



SUGAR. Sustainable Urban Goods Logistics Achieved by Regional and Local Policies. City Logistics Best Practices: a Handbook for Authorities

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► To cite this version:

Laetitia Dablanc, Danièle Patier, Jesus Gonzalez-Feliu, Virginie Augereau, Jacques Leonardi, et al.. SUGAR. Sustainable Urban Goods Logistics Achieved by Regional and Local Policies. City Logistics Best Practices: a Handbook for Authorities. Regione Emilia Romagna, Bologna, Italy., pp.276, 2011. <halshs-01069813>

HAL Id: halshs-01069813

<https://halshs.archives-ouvertes.fr/halshs-01069813>

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SUGAR

**Sustainable Urban Goods Logistics
Achieved by Regional and Local Policies**

**City Logistics
Best Practices:
a Handbook for
Authorities**

www.sugarlogistics.eu



Best Practices Analysis
Training Transfer



Made possible by the INTERREG IVC programme



Logo	Partner
	Lead Partner - Emilia-Romagna Region - IT
	Technical coordinator - Institute for Transport and Logistics - IT
	Transport for London - UK
	Editor of this Publication - P4 - French institute of sciences and technology for transport, development and networks – IFSTTAR/INRETS - FR
	City of Paris – Road and Mobility Direction - FR
	Barcelona City Council - ES
	POLIS - BE
	Central European Initiative Executive Secretariat - IT
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	Municipality of Celje - SI
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City Logistics Best Practices: a handbook for Authorities

ACKNOWLEDGMENTS

An acknowledgment to all the staff who worked at SUGAR.

Laetitia Dablanc, IFSTTAR, was the Editor of this publication.

An acknowledgement to Danièle Patier and Jesús González-Feliu (Laboratoire d'économie des transports), and Virginie Augereau (IFSTTAR) who contributed to the writing and analysis of best practices, as well as to Transport for London, the University of Westminster (in particular Jacques Leonardi), the City of Paris (in particular Herve Levifve), Emilia-Romagna Region (in particular Tommaso Simeoni), the Institute for Transport and Logistics and Barcelona Municipality (in particular Luis Cerda) for their editing.

Project funded by the EU's European Regional Development fund through the INTERREG IVC programme

Printed in November 2011

Bologna, Italy



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B. Introduction from the Lead Partner – Emilia-Romagna Region

Since 2008, 17 partners from 10 countries are working for providing a common background on a relevant issue of the modern cities: to enhance capabilities in terms of infrastructures and design for urban mobility through the efficiency of freight transport systems. SUGAR addressed the problem of inefficient and ineffective management of urban freight distribution, a critical component of the overall urban transport system and a primary source of pollution. SUGAR promoted basic actions for the exchange, discussion and transfer of policy experience, knowledge and good practices through policy and planning levers in the field of urban freight management, between and among Good Practice and Transfer sites. The SUGAR partnership brings together 17 institutions:

- 4 good practice sites representing the Emilia Romagna Region (IT), London (UK), Paris (FR) and Barcelona (ES);
- 7 European transfer sites, ranging from small to large cities and regions. Palma de Mallorca (ES), Decentralised Administration of Crete (GR), Athens (GR), Poznań (PL), Vratsa (BG), Celje (SL), Usti nad Labem (CZ);
- 2 European networks targeting key public administration stakeholders working in transport: POLIS (BE) at the local/regional level and CEI (IT) at the national one;
- 4 public equivalent bodies in the policy making activities of three SUGAR sites: ITL (Emilia Romagna Region site-IT), INRETS (Paris site-FR), ILIM (Poznan site-PL), Czech Railways.

The policy leverages covered include:

- **transport:** access control, circulation, regulation pricing, signage, intelligent communication technologies applied to transport, etc.;
- **environment:** incentives for using clean vehicles and modes, regulations on vehicle typologies and usage in critical environmental zones, etc.;
- **space and territory:** planning and development of distribution areas, loading areas, industrial zones, economic development zones, etc.
- **harmonization:** to create a common and harmonized platform in terms of rules and procedures among different public bodies.

These policy leverages are the necessary ingredients for the SUGAR tailored solution. At policy level, it has been pointed out the need to build a strong cooperation and partnerships among public bodies, logistics and transport operators for more efficient urban freight transport management.

SUGAR's approach has been structured along three main strands:

- The refinement of urban freight policies of SUGAR Good Practice Sites through dialogue with other leading administration outside the project partnership. These objectives have been supported through the mapping of new policy 'innovation' areas in city logistics, thematic training and specific technical round-table discussions.
- The development of urban freight policies in SUGAR Transfer Sites. These objectives have been supported by the development of good practices analysis thematic training, joint planning for transfer sites, and the development of local transfer action plans.
- The creation of interest, knowledge, tools and exchange for new administrations from outside the SUGAR partnership through the Enlarged Transfer Programme. This objective was met by providing access to project results, participation in training events, and a high level exchange programme for bilateral meetings between administrations.

Based on these, the SUGAR activities has provided results along main pillars:

- ✓ Best Practices
- ✓ Transfer of experiences
- ✓ Action Plans

Best Practices

Good practices conceptual model: The SUGAR conceptual model covers all the policy leverages and defines key performance indicators for characterizing good practices in an objective manner (level of impact with regards to transport operations, environmental protection, energy saving, technical achievements and political consensus). A template for data collection has been developed and has been adopted as cornerstone for all SUGAR activities.

Good practices analysis: A transversal analysis of all good practices and innovation areas has been carried out. To ensure an extensive coverage, good practices experiences have been gathered from within the SUGAR consortium as well as from outside the partnership. This analysis served to define primary transfer policy areas, to create the SUGAR transfer tools, and to identify the winners of the SUGAR good practice award.

Transfer of experiences

Based on the result of the good practice analysis, the following transfer tools has been developed:

- ✓ **6 GPRT (Good practice round tables):** dedicated technical sessions on the policy themes. With the participation of external experts, their main aim was to discuss how to improve city logistics policies;
- ✓ **4 TtT (Train the Trainer sessions):** dedicated sessions for developing new skills of all SUGAR partner administrations;
- ✓ **4 JPE (Joint Planning Exercise-workshops):** the SUGAR transfer sites prepared and presented their local objectives, challenges and opportunities with regards to city logistics topics. The SUGAR good practice representatives collaborated by identifying main problems and providing advice on how to solve them;
- ✓ **An ETP (Enlarged Transfer Programme):** Administrations outside the SUGAR partnership have been invited to participate in the project activities.

Action Plans

All SUGAR sites have developed action plans through SWOT analyses, definition of local visions and by conducting strategic development workshops (for developing action plans within the individual site, as well as to broaden the SUGAR initiatives within their countries). The workshops have been based upon train-the-trainer and good practice experiences and covered discussions on the state of the art and on how policies can be improved.

Conclusions

This publication is one of the main results of the SUGAR project and it is focused on the Best Practices analysis, a fundamental tool for the involvement of the community of experts in the emerging field of city logistics.

We are aware that this is just the first step of a complex political strategy in which all the partners of SUGAR are willing to involve all the local actors and stakeholders in a coordinated and harmonized platform for linking the local needs with the business objectives of the national and transnational operators.

SUGAR foresees a successful future for city logistics initiatives.

Paolo Ferrecchi, General Director Infrastructural Networks, Logistics and Mobility Systems, Emilia-Romagna Region

C. Introduction from the Technical Coordinator – Institute for Transport and Logistics Foundation

SUGAR was thought and developed to address a significant and partly unexplored field of urban mobility: city logistics. It differentiates from previous city logistics projects by bending its approach to public authorities' perspective, with a specific focus on local and regional public policies in urban freight distribution, without forgetting the impacts that public actions have on the logistics business.

The SUGAR working group, coordinated by the Institute for Transport and Logistics – ITL, has brought together tens of civil servants, logistics managers, researchers who worked to shape the future of urban freight distribution in major EU cities and regions.

The main project achievements concerned first of all the improvement of public policies and actions in city logistics in the SUGAR sites, as well as the contribution to the policy process of non partner administrations, in the perspective that city logistics issues go further than the project partnership 'boundaries'. The main policy improvements concerned the development of Freight Plans, Mobility Master plans, new techniques for city logistics data collection, policy actions on Low Emission Zones, urban planning for city logistics as well as the set up and tuning of administrative regulations for access to urban areas.

These results came with a sound, long lasting and intense project working path which merged the UE search and analysis of best practices with their adaptation and sometimes re-thinking on the base of the singles cities' needs and contexts. This bi-fold approach based on the transfer of good practices was reflected in the different SUGAR technical activities and in particular in the Good Practice Round Tables, dedicated to more mature contexts in city logistics policy making, in the Train the Trainer sessions, devoted to train EU experts able to bring pioneering city logistics experiences to local contexts, and Joint Planning Exercises, which represented live working groups to shape city logistics policies, as well as by dedicated site visits to learn about the results of public authorities' actions in urban freight distribution. These activities were finally condensed in local and regional action plans which will guide the partner public authorities' actions in the next years.

The contents of this publication are based on the SUGAR work of IFSTTAR concerning the analysis of best practices in city logistics as well as on the work of all the staff involved in SUGAR.

From the Technical Coordinator perspective SUGAR has represented an edge and heterogeneous forum which brought new technical skills for public authorities in policy making, a permanent public-private dialogue and most of all the improvement of city logistics policies of EU Cities and Regions.

The wish is to follow up our work by new EU cooperation activities in the city logistics domain as well as by monitoring the effects of the 'SUGAR built policies'.

Alberto Preti, Giuseppe Luppino, Institute for Transport and Logistics

D. Introductions in national languages

IT: Regione Emilia-Romagna

Nell'ultimo decennio la Regione Emilia Romagna ha sviluppato rilevanti esperienze dirette sul tema della logistica urbana, adottando una serie di misure per stimolare, indirizzare e supportare le Amministrazioni locali ad adottare misure ed interventi per il governo dei processi di distribuzione merci in ambito urbano.

Lo sviluppo della city logistics è stato possibile grazie ad una attenta pianificazione regionale che già nel piano regionale dei trasporti (PRIT) 1998-2010 prevedeva l'analisi delle problematiche di city logistics e lo sviluppo di progetti per la consegna delle merci legati all'ultimo miglio. Anche nel nuovo PRIT 2010-2020, attualmente in fase di elaborazione, si parla del ruolo chiave della distribuzione delle merci in ambito urbano, che seppure indispensabile per la vita stessa delle città, può creare una serie di problematiche sia di tipo ambientale che gestionale.

Nell'ambito di questo impegno per la city logistics, la Regione ha sempre promosso la partecipazione a progetti europei che ad esempio hanno avuto un ruolo chiave nell'identificazione di una metodologia di approccio su scala regionale e che ha permesso di definire gli interventi locali di city logistics. Nello specifico grazie al progetto SUGAR è stato possibile fare un'analisi SWOT sulle politiche regionali di city logistics e analizzare e toccare con mano diverse best practices presenti a livello europeo. La metodologia di sviluppo del progetto ha permesso la formazione di tecnici regionali, che a loro volta hanno riportato le conoscenze acquisite a livello locale. Per questo motivo sono stati utilissimi i train the trainer di progetto che hanno permesso l'analisi delle migliori best practices, raccontate dai diretti interessati e il confronto diretto sia tra partner che con gli esperti. Grazie al confronto con esperienze innovative e di qualità, gli amministratori ed i tecnici hanno rielaborato le proprie azioni avendo come riferimento situazioni di successo. Da questo punto di vista il confronto con le situazioni vincenti è stato di stimolo per capire che un problema così complesso come la city logistics può essere affrontato e gestito, anche con soluzioni apparentemente più semplici di quanto uno potesse immaginare. Positiva quindi è stata la partecipazione diretta dei comuni più sensibili a questi temi, che in diversi casi hanno fatto loro le esperienze o le metodologie di analisi proposte nei diversi incontri.

Per promuovere lo sviluppo della city logistics a livello locale, la Regione ha organizzato 4 workshop aperti ai comuni del territorio con l'obiettivo di trasferire le conoscenze acquisite.

Grazie al progetto SUGAR è stato possibile raccogliere le migliori best practices, ma a differenza di altri progetti analoghi, l'obiettivo di questa pubblicazione non è solo quello di descriverne i contenuti essenziali, ma di fornire conoscenze base per valutare la possibile replicabilità in altri contesti. Infatti uno dei criteri di scelta delle best practices è stato quello che l'azione fosse attiva ed economicamente sostenibile.

Ci auguriamo che da questo lavoro i comuni possano trarre spunti utili per la pianificazione e la realizzazione di interventi di logistica urbana.

Paolo Ferrecchi, Direttore Generale Reti infrastrutturali, logistica e sistemi di mobilità, Regione Emilia-Romagna

EN: Transport for London urban freight policies

From the side of the local authorities, many recent developments were generating legal, environmental, safety and financial problems that need to be tackled by a freight policy and a more partnership oriented approach to logistics in London.

What and how measures/policies were identified: The London Freight Plan: Four proposals are included in the London Freight Plan: Freight Operator recognitions Scheme; Delivery & Servicing Plans; Construction Logistics Plans; Freight Information Portal. The implementation of the Plan is delivered with the help of mechanisms and tools to build effective partnerships between local Authority, Operators (logistics companies) and Businesses (their clients): Freight Environment Review System (FERS), Loading Streetscape Guidance, and Penalty Charge Notice Hotspot analysis. Another group of activity aims to increase knowledge of freight, identify best practice case studies and assess impact of projects on sustainability – this included development of knowledge and data centre (with University of Westminster) and Freight in London Model (FiLM). The London freight policy also develops approaches to integrate freight matters into major schemes (such as Crossrail, the large inner-London rail infrastructure project). The London Freight Plan was informed by action plans developed by different freight and business sectors and interest groupings (road; water; rail; planning; environment; vehicle, fuel and technology). The consultation exercise identified that the issues and solutions were all included, but the resulting structure was too complex. The revised Freight Plan had just four projects and three work streams. The London Freight Plan was then published in January 2008. Once published, work began integrating the approaches into the Mayoral strategy documents to seek similar revisions to the Borough Councils' policies as set out in their Local development Frameworks and Development Plan Documents.

Whether successful? Benefits realisation: The Freight Operator Recognition Scheme (FORS): FORS was developed in partnership with the freight industry through a pioneer stage where the scheme benefits and offers were tested. The scheme was officially launched with a bronze standard in April 2008. Silver was first awarded in Oct 2009 and the Gold standard in April 2011. Data on benefits is reliant on data being supplied by operators. Fuel efficiency improvements demonstrated by members show an average 3% improvement (more for vans) per year. Collisions have reduced by 18% and parking fines by 55%. Not all of these benefits can be directly attributed to FORS. Additionally some benefit is generated by bronze membership. The original benefit cost ratio for FORS was 2.4:1 which is likely to increase following reassessment. During development, FORS costs exceeded £2m per year but now have been reduced to £0.5m per year with further planned reductions to £0.25m here after. Benchmarking covers fuel use, CO₂, air quality, collisions, fines. The use of public sector procurement to promote FORS membership has proven to be the key driving force.

Delivery and Servicing Plan (DSP), implementation and benefits: Establishments implement a DSP and reduce the number of deliveries they receive. The DSP concept was developed through a series of business pilots in 2009-10. Case studies provided the data needed to identify the benefits. The DSP guidance was launched in November 2010. Guidance on how to use the local development planning process to increase uptake was published in March 2011. Results from the pilots suggests a 20% trip reduction is not unreasonable and identified a number of business efficiency savings helping to provide compelling reasons for scheme adoption. University of Westminster has developed an approach to estimate the fuel, CO₂ and air quality benefits this trip reduction leads to. It has not been possible to model the network benefits of the reduced trips and illegal kerbside loading activity that DSPs engender. Uptake to date has been relatively limited due to the lack of marketing (due to spending restrictions) and the only recent publication of the guidance. It is envisaged that the Olympics will help to promote further uptake.

Construction Logistics Plans: Guidance and case studies are under development with Waste and Resource Action Plan (WRAP), a national NGO. Benefits realisation data from case studies is under development.

Freight Information Portal: Branded as London Freight Matters the portal was launched in June 2009 and now has over 100,000 web hits per year. It links to the FORS microsite and the London's Freight Quality Partnerships. For the 2012 Games an interactive freight map was developed with restrictions, origins and destinations and a web-based multi-drop journey planner which will be able to schedule to take advantage of legal loading facilities. The 5 year benefit cost ratio of 2.7:1 for the journey planner recognises a reduction in bridge strikes and associated delays

Stephen Steele, Transport for London; Jacques Leonardi, University of Westminster

FR: Reglementation marchandises et environnement a Paris

A partir de 2002 la Ville de Paris à engagé avec l'ensemble des acteurs du transport de marchandises – transporteurs, chargeurs, expéditeurs, chambres consulaires, gestionnaires d'infrastructures, collectivités – une concertation qui a abouti, après 4 ans, à la signature d'un Protocole des bonnes pratiques des transports et de livraisons de Marchandises dans Paris, en juin 2006 pour une durée de 3ans. Ce document, qui n'a pas en lui-même de portée réglementaire est constitué d'engagements pour chacune des catégories, qui visent à organiser les livraisons de marchandises (32 millions de tonnes/an, 1,5M de mouvements/semaine) dans le respect de l'environnement et de la tranquillité des résidents: qualité de l'air, réduction des émissions polluantes, minimisation des nuisances sonores, esthétique visuelle, moindres encombrements. Les engagements respectifs visent principalement :

- la simplification de la réglementation
- le report modal vers le fer et le fleuve
- l'utilisation de véhicules propres
- l'optimisation et la réduction des mouvements

L'engagement portant sur la simplification de la réglementation a été tenu : un nouveau règlement marchandises est entré en application dès le 1^{er} janvier 2007.

Il simplifie notablement l'ancienne règle en introduisant uniquement de seuils de surfaces des véhicules de livraisons et des horaires différenciés selon chaque catégorie :

- les véhicules de - de 29 m² peuvent livrer entre 22h et 17h
- les véhicules entre 29 et 43 m² peuvent livrer entre 22h et 7h

Un principe environnemental est introduit dans la réglementions qui permet aux véhicules propres (dernière norme Euro, électriques, hybrides, GNV) jusqu'à 29m² de livrer en permanence. Un Protocole vient d'être proposé aux transporteurs, qui prévoit la disparition progressive sur 5 ans des camions porte 8 voitures et un report vers le fleuve et le fer pour acheminer les voitures sur Paris. L'arrêt sur une aire de livraison sur la voie publique est limité à 30'. Un disque doit être apposé sur le pare-brise du camion, Il mentionne la catégorie du véhicule et l'heure d'arrivée sur l'emplacement de stationnement. De nouveaux axes d'engagements sont intégrés dans le futur document, actuellement en phase de finalisation et qui sera signé fin 2011.

