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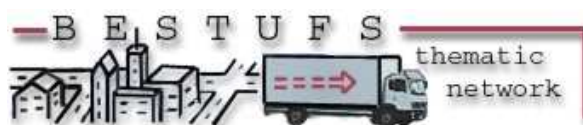
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MAIN AUTHOR: Marcel Huschebeck (PTV)

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1 Introduction

The EC established the Thematic Network (TN) on BEST Urban Freight Solutions (BESTUFS) in January 2000 with a duration of 4 years. BESTUFS is aiming to identify and to disseminate best practices with respect to urban freight transport. The concept of a Thematic Network thereby aims to obtain the co-operation of experts and projects with already existing or just emerging experiences and expertise, and the collection and raw analysis of existing project results from national and European projects - rather than starting new research activities.

BESTUFS is establishing and maintaining an open European network between urban freight transport experts, user groups/associations, ongoing projects, interested cities, the relevant European Commission Directorates and representatives of national, regional and local transport administrations in order to identify, describe and disseminate best practices, success criteria and bottlenecks with respect to the movement of goods in urban areas.

To reach the above objective, on the one side the results of national, European and international projects or investigations in relation to the transportation of urban goods are to be considered on the other side the expertise and knowledge of the different stakeholders in the transportation of urban goods. Focussing on the expertise and knowledge of TN participants by collecting and working up the views and contributions of the different individuals or groups in the BESTUFS workshops and the results from the material collection in work package 2 are the main source for this deliverable on recommendations for further activities. For each year of the BESTUFS Thematic Network life time a further deliverable on BESTUFS recommendations will be produced regarding the elaborated results in workshops, conferences and meetings, as well as the best practice solutions coming from the material collection. Together with the BESTUFS deliverable D 2.3 "Best practice handbook for year 3" and D 4.7 "Third clustering report" D 1.3 emphasizes on the condensed results and recommendations derived from the work carried out in year 3. More information on the BESTUFS project is available on the BESTUFS web page www.bestufs.net.

Thematic focus

Within the year 2002 two workshops have been held and two material collections were finalised by BESTUFS. The first workshop was entitled "Land use planning and business models for urban distribution centres" and the second one "Public Private Partnerships enhancing urban goods transport". The two material collections finalised within 2002 focussed on "Road Pricing and urban freight" being also the topic of the last years workshop "City access fees and urban pricing" in Genoa. The second priority theme with a material collection carried out on "urban freight platforms". Both themes are the topic of the current Best practice handbook for year 3 (Deliverable D 2.3). This issue of "Recommendation for further activities" focuses also on the two themes "Urban goods transport pricing" and "urban distribution centres". As a third material collection on "PPP" also started but was not finalised in 2002 this theme will be treated in the next recommendations.

In a broader sense both themes have in common, that they are aiming on a regulation of goods transport flows especially in inner cities: On the one side urban goods transport pricing

via the levying of charges on the other side urban distribution centres via a (regulated) trip and consignment consolidation for inner city distribution. Both instruments aim at a reduction of trips into the inner city and hence are supposed to lead to a reduction of pollution, congestion and accidents in the inner city area.

However, taking a closer look urban goods transport pricing and urban distribution centres are two very different approaches. In particular urban goods transport pricing is aiming at:

- The coverage of infrastructure costs
- A traffic demand management in cities
- The coverage of external costs

Urban distribution centres are mainly applied to bundle trips and goods flows into and out of the inner city. In general urban distribution centres are combined with the usage of “green” vehicles to carry out the last mile delivery. Therefore, a reduction of local air and noise emissions as well as safety aspects can also be considered as objective of urban distribution centres.

Within the following an impact of urban goods transport pricing and urban distribution centres on cities and transport operators will be worked out and specific conclusions and recommendations for further activities will be derived.

2 Urban goods transport pricing

BESTUFS addressed this theme on a workshop in November 2001 in Genova (Italy) on “City access fees and urban pricing: What are the consequences for urban freight transport?”. In addition a material collection on urban goods transport pricing was carried out. Briefly, the main conclusions from this material collection are:

- Almost all urban road pricing schemes are applied to both passenger transport and freight transport
- Practical schemes have been driven by political reality (negotiations) rather than economic theory (cost calculations)
- Presently, most implemented schemes are designed for financing infrastructure, while demand management is difficult to be realised. Practical examples for external cost charging are not existing.
- Most road pricing schemes follow an incremental approach: from simple to complex. Differentiated charging according to distance or even duration of the trip is scarce. Most schemes charge a flat rate during a certain time window.

