in Germany  
Photo: Hermes Logistik Gruppe

## Preparation



### Key aspects at this stage

- Identification of user needs (e.g. survey);
- Design of services and business model;
- Consideration of possible cooperation between different service providers;
- Decision about integration in the internal transport organisation and especially in the tour planning environment;
- Information about available pick up points (e.g. locker boxes) to be used;
- Information about the locations where pick up points can be installed;
- Cooperation between city and companies with regard to locations for pick up points;
- Consideration of security issues that may prevent the installation of locker boxes at certain locations;
- Decision about technical layout: pick up points, transport planning system;
- Design of IT system for client registration, information and authorisation;
- Design of customer service centre (complaints, damaged parcels, etc.);
- Identification of test area;
- Contracts for use of locations.

It is important to consider that Alternative Solutions for Home Delivery must be embedded in and supported by an adequate planning and organisational structure within the express and logistics service provider.

If possible, the alternative service should be free of charge as customers often do not accept extra costs for extra services.

## Implementation



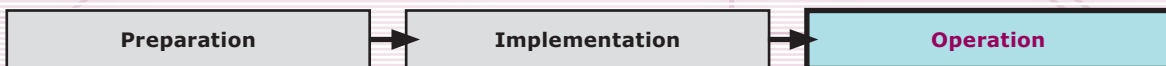
### Key aspects at this stage

- Promote the new service already during implementation phase;
- Sufficient internal system tests;
- Limited tests with customers that can easily adapt to new services, e.g. students (installation at universities...);
- Installation of necessary infrastructure (e.g. locker boxes have to be installed).



Consignee receives message  
Photo: VMTL

## Operation



### Key aspects at this stage

- Marketing campaign with special conditions for users;
- Well organised customer service centre;
- Ongoing customer surveys for direct consideration of customer needs.



Consignee collects parcel  
Photo: DHL Express Germany

### Processes related to the use of locker boxes:

1. The customer needs to register once to become a user of the locker box service. As a result he receives access details, e.g. a PIN code and/or card.
2. Ordering of an item, e.g. from a distance selling company. The locker box is given as shipping address.
3. The logistics service provider delivers the parcel to the locker box. Once the delivery is made the consignee receives a message (e.g. e-mail, SMS).
4. The consignee can now pick up his parcel according to his own schedule.
5. Login with access details: the consignee has to login (e.g. with his PIN and smart card) to receive his parcel.
6. Collect the parcel...

# Special issues related to locker boxes

Pick up points are locations where customers can pick up their orders. They can be unattended (e.g. locker boxes) or attended (e.g. fuel stations). With regard to locker boxes the following issues have to be considered:

## Location choice

The location choice is based on the consideration of "Where are the most frequented points by the users?". Some of the biggest and most frequently used PACKSTATIONS are e.g. at the central railway station in Mainz and on the premises of large employers such as SAP or Siemens.

The aim is to choose locations with the best likelihood of good user patronage.

## User group

The choice of the equipment but also of the servicing concept and the location of the equipment depends heavily on the addressed user group (clients). For example, a large group of users of locker boxes are employees which are often not at home. For these, an installation nearby the working place or on their way to/from work is very important.

## Kinds of goods

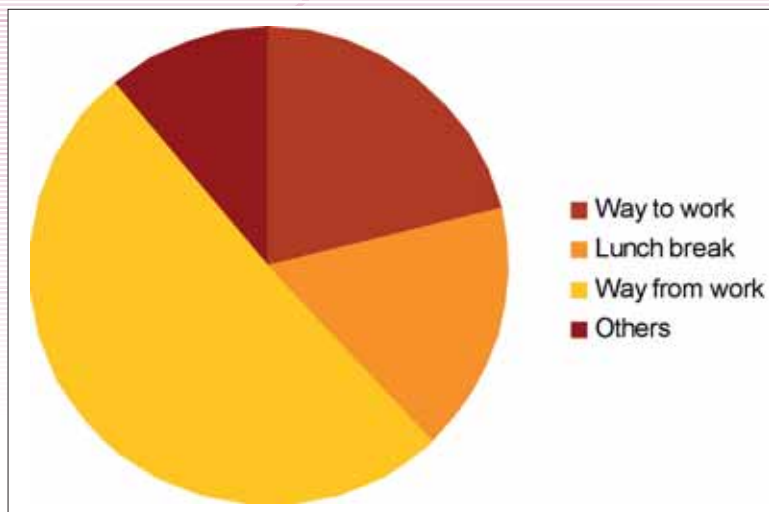
The kind and number of goods that shall be stored in the locker boxes but also the services offered at the station decide about the layout and features of the boxes:

- Parcels and packages;
- Spare parts;
- Dispatches and returns;
- Electronic payment.

## Technical requirements

Facilities often needed for the establishment of a locker box:

- Electric power (230 V);
- Telephone access;
- 24 h free access for clients.



*Time of collection at pick up points and locker banks*  
Source: DHL Express Germany



# Examples

## E-Box, Paris (France)

E-Box is rather well known within specialists of locker boxes and pick up points. One (experimental) E-Box boutique has been opened in Paris. The approach seems to be promising but so far the operator has failed in finding a «big» partner (such as La Poste).

The locker boxes are installed inside a closed area (building/room) comparable with the situation at a finance institute including video surveillance. The client gets access to the area by use of the registration card. This solution shall increase the security level.

## DHL PackStation (Germany)

PACKSTATION is a free service from DHL in Germany that allows receivers to choose a locker box station as alternative to traditional home delivery. The locker box is accessible 7/24 with a smart card and PIN code supplied to registered users of the scheme. Receivers are notified of a waiting parcel by email or SMS according to the user's specifications. By late 2006, over 500,000 clients already subscribed to PACKSTATION and make use of the currently 700 stations in cities across Germany.