- Identifier, en lien avec les services de l'Etat et la Préfecture de Police, les mesures permettant de rendre effectif le contrôle du principe environnemental du règlement parisien (rendre visibles les paramètres des véhicules), et de renforcer ce principe environnemental (favoriser les véhicules les plus « propres ». La ZAPA (Low Emission Zone) pourrait apporter des éléments pour ce repérage.
- Etudier en collaboration avec les fournisseurs d'énergie (EDF, GDF...) la constitution d'un réseau d'approvisionnement en énergie alternatives (électrique, GNV).
- Créer un contexte favorable à la poursuite du développement d'opérations exemplaires en terme de logistique urbaine (tram fret et développement des modes ferroviaire et fluvial).

- Favoriser les livraisons en horaires décalés et notamment de nuit, aux heures de moindre circulation. La Ville participe à l'élaboration d'une norme pour la Certification de véhicules peu bruyants permettant d'opérer tardivement tout en préservant la tranquillité des riverains
- Sensibiliser les services de la Ville, générateurs de mouvements de marchandises et donneurs d'ordres, aux règles de bonnes conduites de la logistique urbaine et travailler à la réduction des flux dans le cadre du Plan Climat (étude prochaine sur la logistique des l'ensemble des restaurants administratifs parisiens).
- Poursuite et renforcement de l'intervention de la ville de Paris dans le cadre d'une reconquête du foncier et du déploiement des sites logistiques dans Paris.

Les enjeux pour la Ville de Paris en matière de transport fluvial peuvent être vus au travers de 3 aspects : maintien et modernisation des outils, développement du concept de « port urbain », mieux valoriser les canaux.

Bernard Salzenstein, SUGAR Project Manager, Mairie de Paris

ES (Català): Ajuntament de Barcelona

El mes de juliol de 2006, l'Ajuntament de Barcelona va acceptar la invitació del coordinador del Projecte per unir-se al Consorci SUGAR en qualitat de ciutat líder de bones pràctiques en matèria de Distribució Urbana de Mercaderies, la qual cosa significà el reconeixement internacional de les activitats del municipi en aquest àmbit i també del Pacte per la Mobilitat, que ha estat l'eina de participació que en bona mesura les ha estat canalitzant.

El catàleg de bones pràctiques que teniu a les mans és un dels resultats materials de la feina que els socis SUGAR han dut a terme en aquest projecte europeu. Consisteix bàsicament en una actualització i ampliació dels catàlegs de bones pràctiques en Distribució Urbana de Mercaderies a l'abast, com els derivats de BESTUFS, NICHES i altres projectes de la UE.

Una de les característiques del projecte SUGAR ha estat la transferència de bones pràctiques entre ciutats. Barcelona, juntament amb unes 20 altres autoritats locals de tot Europa, ha utilitzat aquest catàleg com una eina per avaluar les accions que ja estan duent a terme, així com aquelles que podrien formar part del proper Pla de Mobilitat Urbana. La Distribució Urbana de Mercaderies segueix sent un dels majors reptes a enfrontar per fer de Barcelona una ciutat de mobilitat sostenible. Repte que presenta diverses perspectives, des de l'impacte directe sobre el trànsit rodat, fins les repercussions indirectes, derivades del manteniment de les cadenes de subministrament que fan possible la producció i el consum, sostenibles i econòmicament viables, de les mercaderies.

Al igual que passa amb Barcelona, la seva ciutat no serà capaç de transferir totes les accions descrites en aquest catàleg, en el qual es presenten uns 50 casos. En altres documents del projecte es mostra de quina manera usen les ciutats SUGAR les anàlisis DAFO per a la realització d'estudis de planificació basats en l'establiment de prioritats específiques.

Les ciutats SUGAR han estat treballant en la identificació i descripció de transferències de bones pràctiques creïbles i viables. En el cas de Barcelona, per exemple, s'ha realitzat una prova pilot de tricicles assistits per a la distribució 'Last Mile' al centre històric, amb la col·laboració de les empreses TNT i Vanapedal, finalitzada la qual estem assistint a un inici prometedori de l'activitat de repartiment.

Dins de SUGAR, Barcelona també va assumir la responsabilitat i la coordinació d'una altra de les eines de transferència del projecte: les sessions de formació 'Train the Trainer'. Valorem positivament els resultats d'aquesta experiència, conseqüència de la qual és la Guia Pràctica del material de formació, un altre document important per a l'acompliment del projecte SUGAR

Isabel Moretó Navarro, Ajuntament de Barcelona

EN: The SUGAR Enlarged Transfer Programme

The SUGAR Enlarged Transfer Programme (ETP) engaged in a dialogue with additional cities and regions outside the project that are interested in the process of establishing city logistics programmes. In order to encourage the uptake of SUGAR best practices and results, specific services were offered. Following the applications forms received in 2009, 5 cities/regions were selected to join the SUGAR Enlarged Transfer Programme:

- Brussels Region (BE)
- Gent & Hasselt cities (BE)
- Glasgow municipality (UK)
- Hampshire County Council municipality (UK)

A first mapping of the ETP sites' urban freight transport and logistics activities was done based on the information provided in the ETP application form. This mapping was the first basis for a tailor-made plan developed with the selected sites.

- The main expectations of the ETP sites towards SUGAR included:
 - Exchange of experiences with cities facing similar problems
 - Learn from Good Practice sites, especially with regard to barriers, how to avoid pitfalls, beginners' faults and unnecessary research
 - Benefit from the general SUGAR dissemination activities, especially on good practices in the respective fields of interest

SUGAR results for the ETP sites

The ETP sites participated in different SUGAR meetings. In particular, the events in Barcelona and London included dedicated ETP sessions and a final training event for the ETP sites has been organised in Bologna, next to Final Conference of the project.

Key deliverables were provided including the 'Good Practice Analysis' which is the basis for this final publication. A "Guide to the training materials" is also being produced to facilitate access to the training documentation (in total some 40 presentations), initially for the ETP sites and then for others interested in benefiting from the SUGAR project documentation. This will be released following feedback from ETP sites and the interactions arising during the final training event.

Karen Vancluyssen, Research Director; Gabriela Barrera, Project Manager, POLIS

ES: Palma de Mallorca

El Ayuntamiento de Palma de Mallorca ha participado en el proyecto SUGAR en calidad de ciudad aprendiz, con el objetivo de aprender de las buenas experiencias que en otros espacios europeos se están llevando a cabo en materia de logística urbana y gestión del transporte de mercancías.

Uno de los documentos de referencia del proyecto SUGAR es la guía de buenas prácticas, que recoge un total de 44 pruebas/experiencias en materia de logística urbana y que han dado resultados satisfactorios. Entre ellas, el ayuntamiento ha evaluado cuáles son las de mayor interés para la ciudad, siempre teniendo en cuenta su viabilidad y probabilidad de éxito bajo las condiciones locales. La preparación de una guía técnica que marque los parámetros técnicos a seguir a la hora de establecer o no una nueva zona de carga y descarga, es una de las prácticas más valoradas por el ayuntamiento. En consecuencia, se ha diseñado e iniciado una campaña de recogida de datos (cuantitativos y cualitativos) como punto de partida para la posterior toma de decisiones. También es de gran interés la futura elaboración del Plan de Movilidad Urbana, en el que se incluirá todo lo relacionado con la planificación y la gestión logística. Otras buenas prácticas que

han llamado la atención de Palma son la entrega de mercancías en zonas urbanas mediante el uso de bicicletas eléctricas (aplicada en diferentes ciudades de Francia), o la introducción de pequeños centros de consolidación de mercancías para la posterior distribución mediante vehículos más respetuosos con el medio ambiente. Finalmente, también se valoran medidas más avanzadas para limitar el acceso de determinados vehículos según su peso y dimensión a determinadas zonas de la ciudad (como por ejemplo en la ciudad de Praga).

Los responsables técnicos y políticos del ayuntamiento disponen ahora de unas herramientas y conocimientos muy importantes, que les permiten plantear soluciones y propuestas de futuro con probada solvencia en otros lugares europeos. Así, durante el desarrollo del proyecto SUGAR, la campaña de recogida de datos se ha inspirado en el método de París y se basa fundamentalmente en la distribución de encuestas entre comerciantes y operadores de transporte, así como en la toma de datos de tráfico de mercancías. Por otro lado, se ha ampliado el horario disponible para la realización de operaciones de carga y descarga en calles peatonales, así como también se ha introducido un sistema de videocontrol en los accesos a determinadas zonas de circulación restringida (ACIRE). Todo ello pretende, entre otras cosas, ayudar a una más flexible y mejor distribución de las mercancías.

El resultado final de todo el aprendizaje llevado a cabo durante el proyecto SUGAR deriva en un plan de acción local, que marca las directrices a seguir en el futuro. Los ejes prioritarios sobre los cuales descansa el plan de acción son tres. El primero consiste en la mejora continua de la cantidad y calidad de datos relevantes en relación con la logística urbana. El segundo eje se fundamenta en un mayor y más eficiente control, que asegure el cumplimiento de la normativa existente y así permita su mejora progresiva. Por último, se pretende fomentar un sistema más sostenible de distribución de mercancías en el centro urbano, mediante la optimización de los kilómetros recorridos y la reducción del impacto ambiental y social de la cadena de distribución. En este último aspecto, la definición de incentivos para los comerciantes será fundamental para garantizar un cambio de comportamiento.

SUGAR ha permitido tratar por primera vez la cuestión de la logística urbana, ayudando a poner en común los intereses de los diferentes agentes locales. El plan de acción, junto a las conclusiones del taller local para discutir el modelo de futuro (realizado en noviembre de 2011), sientan las bases para el desarrollo de la logística urbana. Ahora que los técnicos del ayuntamiento disponen del bagaje acumulado durante la participación en los eventos del proyecto (sesiones de entrenamiento, sesiones de planificación técnica conjunta, mesas redondas de buenas prácticas, visitas técnicas, etc.), las soluciones que se pueden estudiar para este sector concreto de la movilidad tienen mayor robustez y amplitud de miras. Los vínculos profesionales establecidos con técnicos de otras ciudades y empresas europeas son también un posible apoyo a tener en cuenta al evaluar y diseñar acciones futuras. En definitiva, el Ayuntamiento de Palma de Mallorca valora muy positivamente la experiencia del proyecto SUGAR.

Carles Petit, Raúl Medina Granados, Cinesi S.L.

EL: ΑΠΟΚΕΝΤΡΩΜΕΝΗ ΔΙΟΙΚΗΣΗ ΚΡΗΤΗΣ

Η Κρήτη είναι το μεγαλύτερο νησί της Ελλάδας και το 5ο μεγαλύτερο στη Μεσόγειο. Πρωτεύουσα καθώς και μεγαλύτερη πόλη της είναι το Ηράκλειο. Η Κρήτη απέχει περίπου 160 χλμ νότια της ελληνικής ηπειρωτικής χώρας εκτεινόμενη κατά διεύθυνση Ανατολή - Δύση, νότια του Αιγαίου πελάγους και βόρεια του Λιβυκού πελάγους. Διοικητικά αποτελεί μια από τις 7 Αποκεντρωμένες Διοικήσεις της Ελλάδας και μια από τις 13 Περιφέρειες της χώρας. Η Περιφέρεια αποτελείται από τέσσερις νομούς: Ηρακλείου, Χανίων, Λασιθίου και Ρεθύμνου.

Η συμμετοχή της Αποκεντρωμένης Διοίκησης Κρήτης (ΑΔΚ) στο έργο έχει ως κύριο στόχο την αξιοποίηση της δυνατότητας ανταλλαγής εμπειριών που παρέχει το έργο SUGAR, ώστε να παρέχει τεκμηριωμένες καλές πρακτικές στους δήμους της που μέσω των κατάλληλων προσαρμογών θα βελτιώσουν την υπάρχουσα

κατάσταση των αστικών εμπορευματικών μεταφορών. Τα βασικά οφέλη από τη συμμετοχή της ΑΔΚ στο έργο είναι:

- Πρόσβαση σε πληροφοριακό υλικό που αφορά τις τρέχουσες συνθήκες αστικών μεταφορών σε σειρά πόλεων της Ευρώπης με διαφορετικά μεγέθη και χαρακτηριστικά (Λονδίνο, Παρίσι, Βαρκελώνη, Μπολόνια κλπ) καθώς και αναλυτικές πληροφορίες και προδιαγραφές μέτρων που έχουν ληφθεί στις παραπάνω πόλεις
- Δυνατότητα απ' ευθείας συνεργασιών με τις συμμετέχουσες πόλεις για περαιτέρω ανταλλαγή εμπειριών
- Δυνατότητα διαμόρφωσης προδιαγραφών για το σχεδιασμό μέτρων σε θεσμικό και πρακτικό επίπεδο για μελλοντική υλοποίηση
- Δυνατότητα στήριξης των βασικών πόλεων μέσω διαμόρφωσης συμβατών πλαισίων δράσεων

Ως πόλη πιλότος στο έργο ήταν ο Δήμος Ηρακλείου. Έργα και πρωτοβουλίες που έχουν ολοκληρωθεί (ή είναι υπό εξέλιξη) στο Δήμο Ηρακλείου όπως τα μεγάλα έργα πεζοδρόμησης, τα μέτρα ρύθμισης της πρόσβασης και κυκλοφορίας των εμπορευματικών οχημάτων στο κέντρο και ο έλεγχος των φορτοεκφορτώσεων είναι μερικά από αυτά που η ΑΔΚ έχει φέρει ως πρακτικές στο έργο.

Στα πλαίσια των εργασιών του έργου η ΑΔΚ σε συνεργασία με το Δήμο Ηρακλείου αξιολόγησε την υπάρχουσα κατάσταση των αστικών εμπορευματικών μεταφορών και city logistics στο Δήμο με τη μέθοδο SWOT. Επίσης προσδιόρισε τις κύριες θεματικές ενότητες που παρουσιάζουν μεγαλύτερο ενδιαφέρον για βελτίωση. Τα θέματα ενδιαφέροντος που έχουν προσδιοριστεί για μελλοντικές ενέργειες είναι κοινά με αυτά των άλλων εταιρών του έργου ώστε να αξιοποιηθεί η εμπειρία και ωριμότητα των πόλεων καλών πρακτικών.

Το τελικό αποτέλεσμα θα είναι ένας τεκμηριωμένος οδηγός εφαρμογής νέων μέτρων προσαρμοσμένο στις ανάγκες και προοπτικές της Περιφέρειας Κρήτης, διαθέσιμος στους Δήμους της Περιφέρειας προς υλοποίηση βάσει των προτεραιοτήτων και πολιτικών που εφαρμόζουν.

Konstantinos Strataridakis, Decentralised Administration of Crete

PL: Poznan

Projekt SUGAR powstał w odpowiedzi na rosnące problemy w miastach europejskich związane z ruchem pojazdów ciężarowych i dostawczych, których liczba, a w konsekwencji zwiększająca się ilość emitowanych przez nie spalin oraz powodowane niebezpieczeństwo dla pozostałych uczestników ruchu, stają się wyzwaniem dla władz publicznych. Poznań miał okazję zapoznać się w ramach organizowanych w projekcie szkoleń i warsztatów z innowacyjnymi rozwiązaniami stosowanymi w miastach europejskich i światowych. Część z tych działań została opisana w prezentowanym Państwu opracowaniu.

W ramach projektu SUGAR zebrano informacje o 44 dobrych praktykach w dziedzinie organizacji dostaw w centrach miast i zmniejszania negatywnych skutków powodowanych przez ruch pojazdów ciężarowych i dostawczych. Rozwiązania te są wynikiem aktywności zarówno władz publicznych, jak i firm prywatnych. Wśród opisanych praktyk jest wiele przykładów centrów logistycznych, które często bywają połączone z wyznaczeniem strefy ograniczonego ruchu dla pojazdów niespełniających określonych norm emisji spalin (tzw. strefy środowiskowe) oraz z wykorzystaniem do dostaw ostatniej mili pojazdów z ekologicznym napędem (elektrycznym bądź CNG), w tym trójkołowych rowerów wspomaganych silnikiem elektrycznym. Wszystkie te rozwiązania są także stosowane niezależnie w wielu różnych miastach.

Publikacja zawiera także opis takich dobrych praktyk, jak: specjalne pasy drogowe wydzielone dla pojazdów ciężarowych, wielofunkcyjne pasy ruchu w Barcelonie, których przeznaczenie zmienia się w zależności od pory dnia, strefy do wyładunku towarów w centrach miast (w tym tzw. zatoczki ładunkowe), tramwaje

towarowe, czy przeznaczanie powierzchni publicznej na działania logistyczne na podziemnych parkingach (na centra przeładunkowe) bądź stacjach metra (dla automatów wydających paczki).

Z innych ciekawych praktyk wymienić trzeba także holenderski program PIEK wyznaczający standardy hałasu dla dostaw towarów realizowanych w nocy, przy wykorzystaniu specjalnie przystosowanego, cichego wyposażenia pojazdów. W Londynie natomiast opracowano program FORS, polegający na identyfikowaniu tych operatorów logistycznych, którzy stosują wysokie standardy bezpieczeństwa i ochrony środowiska w swojej działalności.

Powyższe doświadczenia zostały przeanalizowane przez Miasto Poznań w celu wybrania z nich tych, które mogą rozwiązać lokalne problemy z transportem towarów. Po zbadaniu własnej sytuacji logistycznej poprzez analizę SWOT opracowano założenia strategiczne oraz plan działania na najbliższe lata w celu poprawy warunków dla transportu towarów w mieście.

Oprócz prac nad dokumentami strategicznymi, Poznań w ramach projektu SUGAR był współodpowiedzialny za koordynację prac nad poszczególnymi działaniami merytorycznymi w Komponentie 3 (Wymiana doświadczeń poświęcona identyfikacji i analizie dobrych praktyk). Pracownicy Miasta musieli także opracować metodologię do niektórych zadań (m.in. analizy SWOT czy lokalnych warsztatów logistycznych). W pracach tych Poznań współpracował z Instytutem Logistyki i Magazynowania (ILiM).

Instytut jest polską jednostką badawczą, która zapewnia wsparcie dla krajowej polityki w dziedzinie e-biznesu i logistyki. Promuje i wdraża nowoczesne rozwiązania logistyczne w kluczowych procesach biznesowych, co wpływa na zwiększenie efektywności przedsiębiorstw i całego łańcucha dostaw.

Jako Partner Techniczny projektu SUGAR, ILiM był odpowiedzialny w Komponentie 3, m.in. za opracowanie metodologii dla takich zadań, jak: wizja i strategia rozwoju logistyki w miastach transferowych, materiały szkoleniowe dla lokalnych warsztatów logistycznych, organizowanych przez każdego z partnerów, plany działania partnerów dla poprawy efektywności i skuteczności lokalnych polityk dotyczących logistyki miejskiej wraz z przekrojową analizą tych dokumentów.

Dokumentem końcowym projektu SUGAR w mieście Poznaniu są założenia strategiczne oraz plan działania na najbliższe lata przygotowane zgodnie z przyjętą metodologią i na podstawie wiedzy uzyskanej w ramach wymiany doświadczeń międzynarodowych na przestrzeni lat 2009-2011.