Before introducing an urban pricing scheme as e.g. road pricing or city access pricing it is needed to consider both the interests of the affected user or interest groups as well as the expected consequences for these different groups. Furthermore, it is helpful to analyse

potential pricing schemes from the perspective of different transport fields. One of these fields is the commercial transport where the freight transport has a major share. First clear and dominant characteristics of the freight transport to be kept in mind while addressing urban pricing schemes are that urban freight deliveries cannot be substituted – the goods have to be moved to their destinations – and can hardly be reduced with optimisations in the relevant parts of the logistics chains. Furthermore, it is not possible with reasonable effort to reach a considerable shift of urban goods transports to other non-road modes, as e.g. via tubes or rail-based approaches. We have and we will have to live with smaller or larger transport vehicles on our streets. So, the question arises, what do we want to regulate with pricing measures?

2.1 Pricing motivation

There are several motivations to introduce urban pricing schemes and one possibility to approach the relationship with freight transport is to do it motivation by motivation.

Fair charging of infrastructure cost

The construction and maintenance cost of the transport infrastructure must be financed and the current policy directive to involve mostly or only those actors who use and take advantage of the mentioned infrastructure must be appreciated. The size and weight of transport vehicles is correlated with these cost: larger vehicles need more space and a more robust construction and lead to higher maintenance effort. As a consequence the infrastructure charge for goods vehicles should be higher compared to the private cars. The infrastructures to be charged can be rather limited in scope but also rather wide. The best known examples are charges for single tunnels or bridges, e.g. for the new Öresund bridge. A very successful example for an urban pricing scheme motivated only by new infrastructure plans is the Norwegian City of Trondheim. The financing of an urban ring-road was based on a city access fee where the freight transport user groups were accepting this measure because of their expected advantage out of the new infrastructure.

Financing transport infrastructure is always also seen from a national perspective. Historically the infrastructure is mainly financed from taxes, where the general tax, the vehicle tax and the fuel tax lead to differing weak solutions with respect to their fairness. These taxes need to be adjusted when introducing additional transport pricing schemes. Within Europe there is anyhow a considerable unfairness regarding these financing instruments. Every country has its own approach to charge differently own and foreign infrastructure users. The European Commission being aware of this situation clearly addressed this problem in its White Papers “Fair payment for infrastructure use: a phased approach to a common transport infrastructure charging framework in the EU” and “European transport policy for 2010: time to decide” and proposes to replace the existing system from (flat) transport taxes to more efficient instruments.

The understanding and acceptance within the freight transportation user groups regarding urban pricing schemes for infrastructure financing is high, provided that it does not direct towards unnecessary luxury investments or towards an infrastructure which cannot be used or is even forbidden for freight. Improved road surfaces, new urban ITS installations or a new link reducing the travel times are appreciated especially by those who are commercially

active, because these measures reduce their equipment or operation cost or improve the drivers working conditions.

When the pricing scheme is designed to aim at infrastructure financing but on the other hand cannot make it transparent how the additional income is or will be spent then there can be no acceptance assumed anymore. The commercial actors are continuously optimising their business and are thereby extremely aware of cost sources and cost relationships.

Influencing the demand

Congestion is an increasing problem since years in European cities and it can be seen as the main reason why first cities have started to think about urban pricing schemes. Congestion leads to additional costs for the operators, makes travel times less predictable and reduces the attractiveness of a city both for visitors and citizens. Freight transport must be seen more as a victim and less as a source of congestion. There are severe negative effects for freight transport due to saturated and congested urban areas:

- the transport planning process is less reliable
- the number of stops per day and per vehicle decreases with increasing travel times (leading finally to more km driven per consignment)
- the ETA (estimated time of arrival) is less reliable for consignees/consignors
- unproductive time of vehicle and driver leading to additional cost
- more vehicles and driver time needed compared to the free flow due to in congestion bound resources (leading to additional cost)

Demand management by urban pricing schemes should first of all address individual passenger transport. Wherever an alternative for individual transport is given by public transport supply it is a common political will to shift passengers from the private to the public mode. For freight transport there is not really a substitution possibility neither in the mode nor in the volume. There is hardly a demand elasticity and therefore any demand pricing for freight is either useless or leading in unwanted directions. The situation changes when inter-urban freight transport is addressed: intermodal transport alternatives exist and pricing schemes as already implemented in Switzerland or as planned in Germany exclusively address freight transport. The aim is here to shift transports to non-road modes, to reduce avoidable long-distance transports and to change logistics concepts on the basis of a fairer and more efficient pricing.