The scheme can be used for collection of parcels and packages as well as for dropping off shipments and returns, with parcel stamps and electronic payment available from most of the stations.

For the implementation local authorities have been involved from the start in selecting suitable locker box sites. Typically it takes about 6 months between the initial request and the first use of PACKSTATION in a particular city. Popular sites with heavy utilisation include transport nodes such as railway stations as well as sites adjacent to or on the premises of large employers, where employees make extensive use of PACKSTATION on their daily trips to and from work.

## Locker Bank ("Not in Home Trial") (UK)

The trial was initiated by Royal Mail, Parcelforce Worldwide and the network of Post Office® branches. The customers could choose where items would be delivered to, both initially and following a failed delivery. The options included a neighbour's address, an automated locker bank and their local Post Office® branch or Royal Mail delivery office.

As well as giving residents a more comprehensive delivery service the trial scheme also resulted in environmental benefits. Some customers used different modes of transport to travel to their chosen redelivery location (e.g. walking) compared to how they used to travel to the delivery office (e.g. by car). In most cases this change of mode was also accompanied with a reduction of the distance travelled.

The project trials lasted for an 18 month period in several areas (Beverley, Newbury, Nottingham ('Not in Home'), Bristol SE and Bristol city postcode areas) within the UK, ceasing on 22nd November 2004.

### *Experiences:*

Extensive research during the trials showed that the anticipated financial savings within the operation (savings achieved from a national reduction in staff hours spent on handling undeliverable items) were not realised and so the Royal Mail Executive Committee concluded that the commercial case for nationwide roll out was not viable.

## Tower24 (Germany)

Tower24 is an automatic terminal for parcel pick-up and delivery. Bundling effects occur because the parcel service can deliver approximately 100 parcel in 20 minutes.

One Tower24 was installed in Dortmund in 2003 and is still under operation but no further units have been installed because no private operator could be found (neither a 3rd party service provider nor a logistics service provider).

### *Experiences:*

High cost for the construction of the tower (about 250,000 € per unit) can only be overcome if a very high number of clients uses the facilities. Location choice is therefore of high relevance.

## PaketShop, Hermes Logistik Gruppe (Germany)

Hermes offers the possibility for parcels to be delivered not at home but at a so called "PaketShop". Currently more than 13,000 "PaketShops" exist all over Germany and they can be found both in cities and in rural areas. The label "PaketShop" means that a retailer (e.g. stationery), a shop within the service sector (e.g. video store) but also a fuel station can be used as a location where parcels can be picked-up by the clients but also where return consignments or C2C (customer to customer) parcels can be posted.

The "PaketShop" example is considered as an additional service component within the value-added chain. It offers the clients an easily accessible option for handling their parcels according to their needs.

## Kiala (The Netherlands/ Belgium/ France/ Luxembourg)

Kiala provides home delivery services for different far distance retailers or E-commerce shops.

Transport from the retailers distribution centre to a pick up point (usually gas stations or kiosks) as well as home deliveries are organised. Two main networks are operated: a consumer oriented network and a professional network for time critical deliveries. The customer can select a preferred Kiala store for picking up his delivery. Once the delivery is made he will be informed via SMS or Call Centre.

### *Experiences:*

Business case is implemented - permanent growth.

## VMTL (Germany)

The goal of the project Traffic Management in Transport and Logistics (VMTL) was to investigate how existing and emerging information and communication technologies can be used to manage the flow of transported goods more efficiently and thus to reduce traffic demand. Core of the VMTL system is the integration of a dynamic trip planning application considering traffic information on the one side and individual customer information related to the delivery process such as time windows or alternative delivery locations on the other side.

The Hermes Logistik Gruppe (delivery service) was the practical partner in the project and delivered data input for the field tests and scenario calculations.

Main ideas of VMTL are to:

- Announce and keep more precise delivery time windows;
- Improve customer service.

This is done by the development of an ICT-environment which integrates the customers, operators, etc. and which allows a realistic transport planning and control including the use of traffic information (as available).

### *Project partners:*

DaimlerChrysler, Ericsson, Hermes Logistik Gruppe, IBM Deutschland, PTV AG.

# Further information & contacts

## Further information

### **PACKSTATION, DHL (Germany)**

PACKSTATION is a well established nationwide scheme of locker boxes, operated by DHL.  
[www.packstation.de](http://www.packstation.de) (German and English)

### **Tower24 (Germany)**

One Tower24 was installed in Dortmund in 2003.  
<http://tower24.de> (German and English)

### **E-Box (France)**

[www.e-box.fr](http://www.e-box.fr) (French and English)

### **Hermes PaketShop (Germany)**

Hermes PaketShops can be found all over Germany; the service is operated by Hermes Logistik Gruppe.  
[www.hermespaketshop.de](http://www.hermespaketshop.de) (German)

### **Kiala (The Netherlands/ Belgium/ France/ Luxembourg)**

[www.kiala.be](http://www.kiala.be) (French and Dutch)  
[www.kiala.lu](http://www.kiala.lu) (French and German)  
[www.kiala.fr](http://www.kiala.fr) (French)

### **BESTUFS workshops**

BESTUFS is a thematic network on urban freight transport.  
[www.bestufs.net](http://www.bestufs.net) (English)

### **NICHES - further documents with more details**

Reports on the state of the art, analysis of success factors and barriers for implementation, transferability potential and integrated strategies are available on the NICHES websites (English):  
[www.niches-transport.org](http://www.niches-transport.org)  
[www.osmose-os.org](http://www.osmose-os.org)

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