Urząd Miasta Poznania, Wydział Gospodarki Komunalnej i Mieszkaniowej

BG: Благодарение на участието си в проект „SUGAR – Регионални и местни политики за устойчиви добри логистични градски практики”, Община Враца разработи

- SWOT анализ на транспорта;
- Стратегия за развитие на градската логистика във Враца, която очерта четирите стратегически приоритета на транспорта за периода до 2020 г.: ефективно поддържане, модернизация и развитие на транспортната инфраструктура; интегриране на общинската транспортна система в националната и международната; намаляване на отрицателното влияние на транспорта върху околната среда и климата и устойчиво развитие на обществения масов транспорт;
- Бе извършено заснемане на съществуващото състояние на хоризонталната и вертикална планировка, както и анализ на проблемите на паркирането в централна градска част – «Синя зона». Също така бе проведена Анкета сред гражданите, за проблемите, които срещат при паркиране в «Синя зона»;

- План за действие в сферата на градската логистика на гр. Враца, който очертава ясни приоритети за действие до 2015 година и допринася за изпълнение на мисията на транспорта в града: *Транспортът във Враца да съдейства за икономическото и социално развитие на общината, като осигурява ефикасен (с максимални ползи), ефективен (с минимални разходи) и устойчив (с минимални външни влияния) транспорт; да подпомага балансираното регионално развитие като отчита кръстопътното положение на региона и неговия транзитен потенциал и съдейства за интегрирането на града в националната и европейски структури.*

Бяха разпространени пет транснационални бюлетина, описващи напредъка по проекта и запознаващи обществеността с добрите практики в сферата на градската логистика. Целевите групи за разпространение включват широк кръг от участници – Министерства, Агенция „Пътна инфраструктура“, „Център за градска мобилност“ София, БДЖ, Изпълнителна агенция „Автомобилна администрация“, Холдинг «Пътища», РИОСВ, Областна администрация, други общини в България, и местни и национални медии.

По време на изпълнение на проекта, 23 общински служители повишиха знанията си за градската логистика, чрез участие в изпълнение на дейностите по проекта. Община Враца бе домакин на четвъртата среща за съвместно планиране, където заедно с партньорите по проекта и представителите на различни целеви групи бяха представени SWOT анализа, Визията и стратегията на Враца и идентифицирани бъдещите мерки в сферата на градската логистика. Проведена бе и Кръгла маса на тема: Стратегия за градската логистика на Враца. Идентифицирани са добри практики, които могат да бъдат използвани от Община Враца: Портал за товарна информация (Лондон), Зони с ниски емисии, Контрол на достъпа чрез евростандарти (Регион Емилия-Романя), План за разпределение на товарите (Болоня, Италия), Зелени обществени поръчки (Швеция) и др.

В резултат на проекта Община Враца разработи «План за действие за градската логистика на Враца», който ще доведе до подобряване на ефективността и ефикасността в регионалната и местна транспортна политика. Той ще доведе до намаляване интензивността на движение, трафика и задръстванията и ще се ограничат вредните емисии и замърсявания. По този начин ще помогне за превръщане на Враца в устойчив, модерен европейски град.

Teodora Ivanova, Municipality of Vratsa

SI: Celje

Številna evropska mesta želijo z inovativnimi politikami zmanjšati negativne vplive tovornega prometa in to se je skušalo doseči tudi v sklopu projektnega partnerstva SUGAR. Istočasno pa se je želelo spodbuditi k politikam, ki bodo ugodno vplivale na tovarno distribucijo v mestnem jedru.

Na področju urejanja logistike v starem mestnem jedru Celja so v preteklosti že bili sprejeti posebni ukrepi, kot je npr. določitev dostavnega časa na območju, ki je zaprto za promet in predstavlja območje za pešce, ali posebna obravnava območja prenovljene mestne tržnice, ki je ustrezno urejeno z dostavnimi mesti in dostavnimi potmi. Z namenom celovitega pristopa k iskanju rešitev in dolgoročnega načrtovanja pa je Mestna občina Celje pristopila k projektu SUGAR.

Odločitve, sprejete ob načrtovanju mestnega prometa vplivajo na družbo kot celoto in oblikujejo okoljsko, ekonomsko in socialno prihodnost mesta. Število in raznolikost predlogov, kako izboljšati mestno logistiko, nenehno narašča, zato je težko ohraniti pregled nad aktualnim dogajanjem v mestni logistiki, še težje pa je izbrati mestu ustrezne in predvsem uresničljive ukrepe. Temu problemu v pomoč in kot vodilo razvoju so bila pripravljena načela vizije in strategije mobilnosti v Celju: Do leta 2030 bo Celje razvilo učinkovit sistem mestne

logistike s trajno zasnovanim transportnim sistemom, ki bosta omogočala varno, učinkovito in uspešno mobilnost ljudi in blaga.

Poleg optimizacije logistike v mestnem jedru so prednosti, ki jih za Mestno občino Celje prinaša projekt, tudi sodelovanje s številnimi strokovnjaki, pridobivanje referenc za sodelovanje v novih evropskih partnerstvih ter investiranje v razvoj lastnega znanja. Poleg zadane vizije in strategije so bili v okviru projekta analizirani primeri dobrih praks, izdelana je bila SWOT analiza ter izvedene terenske in številne druge študije. Trenutno je v nastajanju tudi akcijski načrt, ki bo združeval in časovno opredeljeval ukrepe za izboljšavo mestne logistike: zarisana bodo dostavna mesta (za nemoteno izvajanje dostav, ki ne bo ovirala prometa), opredeljene bodo dostavne poti (ki bodo povečale pretok blaga), nadgrajena bo kontrola vstopa v jedro, vzpostavljena bodo dinamična dostavna mesta (na obrobju starega mestnega jedra), spodbujala se bo raba električnih vozil in nadgradila spletna stran z informacijami o dostavnem prometu v Celju.

Suzana Tajnik, Municipality of Celje

CZ: Prague and Usti nad Labem

Otázka nákladní dopravy ve městech, která zajišťuje distribuci zboží, zásilek a zásobování všech subjektů ve městech působících – tedy otázka tzv. městské logistiky, je stále aktuálnějším tématem, jehož řešení hledají všechna města nejen v České republice, ale i v ostatních státech po celém světě. Přestože se jedná o problematiku relativně novou, existují v rámci Evropy města, která s hledáním vhodných řešení mají rozsáhlejší zkušenosti než města v České republice. Pro česká města se tak naskýtá možnost poučit se z jejich zkušeností, případně i chyb a vyvarovat se postupů a opatření, která se v praxi ukázala z různých důvodů jako nevhodná, či neefektivní.

Jednou z těchto možností, která se v roce 2007 naskýtl Hlavnímu městu Praha a Statutárnímu městu Ústí nad Labem, byla nabídka účasti v mezinárodním projektu SUGAR, který se právě na výměnu zkušeností v oblasti řešení městské logistiky zaměřoval.

Obě města výzvu přijala jako možnost přiučit se novým postupům v oblasti řešení dopravy ve městech a jako příležitost k získání kontaktů na města, zabývající se stejnou problematikou, či řešící podobné problémy.

V průběhu let 2009 – 2011 tak Praha a Ústí nad Labem spolu s dalšími 20 městy a dalšími subjekty z celé Evropy měly možnost diskutovat své zkušenosti s řešením městské logistiky, prezentovat vlastní návrhy na opatření, která pro řešení městské logistiky používají a konzultovat své představy o budoucích krocích, jež by mohly vést k lepšímu řešení dané problematiky v budoucnu a které by se mohly stát součástí budoucího Plánu řešení městské logistiky.

Jedním z hmatatelných výstupů, který v rámci projektu v návaznosti na proběhlé diskuse vznikl, je přehled příkladů doporučených, či vhodných k řešení městské logistiky, který držíte v rukou a který by měl napomoci k šíření získaných informací i dalším městům, případně regionům.

Zpracovaný přehled přitom využívá nejen zkušenosti a znalosti jednotlivých partnerů projektu, ale navazuje také na další projekty zaměřené na městskou logistiku jako např. BESTUFS, NICHES a další projekty podpořené EU, které se v minulosti podobnou problematikou zabývaly.

Přes všechny získané zkušenosti a realizované pilotní kroky zůstává městská logistika jednou z hlavních výzev, se kterou se budou muset města nejen v České republice v budoucnu vypořádat.

Ze zkušeností z vyspělejších měst v Evropě přitom vyplývá, že se nejedná pouze o výzvu v oblasti dopravy, ale o multioborový problém, při jehož řešení je potřeba zohledňovat jednak otázky snížení dopadů dopravy na životní prostředí ve městech, tak též otázky minimalizace dopadů navrhovaných opatření na ekonomiku měst a fungování soukromých subjektů zejména v jejich centrech.

Stejně jako Praha nebo Ústí nad Labem, žádné z měst pravděpodobně nevyužije všechny získané informace a příklady dobré praxe popsané v této publikaci.

Přesto věříme, že může poskytnout dostatek informací alespoň o tom, jak je vhodné při řešení městské logistiky začít, jak si vyhodnotit situaci v daném konkrétním městě a jakým způsobem určit, jaká opatření by byla pro řešení situace v tom kterém městě nejvhodnější.

Publikace popisuje, jakou úlohu může v tomto procesu sehrát např. zpracování SWOT analýzy, nebo sběr dat, která v České republice ve většině měst nejsou dosud k dispozici, neboť je nelze získat standardním dopravním průzkumem.

Všechna zúčastněná města pracovala na výběru vhodných dobrých příkladů po celou dobu realizace tak, aby uvedené informace obsahovaly opravdu taková doporučení a příklady, které lze v jednotlivých městech použít. Mnohá z nich byla navíc testována již v průběhu realizace projektu.

Ústí nad Labem tak realizovalo pilotní sběr dat o městské logistice, který by měl městu napomoci porozumět, jaká je vlastně ve městě situace v oblasti zásobování a distribuce zboží a zásilek, a díky tomu ověřit, jaká možná opatření by situaci mohla zlepšit, případně mohla napomoci k odstranění zjištěných problémů a nedostatků.

Stejný přístup zvolila i Praha, která si v rámci projektu prověřila, jaké další kroky by bylo vhodné realizovat, aby zejména na úrovni nejexponovanějších částí města došlo k nalezení vhodných řešení pro městskou logistiku, která by snížila negativní dopady tohoto druhu dopravy na město, za současného minimálního dopadu na fungování ekonomiky města.

V obou případech představuje projekt SUGAR startovní pásku, jejímž překročením se obě města pustila do řešení nové, stále aktuálnější problematiky řešení nákladní dopravy zajišťující fungování ekonomiky měst.

Věříme, že výstupy projektu budou přínosné i pro ostatní města, kterým je tato publikace určena, a že si v ní i Vaše město najde vhodná doporučení a příklady, s jejichž pomocí budete moci i Vy zlepšit a zefektivnit přístup Vašeho města k řešení otázek městské logistiky.

S přáním mnoha úspěchů při řešení otázek městské logistiky,

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*Petr Kilián, Vedoucí oddělení financování rozvoje dopravy
Magistrátu Hlavního města Prahy*

Vilém Čekajle, Cassia Development & Consulting, s.r.o.

E. The best practices identified in SUGAR

E.1 Introduction and selection criteria

The preliminary analysis allowed us to identify the needs and objectives of cities regarding urban freight and gave us indications on how to derive an optimal selection of best practices. We identified 19 best practices within SUGAR sites and 25 best practices outside of SUGAR sites. They were chosen in order to address different policy levels and benefit different target groups. The specific choice criteria were the following:

For all sites:

- Best practices are initiated or supported (partially or totally) by a public administration.
- Best practices are currently operating or have been operating for a long enough time to draw relevant conclusions (best practices are NOT drawing table projects or very recent experiments).
- Best practices have a sustainable business model (whether public or public/private), they do not depend upon financial sources that are time-limited.
- Best practices have an impact and that impact has been evaluated through some kind of assessment.

For SUGAR sites:

- Best practices for each of the four best practice sites are considered important by the site itself.
- Best practices are transferable to other cities especially smaller size cities (some best practices from Paris or London have been avoided because they were too specific to large capital cities).
- There is a comparable number of best practices for each of the best practice sites.

For non SUGAR sites:

- Innovative best practices are favoured, especially best practices using intelligent transport systems.
- For best practices with some years of operation, best practices already recorded into BESTUFS II¹ best practice reports are favoured.
- Some outstanding best practices (some of them non-European) have been included based on the literature and/or personal expertise (Japanese cases).

Furthermore, the total number of best practices identified has been limited to a reasonable amount so that the Best Practice report does not look like a catalogue of measures.

E.2 Presentation of the best practices

As the number of presented actions is quite large, the best practices are presented according to a single template. Each template is organised in six categories :

- A general presentation

The objective of the general presentation is to provide a general overview of the policy and implemented measure. Information on underlying issues (problems/needs addressed) and normative/strategies which influenced the policy design process, such as national or U.E. regulations and directives, are discussed.

¹ www.bestufs.net/bestufs2_bp_handbook.html and Allen et al., 2007.

A great care has been taken on the actions typology. Fields of application are the following: Administrative actions, Urban planning, Governance, Awareness, infrastructure, ITS & technical, Modelling, Supply Chain, Information. Tables 1 and 2 below display a synthesis of the types of action each best practice is related to.

- Policy design details

This element provides information about the primary policies objectives of the best practice, such as: are they incentive-like or based on regulation or enforcement. Then detailed information on the policy design steps and timing is provided. It describes the process that has lead to the actual measures, including initial analysis (survey, modelling), previous measures, pilot activities that have evolved into the actual measure.

The third step consists in presenting the stakeholders involved and the partnerships. It describes the role and involvement mechanisms for institutional and non-institutional actors at the different stages of the process. Next, decision-making process and steps that led to the final policy scheme are presented.

Site characteristics are then mentioned through the specificities that have influenced the policy design process, both from a physical/technical and from a political/decision making point of view. Last, leverage points, which are those moments when critical decisions have proved to be necessary, are described.

- Implementation details

After briefly presenting steps and timing, more detailed descriptions regarding resources and infrastructures needed (ICT, signalling, road lanes) are provided. This includes information about related costs and human resources (number of people involved for implementation, type of training required...). Enforcement and monitoring procedures are described. The latest provides elements to assess the effectiveness of the implemented action, and over which time period.

- Supporting mechanism

This part deals with awareness and information campaigns, incentive programmes and financial instruments (actions undertaken to increase involvement of market players and other non-institutional actors), partnerships and key supporting stakeholders. Other policies, providing synergies with the best practices, whether at local, regional or higher levels, are mentioned.

- Results

As a general overview, here are presented the expected versus the actual benefits of the best practice. Quantitative results (measured reduction in pollution, number of vehicles affected, number of operators involved...), as well as qualitative results (improvement perceived by citizens and the wider public, positive behavioral changes) are listed.

- Key considerations

The table ends up with the key considerations and lessons learned, together with an analysis of obstacles and critical success factors for the best practice.

Surveyed sites and best practices: overview and categories of activities**Table 1: SUGAR sites overview and categories of activities**

	Name of the initiative	City/Country	Category of measures								Pages
			Administrative	Urban Planning	Governance	Awareness	Infrastructural	ITS and Technical	Modelling Tools	Supply Chain Management	Information
1	Consignity	Paris (France)				X	X	X		X	
2	Mobility Master Plan including freight	Paris (France)	X	X	X						X
3	Technical guidelines for delivery spaces	Paris (France)	X				X				X
4	Urban Logistics Spaces (ULS)	Paris (France)					X				X
5	Urban rail logistics: Monoprix	Paris (France)					X			X	
6	Freight Information Portal	London (UK)				X					X
7	Freight Operators Recognition Scheme (FORS)	London (UK)	X		X	X					
8	London Construction Consolidation Center (LCCC)	London (UK)	X				X			X	
9	London lorry control scheme	London (UK)	X								X
10	Low Emission Zone	London (UK)	X			X		X			X
11	Multi use lanes	Barcelona (Spain)		X		X	X	X			X
12	Night deliveries experiment	Barcelona (Spain)	X		X	X	X	X		X	X
13	Using building code regulations for off-street delivery areas	Barcelona (Spain)	X	X			X				
14	Lorry routes	RER (Italy)			X						X
15	Traffic limitation by Euro standards	RER (Italy)	X	X	X						X
16	Inter city Coordination	RER (Italy)	X		X						X
17	Freight Distribution Plan	Bologna (Italy)	X	X	X			X			X
18	Ecologistics Parma	RER (Italy)	X	X	X		X	X		X	
19	ARIAMIA electric delivery vehicles for rent	RER (Italy)			X	X				X	X

Table 2: non SUGAR sites overview and categories of activities

	Name of the initiative	City/Country	Category of measures								Pages
			Administrative	Urban Planning	Governance	Awareness	Infrastructural	ITS and Technical	Modelling Tools	Supply Chain Management	
20	Binnenstadservice	Dutch cities (the Netherlands)					X		X		111
21	Cargotram	Zurich (Switzerland)	X					X			116
22	City Cargo	Amsterdam (the Netherlands)	X				X	X			120
23	Cityporto	Padua (Italy)	X	X	X		X		X	X	124
24	Cityssimo	La Défense (France)						X	X	X	129
25	Congestion charging	Stockholm (Sweden)	X			X		X		X	133
26	Data collection-Modelling	Bordeaux, Marseille, Dijon (France)							X	X	139
27	Dynamic delivery areas	Poitiers (France)	X	X				X			144
28	Elcidis urban consolidation center	La Rochelle (France)	X	X	X	X		X		X	148
29	Espace Logistique de Proximité (ELP)	Bordeaux (France)		X		X			X	X	153
30	Heavy goods Vehicle Fee (HVF) on local and urban roads	Swiss cities (Switzerland)	X					X	X		159
31	Life CEMD	Lucca (Italy)	X	X	X			X	X	X	165
32	Lorry routes	Bremen (Germany)	X			X	X	X	X	X	171
33	Low Emission Zone	Utrecht (the Netherlands)	X					X			176

	Name of the initiative	City/Country	Category of measures								Pages	
			Administrative	Urban Planning	Governance	Awareness	Infrastructural	ITS and Technical	Modelling Tools	Supply Chain Management		Information
34	Motomachi Urban Consolidation Center (UCC)	Yokohama (Japan)								X	X	182
35	Packstation for B2C	German cities (Germany)		X				X		X		187
36	Partnership on Good Practices	Toulouse (France)	X	X	X	X	X	X			X	190
37	Petite Reine (electrically assisted tricycles for deliveries)	Rouen (France)		X				X	X	X	X	196
38	Pick up Points for B2C	French cities (France)							X		X	201
39	Protected delivery zones	Prague (Czech Republic)	X	X		X						206
40	Silent deliveries with PIEK labelling	Dutch cities (the Netherlands)	X		X			X	X		X	212
41	SMARTFREIGHT	Trondheim (Norway)						X	X			215
42	SpediThun	Thun (Switzerland)	X	X	X					X		222
43	Urban Consolidation Centre	Bristol (UK)								X	X	226
44	Urban logistics terminals	Tokyo (Japan)		X				X				232

1 Consignity, Paris (France)

1.1 General information

1.1.1 Description

Consignity is a new type of delivery service based on a network of automated lockers for goods' pick-ups and deliveries. It was first implemented in Paris as a trial for two major companies (Darty and Schindler) and is now aiming at full development, although it faces many obstacles at the moment. The service aims at improving the mobility of commercial vehicles, specifically service/utility vehicles, in urban areas. Consignity is based on three new concepts: a delivery in the absence of the receiver, night time supply of depots, and the final consolidation of delivery trips. One of the main trial developments of Consignity was to supply parts to a major elevator manufacturer (Schindler) for its maintenance operations.

