**NAME OF CASE**

Bentobox and ‘urban freight laboratory’ area in Berlin

**KeyWords:**

Freight consolidation and transhipment; Innovative vehicles, vessels and equipment; Data collection and statistics; monitoring and benchmarking of processes; business to customer solutions (last mile deliveries)

**Description:**

The urban freight ‘laboratory area’ is a small residential and mixed-use business and retail area in a central borough of Berlin, Germany, in which innovative freight transport solutions are tested, studied and presented.

The Bentobox technology consists of the use of a new locker bank for parcels storage, and of electrically assisted bikes for final delivery. Bentobox tests were performed in the laboratory area. The project leader, the Senate Department for Urban Development and Environment of Berlin, seeks to use this area for further tests, including e-mobility and smart freight solutions.

**Benefits:**

The benefits of the ‘laboratory area’ are:

- Reduced costs and effort for data collection and evaluation when testing different transport solutions: several tests are possible and different solutions can be compared
- High level of acceptance of the practice being tested

The benefits of the Bentobox solution are:

- reduced vehicle km, congestion, emissions, and externalities
- higher quality of service.

**Success Factors:**

- Political support to implement the ‘laboratory area’.
- Desire to reduce the time, efforts and costs of data collection/monitoring for new innovation trials
- Keenness to increase the public visibility of the solutions tested
- Local authority and businesses agreeing to share the data collection and usage, to achieve a broader range of contacts, and use of local knowledge.

**Supported Strategic Targets:**

- For public actors: efficient public spending, improved utilisation of infrastructure, acceptance and influence, balanced provision of goods and services, reduced greenhouse gas emissions, reduced pollutants emissions.
- For private actors: improved image, reduced pollutants and greenhouse gas emissions.

**Starting Point/Objectives/Motivation:**

Before the implementation of the ‘laboratory area’, different parts of the city were used in different projects. Previously, the areas were selected according to a set of requirements needed for a successful trial and evaluation of innovative solutions. Data collection usually involved a high workload and costs. The laboratory area was set-up to reduce workload and costs, improve project comparability, and to provide more public visibility of the different solutions evaluated. The laboratory area was created in early 2011 by Berlin local authority. Its main characteristics include:

- Well definable area with clear borders (just next to Berlin’s Environmental Zone)
- High density and diversity of traffic
- Competition for roadspace from different transport modes and users
- High potential for transport reduction by using innovative concepts and vehicle solutions
- Regular update of data in the laboratory area.

The laboratory area (called ‘Steglitz/Friedenau’) zone is shaded green in the above picture. A delivery survey was carried out for one week in spring 2011. 106 retail and catering companies were contacted, 69 of which completed a delivery diary (65% response rate). The information collected included: time and duration of each delivery, name of the supplier, type of the delivery and type of delivery vehicle.
For the Bentobox, wheeled boxes are loaded with merchandise for shopping malls in the depot. Then these boxes are delivered to an automated locker bank within the shopping mall, before or after opening hours. The driver inserts the boxes into the locker bank, which triggers an automated alert notifying the customer of delivery by SMS or email. Customers can pick up their merchandise 24/7 at their convenience. The Bentobox solution is used as a consolidation point for inner-city distribution. An engineering and construction company (Constin) provided the space for its installation. The Bentobox trial was operated by Messenger Transport, a freight transport carrier using mostly cycles (see picture below).

Two types of electrically-assisted bikes were used in the Bentobox test: Cargo (e)-bikes with a load capacity of up to 70 kg; and Cruiser bikes with a capacity of 250 kg (the dimension of a EURO pallet) and a 80 km range. It was estimated that 85 % of the conventional light commercial vehicles’ routes were replaced by bikes, thus reducing the distance covered by diesel vehicles. This in turn led to a reduction in externalities and emissions.

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More information:

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- Transport mode or supply chain elements:
  - Road/truck (including electric vehicles)
  - Road/motorcycles, scooter etc. (including electric ones)
  - (E-) cargobikes

- Main actors involved:
  - Berlin Senate, Department for Urban Development and Environment (SenStadt)
  - The Bentobox trial also included, among others:
    - TNT
    - Fraunhofer-IPK
    - Courier service operator: Messenger Transport
    - Engineering, construction and manufacturing: Constin

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- Pictures: The Bentobox is a mobile station for parcels storage, used as transhipment for final deliveries or customer pick-up.