



Information Management Policies Assessment for City Transportation Systems

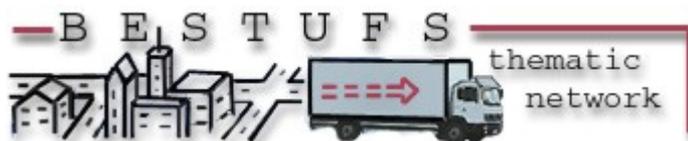
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Recent trends in goods traffic and freight management strategies in European Large Cities

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BEST Urban Freight Solutions BESTUFS



Introduction

New urban freight solutions are currently attracting more and more attention because of mainly three reasons: First, due to the fact that the installed urban goods transport procedures are negatively affecting the quality of life in cities; Second, because structural changes take place in urban areas both from the city infrastructure and policy point of view (e.g. pedestrian and parking zones) but also from the commercial viewpoint (e.g. shopping malls and emerging e-commerce); Third, because technology related innovations (e.g. low emission vehicles, small containers, less expensive transshipment, or EDI) are entering fast in the market and are becoming competitive in price compared to the established technologies. BESTUFS is a European co-ordination activity to encourage the co-operation between domain experts, research institutions, urban transport operators and city administrations in order to identify and to disseminate Urban Freight Solutions (UFS) which are considered as best practices within Europe. The main objectives of BESTUFS are:

- to establish and maintain an open European network between urban freight transport experts, user groups/associations, ongoing projects, interested cities, the relevant European Commission Directorates, system/technology providers and representatives of national transport administrations; the network is focussing on the movement of goods in urban areas,
- to create a permanent and dynamic concertation activity during the period of the 5th FP,
- to identify and structure the various themes which build the UFS domain and which have relations and influence to it; to present projects and best practices in view of this schema,
- to support the clustering of projects on European level and to integrate projects and clusters into the network,
- to collect, compare and summarise available experiences and results of projects and initiatives in the UFS domain mainly of Europe but also - if easily obtainable - of the USA and other countries,
- to identify and describe best practices and success criteria within the UFS domain,
- to disseminate experiences, project relations, best practices and success criteria to a broad public of interested actors and thereby aiming at the transferability of solutions,
- to establish links and co-operations with relevant other thematic networks (treating different themes) on European level in order to share and integrate the results (regarding overlapping themes) and to avoid duplication of work,
- to establish links and co-operations with national thematic networks (treating the UFS domain) in order to share and integrate results and
- to support the co-operation between actors in the UFS domain by providing information and by providing contacts.

More information on the BESTUFS project is available on the BESTUFS web page www.bestufs.net.

Urban freight transport themes

The following catalogue of themes has been determined:

- Statistical data, data acquisition and data analysis regarding urban freight transport
- City access, parking regulations and access time restrictions
- Enforcement support (e.g. by video control)
- Models and methods to deal with the complexity of urban freight transport chains and the shared responsibilities
- Improved management of urban road space and kerbside access

- Relationship and harmonization between urban, regional, national and European legislation
- Innovative urban freight transport ideas (e.g. via underground systems, pipelines, etc.)
- Intelligent transport systems (ITS), transport telematics applications and systems
- Public-private-partnerships (PPP) and stimulation e.g. via freight fora
- Enhanced signage and information systems (e.g. via variable message signs - VMS)
- E-commerce and distribution (home shopping)
- Vehicle technology and functionalities (e.g. low-emission vehicles) Land use, infrastructure and regulations planning
- Enhanced usage and maintenance of infrastructure (e.g. via a road map for transport vehicles)
- Inter-modal transfer facilities
- Integration of distribution centres and traffic management
- Goods transport efficiency, assessment and pricing (e.g. how to identify costs?)
- Infrastructural solutions (e.g. to improve loading and unloading)

Further themes are:

- Freight centres
- Traffic planning and policy
- Weights and dimensions
- Transport units
- Unusual transport modes (bicycles, etc.)
- Tolls and heavy vehicle fees
- Door to door freight transport aspects
- Telematics for urban goods transport
- Environmentally friendly vehicles
- Cooperation of transport operators
- Interfaces between public and goods transport
- Environmental improvements
- Improvements for citizens/inhabitants
- Win win situations

Stakeholders requirements in urban goods transport

One fundamental prerequisite of the BESTUFS Thematic Network is to bring the different main actors like the city authorities, shippers, forwarders, transport operators or vehicle manufacturers together in order to highlight their specific view point and requirements on urban freight transport.