1.1.2 Type of measure/field of application

Administrative	
Urban planning	
Governance	
Awareness	X
Infrastructure	X
ITS & Technical	X
Modelling	
Supply Chain	X
Information	

1.1.3 Framework and background

Every day, hundreds of employees of a major lift manufacturer are circulating within Paris for the repair and maintenance of escalators, moving walkways and lifts. Technicians come every day from their home by car, drive several times a day through the hub terminal located outside of Paris (Vélizy) in order to get the equipment needed for repairs, and operate in businesses and private buildings. Numerous unconsolidated trips are made.

Before Consignity was established, spare parts necessary for the technicians were delivered by different suppliers (200) to Vélizy, then forwarded to five warehouses close to Paris. The purpose of Consignity was then to minimize the movements of the technicians by providing the spare parts they need closer to the buildings they operate in.

1 Consignity, Paris (France)

1.2 Policy design details

1.2.1 Primary Policy Objectives

Provide Incentives	X
Regulation/Enforcement Component	

1.2.2 Policy design steps and timing

2004: creation of Consignity (2 persons)

2004-2005: feasibility study

Manufacturing of the automated lockers, search for financing, as well as for opportunities to locate them in underground car parks, organisation of the operating processes with the various partners.

In 2004, the firm won a prize for innovation from the French Ministry of Research. The support of two investors was reached (Oséo-Anvar, and European Social Fund, ESF). The company obtained an additional research & development loan from ANVAR (the French National Agency for the promotion of Research) refundable over 5 years.

1.2.3 Actors involved and participation

Institutional: Paris City Council, ADEME (French Environment Agency)

Private actors: managers of car parks in Paris (Vinci Park, Effia), DHL express, Schindler (elevator manufacturer)

1.2.4 Decision making process

2003: funding by ESF and ANVAR for 2003-2008

2004-2005: creation of the network of lockers

Sept. 2006: first test with a major company (Darty)

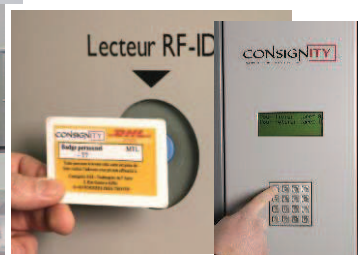
Oct. 2006: first pilot evaluation

The network was then slow in actually developing, for several reasons including competition from other automated locker services and the financial and economic crisis. Consignity opened new services starting in 2008-2009, through a partnership with Koppen, a Belgian company that manufactures letterbox-like lockers named Packetbox. There are 900 Packetbox in Germany, 500 in Austria and a project is starting in France. Consignity should add its own technology to the new Packetbox networks.

1.2.5 Site characteristics

Location of the initially planned network of Consignity lockers in Paris.

1 Consignity, Paris (France)



- Necessity for a large network
- Underground parking with video control
- Open 24/24, 7/7
- RFID data transfer
- Traceability of the parcels
- Night delivery (by DHL)

Pick up in the morning by repair technicians

1.2.6 Leverage Points

The development of the network, its extension.

Going from the starting phase to the operating phase

1.3 Implementation details

1.3.1 Implementation step and timing

See policy and step

1 Consignity, Paris (France)

1.3.2 Human resources

Two persons: one telecommunication engineer, one internet, communication and press specialist.

1.3.3 Primary Target Group

Users: maintenance technicians (Schindler, Darty)

Operator-carrier: DHL

Municipal car park managers

1.3.4 Enforcement scheme

The experiment can succeed only if the network of lockers is dense enough and car parks sufficiently well positioned in order to reduce the number of movements.

The potential full development is about 50 locker points in Paris.

Two different services have been imagined: a multi-use scheme (lockers are used by various customers), and a dedicated approach (the locker network is reserved for a single customer with a monthly rent).

1.3.5 Monitoring procedures

The effectiveness of the scheme has been measured in October 2006. The number of parcels, the frequency of use, loading factors, the number of users, the hours of collection and deliveries have been observed.

A qualitative survey was made.

1.4 Supporting Mechanism

1.4.1 Awareness/information campaigns

Consignity participated in many local meetings as well as impact assessment studies

1.4.2 Incentive Programmes/Financial Instruments

Consignity today tries to find additional customers, as well as other locations to implement lockers.

Their website promotes the use of the service to businesses and entrepreneurs.

1.4.3 Partnerships/Key supporting stakeholders

Council of Paris, Ministry of environment, Vinci Park, Eiffage, DHL, Darty, Schindler

1.5 Results

1.5.1 Expected vs. Actual benefits

The pilot study done in December 2006 showed that the revenue needed to attain a balanced budget were €300 000 (fixed costs). To obtain this result it would be necessary to have from 50 to 60 locations in Paris, with 7 to 17 lockers each. The ideal distribution would be 375 consolidated boxes and 225 dedicated boxes.

1.5.2 Quantitative results achieved

One year after implementation, 11.8 deliveries/month were done, two automated lockers were used and 71 deliveries were made in a total of 12 individual boxes.

1 Consignity, Paris (France)

Nine technicians received 71 deliveries.

The hours of deliveries (warehouses) are rather early in the morning, the hours of pick ups spread out during the day.

76% of the goods deposited in the lockers were used by the repair technician the very day of the delivery.

About 34% of the goods stay within the locker for less than two hours (24% from 2 to 6 hours).

In 2008, an evaluation showed that the system would allow a drop of fuel consumption and a productivity increase (in time) by 20%.

1.5.3 Qualitative results

The repair technicians have been surveyed. They appreciate the ease of parking near the locker boxes, the reliability of the equipment, the time to pick up the parcels, the improvement of their working conditions.

From the manager, opinions were very favourable regarding the equipment, but two issues needed to be improved: the extent and connectivity of the network, and the cost. The gain in productivity could not be measured.

It is difficult to estimate the global cost of the locker system, as the cost of research and development must be integrated. Car parks required access fees beyond 10 minutes, which added up to the operating costs.

1.6 Key Considerations

1.6.1 Lessons learned

The Darty and Schindler trials proved that Consignity could be quite useful. It is dedicated to B to B services (it is not focused on household deliveries), occupying an interesting "niche" in urban deliveries. A very important number of repair technicians or after-sale services can be interested in using these automated locker boxes. They could provide a considerable gain in the number of movements, vehicles, distances and time.

1.6.2 Primary Obstacles

One of the main difficulties in developing the service is the initial cost in implementing an extended and connective network.

It has also been shown that users of the system (transport and logistics companies, repair services) find it difficult to reorganize their logistics integrating an urban network of locker boxes

1.6.3 Transferability considerations

Consignity is trying to implement its locker boxes in other French cities.

1.6.4 Up-scaling considerations

See lesson learned

1.6.5 Contacts

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Tel +33 613 61 26 76 www.consignity.fr

DHL: Adocom, tel +33 148 05 19 00

2 Mobility Master Plan including freight, Paris (France)

2.1 General information

2.1.1 Description

The Mobility Master Plan (MMP) was adopted by the Paris City Council in February 2007. The 2007 MMP represents the global transport policy of Paris, integrating, for the first time, urban goods movements. The MMP aims at improving air quality and public health, promoting accessibility and social justice, making the city more pleasant, increasing its economic performance.

One of the main stated objectives is to reduce car traffic by 40% and greenhouse gas emissions by 60% by 2020.

An important share of the document is devoted to freight transport.

2.1.2 Type of measure/field of application

Administrative	X
Urban planning	X
Governance	X
Awareness	
Infrastructure	
ITS & Technical	
Modelling	
Supply Chain	
Information	X

2.1.3 Framework and background

Since 1996 and the Law on Air and the Rational Use of the Energy (LAURE), French cities over 100,000 inhabitants must establish a Mobility Master Plan that includes - by law - freight issues among many other issues. Today, article 28-1 of the Orientation Law for Domestic Transport (LOTI) describes issues that have to be dealt with by MMPs.

2.2 Policy design details

2.2.1 Primary Policy Objectives

Provide Incentives	X
Regulation/Enforcement Component	X

2.2.2 Policy design steps and timing

Dec. 1996: National law LAURE

April 1998-April 1999: diagnosis of the MMPIF (Mobility Master Plan for Ile de France – the whole Paris Region) and preliminary strategies

June 2000-July 2000: public inquiry for the MMPIF

Dec. 2000: approbation of the MMPIF

2 Mobility Master Plan including freight, Paris (France)

2001-2005: implementation of the MMPIF

July 2005: the Paris City Council decides to establish its own MMP within the MMPIF

2005-2007: working groups, including a freight working group, propose the main strategies for the MMP

Feb. 2007: the Paris City Council adopts the Paris Mobility Master Plan

2.2.3 Actors involved and participation

Paris City Council, economic and social stakeholders, boroughs' representatives, local organizations, business organizations

2.2.4 Site characteristics

Every year, about 32 million tonnes of goods are required to ensure that the City of Paris functions economically and socially. The way these goods are transported is mostly entirely road based (more than 90% of freight movements in tonnes) to the detriment of waterways (representing just 7%) and rail (3%).

More than 1.6 million deliveries every week are generated in order to supply the shops, industries and small businesses located in Paris. To this can be added the personal shopping trips and ancillary movements encompassing waste, the public buildings and works sector, removals and the movement of goods associated with various administrative bodies such as hospitals.

About 15% of the available road space (in vehicle-kms) is occupied at any one time by freight movements, but this can rise to more than 20% in districts with a high density of businesses. Goods movements as a whole generate significant negative external effects, both in terms of the environment and health.

2.2.5 Leverage points

In 2001 the Paris local government's attention focused on the transport of goods as part of the implementation of a new policy regarding mobility and the sharing of public road space. It was also at this time that the division of responsibilities between the City and the State Prefecture (Police Department) was redefined. Historically, traffic in Paris was under the jurisdiction of the State Prefecture's regulations governing the movement, routing and stopping of vehicles transporting goods. In 2001/2002, the City regained jurisdiction over most of car and truck traffic regulation.

The decision by the municipality to give goods movements a high level of priority represented a radical change of policy direction. Hence, rather than thinking purely in terms of traffic, a comprehensive urban approach to the transport of goods was adopted.

2.3 Implementation details

2.3.1 Implementation step and timing

Main objectives of the MMP regarding freight.

2013: 60% increase in the total tonnage coming into Paris by railway, and 40% by waterway. Regional harmonisation of local truck access and delivery regulations.

2020: 110% increase in the total tonnage coming into Paris by railway, and 75% by waterway. Regional harmonisation of local regulations.

2 Mobility Master Plan including freight, Paris (France)

2.4 Supporting Mechanism

2.4.1 Partnerships/Key supporting stakeholders

The Paris freight program was discussed and agreed among stakeholders such as carriers and business associations, network operators, large businesses, Paris chamber of commerce, public utilities. The objectives of the MMP are in line with the Paris Department of Transport (DoT)'s freight program, meaning that supporting stakeholders of the DoT are also involved in the MMP.

2.5 Results

2.5.1 Expected vs. Actual benefits

No results yet

2.6 Key Considerations

2.6.1 Lessons learned

A strong political commitment to a local freight program had been designed prior to the establishment of the MMP. Thanks to this, it became natural that a freight policy had to be integrated into the general mobility plan

2.6.2 Primary Obstacles

MMP gives an overview and general objectives which are coherent between passengers and freight but implementation is actually more difficult for freight orientations than for passenger transport, because of insufficient permanent support and lack of staff within the Paris DoT

2.6.3 Critical success factors

Needs a close public private collaboration to achieve MMP targets, and a strong political will. Requires sufficient staffing (a "Mr or Ms Freight") within the Department of Transport.

2.6.4 Transferability considerations

Freight objectives have been discussed with private stakeholders in charge of the implementation. This public private discussion is a key factor of transferability.

2.6.5 Contacts

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3 Technical guidelines for delivery spaces, Paris (France)

3.1 General information

3.1.1 Description

Guidebook providing rules for the lay-out of on-street delivery spaces (number, size and design, location)

3.1.2 Type of measure/field of application

Administrative	X
Urban planning	
Governance	
Awareness	
Infrastructure	X
ITS & Technical	
Modelling	
Supply Chain	
Information	X

3.1.3 Framework and background

In Paris, prior to the guidelines, on-street delivery bays used to be implemented in a piecemeal manner, responding to individual shopkeepers' requests. These guidelines provide a global answer to the needs for on-street deliveries, by giving specific metrics and rules when designing on-street delivery bays

3.2 Policy design details

3.2.1 Primary Policy Objectives

Provide Incentives	X
Regulation/Enforcement Component	X

3.2.2 Policy design steps and timing

1994-1995: first goods movement surveys made in three French cities, Bordeaux, Marseille and Dijon. These surveys gave a lot of information about on-street deliveries, such as the average number of deliveries per week per category of economic activity.

2004: first field surveys about delivery bays in Paris, showing that the provision of delivery bays was not in line with the needs

2005: first issue of the delivery bay guidelines based on the results of the 1994-95 urban goods movement surveys. The guidelines provide simple methods to design on-street delivery areas according to the needs.

3.2.3 Actors involved and participation

The content of the guidelines was defined by the Paris freight unit, in collaboration with the Laboratoire d'Economie des Transports (French research unit in charge of the urban freight surveys).

3 Technical guidelines for delivery spaces, Paris (France)

The technical teams of the city of Paris in charge of delivery bays' implementation in the 20 different boroughs of Paris now use the guidelines on a daily basis

3.2.4 *Site characteristics*

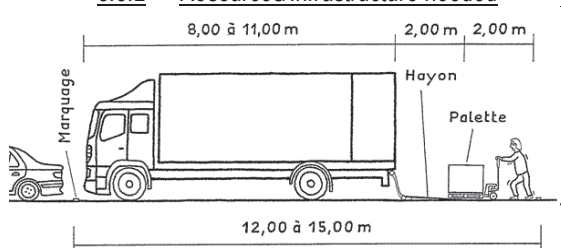
Paris freight policy focuses on trying to better integrate all goods movements, meaning that the municipality dedicates a specific share of the public space to goods transport activities and commercial vehicles' parking. Today, 15% of the street space dedicated to parking is allocated to deliveries in Paris city streets

3.3 *Implementation details*

3.3.1 *Implementation step and timing*

June 2005: first guidelines released. At the end of 2009, 50% of the 10,000 delivery bays of the city of Paris have been redesigned based on the delivery guidelines

3.3.2 *Resources/Infrastructure needed*



10,000 on-street delivery bays are being redesigned according to the guidelines (they are at least 12 to 15 meter long, as is shown in the figure above).

This generates additional costs, but these expenses have not been calculated specifically

3.3.3 *Human resources*

Guidelines' design: two municipal engineers, four weeks of study.

Delivery bays' implementation: once the design rules have been defined, teams in charge of streets' works implement the new delivery bays

3.3.4 *Primary Target Group*

Local municipal units in charge of street design and maintenance. Detailed field surveys were made in 2004 and 2008 showing a strong increase of the use of delivery bays between 2004 and 2008

3.4 *Supporting Mechanism*

3.4.1 *Awareness/information campaigns*

Guidelines were approved within the city of Paris. Today, they constitute the only reference allowed for delivery bay design

3 Technical guidelines for delivery spaces, Paris (France)

3.4.2 Other policies

Other French cities issued their own guidelines (like Lyon), with the same rules and recommendations. A national delivery guidebook, compliant with the Paris and Lyon versions, was issued in 2009

3.5 Results

3.5.1 Expected vs. Actual benefits

It is too early to estimate the effects. Internally, for the city of Paris' technical services, the impact is good in terms of awareness towards freight transport

3.5.2 Qualitative results

Good feedbacks from the users of the delivery bays and transport companies' organisations

3.6 Key Considerations

3.6.1 Lessons learned

It is very important for a city to provide a coherent set of rules defining delivery bays, based on the needs of the freight drivers. Delivery bays must accommodate the dimensions of delivery trucks. They must make deliveries easier through adequate design

3.6.2 Primary Obstacles

Rules can be easily integrated into a software in order to have an automatic calculation of the number and size of on-street delivery bays needed

3.6.3 Transferability considerations

1994-1995: urban freight surveys have shown that logistics indicators (which are ultimately used for designing on-street delivery spaces) are similar from one city to another. The Paris delivery guidelines, therefore, are useful in any city of France

3.6.4 Up-scaling considerations

A permanent updating of the guidelines is made by the Paris freight unit

3.6.5 Contacts

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4 Urban Logistics Space (ULS), Paris (France)

4.1 General information

4.1.1 Description

The Paris City Council carried out a large programme in order to improve last kilometer deliveries. The City has been involved in several experiments based on new concepts of "Urban Logistics Spaces" (ULS). For the past five years (2006-2011), the city has carried out an innovative policy including seven experiments. Most of them are located in underground car parks: La Petite Reine (see Best Practice 37), Chronopost, Consignity (see Best Practice 1), Natoora, Colizen.

4.1.2 Type of measure/field of application

Administrative	
Urban planning	
Governance	
Awareness	
Infrastructure	X
ITS & Technical	
Modelling	
Supply Chain	X
Information	X

4.1.3 Framework and background

During the late 1990s, UCC (Urban Consolidation Centres) were considered the best potential solution for decreasing the flows of commercial vehicles in dense urban areas, but many UCC projects were abandoned because of their costs or insufficient usefulness. Urban Logistics Spaces were seen as a more efficient way of promoting the optimization of urban supply chains. At the same time, the French National programme "Urban Goods" initiated by the Ministry of Transport and ADEME (French environmental agency) provided funding for research on "Urban Logistics Spaces". The Mobility Master Plan of Paris (see Best Practice 2) also facilitated global thinking about Urban Logistic Spaces.

4.2 Policy design details

4.2.1 Primary Policy Objectives

Provide Incentives	X
Regulation/Enforcement Component	X

4 Urban Logistics Space (ULS), Paris (France)

4.2.2 Policy design steps and timing

2001-2003: the Paris City Council provided an ULS for two years in an underground car park in St Germain l'Auxerrois at a very low rental cost to la Petite Reine, an operator using electric tricycles.

2004-2006: creation of a new service called "Consignity" based on a network of automated lockers for pick up and deliveries. The lockers are based in underground car park (see Best Practice 1).