Out of the above mentioned negative effects of congestion it can be assumed that commercial actors would profit from less congestion and therefore from congestion charges e.g. as the one currently implemented in London. Due to the fact that they probably themselves have to pay a charge including all administrative and operational burdens of such a charge makes their overall benefit smaller. Furthermore, the demand elasticity for passenger transport is not well known and possibly the congestion could nevertheless remain. Then there would be no advantage of less congestion but a lasting charge. City administrations suffering continuously of empty budgetary funds would appreciate the additional income, like for example for the charging of parking fees in many cities. To avoid

this it is important to evaluate and disseminate the impact of a pricing scheme on the traffic situation in cities. Within such an evaluation especially the benefits for transport operators should be emphasised, e.g. less overall traffic in the inner city area promotes a higher productivity of delivery processes.

Charging external cost

In a simplified approach the cost of transport can be split in three different groups: the cost for the transport enabling infrastructure as discussed above, the cost for the transportation means including its operation and finally the external costs, which receive more attention now due to the discussion about the marginal social cost. The cost for the transport means and the transport operation are in general directly assigned to the relevant users – at least for the commercial transport. A controversial discussion started about the on the one hand in principle correct assignment of the right share of external cost to those who are causing them and on the other hand practical problems to calculate their total sum as well as a right share. The EC announced a framework directive in 2002 including a “common methodology for setting price levels which incorporate external costs and which will specify the conditions for a fair competition between modes”. As long as these attempts try to balance cost and improve the costing transparency there will be a common acceptance, but as soon as there arise new additional (external) cost a wider political discussion will start about its necessity and its economic effects. These additional costs would finally have to be paid by citizens or even by every consumer and thus can be regarded as an additional tax.

Because of the missing transparency linking individual transport movements to external cost there is only very limited acceptability among freight actors. A pricing scheme based on external cost would be recognised as additional tax or even as a “stealth tax”. While there is a revenue or enabling factor (e.g. with a new link) given by the infrastructure pricing there is no advantage here for the urban freight transport partners.

The two motivations “Fair charging of infrastructure cost” and “Charging external cost” aim both in the direction of a fair and efficient pricing. In its pure forms there is no explicit wish to change transport patterns, to shift transport modes or to renew transport means. Nevertheless, it can be expected that the transport patterns (structures) adapt to this more efficient pricing schemes. The following motivations are addressing directly these aims.

- Reducing negative transport impacts:

Not so much the value of the external cost is driving the urban political discussion but much more the directly perceptible negative “impact” of transportation or the recognised living conditions in metropolitan areas. Air and noise pollution together with safety are the main factors in this respect and freight transport vehicles play a dominant role here due to their size and weight. Urban pricing schemes can now be established favouring environmentally friendly vehicles using innovative technologies with less impact and this is implemented with the aim to increase the overall share of “cleaner” vehicles and thus to improve the urban living conditions.

- Emission pollution:

Thanks to the Euro-Norms the overall emissions decreased already considerably while Euro-4 is even not yet obliged in 2002. Commercial vehicles are often ahead in using new environmentally friendly technologies. Access restrictions in several European cities actually exempt concrete propulsion techniques (most of all electrical vehicles, like in ELCIDIS) while urban pricing schemes could be more detailed considering different pricing levels. Care must be taken to the practicability of the pricing structure, the charging process and the enforcement. All parameters influencing a final price must be controllable.

- Noise pollution:

The sensibility regarding noise especially in urban areas is continually increasing. While there are accepted procedures to measure and determine the noise level of a single vehicle in general there is missing a standardised way to measure noise in an urban context. There are access regulations indirectly linked to noise, e.g. assuming that electric vehicles are quieter than others and there are innovative access regulations based on a concrete noise level e.g. a currently discussed upper limit of 60-65 dB to allow night deliveries (also known as 24 hours delivery) in Dutch cities.

From the viewpoint of the freight transport the “reducing negative transport impacts” objective of urban pricing schemes makes the pricing approach an interesting instrument for city administrations. In contrast to the traditional instruments (access limits related to vehicle sizes) which show a binary characteristic (allowed – forbidden) the pricing allows a much more flexible approach to influence local transport fleets and the gradual shift towards innovative technologies.

The commercial freight transport user groups understand this motivation in general, provided that all transport means (cars, public transport etc.) are addressed, but the acceptance or non-acceptance must be seen case by case and depends e.g. on the way the pricing scheme is introduced, the planning horizon given to react before the measure is effective, the price sensitivity and possible related incentives.