In the following section the areas of concerns, requirements and expectations from the different views of the main actors in urban freight transport, the municipal planners and the transport operators taking part in the BESTUFS Thematic Network are summarised.

Cities targets and fields of concerns

Following a BESTUFS city inquiry, European cities consider:

- the optimised use of a limited urban (traffic) infrastructure and
- the reduction of the total emissions from goods transports

as the **main problems urban freight policy** is currently addressing. Ranked by its importance for municipal planners the following 6 major areas of concern received a high priority within the questionnaire:

- Lack of suitable infrastructure for deliveries (ramps, areas for loading/unloading, reserved parking spaces).
- Noise emissions.
- Access of goods vehicles to pedestrian zones or historic centres.
- Conflicts with other road users during delivery operations (loading and unloading).
- Environmental pollution.
- Traffic disruption in inner city due to goods transport vehicles to/from the city.

From experiences expressed by municipal planners facing urban freight transport related problems it can be summarised that it is advantageous:

- to follow a co-operative approach together with the transport industry
- to improve the information and data basis of the local transport situation as well as
- to improve the co-ordination of infrastructure and economic planning on a wider geographical scale.

This is also confirmed by the city inquiry e.g. within the question on **the most important areas for activities on urban freight transport** in European cities. In particular the following activities are prioritised by municipal planners:

- To create co-operation among all local actors (public authorities/police, retailers and business sector associations, shippers, forwarders, transport companies, etc) to set up a framework for possible agreements.
- To provide information to goods transport professionals (drivers, retailers, etc.) on existing rules and regulations, available pickup/delivery areas, parking spaces for goods vehicles, transit itineraries.
- To improve statistical data, data acquisition and data analysis on urban freight transport.
- To improve co-ordinated urban freight policy by better co-operation among various city departments and local organisations (police, development agencies, chambers of commerce, etc.) and better co-operation between cities within the metropolitan area.
- The integration of urban freight in town planning and land-use/infrastructure planning (construction and development regulations, access to installations, etc.).
- The integration of urban freight in transport policy and mobility planning (mobility management).
- To develop practical experimental measures in surveys, forums and information sessions, pilot projects, brochures, awareness-raising campaigns, PPPs, etc.

At practical level various activities to regulate the use of infrastructure and to reduce the emissions in urban areas are already ongoing. In the following the **regulations and measures of European cities** to influence urban freight transport are summarised:

- Co-ordinated land use and infrastructure planning (e.g. road design)
- Combined use of (priority lanes) for public transport and urban freight transport
- Enhanced use of telematic systems to manage and influence urban freight transport
- Installation of loading and unloading zones in the inner city
- Regulation on city access (a broad range of measures exists from the total ban to privileged access), speed limitations and pricing measures
- Integration of intermodal transport in urban freight transport
- Improved signing and enforcement support by electronic devices
- Enhancing logistical approaches (e.g. city transshipment centres or delivery slot booking) in planning and managing urban freight transport

Briefly, this provides an overview of the most important fields in which municipal urban freight transport planners are active.

Transport industry view

A different view of urban freight transport comes from the (operating) industry. Dealing with the traffic situation in European cities, including the regulations and restrictions implemented (and proposed) on urban freight transport the industry refers mainly to:

- A free accessible network to their loading and unloading points and
- To ensure cost efficiency for operations.
- More transparency in access-restrictions and more harmonisation of restrictions across cities in the EU.
- Balancing the local environmental impact of access restrictions with the environmental impact on regional, national and EU-level (preventing sub-optimal solutions).

The **conflicting position from industry and cities** on urban freight transport can be described by the following aspects:

- The impact of co-operative delivery services (e.g. city logistics) on the traffic situation in urban areas is limited. Internal logistic planning of each logistic service provider in terms of use of capacity and time windows are already optimised to a large extent.
- The introduction of city transfer points requires accompanying measures from the city planning side. In particular, additional loading and unloading zones will be required as well as efficient loading zone management.
- The use of “alternative” fuels in distribution vehicles currently causes additional costs which can not be passed on to customers.
- City access regulations can have contrary effects on the traffic situation as well as on the cost situation. For example, time windows for inner city distribution can result in employment of additional vehicles. A European city logistic project, for example, delivers 800 parcels on average per day. This will require the employment of 3 vehicles for unrestricted city access. Considering a time window from, e.g. 6.00 to 10.30 hours 8 vehicles will be needed to deliver the same amount of parcels. From the view point of a transport planner this restriction leads to inefficiencies.
- Logistic will gain more importance in the planning and management of urban freight transport. For example, E-Commerce will result in a 24 hours delivery possibility for citizens. In the future a logistical supply chain approach will be necessary considering solutions in urban freight transport.