2004-2005: Paris launches an bid for tender for experimenting deliveries from an urban logistics space. Chronopost, a subsidiary of the French Post was the only candidate. In May 2005: inauguration of the new ULS in the underground park of La Concorde, from which Chronopost delivers two Paris neighborhoods with electric vans.

At the same time Natoora, specialist of online sale of fresh products, located in an underground car park in la Porte d'Orléans. From the terminals, deliveries are made by electric vehicles.

2007: Monoprix, a large retailer group, transfers a third of its volumes delivered in Paris from road to rail (for a suburban segment of 30 km). The Region Ile de France and the Paris City Council supported this experiment which required a new terminal in Paris (Bercy) in order to deliver 90 supermarkets by ways of clean vehicles (CNG trucks) (see Best Practice 5).

2009: Colizen, a home delivery start-up, replaces Natoora in the Porte d'Orléans ULS.

2009: Urban Cab and FedEx implement a new delivery company, located in the Meyerbeer underground parking lot .

4.2.3 Actors involved and participation

Paris City Council, Ministry of Ecology, ADEME (French national Energy Agency), researchers, consulting, various players in urban logistics, private firms.

The concept (new organisation, new vehicles) is private, but the experiment was made possible thanks to the involvement of Paris municipal authorities. The city provided funding for studies, and assessment, and decided to ask for low rents for the use of ULS.

4.2.4 Decision making process

Since 2000 the City of Paris has an environmental approach to urban logistics. The main aims are to reduce congestion, pollution, to improve the efficiency of the system of urban distribution.

Urban logistics spaces at a low rental cost in central areas were invented by the city of Paris. This represents a clever way of promoting innovative and environmentally friendly city logistics providers.

4.2.5 Site characteristics

The implementation of each of these logistics spaces required public-private partnerships, specific regulations and fittings.

All these ULS are 100 m² to 250 m².

They make it possible to bundle the flows of goods to be delivered, they oblige to reach a new organisation which reduces the number of vehicles moving in Paris, congestion and pollution.

They fit the objectives of the Paris Mobility Master Plan.

4.2.6 Leverage Points

All these experiments create an additional transshipment of goods, and increase the cost of delivery services. Business plans have to take this additional cost into account.

Subsidies should only be used to initiate the experiment, and not become permanent.

4 Urban Logistics Space (ULS), Paris (France)

4.3 Implementation details

4.3.1 Resources/infrastructures needed

The main problem is to find adequate terminals in city centres. The size of an ULS is between 600 m² to 900 m². One of the best ideas is to find space in underground parks and provide it to innovative logisticians. There is an opportunity cost for the city (these spaces could be used for car parking with more profit) but no direct subsidies.

Other needs are adequate infrastructure for access to the underground car park and security fittings inside. Signalling for specific regulation must be carefully designed and discussed with specialised bodies (fire department).

4.3.2 Human resources

Three persons at the City of Paris monitor the ULS scheme (not at full time).

4.3.3 Primary Target Group

Decision-makers, logisticians, the Mayor.

4.3.4 Monitoring procedures

All these experiments have been evaluated by consultants (economical, social, environmental results).

4.4 Supporting Mechanism

4.4.1 Awareness/information campaigns

References can be found on various websites and on: www.transports-marchandises-en-ville.org
The experiments have been presented in conferences or during specific events on urban logistics.

4.4.2 Partnerships/Key supporting stakeholders

Ministry of environment, ADEME, City and all players

4.5 Results

4.5.1 Expected vs. Actual benefits

The main objective of these ULS was to demonstrate the efficiency of such facilities, and to evaluate the benefits, both for the private sector and for the city.

In these regards, outcomes are very positive: economic profitability, CO₂ emission reduction, low qualification jobs creation.

After quite a long period with only two ULS in operation, 2009 represented a breakthrough, with a strong willingness of logistic operators to have their own facilities.

4 Urban Logistics Space (ULS), Paris (France)

4.5.2 Quantitative results achieved

For seven ULS currently operating in Paris:
65 clean vehicles (electric powered tricycle or quadricycle)
80 new jobs created
1,500,000 parcels delivered per year

4.5.3 Qualitative results

Noise reduction
New image of urban logistics, and a powerful marketing tool for companies involved
Economic sustainability

4.6 Key Considerations

4.6.1 Lessons learned

ULS are powerful tools to help small logistics start-ups develop innovative markets at low rental costs.

4.6.2 Primary Obstacles:

A technical guideline published by Daniel Boudouin in 2006 in France showed the various obstacles for the implementation of ULS: the price of urban land, lack of knowledge from decisions makers in urban logistics (cities are unwilling to reserve land for logistics activities).
Setting up specific regulations in order to make the measure efficient has also proved difficult. For example, the use of electric vehicles within underground car parks required a time consuming process of authorization from the national administration.

4.6.3 Critical Success factors

Raising the rent without endangering the companies using the ULS.

4.6.4 Transferability considerations

No major obstacle, provided a city owns or decides on the use of the city's underground car parks or former railway stations.

4.6.5 Contact

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5 Urban rail logistics: Monoprix, Paris (France)

5.1 General information

5.1.1 Description

Since 2007, Monoprix, a large French distribution group (a subsidiary of both Galeries Lafayette group and Casino), has reorganised its logistics supply chain from road to rail for the incoming products of its 90 supermarkets in Paris and its close suburbs.



5.1.2 Type of measure/field of application

Administrative	
Urban planning	
Governance	
Awareness	
Infrastructure	X
ITS & Technical	
Modelling	
Supply Chain	X
Information	

5.1.3 Framework and background

The initial initiative came from the national Ministry of Transport and its regional branch (DREIF). They looked for potential experiments for regional rail transport (short lines). Monoprix volunteered to test the project.

Before the trial, Monoprix delivered its supermarkets in Paris by trucks from a terminal 35 km South of Paris. Anticipating an increasingly restrictive regulation for deliveries in urban areas, Monoprix decided to deliver some of its products (non alcohol beverages and general products such as textile, home and leisure articles, perfumes, ...) by train.

The goods are moved to a rail terminal located within Paris (Bercy station in the East) and the final deliveries to the supermarkets are made by CNG (compressed natural gas) trucks.

5 Urban rail logistics: Monoprix, Paris (France)

5.2 Policy design details

5.2.1 Primary Policy Objectives

Provide Incentives	X
Regulation/Enforcement Component	X

5.2.2 Actors involved and participation

Institutional actors: national Ministry of Transport and its regional body DREIF, Île-de-France Regional Council, the Paris City Council, RFF (French rail network authority).

Private sector: Retail company Monoprix.

Logistics and transport companies: SNCF/VFLI (railway operator), and Samada.

Two trucking companies: Geodis BM and GT location to ensure the final distribution.

5.2.3 Decision making process

Feasibility study.

Search for a rail terminal in Paris.

Search for public partners for the renovation and operation of the terminal.

Search for a railway operator.

Search for new natural gas-propelled vehicles and refilling station.

Start of operations in November 2007.

5.2.4 Site characteristics

Technically, it was necessary:

- To move 210,000 pallets/year equivalent to 20 wagons/day
- To find a slot on the regional passenger railway line (RER D) without hurting passenger traffic
- To do works to connect the two terminals to the railway networks (rail sidings)
- To soundproof the terminal in Paris, to make it HQE (Environmental High Quality national standard)

Financial constraints for the operator: purchase of CNG vehicles, purchase of natural gas from a single gas station operator on the site, due to a lack of available CNG stations in the area.

Decision making constraints: the reorganisation of logistics operations was only possible for a restricted amount of Monoprix products, excluding fresh food for example. As a result, standard deliveries are still made with diesel trucks in parallel to the CNG deliveries.

5.2.5 Leverage Points

The understanding of the role of each stakeholder (RFF, SNCF, City of Paris) in the functioning of the rail terminal in Paris.

Implementing a local natural gas refuelling station close to the rail terminal.

The choice of a railway operator was also critical. Monoprix wanted to promote a private rail operator (such as Veolia) but SNCF prevailed, because they owned the terminal and asked for a very high fee if another

5 Urban rail logistics: Monoprix, Paris (France)

operator was to use it.

5.3 Implementation details

5.3.1 Implementation step and timing

2004: feasibility study (6 months)

2005: renovation works in the terminals

2006: invitation to tender for railway operators

July 2007: signature of agreement with SNCF subsidiary VFLI

Nov. 28, 2007: first train arrived in Paris Bercy station

From Sundays to Thursdays, a 17 wagon train carries 750 pallets everyday. Pallets are then stored from 21:30 to 4:30. The rail-road intermodal depot is used only for transshipment, with no other logistics activities. Starting at 6:00 in the morning, 26 CNG trucks deliver 90 supermarkets in Paris and its close suburbs.

5.3.2 Resources/infrastructures

Additional network connections by rail between terminals and the railway network.

3,700 m² are necessary in the Paris Bercy terminal. The Paris City Council invested €10 million to renovate the Bercy terminal.

5.3.3 Primary Target Group

Large urban retailers.

See above stakeholders' description: Samada (logistician), VFLI (railway operator), Monoprix (large retail distribution group).

Goods target: dry, general products and non alcoholic beverages

5.3.4 Monitoring procedures

Several assessment studies were made by a consultant specialised in urban logistics looking at the three components of sustainable development: economic, social, environmental.

5.4 Supporting Mechanism

5.4.1 Awareness/information campaigns

A large information campaign was made by all the involved players: articles, news, TV coverage, website, conferences.

5.4.2 Incentive Programmes/Financial Instruments

Financing feasibility study (6 months): Paris City Council, Region Ile-de-France and RFF.

Samada, the logistics provider of Monoprix (subsidiary), Monoprix group and Elcimai (consultant in urban logistics) carry out the project (logistic organisation and works).

26 CNG trucks for the final deliveries financed by Monoprix with the financial help of the French agency for the environment (ADEME).

5 Urban rail logistics: Monoprix, Paris (France)

5.4.3 Partnerships/Key supporting stakeholders

Ministry of the environment, ADEME, cities and all business stakeholders

5.4.4 Other

Monoprix has also launched an ambitious transfer of its container traffic from road to waterways (from le Havre to Genevilliers, in the West of the region).

Other experiments of freight modal transfer (from road to waterways and road to rail) in Paris are planned for other large companies, but with difficulties.

5.5 Results

5.5.1 Expected vs. Actual benefits

Assessment studies show that the energy savings and emission reductions are less important than expected but remain significant:

- 25% less carbon dioxide compared to the previous situation
- 7% less CO
- 50% less NOx
- 16% less particulate matters

12,000 trucks/rush hour/year in Paris have been avoided.

If we take into account the part of river transport for Monoprix containers (upstream of Paris), 110 tonnes of CO2 saved can be added as well as 33% of CO2 saving thanks to CNG trucks.

5.5.2 Quantitative results achieved

Overall additional costs are about +35% per pallet.

5.5.3 Qualitative results

Important noise issues have arisen with some residents near the Paris terminal, due to the work with unloading the train at night time and the use of metallic transshipment equipment. They are not yet settled.

5.6 Key Considerations

5.6.1 Lessons learned

Important gains in CO2 and local pollutants' emissions, but important increases in transport costs. However, Monoprix representatives see this experiment as an "investment for the future" rather than an addition in operational costs, because of major gains in their green corporate image.

Monoprix has been the first company to use a large rail terminal in the Paris city centre for many years. The implication of public authorities is necessary for this type of experiment.

5.6.2 Primary Obstacles

The additional operating and investment costs for the private sector are by far not covered by subsidies from the public sector.

5 Urban rail logistics: Monoprix, Paris (France)

The availability of affordable land in urban area for a rail terminal..

5.6.3 Critical Success factors

Many products are excluded from the experiment, which is specialised on heavy and none perishable goods. The extension to fresh products requires refrigerated wagons and a higher speed of the whole intermodal chain..

5.6.4 Transferability considerations

Monoprix hopes to extend this experiment to its suburban stores. It can increase its activity in the Bercy terminal (it occupies only 3 700 m² over 10 000 m² available). The City of Paris has others projects in rail urban logistics terminals. Other large cities are interested in this type of project

5.6.5 Up-scaling considerations

Since 2006, Monoprix favours the river for the products coming from non European countries (80% of goods coming from Le Havre go up the Seine, to the warehouses of Seine et Marne). That reduces the cost of transport of 4% compared to road transport.

Some studies are underway to transfer goods transport from road to the subway in Paris..

5.6.6 Contacts

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6 Freight Information Portal, London (UK)

6.1 General information

6.1.1 Description

<https://www.tfl.gov.uk/microsites/freight/>

The page "London Freight Matters" offers London a single interface for exchanging freight information between London's public authorities and freight operators. The portal aims at reducing freight operators' administrative costs and improving access to freight journey planning in London, supporting improved operational efficiency, encouraging better driver behaviour and the use of alternative fuels and low-carbon vehicles.

6.1.2 Type of measure/field of application

Administrative	
Urban planning	
Governance	X
Awareness	
Infrastructure	
ITS & Technical	
Modelling	
Supply Chain	
Information	

6.1.3 Framework and background

The main objectives of the freight information portal were to:

- Gain a clear understanding of user goals, needs and priorities
- Assess customer perceptions of and aspirations for the portal
- Identify any gaps in online services relevant to core users

Gather results to inform project planning

6.2 Policy design details

6.2.1 Primary Policy Objectives

Provide Incentives	X
Regulation/Enforcement Component	

6 Freight Information Portal, London (UK)

6.2.2 Policy design steps and timing

Freight policy was a sub-heading of the business oriented part of the homepage of Transport for London (TfL), with low visibility. The new homepage was launched in Summer 2009.

The impacts of the new homepage are: increasing number of visitors and better visibility for the businesses and the freight operators delivering to London

6.2.3 Actors involved and participation

Transport for London, initiator Webcredible, project webmaster

6.2.4 Decision making process

Internal decision at TfL

6.2.5 Site characteristics

Too many different internet pages were hosting different policies and information that are relevant for freight transport operations in London, and that were presented by many institutions. Now the new portal is concentrating most of the freight relevant information into a central site for London

6.3 Implementation details

6.3.1 Implementation step and timing

The project began with a user research and requirements gathering phase which aimed at providing TfL with detailed insights into users' expectations and requirements.

This consisted of nine stakeholder interviews with Freight TfL staff and 10 diary studies and interviews with transport managers across a variety of businesses.

The website integrates:

- An easily accessible library of existing content and services offered by TfL
- London freight map
- Live traffic and road information
- Route planner

Following this, and working collaboratively with TfL, the information architecture was created for the site, designing wireframes for key pages within the portal. The web designer conducted usability testing on these to establish how easy it was for users to perform key tasks. We then made amendments to the wireframes, as well as providing recommendations for additional site improvements based on the results of the testing.

These included:

- Clarifying the site proposition
- Making it clear which incident updates are from TfL and which are from drivers
- Renaming some of the site sections

Finally, based on both user requirements and business goals we created a full roadmap for the freight information portal. This document provided TfL with full guidance on how the portal could and should develop over time.

Following the research and development process, the brand new London Freight website was launched, offering an easy-to-use resource for freight information, fully based on user requirements. The site has

6 Freight Information Portal, London (UK)

allowed TfL to:

- Enable users to share best practice
- Reduce administrative burdens
- Improve efficiency

Offer coordinated services to the freight industry

6.3.2 Resources/infrastructures

Website include:

- Traffic News Interactive map
- Route planner

Payment congestion charge on-line

6.3.3 Primary Target Group

Freight and road users

6.4 Supporting Mechanism

6.4.1 Awareness/information campaigns

Freight Information Portal is a single London point of contact for the freight industry:

- FORS membership and news (see Best Practice 7)
- Freight information
- London freight news and events
- Parking dispensations and permits
- Freight best practice examples
- Links to Freight Quality Partnership web pages, freight associations, boroughs, DfT, and other useful relevant websites.

In addition to the role that the Freight Information Portal play, to help communicate the individual roles and responsibilities to different groups involved in the freight agenda four supporting documents are being produced, each with a different target audience:

- London Rail Freight Strategy
- Operators' Guide
- Borough Freight Toolkit
- London Freight Data Report

6.4.2 Partnerships/Key supporting stakeholders

Transport for London

6 Freight Information Portal, London (UK)

6.4.3 Other Policies

London Freight Plan Projects to deliver freight in London in a more sustainable way:

1. Freight Operators Recognition Scheme
2. Delivery and Servicing Plans
3. Construction Logistics Plans

The London Freight Plan supports the Mayor's Climate Change Plan (2007) and informs future changes to the Mayor's London Plan, transport, environmental and related strategies.

6.4.4 Contacts

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7 Freight Operators Recognition Scheme (FORS), London (UK)

7.1 General information

7.1.1 Description

FORS is one of the main ongoing projects of the London Freight Plan in London. It consists in certifying (in bronze, silver or gold) freight companies that are participating in the scheme. Gold can only be attained after a period of benchmarking and active improvement of performance and emission level. Major companies, representing more than 30% of the fleet of freight vehicles in London, have joined in in Spring 2009.

7.1.2 Type of measure/field of application

Administrative	X
Urban planning	
Governance	X
Awareness	X
Infrastructure	
ITS & Technical	
Modelling	
Supply Chain	
Information	

7.2 Policy design details

7.2.1 Primary Policy Objectives

Provide Incentives	X
Regulation/Enforcement Component	

7.2.2 Policy design steps and timing

In July 2001 the Mayor of London issued the Transport Strategy, the Mayor's spatial development strategy. These led to the setting up of the London Sustainable Distribution Partnership (LSDP), and Transport for London's (TfL's) Freight Unit which was given a specific remit to developing the London Freight Plan. This was followed in February 2004 by The London Freight Plan that includes FORS as one of the main projects.

7.2.3 Actors involved and participation

TfL worked with a range of key industry partners to develop FORS, so every type of operator can benefit from the scheme. The FORS partners include:

7 Freight Operators Recognition Scheme (FORS), London (UK)

- [Department for Environment, Food and Rural Affairs](#)
- [Freight Transport Association](#)
- [Health and Safety Executive](#)
- [Metropolitan Police Service Commercial Vehicle Education Unit](#)
- [Road Haulage Association](#)
- [Skills for Logistics](#)
- [Chartered Institute of Logistics and Transport \(UK\)](#)

More than 40 operators, representing a cross-section of the industry, were involved in the “pioneer” phase to test and refine the scheme. These members helped establish the benefits for members.

7.2.4 Decision making process

Three years of consultation for the preparation of the London Freight Plan

7.2.5 Site characteristics

FORS is an instrument designed to reinforce the public private partnership on freight transport in London

7.2.6 Leverage Points

During the preparation of the London Freight Plan, many political decisions have been taken

7.3 Implementation details

7.3.1 Implementation step and timing

Becoming a bronze member

After applying online and completing assessment, a member of Metropolitan Police Service Commercial Vehicle Education Unit, the FORS assessors, visit applicant premises to complete formal company assessment.