The currently in Europe discussed urban pricing schemes address several of the above listed objectives in a mixed form and there is not enough transparency given about the share of concrete motivations and the use of the revenue. This makes criticism and argumentation against this approach rather obvious, especially for user groups or transport segments. BESTUFS recommends to reduce this intransparency considering a set of crucial issues:

- Firstly, insight on the impact of different measures is needed. Hence before introducing a pricing scheme there has to be clarity about the aims to be achieved and the approach to follow. A pricing scheme should not be considered as the one and only solution to solve urban freight transport problems. Moreover, the finding process should be open to all kind of measures, e.g. quality standards, new delivery concepts or low emission vehicles.
- The leading role has to be taken over by the cities. Taxation and pricing measures can only be initiated by the municipality.

- Then there should be clarity about the technology to be applied and on the costs for running the approach.
- Potential barriers and hindrances should also be considered, in terms of technical, political and especially acceptance problems
- A final but one of the most important issues is the usage of the revenues. As the acceptance on the scheme will mainly be assessed by the usage on the revenues.

2.2 Urban freight status

A wide range of goods for sale, fast and efficient freight transport chains and smooth freight movements are vital and important elements of our modern cities. The attention and role given to freight transport is not accordingly – neither from the administrative nor from the citizens side. Why is passenger transport subsidised and freight transport isn't? Increasing individual “mobility” is seen as welfare and a high value in a modern society while the “availability” of goods in the right amount, at the right place and the right time is seen as a profit objective of commercial actors. Especially in urban areas are the private citizens those who finally submit or receive the goods and they are the ones who finally pay for the inherent transport. Charging urban freight transport without any compensations finally leads to higher goods (transport) prices to be paid by the citizens. This has several negative side effects: the small retailers in city centres become even less competitive compared to large retail outlets in the vicinity of the cities; the ongoing tendency of citizens to move and to live outside of the city centres is strengthened; the attractiveness for external shopping visitors is decreasing and is becoming crucial for neighbouring cities in competition. These arguments are freight transport based and should in no way be generalised: A less congested city with clean distribution vehicles as perhaps reached by a pricing schema would certainly be more attractive both for the inhabitants and the visitors.

2.3 Transport operator concerns

There are several concerns of freight transport operators with respect to urban pricing schemes which are presented in the following. All concerns are assuming that also freight transport is charged within the schemes.

The price as directly charged for the urban access is just part of the overall additional costs. The operators have in addition to cover the costs for any access equipment, for the access time (if there is a delay) and for the accounting processes. These additional costs are depending on the pricing area and the pricing form (e.g. per access, per day, etc.). Care must be given to the equipment renewal cycles of freight operators. Any technology sensitive pricing scheme must be announced and decided right in time before its introduction in order to allow operators to adapt their renewal plans and to optimise their fleet based on the new conditions.

Pricing schemes as well as access restrictions addressing directly or indirectly the major vehicle characteristics or the operation time windows fundamentally affect freight transport (optima). Major characteristics are: max load weight, max volume and the operation range (e.g. max 30 km for an electric vehicle). When the transport of goods needs to be organised (planned) differently due to the different vehicle characteristics or the changed operation time

windows, then the optimal transport plan will be different, the transport cost will change as well as the external effects. An often referred simple example is explaining these differences: A weight limit might change an optimal transport solution with one tour of a large vehicle to a new solution where 3 tours with small vehicles are needed. Less known are the effects of delivery time windows. Within a case study of PTV two different scenarios for a real business case were analysed with a commercial trip planning application to show the contrary effects of delivery time windows and the number of trips. The results are, that without time restrictions 559 orders of the case study could be delivered within 20 trips resulting in total 2840 km while imposing a delivery time window of 1 hour would result in 114 trips and 9605 km driven. While transport operators are aware of these effects, because it is part of their business to find optimal transport solutions under various conditions, those discussing about pricing or city access often aren't. Any measures should be analysed, simulated and assessed also from the (freight) transport planning viewpoint before deciding about its possible realisation.

Transport prices are following settled pricing schemes. Whenever the transport costs of a part of the supply chain change, an operator must decide if and (if yes) how to adapt his individual pricing scheme. E.g. a scheme with a constant transport price for a region including a city must now either increase the price for the whole region due to a new city access fee or the region might be split into two new areas: the city and its outer areas. The price building complexity might grow, taking again the transport planning options into account. As a consequence the additional costs might change as well (new regions to be introduced in the software, information campaign to inform customers, etc.).