Statistic Data on Goods Transport

All European states and roughly all medium and large sized European cities acquire regular statistic data including information on traffic and transport. Some data sets directly address freight transport, e.g. the number of lorries of a special size registered in a city or region or the transport amounts (in tons) of single business fields etc.. This data mainly describes those details which can be obtained easily without much financial effort, and its use is rather limited for urban freight transport planning. Information such as the number of trips of single actors, the capacity use factors of vehicles, vehicle fleet structures, goods transports via cars or vans, the use of road space of trucks and lorries and much more information is usually missing. Furthermore, to develop goods transport models information is needed about e.g. transport chains, number of tours and number of stops and origin-destination matrices related to transport weights, consignments, vehicle types etc. which is also not available from

the regular common statistical surveys. In the following section only this in-depth statistic data is addressed.

The availability of statistic data about urban goods movements in European cities is generally rather poor. This assessment is especially true when the availability of statistics is compared to the situation in general traffic and in passenger transport (both public and private), where the data basis is much better than in the freight domain. Within the city inquiry, less than 50% of the cities carried out some sort of freight transport data acquisition, while the majority did not report about any efforts.

Looking in more detail into the frequency of the acquisition of data it can be seen that **most of the data are collected just once** within special single inquiries in order to obtain information about special situations, or to find answers to questions in relation to the preparation of new measures. The acquisition of permanent statistical data and the performance of periodical inquiries are not common practice. Especially for the assessment of the success or failure of a finally implemented measure there were often no data or not enough data collected, and a robust evaluation is therefore not possible. This is especially a pity for follower cities being interested in the experiences and results of measures which were recently implemented in other cities. However, it is presently **not common practice to disseminate overall evaluation results on such measures**. This seems to be reasonable as the advantages of such final evaluations are therefore often not for the implementing cities but for the observing cities and carrying out such evaluation work causes extra costs for the implementing city. Having such evaluation results available might be a large quality step for the planning, implement and assessment of measures in urban goods transport and perhaps the evaluation costs can be shared among all interested cities. This is a working field for city networks, such as POLIS or Car Free Cities (CFC) in Europe. **The role of the EC could be to act as a moderator and to actively initiate such common practices.**

The reason for this poor situation regarding statistic data must be seen first of all in relation to the limited available budgets of public authorities and, secondly, in the ranking of priorities of cities. This can easily be proven by regarding the **staff working within city administrations on goods transports**. Again the relatively small sample of contacted cities show clear tendencies: About 20% of the cities have no employees at all addressing urban freight transport issues; More than half of the cities have less than 50% equivalent fulltime staff (max half of one employees working time); And less than a quarter of the cities have one or more employees working on freight (more than 100% equivalent fulltime staff). These percentages are not representative and have to be considered critically because very often different administration levels within a city have a joint responsibility for a task but often don't know about the total equivalent number of fulltime staff working on a specified subject. Nevertheless, the tendencies can clearly be identified.

Access regulations

Regulating the access of transport means for subparts of the city infrastructure is the most important instrument for city authorities to influence urban goods transports. Transport operators optimise their transport flows on the basis of given access constraints, and changes in these conditions by the administration side leads to changes in the transport processes at the operators side and therefore also to changing transport costs. This relationship caused many problems in the past when new access restrictions led to efficiency reductions for retailers and carriers. Meanwhile it is aimed to overcome this problem by discussing possible new measures in advance in freight fora within PPPs. Within BESTUFS, especially the private side, it was recommended that the term "access restriction" should be generally replaced by the term "access regulation", and that access regulations should be introduced carefully, should be consistent with other regulations and should be harmonised

with neighbouring cities and even at a national and European level. It is not always needed to introduce regulations in order to influence a given situation. Often it is also possible to offer incentives in order to favour single directions.