If the applicant demonstrates his eligibility, he will be awarded membership and can then start taking advantage of the member benefits.

If he doesn't meet the criteria, the assessor will provide an action plan, to help him improve and reach the required standards.

To meet the bronze FORS standards the applicant must have in place effective risk management policies covering drivers, vehicles and operations and effective policies covering the reduction in fines and charges.

Becoming a silver member

Silver membership is attained by meeting or exceeding the silver membership benchmark thresholds for the core KPIs (vehicle incidents and collisions, fuel usage, CO₂, Penalty Charge Notices and infringements).

To achieve this the applicant will need to:

- Set targets to exceed the benchmark threshold of performance for your sector for each of the KPIs
- Develop and implement an action plan to achieve those targets
- Attain a level of performance above the average benchmarked level of performance for your

7 Freight Operators Recognition Scheme (FORS), London (UK)

sector for each of the core KPIs.

Becoming a gold member

The process for progression from silver to gold membership involves continued provision of FORS benchmark data and the adoption of new benchmarks available from the DfT on-line benchmarking initiative. Gold membership is achieved by meeting or exceeding the gold membership thresholds for the FORS benchmark measures

7.3.2 Resources/infrastructures

- FORS assessors to visit applicant premises
- Website for on-line application (FORS benchmarking)
- Profilage driver

Transport for London (TfL) produces a wide range of printed and electronic material, all of which are endorsed by its public transport networks (modes) or other operating units. This design standard has been created to show the rules that must be followed when producing material relating to TfL's Freight Operator Recognition Scheme.

7.3.3 Primary Target Group

Every type of freight operator

7.3.4 Enforcement scheme

None

7.3.5 Monitoring procedures

The process includes a permanent monitoring of company performances on fuel use, performances and incidents.

FORS assessors, visit applicant premises to complete formal company assessment

7.4 Supporting Mechanism

7.4.1 Awareness/information campaigns

Website: <http://www.tfl.gov.uk/microsites/fors/>

Online system

7.4.2 Incentive Programmes/Financial Instruments

FORS helps companies improve the safety of their business, reduce their impact on the environment and increase efficiency

7.4.3 Partnerships/Key supporting stakeholders

See actors involved and participation

7 Freight Operators Recognition Scheme (FORS), London (UK)

7.4.4 Other Policies

London Freight Plan Projects to deliver freight in London more sustainability:

- Delivery and Servicing Plans
- Construction Logistics Plans
- Freight Information Portal

The London Freight Plan supports the Mayor's Climate Change Plan (2007) and informs future changes to the Mayor's London Plan, transport, environmental and related strategies.

7.5 Results

7.5.1 Expected vs. Actual benefits

Reduction in emissions and improvement in freight transport efficiency.

Benefits for businesses in cost reduction, driver training, use of the FORS logo, improved practices and efficiency through workshops and training.

FORS is at a too early stage to be evaluated ex-post.

7.5.2 Quantitative results achieved

FORS represents 136 members, covering 479 depots, and accounting for more than 17,000 vehicles across London in 2010. Annual membership growth of 20% is expected for future years

7.6 Key Considerations

7.6.1 Primary Obstacles

IT system on benchmarking is not very efficient, taking some time to regularly fill in the operator's data.

7.6.2 Critical Success factors

Convince the industry partners to participate in the scheme.

Offer of market incentives.

7.6.3 Contacts

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8 London Construction Consolidation Centre (LCCC), London (UK)

8.1 General information

8.1.1 Description

The London Construction Consolidation Centre (LCCC) was acting as a distribution centre and delivery service area for construction materials to four major building projects in Central London.

The 4 sites using the LCCC were:

- Unilever House 250,000 sq ft
- Coleman Street, 10 storeys and 180,000 sq ft
- Basinghall Street, 200,000 sq ft
- Bow Bells House, 140,000 sq ft of offices and 14,500 sq ft of retail space

8.1.2 Type of measure/field of application

Administrative	X
Urban planning	
Governance	
Awareness	
Infrastructure	X
ITS & Technical	
Modelling	
Supply Chain	X
Information	

8.1.3 Framework and background

The LCCC's mission statement is "to deliver in the safest and most efficient manner possible the right materials to the right site at the required contractors and project managers".

Because of the cost and environmental impact of deliveries, the consolidation centre aims to reduce the number of vehicles travelling into urban areas.

The objective of the consolidation centre is to offer an effective supply chain management solution to facilitate the safe and efficient flow of goods from the supplier through to the end user.

8.2 Policy design details

8.2.1 Primary Policy Objectives

Provide Incentives	
Regulation/Enforcement Component	X

8 London Construction Consolidation Centre (LCCC), London (UK)

8.2.2 Policy design steps and timing

In July 2001 the Mayor of London issued the Transport Strategy which was followed up in February 2004 by The London Freight Plan, the Mayor's spatial development strategy. These led to the setting up of the London Sustainable Distribution Partnership (LSDP), and Transport for London's (TfL's) Freight Unit which was given a specific remit to developing the London Freight Plan (LFP). The LCCC is a part of the Delivery and Servicing Plans (DSPs) which is one of four key projects of London Freight Plan of June 2008.

8.2.3 Actors involved and participation

The London Construction Consolidation Centre Partnership comprises:

- Wilson James, one of the leading providers of construction and aviation logistics and consultancy services in the UK.
- Stanhope plc, who develops commercial properties in the UK
- Bovis Lend Lease, is one of the world's leading project management and construction companies
- Transport for London, TfL created a dedicated team involved in the management of the consolidation centre.

Partner Role

Transport for London: data collection, promotion of consolidation centres

Wilson James Ltd: physical management and operation of consolidation centre, construction logistics expertise, ownership of trucks, provision of staff to run the operation

Stanhope Plc: site development

Bovis Major contractor: Project management of all other contractors, constructing Excellence, acted on behalf of TfL to manage the project.

8.2.4 Site characteristics

The LCCC operated from a 5 000 m² facility that had the capacity to process in excess of 200,000 pallets of construction project materials per annum, based on a dwell time of seven days. The capacity was based on a calculation supplied by the Department for Trade and Industry (DTI).

The Centre was located in South Bermondsey, outside of the Congestion Charging zone, three miles from the City of London and just four miles from the West End.

The Centre was used to service four main key central London developments; Unilever House, Bow Bells House, 1 Coleman Street and 35 Basinghall Street, all of which have considerable delivery constraints as a result of their central location, and planning restrictions. Such constraints included narrow one way streets and limited operating hours for certain types of work such as deliveries due to the proximity of other businesses

8.2.5 Leverage Points

- To establish it as a pilot project
- To clarify roles of different actor
- To secure the funding

8 London Construction Consolidation Centre (LCCC), London (UK)

8.3 Implementation details

8.3.1 Implementation step and timing

Opening of a two year demonstration project from October 2005 to October 2007. It closed down in 2007 and a new facility was opened in 2008, but without the involvement of TfL.

8.3.2 Resources/infrastructures

The LCCC was located in Bermondsey, south of the River Thames. The fully enclosed warehouse, encompassing 5,000 square meters of space, was previously a distribution site for newsagents.

The purpose of the LCCC was to facilitate the efficient flow of materials from suppliers to sites with a maximum storage time of 10 days.

The LCCC operated between 7:30 and 17:30 Monday to Thursday and 7:30 to 16:00 on Friday with 24 hour operation available if required.

There were cross-docking facilities and plans were implemented to create a one-way flow system, with inbound entering at one end and outbound goods exiting at the other end of the site.

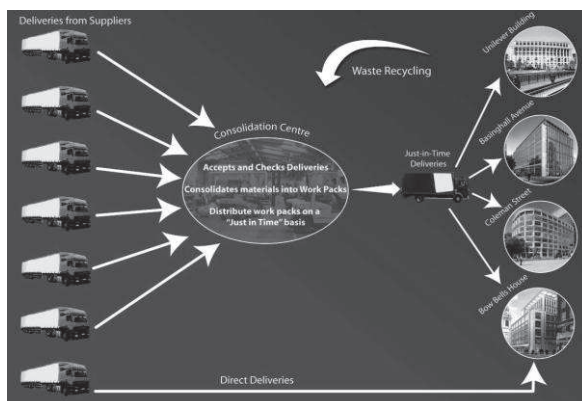
Due to the nature of the goods being carried a variety of vehicle types were needed. Some goods needed to be kept dry, such as electronic equipment and insulation materials, so special vehicles were required. Other materials were of a bulky or awkward shape, requiring a flatbed vehicle which can be sheeted if necessary.

The LCCC vehicle fleet comprised:

- 1 x 26 tonne flatbed rigid (Euro 3)
- 1 x 26 tonne flatbed rigid with crane (Euro 3)
- 1 x 18 tonne flatbed rigid with hoist (Euro 3)
- 1 x 7.5 tonne curtain-sided rigid (Euro 3)
- 1 x 3.5 tonne van (LPG fueled)

The majority of the fleet had GPS tracking and telematics systems installed. Alongside the mobile phone system sending downloads to the centre several times a day this ensures the LCCC can effectively manage the fleet.

8 London Construction Consolidation Centre (LCCC), London (UK)



8.3.3 Human Resources

LCCC employed 16 staff.

Position Role

1 site/project manager: general running of the project, liaising with trade contractors

1 depot manager: time was split between the office and warehouse

1 depot supervisor: supervision of warehouse staff

2 supply controllers: dealt with the suppliers and the construction sites and organised both inbound and outbound transport

1 admin clerk: general administration for the operation

4 full time HGV drivers: driving to and from construction sites plus helping to load vehicles

4 fork-lift truck drivers: loading and unloading of vehicles, put-away of products

2 warehouse operatives: general warehouse duties.

Warehouse operatives were also involved in driving vehicles to undertake deliveries when there was pressure to increase deliveries.

8.3.4 Primary Target Group

Suppliers of construction materials to major building sites in central London.

8.3.5 Enforcement scheme

The purpose of the consolidation centre was to create an efficient method of delivering goods to busy building sites in congested areas of central London. It was vital to improve the cooperation between the suppliers, trade contractors and the consolidation centre staff. Consequently, strict procedures were followed to facilitate the efficient delivery of construction materials.

There was a designated area where vehicles that arrive early may wait and, should the delivery not arrive, the LCCC informed the trade contractor who then had to arrange a new delivery time for their goods.

8 London Construction Consolidation Centre (LCCC), London (UK)

8.3.6 Monitoring procedures

In order to justify the concept of the LCCC, targets and key performance indicators (KPIs) have been agreed between Transport for London and Wilson James. The KPIs have been based on the performance that was achieved at the Heathrow Construction Consolidation Centre. The following targets have been set:

Key performance indicator	Target	Achieved
Reduction in freight journey	40%	60-70% of journeys via LCCC 40% of journeys to construction site
Reduction in journey time of supplier deliveries to contractors	30-60 minutes	120 minutes
Delivery reliability	97%	97%

8.4 Supporting Mechanism

8.4.1 Awareness/information campaigns

Broadly presented at conferences and events.

8.4.2 Incentive Programmes/Financial Instruments

The aim was to demonstrate the benefits from the use of the CCC, both for construction logistics and the reduction of vehicle-km in central London

8.4.3 Partnerships/Key supporting stakeholders

The £3.2 million (£1.85 million by Transport for London, £1.35 million by Stanhope and Bovis Lend Lease) was funded by a partnership in the construction industry.

8.4.4 Other Policies

London Freight Plan Projects to deliver freight in London in a more sustainable way:

1. Freight Operators Recognition Scheme
2. Construction and Logistics Plans

The London Freight Plan supports the Mayor's Climate Change Plan (2007) and informs future changes to the Mayor's London Plan, transport, environmental and related strategies.

8.5 Results

8.5.1 Quantitative results achieved

The following environmental and economic benefits have been achieved by the LCCC:

Reduced CO₂ - an estimated reduction of 70-80% CO₂ emissions compared with the case in which all deliveries would have been made direct to the construction sites.

Congestion - a 70% decrease in the number of delivery vehicles travelling to the construction sites including the removal of deliveries by articulated lorries.

8 London Construction Consolidation Centre (LCCC), London (UK)

Improved service levels - fewer failed and late deliveries as the LCCC manages the final delivery stage
Greater delivery flexibility - companies ordered smaller quantities for each site while suppliers have sent full loads to the LCCC.

Fewer unnecessarily early deliveries – without a consolidation centre, deliveries from further afield would generally arrive early to avoid late delivery penalties. This leads to certain logistical problems including:

- Trucks waiting to be unloaded at site, causing local congestion issues
- Deliveries being tipped and product sitting around on site before required
- Deliveries being turned away altogether

8.5.2 Qualitative results

If manufacturers, suppliers, retailers, builders, actively work in partnership with a consolidation centre then each relevant party can reap the benefits of enhanced efficiency and reliability.

As well as delivering to the construction sites, the vehicles were bringing recyclable packaging and unused materials back to the LCCC. This was either recycled or returned

8.6 Key Considerations

8.6.1 Lessons learned

Strict procedures must be followed to facilitate the efficient delivery of construction materials.

8.6.2 Critical Success factors

Putting in place appropriate management techniques.

8.6.3 Transferability considerations

LCCC can possibly be evaluated as only a one off measure in London. The evaluation of the CCC is ongoing.

8.6.4 Up-scaling considerations

The project demonstrated the operational feasibility of construction centre logistics. Many benefits were noted. However, there is a need for appropriate organization, set-up, commitment by the various parties involved in the construction sector and the suppliers to the industry.

Other consolidation centres in London:

- Heathrow retail consolidation centre (project well established in November 2009)
- Regent Street retail consolidation centre (project in early phase in November 2009)

8.6.5 Contacts

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9 London lorry control scheme, London (UK)

9.1 General information

9.1.1 Description

Often referred to as the London Lorry Ban. Restrictions have been in place since 1978 on the use of heavy goods vehicles to help minimise noise pollution in residential areas during unsocial hours through restricted use of these roads. The Lorry Control Scheme takes the form of controls on the movement of any heavy goods vehicles over 18 tonnes maximum gross weight at night and weekends within the red boundary on the site map.

Terminology: the permitted road network (highlighted roads) is often referred to as the "Excluded Roads" or "Excluded Route Network" (ERN).

The Scheme is administered by London Councils and failure to have a permit or breaching the permit conditions (for example, using the wrong route) are contraventions for which you could receive a penalty charge notice (PCN), and using an unapproved route within the area during the period of restriction (see above) is also a contravention.

Permit required?

If you need to drive any vehicle over 18 tonnes within the restricted area (excluding the bold highlighted roads) within the time restrictions below you need to apply for a permit for the vehicle. Permits need to be displayed on the windscreen of each vehicle. Permits are free and applications should be downloaded from www.londonlorrycontrol.com or requested by writing to: London Lorry Control Scheme Permits, PO Box 64528, London, SE1P 5LU.

Times of restriction and charge

Monday - Friday: 21:00 – 7:00 (including 21:00 Friday night to 7:00 Saturday morning).

Saturday: 13:00 – 7:00 Monday morning.

9.1.2 Type of measure/field of application

Administrative	X
Urban planning	
Governance	
Awareness	
Infrastructure	
ITS & Technical	
Modelling	
Supply Chain	
Information	X

9.1.3 Framework and background

The Greater London Restriction of Goods Vehicles Traffic Order applies in all 32 London boroughs and the City of London, and includes many TfL roads. It allows for the control of heavy goods vehicle movement at night and at week-ends: 21:00 to 7:00 every night, Monday evening to Saturday morning. Then from 13:00 Saturday, through the whole of Sunday, to 7:00 again on Monday. These are the prescribed hours. Currently, 30 of the boroughs allow London Councils to enforce it on their roads.

The Traffic Order is designed to ensure that goods vehicles above 18 tonnes cannot use the restricted roads controlled by the Order, during the prescribed hours, without a permit. However, it specifies a network of,

9 London lorry control scheme, London (UK)

usually, main roads and access roads to industrial estates that are excluded from the Order. This is commonly referred to as the Excluded Route Network (ERN). During the prescribed hours, to be compliant, goods vehicles with a permit must make maximum use of the ERN for their journey and only the shortest possible use of non-ERN roads. Those hauliers without a permit cannot use non-ERN roads at all.

Decriminalised enforcement started in April 2004. From that point on the haulier and the driver no longer faced criminal prosecution, as under a decriminalised regime they now receive Penalty Charge Notices (PCN).

The penalty charge is currently £550 for hauliers and £120 for drivers. These charges are reduced by 50% if paid within 14 days.

As with a parking penalty charge the recipient can make a representation and thereby challenge it. Should the initial representation be rejected they can then appeal their case to the adjudicators at the Parking and Traffic Appeals Service (PATAS).

The permit system did not change with the introduction of decriminalised enforcement. Hauliers whose vehicles are over 18 tonnes and want to travel off the ERN must have a permit. They can apply to London Councils for a permit but will only receive one if it is actually needed: vehicles that can make the complete London element of the journey on the ERN, or are less than 18 tonnes, are advised that a permit is not required.

The Lorry Control Scheme is often, mistakenly, referred to as the lorry ban. It is no such thing as any vehicle can make a journey that is compliant with the Traffic Order and the scheme serves to manage the environmental impact of those journeys. Hauliers may feel they encounter a ban because of the loading and unloading restrictions imposed by a local council at the journey destination as a condition of planning permission. These can be quite stringent at night and in the early morning. London Councils has no influence over how and where these, often location specific, regulations are implemented.

9.2 Policy design details

Provide Incentives	
Regulation/Enforcement Component	X

9.2.1 Primary Policy Objectives

9.2.2 Policy design steps and timing

The LLCS was established through the Greater London (Restriction of Goods Vehicles) Traffic Order 1985, an environmental control measure to stop unnecessary lorry movements disturbing the peace of Londoners at night and weekends.

It is enforced by the ALG (Association of London Governments) on behalf of 32 London boroughs

9.2.3 Actors involved and participation

The Greater London Authority established the lorry control scheme.

The ALG maintains the scheme, issuing permits to those lorry operators with essential business in London (around 56,000 permits per year) and provides assistance to lorry operators with information on routing.

The permits are issued by London Councils subject to various conditions, most notably that the haulier must minimise the use of restricted roads as much as possible by travelling along the ERN to the closest point to that destination, then using the shortest route along the restricted roads

9 London lorry control scheme, London (UK)

9.2.4 Decision making process

ALG TEC is the main actor for design and implementation of the London Lorry Control Scheme. ALG TEC: Association of London Government Transport and Environment Committee.