Urban pricing schemes are bound to concrete geographic boundaries, where cities decide if a street belongs to an area priced or not. This might impose additional problems in "frontier" locations, e.g. when the general entrance of a retailer is out of the area while the freight loading zone is within.

Finally, the question on user group differentiation is raised. When a pricing scheme shows different prices for freight transports, passenger transports or other user groups then the differentiating elements can lead to unfair situations or even to strange niche transport forms. For freight it must be taken into account that also regular cars are freight transport means and that also private persons do freight transport.

2.4 Conclusion and Recommendations

Freight transport plays a major role in our metropolitan areas for the economic vitality as well as for the individual goods supply of all citizens. Efficient (private) transport services are installed and they are based on locally grown structures adapted to given different infrastructures and regulations. BESTUFS recommends to consider freight transport issues explicitly when discussing about urban pricing schemes. Of course, it can not be expected that transport operators agree to the introduction of a pricing scheme, when the impact of the scheme and the use of the revenues is in particular unclear for this group. But the involvement of this group at an early stage might also provide findings on alternative approaches especially for reducing external costs. BESTUFS encourages in particular this group to actively participate in finding solutions for urban goods transport with the aim to come to a balanced solution of financial and other measures.

BESTUFS also continuously emphasizes that there is not enough care given to urban freight transport from the city administration side. There are city transport planners responsible for the transport infrastructure, for the individual traffic and for public transport. Only little attention is paid to freight transport. Urban pricing measures are not or not enough anticipated from the planners side with respect to freight transport. The remaining alternative for cities in order to take into account freight transport aspects is to contact chambers of commerce or freight transport associations and ideally start public private partnership processes.

The EC should provide support for cities by justifying the objectives of potential new pricing schemes especially for the freight transport, harmonising the freight transport taxation and pricing in Europe and making the overall public freight transport taxes and cost (sources as well as expenditures) transparent are important steps towards a fair and efficient transport pricing.

BESTUFS recommends a general assessment on the suitability of urban pricing schemes with regard to its targets infrastructure financing, transport demand management and coverage of external costs. This can be achieved by accompanying the first pricing schemes by freight related studies. These studies shall analyse the observable effects and changes in the freight flows and shall determine the corresponding effects for the cities and citizens but also for the operators and retailers. Furthermore, dedicated pricing sensitivity analysis studies shall be initiated looking at transport structures at different transport segments and at both the urban pricing as well as the relations to inter urban pricing schemes. The results of these studies shall be efficiently disseminated.

3 Urban distribution centres

A specific BESTUFS workshop focussed on urban distribution centres and aspects which have to be considered in land use planning and business models. The workshop took place on 25/26 April 2002 in La Rochelle. It became obvious that there is no clear picture of an urban distribution centre. Some regard an urban distribution centre as a transshipment point for the final distribution into the inner city. Some others see urban distribution centres in a broader sense including freight centre activities. In order to get a better overview on urban distribution centres a material collection was carried out in BESTUFS and the results of this material collection were documented in the 3rd Best practice handbook.

The main results and conclusions from the Best practice handbook are:

- Experiences with urban distribution centres are twofold: some countries in Europe consider the concept as failure and quit the activities, in other countries experiences from failures will be used to set up a second generation of urban distribution centres
- Operators hesitate to participate due to unclear cost factors
- Support to improve the performance of urban distribution centres can be given by legislative measures (co-funding, city access regulations or pricing measures)

3.1 Urban distribution centre classification

From the material collection and from the workshop it became clear shown that in some cities urban distribution centres are running and are sustainable while in others it does not seem to be feasible. Overall the main aim why urban distribution centres are implemented (mainly by cities) are to make cities more lively by having less pollution and congestion in the cities. Therefore, some approaches of a tighter definition of urban distribution centres focus on a transshipment within inner city borders using “green” vehicles for delivery. In these cases mostly the cities take over the leading part. Other cities do not see their core activities in carrying out transport operations (acting as a transport operator) but more in the provision of framework conditions (Berlin).

In a third class there are approaches where regulations and restrictions are favouring urban distribution centres like in Stockholm or in Switzerland. In Switzerland pre and end haulage in a radius less than 40 km from an intermodal transshipment point are de facto exempted from the LSVA (Leistungsabhängige Schwerverkehrsabgabe). In this case intermodal transport via a freight village can be made attractive for city distribution. In Stockholm a PPP was founded to set up and operate a distribution centre for a public housing project. All actors involved in this housing project participate in the distribution centre.