Access regulations are widespread in Europe and it is expected that more and more cities will introduce new access regulations. Information and communication technologies, together with mechanical access gates, are becoming less expensive and are offering a variety of complex new access schemes tailored to individual infrastructures of single districts. Currently applied regulations can be grouped as follows: (1) regulations related to the type of transport means especially to vehicle emissions, weights and sizes; (2) regulations related to the access time to determined areas; (3) regulations related to preferred truck routes; (4) regulations related to loading and unloading zones; (5) regulations based on licences. A forthcoming regulation addresses access slots, and this also leads to the issues of access control and enforcement support.

Vehicle emission, size and weight

Weight restrictions are the most common regulations in Europe and they tended in the past to be more and more restrictive in urban areas, which has enhanced the use (and number) of small delivery vehicles. Existing regulations on truck size and weight within city centres are currently reviewed for making them simpler and closer to the professional needs of carriers and retailers. The new strategies tend to stabilise regulations at a higher weight level because of the positive effects regards the number of trips and the corresponding emissions. Access regulations based on vehicle size and weight are very different within Europe but also from city to city within one and the same country. E.g. weight restrictions in Barcelona can go from 3.5 tons to 5 t; and 16 t within the same metropolitan area.

Vehicle emissions have improved considerably in Europe during the last few years due to the treatment of this topic at a European level, leading to the ratification of the EURO norms. Nevertheless, there is an increasing number of cities offering limited access to central urban areas only for zero-emission vehicles, for electric vehicles or low emission hybrid vehicles, e.g. in the cities Amsterdam, Monaco, Nürnberg and Zermatt.

Regulations related to transport vehicles are crucial for vehicle manufacturers and for fleet owners. They have to provide the right vehicle for a dedicated transport application in a dedicated region. **The widest possible harmonisation of regulations is therefore highly recommended.**

Delivery time windows

Many European cities have regulations on delivery time windows within city centres and especially for pedestrian zones. E.g. the most common rules in France are to authorise deliveries between 9:00 and 11:00 or 12:00. There, the current strategies tend to open up time windows in the morning (starting at 7:00, closing at 12:00 or 13:00) and to extend them also in the afternoon for pick up activities and home deliveries. Regarding night deliveries, French cities are (nearly equally) divided in two: While some cities consider this as a very good strategy to decrease the number of trucks in the city during the day, other cities argue that truck and delivery noise impacts are too high and night deliveries should be banned. The delivery time windows are very much dependant on the opening times of shops while local habits and cultural differences lead to an acceptance or disapproval of night deliveries.

Preferred truck routes

City planners regarding the flows of heavy vehicles within a metropolitan area on a larger scale distinguish small street network links from medium and large sized main routes – as they do also for the overall traffic. Then it is possible to attach preference attributes with regard to heavy vehicle flows to single links and to assess the environmental but also the trip length effects within a model. This process leads to a preferred truck routes network and is especially useful to prevent transiting trucks from penetrating city centres.

E.g. the city of Bremen has investigated such a truck guidance network for the following two reasons: (1) The increase of traffic led to a shift of transit traffic from main routes to smaller roads in residential areas; (2) Experiences have shown that restrictions and/or bans are leading to detours and even bigger problems in certain (other) residential areas. The aim of the new truck guidance network was to minimise the travel times and trip lengths for all trucks on the Bremen road network and for all residents affected by freight traffic. As a result the city printed and distributed a map for drivers with recommendations on routes and a final evaluation showed a positive acceptance.

Loading and unloading zones

The provision and access regulation of loading and unloading zones is also an important aspect for many dense urban areas. Without such zones the delivery vehicles often stop on a regular lane as on a 2nd parking row, with partly immense negative effects to the road capacity. Many cities meanwhile provide dedicated zones for freight handling and e.g. in Copenhagen the access is dependant on a license (see next section). In addition to public zones, it is also possible to regulate the provision of private loading/unloading zones in relation to large commercial and industrial buildings. E.g. within the city of Paris all commercial and industrial buildings larger than 250 square meters have to provide an off-street unloading area.

Licences

Another measure to influence and to control access is the introduction of licenses, allowing only those operators with licenses or licensed vehicles access e.g. to a street, to a city district or a to a parking zone. The license conditions are free to be defined as long as general commercial rules are not in conflict. E.g. in Copenhagen a field trial was carried out where licensed vehicles obtained access to several preferred loading and unloading zones only if their capacity use was at least 60%. Within a year and a half 80 companies have licensed over 300 vehicles (mainly big lorries). Almost all participants in the voluntary scheme were able to achieve the required 60% use of capacity and the transport companies were in general satisfied. 20% of all participating transport companies have changed their daily transport planning behaviour during the experiment.