9.3 Implementation details

9.3.1 Implementation step and timing

Top 5 breaches

1. Using restricted roads when a journey could/should have been taken entirely by the use of excluded route network. This is regarded as a serious breach, because in these cases "minimal use" of restricted roads means zero. For example, going to the Sainsbury's depot in Lombard Wall, Charlton SE7. This destination must be reached entirely by the use of Excluded Roads, which is approaching off the A102 near the Blackwall Tunnel, via either Dreadnought Street, or Peartree Way, both of which are Excluded, onto the Excluded Bugsby Way. Lombard Wall is off Bugsby Way. This is the fully compliant route, but drivers fall foul by coming off the A102 onto the restricted section of the A206 Woolwich Road. This small section of road is residential, highly complaint sensitive and can easily be avoided, so we will issue a Penalty Charge Notice (PCN) for this, even if the vehicle has a permit.
2. Shortcutting. This is coming off the ERN too soon. An example of this is a vehicle travelling west on the A406, destination Park Royal. This destination must be approached either from Abbey Road, or northbound from the A40. But, instead of staying on the A406 to these exits, drivers tend to turn off too soon and head south from the A406, via Brentfield Road.
3. Traversing. This is joining up Excluded Roads, by the use of restricted roads. An example of this is a vehicle on the M11, destination Brewery Road N7. Instead of travelling round the A406, then south on the A1 to A501 and north up the A5200 York Way, drivers turn off at Pickett Lock, come south on A1055 to A10 at Tottenham Hale. Then turn west onto the A503 Seven Sisters Road and travel all the way to the A1. All that distance travelled on the A503 to "join up" the A10 and A1 is additional restricted road usage, not minimal use and therefore not in compliance.
4. Unnecessary journey. This is using the restricted roads during the prescribed hours when the delivery is say, 9.00. Even in London's traffic it does not take 2.00 to reach any delivery/pick up point from the ERN, so a driver does not need to be travelling on restricted roads during the prescribed hours for a delivery/pick up scheduled so long after the controlled hours end. This aspect of the rules is primarily aimed at those drivers and operators who come in early to beat congestion. Permits are not issued to allow drivers to come in early, park up somewhere near the intended destination, then carry on after the controlled hours have ended. This is regarded as abuse of permit issue and we will issue a PCN for this, in the same way as if the vehicle is caught off route.
5. When a vehicle has no destination in London and the M25 should be used. Recent examples include a vehicle travelling from Nottingham to Dover, caught driving south on the A5 Kilburn High Road. The most commonly occurring journeys include the Woolwich Ferry, particularly at weekends. The access roads to the ferry are restricted on both sides of the river. But drivers travelling from, say, Essex to destinations in Kent, or vice versa, instead of using the M25 (particularly if they have to pay the toll at the Dartford Crossing) take the opportunity of a free trip across the river, via the ferry. This is a clear-cut breach because the vehicle had no business in London at all.

9 London lorry control scheme, London (UK)

Since 2011, a route planning and submission service are proposed. From as little as £1 per vehicle per month, fleet operators can :

- Automatically generate a compliant route by searching by postcode
- Get a route which is specifically suited to the size of their vehicle, avoiding various width, weight and height restrictions
- Generate a route card for drivers
- Submit the route to London Councils and receive instant automatic approval online
- Store all submitted and approved routes online to re-visit at any time
- Enjoy an unlimited number of compliant route submissions

Register for the approved routing service online in seconds.

9.3.2 Human resources

A team of enforcement officers operate through the ALG to ensure compliance and currently prosecutes about 2,000 offences under the ban each year.

There is also a complaints "hotline" which any member of the public can ring to report any night time and weekend lorry disturbance.

Enforcement Officers

Enforcement is carried out by a team of five enforcement officers who monitor vehicles from the roadside. They use their cars to patrol London and target specific locations that are either complaint sensitive or where experience has shown they will observe high numbers of heavy goods vehicles. They are often observed at convergence locations.

Convergence locations are sites where a number of routes come together, often having passed through different boroughs. At these sites officers see a greater number of lorries, therefore enforcement is more efficient.

In practical terms once a series of Lorries are caught the drivers may decide to change their routes. The flexibility of mobile enforcement means they can be pursued to the new locations, particularly as their alternative routes tend to be limited by the size of their vehicles and their intended destinations.

9.3.3 Primary Target Group

The Traffic Order is designed to ensure that goods vehicles above 18 tonnes cannot use the restricted roads controlled by the Order, during the prescribed hours, without a permit.

9.3.4 Enforcement scheme

The restrictions are in force:

- Between midnight and 7:00 and between 21:00 and midnight on Monday to Friday inclusive;
- Between midnight and 7:00 and between 13:00 and midnight on Saturday; and
- At any time on Sunday.

The enforcement officers use their cars to patrol London and target specific locations that are either complaint sensitive or where experience has shown they will observe high numbers of heavy goods vehicles. Enforcement is at the borough level. Note that the disparities within London and the high number of rules concerning access, parking and loading are very complicated.

9 London lorry control scheme, London (UK)

9.3.5 Monitoring procedures

A report was presented to the Committee in June 2009 setting out proposed amendments to the Scheme and it was agreed that these amendments should be taken to consultation.

The amendments proposed for the consultation were:

1. Updates to the Excluded Route Network.
2. Removal of the requirement for vehicles to display permits.

The inclusion of a provision for vehicles to have deemed permits based on the company that operates them meeting certain criteria. The specific criteria have not been established and the consultation asked whether the proposal was supported in principle.

9.4 Supporting Mechanism

9.4.1 Awareness/information campaigns

Operators are allowed to use a specific route network and this is publicised by the ALG in the form of the exempt route network.

Main homepage with maps and permit subscription is available at <http://www.londonlorrycontrol.com/>

9.4.2 Partnerships/Key supporting stakeholders

London Councils (includes ALG TEC)

Greater London Authority

London boroughs

PIE enterprise Ltd publishes the homepage and the maps

9.4.3 Other policies

Some other parking and loading policies examples in London:

Red route clearway. Part of the Red Route network is made up of Clearways. On these roads there are signs but no red lines except at some roundabouts and junctions. Stopping is only permitted in marked lay-bys. Red boxes marked on the road indicate that parking or loading is permitted during the off peak times, normally between 10:00 and 16:00. There are several different types of box. Some allow loading and unloading. Others allow short term free parking. The rules in each case are clearly shown on a sign beside the box. Some red routes bays provide dedicated bays for bikes. These often replace existing ones and normally have overnight restrictions. All other Red Route bays have been marked except for 2 minute permitted bays. These bays, typically have time restrictions of 20 mins to 1 hour between 10:00 and 16:00.

Yellow lines. Single yellow pip: this means that loading is restricted at certain times, as shown on a white plate. Even disabled Blue Badge holders with badges and time clocks are not allowed to park where there are loading restrictions in force.

Double yellow pips: This means there is no loading at any time

Single yellow line: A single yellow line on the road means that, at some time of the day, there will be parking restrictions.

Double yellow lines: This means that parking is restricted 24 hours a day, 7 days a week (in other words at any time).

9 London lorry control scheme, London (UK)

9.5 Results

9.5.1 Expected vs. Actual benefits

The benefits of the Lorry Control Scheme on traffic and emissions have not been separately evaluated, and should be relatively small. The biggest effects are for the local residents at night. The overall influence on traffic is to be seen together with other policies such as congestion charging or the low emission zone.

9.5.2 Quantitative results achieved

LLCS is a general traffic rule that impacts all freight vehicles over 18 tonnes in London at certain times. About 500 operators get LLCS related penalties each year.

9.5.3 Qualitative results

In practical terms, drivers may decide to change their routes because of penalties. The flexibility of mobile enforcement means they can be pursued to the new locations, particularly as their alternative routes tend to be limited by the size of their vehicles and their intended destinations

9.6 Key Considerations

9.6.1 Lessons learned

LLCS is one of the oldest but most efficient policy instruments used in London for heavy trucks traffic regulation.

9.6.2 Primary Obstacles

Mostly accepted rules. It might be necessary to rethink the whole access regulation and rules for London, and make it simpler.

9.6.3 Critical Success factors

9.6.4 Enforcement and evaluation are not seen as a priority, so little is known except a low popularity among truck companies and main receivers.

9.6.5 Transferability considerations

Excluding heavy trucks from specific residential areas is easy to implement.

9.6.6 Contacts

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10 Low Emission Zone, London (UK)

10.1 General information

10.1.1 Description

The LEZ has been implemented since February 2008 in London.

The LEZ covers most of Greater London, following the Greater London Authority boundary. All public roads, including certain motorways within the boundary are included within the LEZ.

10.1.2 Type of measure/field of application

Administrative	X
Urban planning	
Governance	
Awareness	
Infrastructure	
ITS & Technical	X
Modelling	
Supply Chain	
Information	

10.1.3 Framework and background

Moving London closer to achieving national and EU air quality objectives for 2010.

10.2 Policy design details

Provide Incentives	
Regulation/Enforcement Component	X

10.2.1 Primary Policy Objectives

10.2.2 Policy design steps and timing

Background

In 2001, a Feasibility Study was undertaken on behalf of the GLA, Transport for London (TfL), the Association of London Governments (ALG), the Department for Transport (DfT) and the Department for the Environment, Food and Rural Affairs (Defra). It concluded that a Low Emission Zone (LEZ) was the best approach to help achieving air quality objectives in London.

Development of the Mayor's Transport and Air Quality Strategy Revisions

- In June 2005, the Mayor delegated to TfL the responsibility for preparing appropriate revisions to his Transport and Air Quality Strategies.
- From October until November 2005, TfL consulted with the London Assembly and the Greater London Authority (GLA) Functional Bodies on draft Revisions to the Transport and Air Quality Strategies to allow for a LEZ in London.

10 Low Emission Zone, London (UK)

- This was followed from January until April 2006 by a public and stakeholder consultation. In total, almost 9,000 feedbacks were received. 89% from the public and 41% from businesses expressed support for the proposed LEZ.
- After considering the consultation responses and TfL's report on the consultation, the Mayor decided to publish his Transport and Air Quality Strategy Revisions on July 2006.

Public and stakeholder consultation (Nov 2006 to March 2007)

- TfL published The Greater London Low Emission Zone Charging Order 2006 on the 13th of November 2006. A public and stakeholder consultation was carried out on the detailed proposals for a London LEZ.
- TfL sent out an information pack to some 800 stakeholder organisations.
- The consultation was supported by a full media campaign, covering radio, newspapers, roadside posters and the technical and trade press.

Consultation on Scheme Order amendment

- In the course of the LEZ Scheme Order consultation, it became apparent that further clarification of the classification of vehicles which were intended to be included in the proposed scheme was needed.

On November 2007, the Mayor confirmed the Greater Low Emission Zone Charging (Variation) Order without modifications.

10.2.3 Site characteristics

The Mayor of London has a legal obligation to take steps towards meeting national and European Union air quality objectives which are designed to protect human health.

In London, road transport is the single biggest source of Particulate Matter (PM₁₀) and Nitrogen Oxides (NO_x). These are the primary causes of air quality-related health problems, including worsening symptoms of asthma.

10.2.4 Leverage Points

Definitions of the geographical extend and scale of the LEZ.

Decision about the type and the age of the vehicles to be included.

Enforcement patterns and system for the LEZ.

10.3 Implementation details

10.3.1 Implementation step and timing

From Feb. 2008: only Euro III compliant lorries over 12 tonnes Gross Vehicle Weight (GVW), and buses and coaches over 5 tonnes GVW could enter the LEZ.

From July 2008: only Euro III lorries between 3.5 and 12 tonnes, buses and coaches could enter the LEZ.




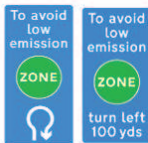
From October 2010: only Euro III larger vans and minibuses could enter the LEZ - although the Mayor has announced a review of this stage of the LEZ.

Since January 2012: only Euro IV compliant lorries over 3.5 tonnes GVW, buses and coaches over 5 tonnes GVW can enter the LEZ.

10 Low Emission Zone, London (UK)

Véhicule	Weight	Daily charge
Larger vans; 4x4 light utility vehicles; Motorised horseboxes; Pickups	1.205 tonnes unladen - 3.5 tonnes gross vehicle weight	£100
Ambulances; Motorcaravans	2.5 - 3.5 tonnes gross vehicle weight	
Minibuses (more than 8 passenger seats)	5 tonnes or less gross vehicle weight	
Lorries; Breakdown and recovery vehicles; Concrete mixers; fire engines; Gritters; Motorcaravans; Motorised horseboxes; Refuse collection vehicles; Removal lorries; Road sweepers; Snow ploughs; Tipplers	More than 3.5 tonnes gross vehicle weight	£200
Buses; Coaches (more than 8 passengers seats)	More than 5 tonnes gross vehicle weight	

10.3.2 Resources/infrastructures

LEZ road signs	
Entering LEZ	
Within the LEZ	
Approaching the LEZ Advance information	

There are no physical barriers or tollbooths. The LEZ is enforced through fixed and mobile cameras which read the vehicle registration number plate as the vehicle enters the LEZ and or circulate within it, and checks it against a data base of vehicles which meet the LEZ emissions standards.

10 Low Emission Zone, London (UK)

10.3.3 Primary Target Group

The vehicles targetted are older diesel-engined lorries, buses, coaches, light trucks above 3.5 tonnes GVW, minibuses and other heavy vehicles that are derived from lorries and vans, such as motor caravans and motorised horse boxes.

LEZ does not apply to cars and motorbikes.

10.3.4 Enforcement scheme

Enforcement is with fixed and mobile cameras which read your vehicle's number plate as you drive in the zone and check it against a database of registered vehicles that:

- Meet with the LEZ emissions standards, or
- Have paid the daily charge (see below), or
- Are either exempt or registered for a 100% discount.

Note: Operators of all vehicles that do not meet the LEZ emissions standards, or qualify for an exemption or a 100% discount must pay the daily charge or they may be liable for a penalty charge.

10.3.5 Monitoring procedures

If you drive an affected vehicle in the zone and it does not meet the required emissions standards, is not exempt or entitled to a 100% discount and you do not pay the daily charge, you may be liable for a Penalty Charge. This will be issued to the registered keeper of the vehicle.

- Lorries, buses and coaches - £1,000 Penalty Charge per day. This will be reduced to £500 if paid within 14 calendar days, but increased to £1,500 if not paid within 28 calendar days

Large vans and minibuses - £500 Penalty Charge per day. This will be reduced to £250 if paid within 14 calendar days, but increased to £750 if not paid within 28 calendar days.

10.4 Supporting Mechanism

10.4.1 Awareness/information campaigns

Large amount of public information is available at the TfL homepage, among others:

<http://www.tfl.gov.uk/roadusers/lez/default.aspx>

- Low Emission Zone information leaflet - November 2009
- Large Print Low emission Emission Zone information leaflet - July 2008
- Statement by the former Mayor, Ken Livingston, on the London Low Emission Zone - May 2007

10.4.2 Partnerships/Key supporting stakeholders

Transport for London

10.4.3 Other Policies

Other zone specific instruments exist in London and are also having an effect on emissions in the target areas, such as the Central London Congestion Charge.

The LEZ is targeting the vehicle characteristics more precisely. It applies to all roads and some motorways across most of Greater London NOT just the central Congestion Charging zone.

The LEZ operates 24 hours a day, every day of the year, contrary to the central London Congestion

10 Low Emission Zone, London (UK)

Charging scheme.

10.5 Results

10.5.1 Expected vs. Actual benefits

In 2008, 96% of trucks over 12 tonnes were compliant with the new emissions standards of the zone, compared with 70% in 2007. A similar trend in higher compliance rates was observed in the build up to the introduction of the second phase of the scheme on 7 July 2008 to include trucks over 3.5 tonnes buses and coaches. Compliance rates currently stand at 91%.

10.5.2 Quantitative results achieved

There has been yet no calculated evaluation but TfL projects to:

- Reduce total road traffic related emissions of particulate matter (PM₁₀) by up to 6.6% in 2012, with beneficial effects on other pollutants such as NO_x.
- Reduce the area of Greater London with levels of PM₁₀ that exceed the annual mean air quality objective by 5.8% in 2008 and by 14% by 2012, and for the area with excessive levels of NO₂ level to shrink by 5% in 2008 and by 20% in 2012

Over a ten year period, projections suggest that people who would otherwise die prematurely as a result of poor air quality will gain additional life expectancy totaling 5,000 years. Over the same period, lower levels of illness would mean a reduction of about 250,000 restricted activity days and more than 300,000 cases where respiratory symptoms are reduced in severity.

10.6 Key Considerations

10.6.1 Lessons learned

Long and controversial consultation process in London about air quality and environmental policy, including freight and passenger transport aspects.

10.6.2 Primary Obstacles

Enforcement costs are rather high.

10.6.3 Critical Success factors

Choosing the vehicle categories that are included or excluded.

10.6.4 Transferability considerations

Low emission zones are in discussion in several UK cities and have been implemented in other European countries (see website: www.lowemissionzones.eu)

10.6.5 Contacts

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11 Multi use lanes, Barcelona (Spain)

11.1 General information

11.1.1 Description

To reduce the effects of increasing traffic in the commercial centre of Barcelona, the municipality has implemented new street use management. Seven multifunctional lanes exist today in Barcelona with VMS (Variable Message Sign System) technology. Lanes are used from 8:00 to 10:00 for general or bus traffic, from 10:00 to 17:00 for deliveries, from 17:00 to 21:00 for general or bus traffic, and finally from 21:00 to 8:00 for residential car park.

11.1.2 Type of measure/field of application

Administrative	
Urban planning	X
Governance	
Awareness	X
Infrastructure	X
ITS & Technical	X
Modelling	
Supply Chain	
Information	X

11.1.3 Framework and background

Through a better regulation of traffic and parking on major boulevards, the objectives of this measure are to:

- Suppress illegal parking
- Suppress double parking
- Reduce travel times and the search for delivery parking space
- Optimize the use of the street space



11 Multi use lanes, Barcelona (Spain)

11.2 Policy design details

11.2.1 Primary Policy Objectives

Provide Incentives	X
Regulation/Enforcement Component	X

11.2.2 Policy design steps and timing

The 10th measure of the Mobility Pact of Barcelona is entitled: “achieve an agile, orderly distribution of goods and products throughout the city.”

This measure consists in:

- Regulating timetables and length of stay of vehicles in loading/unloading areas on street corners and certain lanes depending on road and street configuration, the commercial nature and goods distribution vehicles.
- Studying and improving the layout of loading/unloading areas in order to minimise the duration of such operations and the distance to the destination points of the goods.

Fostering surveillance and discipline in loading/unloading areas.

11.2.3 Actors involved and participation

The municipality who planned and installed the system

Transport operators

City planners

Shops/companies to be delivered

Chamber of commerce

Drivers

Public transport operators

Associations of retailers/shop keepers

11.2.4 Site characteristics

The city centre of Barcelona suffers from congestion because of the growth of automobile traffic.

11.3 Implementation details

11.3.1 Implementation step and timing

1st phase: the municipality has initiated a project analysing the effects of urban commercial transport on traffic.

The conclusions of this survey were: 25,000 vehicles make 100,000 loading/unloading operations every day.

Also 4,000 delivery spaces are required.

Further to the survey results, several measures were implemented including the multi-use lanes.

Seven multifunctional lanes exist today in Barcelona (identified on major boulevards of the Eixample)

11 Multi use lanes, Barcelona (Spain)

neighbourhood): lanes are used.