Within a first classification there are two major aspects which need to be further discussed in order to derive best practices on urban distribution centres. These are:

- Financing and operational aspects
- Dimensions and planning aspects

Within the following these aspects are discussed under the operators and cities view and recommendations for further activities are outlined.

3.1.1 Financing and operational aspects

Examples of different forms of financing and operating urban distribution centres exist in Europe. These include completely privately financed and operated distribution centres, completely publicly financed and operated distribution centres as well as mixed forms e.g. as Public Private Partnership (PPP).

The question arises what kind of financing and operating model is considered as best practice and which should be promoted?

In general there are two principles for financing and operating urban distribution centres:

1. The one who is taking the advantages/benefits from an urban distribution centre should take over the risks and costs. This could be the city who sees benefits in setting up and operating an urban distribution centre for the urban area, e.g. by less goods transport traffic. This can also be transport operators who see benefits in their logistics organisation.
2. Urban distribution centres are regarded as part of the urban infrastructure and should be totally paid by the public and used by transport operators.

The second principle is following the argumentation line of financing public infrastructure. As public infrastructure is regarded as a public commodity the financing should be totally taken over by the government. However, as urban distribution centres can hardly be justified as being a public commodity there is no claim for a public financing.

The first principle requires for a clear assessment of the benefits for every actor involved. In general the different actors can be distinguished as

- the shop keepers in the inner city,
- transport and logistics companies and
- the cities.

In general one can consider that shop keepers are indifferent to the way they will be delivered as long as the goods are in the shop when they are needed. Experiences from Nuremberg within the IDIOMA project support this view. The shop keepers being delivered with a “green” distribution concept and “green” vehicles were not willing to expect other delivery times or to pay more compared to traditional practices. In contrary to that the experience from La Rochelle show that shop keepers are willing to accept longer delivery times, as the delivery via the urban distribution centre usually requires an extra day. However, this unclear picture on the behaviour of shop keepers is typical and can be generalised. Especially in historical and touristical city centres shop keepers have a certain interest in clean and adopted logistic concepts while in other cities shop keepers are facing a tough competition with large retailers outside the inner city. It can therefore be concluded that the location and the image factor of the delivery concept can be a decisive competition factors also for shop keepers. Hence, the specific regional aspects should be considered first when discussing the implementation of an urban distribution centre.

For transport and logistics providers the impact on the production costs is the first consideration. Within a supply chain approach there are two chain configurations to distinguish:

- Firstly, given that a consolidation of the consignments to the inner city destinations can take place at the primary distribution centres no additional transshipment has to take place, e.g. in a forwarders depot. The transport chain is a direct delivery from the primary distribution centre to the urban distribution centre. As such a direct delivery requires for advanced IT systems among the partners involved such an approach is mainly applied by large operators using their proprietary IT systems.
- A second chain configuration is that consignments can not be respectively consolidated in the primary distribution centre and an additional transshipment has to take place at a forwarders base on the outer city limits. In this case the transport chain is a delivery from the primary distribution centre via a forwards base to the urban distribution centre.

The first configuration can be considered as optimum situation as no additional transshipment is needed over the entire supply chain and no time consuming delivery within the city centre has to be carried out. Here cost savings in the supply chain can be expected by using an

urban distribution centre. The enabling technology for such an approach is mainly the advanced IT system integrating the different actors in the supply chain. As these IT systems are operated by large transport operators or retailers it is to recommend that such solutions would also be transferred to co-operations of smaller operators.

An estimation of the impact on the costs within the second chain configuration is more difficult. On the one side there are cost saving aspects like:

- a higher use of capacity of the delivery vehicles from the forwarders base to the urban distribution centre
- the possibility to deliver during out of peak hours
- a more flexible delivery considering shop keepers requirements.

On the other hand the costs for urban distribution increase as higher costs for a local transport operator and for the transshipment point have to be considered. The decisive question is how is the cost balance over the entire transport chain in such a configuration?

The approach of urban distribution centres is to achieve a higher trip consolidation as well as a consignment consolidation. Experiences from “City-Logistics” co-operations in Germany show that due to a trip consolidation in urban delivery savings in the total transport costs of about 3 to 5% can be achieved. In addition to these reductions the savings from the consignment consolidation have to be considered. Given that enough volumes are available there is a potential reduction of about 5 to 10% to be estimated. However, the generated volume within such an approach is an essential prerequisite for significant benefits. These benefits have to be evened out with the extra costs for the transshipment centre and if employed the extra costs for “green” vehicles. Examples from Kassel show that these costs can be compensated within the approach. However a significant commercial benefit is not to be expected for transport operators. The main benefits can therefore be seen in “soft” benefits, like enhancing the image of the participating companies etc.