Access slots

Access slots are yet only in use on the private side in order to regulate and optimise the gate access e.g. for a warehouse or a large retailer. Nevertheless, it will become relatively easy possible on the basis of conventional technologies to control the access of individual vehicles at certain entry points or within predefined areas. Measures allowing only a limited number of accesses per district or per time unit can then be realised, and approaching vehicles can register in advance for their access. This is still in the future for public domains, but allows tailored solutions to implement a regulated access.

Access control and enforcement control

Closely related to the access regulation is the access control and the enforcement control. Quite often in Europe the given regulations are ignored by individuals and if there is no control and no enforcement the regulation will become weaker and weaker and finally useless. A good access control hinders an easy ignorance and strengthens a regulation. Cities in BESTUFS have shown interest going into more detail regards access control and enforcement support because there are new supporting techniques which are yet rarely implemented and tested in Europe e.g. video surveillance.

Recommendations for policy makers

Within the following the results and recommendations for policy measures are derived from the presentations, statements and conclusions given in the BESTUFS workshops as well as from the results from material collections carried out in 2001.

The limited urban transport infrastructure and the emission of noise and pollution are of major interest for European cities – also in view of freight transport. Considering that individual supply chains and related vehicle activities are operated almost optimised, trips in these supply chains are unlikely to be further reduced. Therefore, it is important for policy measures to recognise the existing efficiency of operations at supply chain level. On the other side urban road space becomes increasingly congested with negative effects on the environment and the quality of life. Balancing the interests needs for a strategic approach considering all key factors of urban freight transport (planning and provision of infrastructure, vehicles employed, logistic approach used etc.). *BESTUFS recommends measuring the efficiency of an urban freight transport system by an overall approach. This includes that measures on urban freight transport should not only concentrate on regulations on the vehicle or the transport process alone, but should also include anticipating and/or accompanying measures.*

Pricing can be one specific measure to influence traffic flows among others. But within BESTUFS it became apparent that pricing can also lead to a shift of goods transports from trucks to private cars in city distribution. On the other hand it might be more beneficial to operate with one large but full truck than with more small vans on urban roads. Therefore, *BESTUFS recommends that urban freight transport can not be addressed by “one” overall measure or policy but needs a consistent policy (mix) formulation integrating restrictions, regulations and incentives as well as an improved basis for transport operations.*

A co-operative approach is vital in all aspects of urban freight transport planning. Measures based on urban regulations should be created flexible, allowing a permanent introduction and by situation according to the local situation. Also, acceptance for restrictions and enforcement measures have to be ensured among the actors involved. *BESTUFS recommends encouraging a co-operative approach to solve urban freight transport related problems. This means that all actors involved are integrated in the decision making process in all planning and decision stages, allowing the conflicting interests to be noted and accepted, and a compromise reached.*

Currently, different measures regulating city accessibility exist in EC member states. With the enhanced integration of the European market, vehicles entering the cities are operating internationally, on a European level. The European dimension of actors operating in urban freight transport has to be considered when setting regulations. For example, city access restrictions might be felt as barrier for market parties to plan and operate transport process,

with negative effects on logistical efficiency. Therefore, a major step will be to harmonise the different regulation measures existing in the different EC member states by increasing transparency over the different existing regulations on city access in EU member states. *BESTUFS recommends supporting the exchange and provision of information and knowledge regards European city access regulation measures. In the longer term, more harmonising EC regulations defining a framework for urban freight transport should be initiated.*

Cities need statistical data on urban goods flows and transport means related to the urban infrastructure in order to decide about local measures and policies. This basic statistical data basis is currently rather weak regarding the European metropolitan areas. Member states like France carried out extensive surveys to develop a common data collection methodology while other member states e.g. Spain show minor activities to do so. Furthermore, the data sources generated on a local city level are hardly to be compared with each other due to different methodologies and approaches used. This makes it also rather difficult to compare and analyse urban freight transport patterns on a European level. *BESTUFS therefore recommends, that statistical data basis on urban freight transport are established for large European cities, and that both the statistics information contents as well as the methodologies on how to collect the data, are harmonised on a national as well as on a European level.*