Higher benefits can be expected when considering geographical issues. A main characteristic of existing (public) urban distribution centres is that they are located in geographic peripheral areas. Even large operators can often not generate a critical mass of transport volumes in such regions that would justify the set up of a distribution centre. The region will then be served from other distribution centres being part of the core logistics network of logistics service providers. Consequently, cities in peripheral regions are often delivered with large heavy goods vehicles being not adapted to the urban situation. The installation of a (public) distribution centre in such an area can then fulfil real logistics needs of logistics service providers by the consolidation of transport volumes from different operators. Cities in peripheral regions can also benefit that they are then better linked to the core logistics networks of logistics service providers with positive effects in terms of service variety and quality. Positive effects due to a better adapted city distribution, e.g. by using delivery vehicles instead of heavy goods vehicles can also be expected.

Cities consider urban distribution centres and also the combination with green concepts as an appropriate instrument against problems in air and noise emissions, accidents and

congestion. Urban distribution centres must therefore be regarded as complementary to city access restrictions as well as to tax and pricing schemes.

An advantage of urban distribution centres can be – as done in La Rochelle – that the city acts as operator for urban distribution. Experiences from “City-Logistics” co-operations in Germany clearly show that there is a large scepticism against only privately organised co-operations. Transport operators have concerns on customer protection and fear that competitors might use the co-operation to acquire “their” customers. Also, there is a large effort needed to find co-operation partners to set up and implement a co-operation. The source for this scepticism can be traced back to the experience that within such city logistics approaches the potential volumes to be transported were overestimated in the beginning and are actually rather small. In addition the costs for the necessary infrastructure but also for the so called transaction costs are considered as even or even higher than the revenues. A city can support such approaches, e.g. by reducing transaction costs. Costs for finding appropriate partners, invoicing among the partners, “protecting” customers – they all do not occur on the bill of transport operators but can be considered as investment costs to set up and operate an urban distribution centre. Also the (high) costs for “green” vehicles do not have to be paid by the operators when the final leg is carried out by a “public” operator. The employment of “green” vehicles can also be regarded as approach to avoid external costs, in terms of exhaust and noise pollution in inner cities. Consequently, the higher operational costs for these vehicles can be regarded as grant from the cities to improve the environmental impact of the urban transport. On the other side it can not be denied that it is not the core business of cities to act as transport operator. There is the threat that sooner or later this activity will be outsourced to one (private) transport operator to carry out this process. This means, if a city operates a distribution centre it needs at least to achieve cost coverage within the long term. Otherwise no private operator will take over such a terminal and a long term subsidy is needed to keep the distribution centre alive. In conclusion on the division of benefits per actor involved it can be stated that each actor might receive benefits from the implementation of an urban distribution centre in urban delivery processes. This provides the basis for a win-win situation among the partners involved. Following this argumentation a PPP would be the most appropriate form of financing and operating a co-operative urban distribution centre. Cities can take over the leading part in the beginning to set up and implement an urban distribution centre with the perspective to contract it out to a private operator after a certain starting period.

Recommendations for implementation steps

BESTUFS recommends that in the beginning when discussing on the implementation of an urban distribution centre there should be first an assembly of the major actors (shop keepers, retailers, transport operators and the municipality) in order to define overall targets for their individual urban delivery concept.

As a first priority the city should concentrate on the definition and implementation of appropriate framework parameters. Urban distribution centres should be considered as a complementary measure to others, like tax and pricing schemes. Following to the defined targets the implementation of urban distribution centres should be regarded as just one instrument for achieving them. There should also be enough freedom for transport operators to provide own contributions to the targets.

It should be avoided to subsidise urban distribution centres in the long term. However, if a decision is made it should be possible to provide subsidies to set up and implement the urban distribution centre. But a clear concept that the distribution centre can be operated without public funding in the long run should be given from the beginning.

3.1.2 Planning and dimensioning aspects

The location of an urban distribution centre is crucial for its success as the findings from the Best Practice handbook have shown. However, a logically following question is how to identify an optimum location for an urban distribution centre. To answer this question an improved knowledge on the urban freight transport flows is needed. Secondly a link to interurban transport flows has to be made. The location should have access to major long distance routes, and best to intermodal interfaces. To find such locations within the inner city limit is very difficult. Especially, when there are conflicting interests from “high productivity” industries like financial services who are willing to pay higher prices for inner urban locations. A solution might be to use land that was traditionally used for rail transport but is now to be abandoned. Marshalling yards and rail goods transport stations are historically located close to the inner city. Within the overall planning of European rail operators these facilities are not part of their main strategy – which is first of all focusing on major routes and customers. In many cities these locations are to be abandoned for transport purposes and transferred into other dedications. Urban planners should check if such land can be kept and protected for urban transport purposes.

The dimensions of urban freight centres are very different in Europe. Given the prerequisite that an urban distribution centre should be commercially viable, to reach a break even point will be the minimum requirement on the dimensioning. From the material collection some indication on a break even point can be derived. In Leiden a break even of 2000 parcels per day was considered while in La Rochelle the target is to deliver 600 parcels per day. However, in La Rochelle there is a public funding of the approach therefore this can not be regarded as a commercial break even point. In Kassel 5 to 6 tonnes were transported in average per day, while in Thun about 2,5 t per day are transported. Both approaches work on a commercial viable basis. For assessing the impact of urban distribution centres one has to compare them with the total transport volumes within urban transport. In a town like Munich about 3.200 tonnes are transported per day to the shop keepers and the retail sectors. Dedicated for the inner city (pedestrian zone) are about 300 tonnes per day. Therefore, it can be concluded that the present approaches run on a (very) low scale. Moreover, experiences from the urban distribution centres in Leiden or La Rochelle have shown that the volumes to be transported via the distribution centres remain stable or increase with small rates. This could be interpreted as that the potential for these approaches is already reached.

3.2 Conclusions

The impact of urban distribution centres and the potential for cost savings for transport costs over the entire transport chain are depending on the structure of the city. From the transport operators view there are doubts – considering the strong competition in this market – that significant volumes can be generated for making an urban distribution centre economically viable on a large regional scale. Since years large transport operators are following the

approach of tour and consignment consolidation over the entire transport chain by setting up large European transport networks. Therefore, the potential on volumes for urban distribution centres must be seen from this background and is high enough for some cities but rather limited and most probably not sufficient for others.

3.3 Recommendations

Public Private Partnership (PPP)

To set up and implement an urban distribution centre a PPP is favoured. At least an informal partnership bringing together all stakeholders at one table is the first step and a key factor for a successful and sustainable solution. BESTUFS recommends – not only with regard to urban distribution centres but to PPP in urban logistics in general – to work out an action plan how PPP can be supported by EC activities. This can be funding support, but also (harmonised) guidelines for setting up and implementing PPP for cities.

Networks integration and IT capability

From the operators view one of the most promising approaches seems to be the direct delivery from a primary distribution centre to the urban distribution centre avoiding an additional transshipment at the outer city limits. This approach requires high IT capabilities from the actors involved. BESTUFS recommends to increase the IT capability mainly of SME transport retailers and logistics operators in order to better compete in the market. Especially, knowledge in trip and consignment consolidation should be supported with learning and training measures with priority. Active support on these aspects should be given by the EC.

Local know-how

The know-how of the local conditions, transport network, obstacles (construction sites), delivery conditions (ramps etc.) and excellent local contacts can be an important success factor for cities and local transport operators to create sustainable and efficient urban logistics. BESTUFS recommends that cities should strengthen this know how, e.g. by establishing city freight managers within their administrations. These managers should actively promote co-operations in urban logistics, identify suitable sites for urban distribution centres and protect them for logistics purposes. The EC should support establishing city freight managers e.g. by providing generally valid task descriptions and action plans for them to carry out.

Intermodal access

Taking into account the increasing capacity problems on the road networks of today's conurbations, rail can play an important role for efficient access to an urban freight platform. New developments for low cost transshipment equipment offer new opportunities with regards to transshipment of intermodal transport units. BESTUFS recommends to further promote and research intermodal interfaces between urban goods transport and long haul transport chains.

Supporting regulations

In order to create sustainable and efficient urban goods transport a variety of measures and influencing factors have to be considered. These can be regulations, e.g. for city access, the way how the actors are working together, e.g. within a PPP, the supply chain configuration, the communication culture, the availability of technical facilities and IT etc. Obviously, there will not be “the one” measure to achieve a sustainable and efficient urban goods transport. BESTUFS recommends to apply a policy mix of different measures according to the urban specifics to achieve this aim. As the transferability of technical research is rather limited for this purpose the distribution of (best) practical experiences are needed. The EC should support this by co-funding suitable demonstrators in different European cities but also (or even more) by qualitative research activities giving actively advises for cities and transport operators on which urban logistics concept is the most appropriate and which mix of measures (logistics concept, including an urban distribution centre, kind of vehicles, which supporting measures etc.) should be established.