From 8:00 to 10:00 (i.e. rush hours) for general or bus traffic.

From 10:00 to 17:00 for deliveries, from 17:00 to 21:00 for general or bus traffic, and finally from 21:00 to 8:00 for residents' car parking.

11.3.2 Resources/infrastructures

The needed infrastructure constituted an additional cost of €0.5 million per boulevard (VMS technology included).

Additional costs for police enforcement must also be accounted for

11.3.3 Human resources

BSM (Barcelona de Serveis Municipals) surveillance and police forces for further enforcement. BSM is a company owned by the municipality that manages services and infrastructures related to mobility and tourism..

11.3.4 Primary Target Group

Road users

Residents

Companies to be delivered

Public transport operators

Retailers

11.3.5 Enforcement scheme

The police are responsible for enforcement.

11.4 Supporting Mechanism

11.4.1 Awareness/information campaigns

VMS display the access rights per user group in real time.

A first VMS shows if the lane is dedicated to general traffic or parking or loading activities. In case the lane is dedicated to parking or loading activities, a second VMS shows the actual allowance for a particular user group.

11.4.2 Other Policies

Interference with public transport may occur: residents have to leave the parking.

Space in the morning, they are "forced" to keep their car and they may not use public transit anymore.

11.5 Results

11.5.1 Expected vs. Actual benefits

The multi-use lanes are successful to optimise the use of the street space and improve traffic.

11 Multi use lanes, Barcelona (Spain)

11.5.2 Quantitative results achieved

The main result has been a reduction of between 12-15% in travel time and more fluid traffic. Results were especially good for public buses.

11.6 Key Considerations

11.6.1 Lessons learned

Municipality is a key stakeholder. Also, preliminary studies are critical to identify the needs and set up an inventory of the possible measures.

11.6.2 Primary Obstacles

Commercial vehicles and/or private cars may interfere with buses. Important means of enforcement are necessary, especially in early morning (8:00).

Cost is also important (from additional BSM and police staff as well as VMS).

11.6.3 Critical Success factors

The city administration is a key stakeholder with a strong interest in this measure.

Availability of infrastructure resources

A legal basis must exist or can be adopted

Enforcement is critical.

The control must be effective so that measures are respected, especially at the beginning

11.6.4 Transferability considerations

The road network has to be wide enough so that this type of lane can be introduced without preventing the remaining traffic to circulate.

Costs must be covered by the municipality.

Some cities may consider that this policy can have adverse effects on the use of public transport: residents have to leave the parking space in the morning, they are “forced” to keep their car and they may not use public transit anymore.

11.6.5 Up-scaling considerations

A more automated enforcement system is being discussed, because of the heavy financial burden of policy enforcement.

Step by step further lanes can be equipped.

11.6.6 Contacts

Isabel Moretó, Mobility Department, Municipality of Barcelona.

12 Night deliveries, Barcelona (Spain)

12.1 General information

12.1.1 Description



Objective of the night time delivery policy is to allow more silent trucks to operate in city centre area in late hours in order to avoid congestion, while respecting the noise legislation. Special trucks, special equipment and corresponding driver behaviour are the conditions required. Many experimentations with different retail companies were developed in Barcelona.

12.1.2 Type of measure/field of application

Administrative	X
Urban planning	
Governance	X
Awareness	X
Infrastructure	
ITS & Technical	X
Modelling	
Supply Chain	X
Information	X

12.1.3 Framework and background

A decibel limit has been set for night time traffic operation in Barcelona. In order to meet this requirement, the deliveries have to be performed by special trucks, using new equipment

12.2 Policy design details

12.2.1 Primary Policy Objectives

Provide Incentives	
Regulation/Enforcement Component	X

12 Night deliveries, Barcelona (Spain)

12.2.2 Policy design steps and timing

Previous experiments involving Barcelona Municipality's Mobility Services had led to a supermarket operator being allowed to use an adapted 40 tonne truck to make quiet night-time deliveries.

SILENCE - a three-year research project co-funded by the European Commission - has embedded this experimentation in a collaborative programme involving the Municipal Mobility Services, the Municipal Noise Unit and (to date) 5 of the city's 10 districts, as well as three private transport operators. Together, they have made trials comprising 14 noise measurements at 11 sites in the period March 2006 to May 2007, with consultancy support from Altran DSD, of Altran Technologies España.

12.2.3 Actors involved and participation

City of Barcelona (Municipal Mobility Services, Municipal Noise Unit)
3 private transport operators (Mercadona, Condis and Lidl)
Renault, Iveco

12.2.4 Site characteristics

Very high congestion in Barcelona in the morning peak hours towards city centre and in the evening peak hours towards the suburbs, where the logistics centres are located, leading to high emission and long driving time for city centre deliveries. Out of hours deliveries are allowing a time reduction per trip of at least 1 hour. Problem of noise reduction has to be tackled and new equipment has been provided to the companies in order to allow them to deliver at night.

12.3 Implementation details

12.3.1 Implementation step and timing

- The first night-time quiet delivery trial was made by operator Mercadona in 2003, with an adapted 40 tonnes truck (MIRACLES project),
- The Municipality introduced experimental exemption (6 months) to the traffic regulations,
- Traffic police collaborated to measure noise levels in residences close to the supermarket sites.

12.3.2 Resources/infrastructures

- electric lift
- insulating carpet
- kerb adaptations for access using fork lift
- staff trained to unload minimising verbal
- Communication
- Truck drivers use cones to signal the area they are using for unloading.

12.3.3 Human resources

One important thing is to train drivers not to speak loudly while working.

12 Night deliveries, Barcelona (Spain)

12.3.4 Primary Target Group

Food sector's interests:

- Supermarket operators have a special interest in supplying fresh foodstuffs ready for when the stores open
- They use refrigerated trucks, coming from transshipment centres, located outside the city

Within the Barcelona Mobility Pact, these operators initiated a process of night-delivery trials.

12.3.5 Monitoring procedures

The City of Barcelona performed a long serie of noise tests from 2006 to 2008

12.4 Supporting Mechanism

12.4.1 Incentive Programmes/Financial Instruments

The costs to the local authority for setting up this type of programme include the minor works for pavement modifications, ramps etc. (Mobility Services: approx. €20,000 per site), plus the costs of noise measurements (Noise Unit sub-contract: €30,000), plus a considerable amount of staff time (especially during set-up, but also for residents' consultation). Transport operators are not charged for these services, but they invest in vehicles, and decide which noise-reducing techniques to implement (insulated carpets, quiet refrigeration units and lifts, plastified roll-containers, etc.). For the 16 and 40 tonne truck trials, the financial rate of return for the operators ranges from 18 to 36 months.

12.4.2 Partnerships/Key supporting stakeholders

The first night-time quiet delivery trial was made by Mercadona in 2003, with an adapted 40 tonne truck (E.U. MIRACLES project).

The municipality introduced a temporary (6 months) exemption to the traffic regulations as an experiment. Traffic police collaborated to measure noise levels in residences close to the supermarket sites

12.4.3 Other Policies

MIRACLES project

12.5 Results

12.5.1 Quantitative results achieved

The PIEK target of 65 dB (A) could be met, but not the city's target of 60 dB (A). Vehicle technology has much improved and the equipement allows to meet the target. However, much care is still required from the driver and the personel for the unloading operations at night in on-street loading bays, in front of the shops.

The programme has generated improved knowledge. It shows that operators are only partially successful (in 45% of cases) in unloading within the ambient noise conditions It also identifies which are the most important noise sources (truck arrival in 62% of cases, goods unloading in 15% of cases).

12 Night deliveries, Barcelona (Spain)

12.6 Key Considerations

12.6.1 Lessons learned

One important lesson is that two large lorries (40 tonnes) at night replace seven medium size trucks commonly used during daytime. Out of hours deliveries avoid daytime congestion and allow a time reduction per trip of around 1 hour. Faster delivery using bigger vehicles enables the operator to generate savings sufficient to achieve a return on investment (of adapted 40 tonne trucks) within 3 years (Mercadona operator) and a return on investment for plastified roll-cages used with 16 tonne trucks (Condis operator) of 15 months.

12.6.2 Primary Obstacles

Local residents may constitute an obstacle for night time deliveries, but this is not always the case. Good communication between shop owners, the municipality and the residents is necessary when introducing night-time delivery schemes.

12.6.3 Critical Success factors

This type of initiative can be led by a municipal Transport Department which is engaged in on-going dialogue with goods operators, but the quality of the programme result is improved when the authority's specialist Noise Unit is integrated into the process.

In deciding whether or not to grant exemptions, the difficulties of achieving the necessary noise reductions need to be assessed against residents' acceptance as well as the longer-term potential that such programmes can achieve.

The focus now aims to involve truck manufacturers, since the noise levels of general vehicle movements are of as much concern as a good organisation of unloading activities.

12.6.4 Contacts

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Isabel Moretó, Mobility Department, Municipality of Barcelona.

13 Using building code regulations for off-street delivery areas, Barcelona (Spain)

13.1 General information

13.1.1 Description

For public markets, the remodelling of the Mercat de la Concepció in 1998 was the start of the initiative to provide off-street unloading space.

For private sector developments, the 1999 ordinance of the City of Barcelona (Ordenança Municipal de Previsió d'espais per a càrrega i descàrrega als edificis) organises several regulations to build off street delivery areas or storage areas within newly built business establishments and stores, in order to reduce the number of on-street loading/unloading activities. All new commercial buildings of at least 400 m² have to arrange for at least one delivery zone within their premises. New bars and restaurants have to build a storage area with a minimum size of 5 m² or 5% of their total floor area.

13.1.2 Type of measure/field of application

Administrative	X
Urban planning	X
Governance	
Awareness	
Infrastructure	X
ITS & Technical	
Modelling	
Supply Chain	
Information	

13.1.3 Framework and background

Through local surveys, the municipality of Barcelona came to realize that many public markets contributed to street traffic congestion, and that shops and businesses were minimising space for goods handling and storage, resulting in increased frequency of their deliveries, generating a high number of delivery trucks and a heavy burden on public streets. Bars and restaurants were specifically targeted as generators of very frequent deliveries (specifically for beverages).

13.2 Policy design details

13.2.1 Primary Policy Objectives

Provide Incentives	
Regulation/Enforcement Component	X

13 Using building code regulations for off-street delivery areas, Barcelona (Spain)

13.2.2 Policy design steps and timing

The measure that was taken (a municipal ordinance obliging to build off-street delivery areas and storage space) was challenged in court by business associations. The court decided in favour of the city.

13.2.3 Actors involved and participation

Remodelled markets: Institut de Mercats de Barcelona (IMB), the Municipality (Department of Urban Planning), Districts and Citizens' Associations.

Private developments: the Municipality (Department of Urban Planning), the 10 Districts, Private developers and ECAs (agencies: Entitat Colaboradora de la Administració).

13.2.4 Decision making process

Remodelled municipal markets: the design is drawn up by the Institut de Mercats de Barcelona (IMB), in collaboration with the Municipality (Department of Urban Planning), and the District affected. The design and the works implementation are realised in consultation with local Citizens' Associations.

Private developments: the developer presents proposals to the Municipality and the District affected. The District checks the compliance with the Ordinance and either approves or rejects the application. Once approved ECAs are involved in site inspections once works are finished, and then every two years. Note: there are intentions to centralise the planning approval process following the 2010 elections and change of government.

13.2.5 Leverage Points

Challenge in Court. The city had to justify its policy by presenting the environmental benefits of a reduction in truck traffic in the city.

13.3 Implementation details

13.3.1 Implementation step and timing

Markets: since the implementation of the Mercat de la Concepció, two markets have been remodelled (the other being Sta Caterina) and three more are in progress (St Antoni, Ninot, Boqueria).

Private developments: varies, information held by Districts and other depts. (not Mobility Dept).

13.3.2 Resources/infrastructures

A control brigade had to be organised to verify compliance of the rule by the stores.

13.3.3 Human resources

This is mostly a regulatory measure with little direct additional staff required. Remodelling municipal markets has generated construction works.

13 Using building code regulations for off-street delivery areas, Barcelona (Spain)

13.3.4 Primary Target Group

Local shops, businesses, bars and restaurants

13.3.5 Enforcement scheme

Teams of inspectors were set up.

13.3.6 Monitoring procedures

ECAs are involved in site inspections once works are finished, and then every two years. Information is held at District level. No specific assessment process was set up (by the Dept of Mobility).

13.4 Supporting Mechanism

13.4.1 Awareness/information campaigns

Information to local citizens for markets and important private developments. Roadworks access signing

13.4.2 Incentive Programmes/Financial Instruments

Municipal markets: supported by EU and national funding.

13.4.3 Partnerships/Key supporting stakeholders

Municipal markets achieved through partnership with IMB

13.5 Results

13.5.1 Expected vs. Actual benefits

No studies have been made (by the Mobility Dept) to assess the performance. Implementation continues based on experiences, and possibly studies made by IMB.

13.5.2 Qualitative results

Strong local support for market remodelling from Districts, from markets stalls, and from local citizens.

13.6 Key Considerations

13.6.1 Lessons learned

Municipal markets: the redesign of municipal buildings and the surrounding public space is an opportunity to improve goods delivery conditions.

Private developments: The typology of streets and commercial activity in Mediterranean cities generates on-street deliveries that can negatively affect the circulation of motorised and non-motorised traffic. Making requirements for off-street unloading can reduce such problems

13 Using building code regulations for off-street delivery areas, Barcelona (Spain)

13.6.2 Primary Obstacles

Municipal markets: costs may exceed benefits. New challenges (for example, recharging for electric vehicles) may not have been taken into account, may require revision of the design model.

Private developments: costs may dissuade investor from developing the activity.

13.6.3 Critical Success factors

Municipal markets: involvement of local organisations.

Private developments: enforcement of regulations.

13.6.4 Transferability considerations

Not all cities have municipal markets.

In some other European countries, it is not legally possible to require shops or restaurants to reserve a percentage of their floor area to storage. This type of regulation would confront and limit freedom of commerce.

In most countries, however, it is perfectly possible to oblige new commercial buildings to accommodate off-street delivery areas within their premises. In Paris, all commercial buildings of at least 500 m² have to accommodate at least one off-street delivery area.

13.6.5 Up-scaling considerations

More studies are probably needed to understand the benefits/ costs. If these are positive then the diffusion of such results would help develop a wider application.

13.6.6 Contacts

Isabel Moretó, Mobility Department, Municipality of Barcelona.

14 Lorry Routes, RER (Italy)

14.1 General information

14.1.1 Description

The Regional Map defines preferential routes for heavy vehicle flows, with indication of road signs, tunnels, bridge, maximum size and weight

14.1.2 Type of measure/field of application

Administrative	
Urban planning	
Governance	X
Awareness	
Infrastructure	
ITS & Technical	
Modelling	
Supply Chain	
Information	X

14.1.3 Framework and background

In Italy, lorries must require permission to switch to all provinces (national law D.Lgs.285/1992 Art. 10). National legislation, however, provides the opportunity to avoid claims when there is an atlas that identifies lorry roads and their features

14.2 Policy design details

14.2.1 Primary Policy Objectives

Provide Incentives	
Regulation/Enforcement Component	X

14.2.2 Policy design steps and timing

In 2000, Emilia-Romagna Region started collecting and organizing all the information on roads accessible to trucks.

This work was very complex, because at that time there wasn't any archive of regional roads. The Region then began a difficult process of recovery and standardization of information.

The Region decided to report the information collected on the Touring Club cartography

14.2.3 Actors involved and participation

Department of transport (Emilia Romagna Region)

14 Lorry Routes, RER (Italy)

All 9 Provinces

14.2.4 Decision making process

Emilia Romagna Region in collaboration with all players involved

14.2.5 Site characteristics

- 56,900 km of roads
- Many different archives
- Lack of a network

14.3 Implementation details

14.3.1 Implementation step and timing

2000: project start

2000-2004:

- Collection and standardization of the various roads lists from different archives
- Network creation from many pieces of roads

2004: End of Atlas and Roads Archive

2006: Atlas CD-ROM implementation

2006 - today: updating and digital mapping

14.3.2 Primary Target Group

Heavy trucks

14.3.3 Monitoring procedures

Annual update

14.4 Supporting Mechanism

14.4.1 Awareness/information campaigns

No information campaigns

The atlas has been approved by a regional act

14.5 Results

14.5.1 Quantitative results achieved

Atlas with detailed information for all roads (maximum height, weight...) and focus on major cities

Regional Map with all limitations

Multimedia cd-rom with all maps

14 Lorry Routes, RER (Italy)

14.6 Key Considerations

14.6.1 Primary Obstacles

Data collection (from different archives)
Lack of a network

14.6.2 Critical Success factors

Collaboration between different public bodies

14.6.3 Transferability considerations

The concept is exportable and transferable to other contexts, especially if there is a digital mapping of roads and a list of its features.

14.6.4 Contacts

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15 Traffic limitation by Euro standards, RER (Italy)

15.1 General information

15.1.1 Description

Access control by Euro standards

15.1.2 Type of measure/field of application

Administrative	X
Urban planning	X
Governance	X
Awareness	
Infrastructure	
ITS & Technical	
Modelling	
Supply Chain	
Information	X

15.1.3 Framework and background

Emilia Romagna is an Italian region characterised by a set of medium urban areas that are not distant among them

The main urban transport problems identified by the Region are traffic congestion, high emission rates in CO₂ and local pollutants

The action described is part of the Sustainable mobility programme (not designed specifically for goods, but for air pollution reduction, see below)

15.2 Policy design details

15.2.1 Primary Policy Objectives

Provide Incentives	X
Regulation/Enforcement Component	x

15.2.2 Policy design steps and timing

1999: EU directive for urban mobility regulation

2002: Formal collaboration between four different regional Departments for a common measures and resources: Transport, Environment, Housing, Productive Activities. Guidelines for urban policy in cities with at least 50,000 inhabitants

2002: 1st Agreement program for air quality signed by the Region with 13 cities (all cities with at least

15 Traffic limitation by Euro standards, RER (Italy)

50,000 inhabitants) and 9 provinces (all in the region) and free agreement for small cities. Agreement is annual and the number of small cities signing the free agreement changes every year.

2003: Regional Funds (from all Departments involved).

2009: 8th agreement program, for the first time was biennial

2012: implementation of EU directives

15.2.3 Actors involved and participation

Institutional partners:

- Emilia Romagna Region
- Department of Transport, Environment, Housing, Productive Activities
- 9 provinces
- 13 municipalities (Bologna, Parma, Modena, Reggio Emilia, Rimini etc) and small cities for voluntary agreement (80 municipalities in average)

Non institutional actors:

- Freight companies
- Logistics providers

Manufacturing and on-account commercial delivery operators

15.2.4 Decision making process

See above

15.2.5 Site characteristics

Common policies at regional and local level with common projects implementation

15.2.6 Leverage Points

Regional policy implemented involving all municipalities and provinces

15.3 Implementation details

15.3.1 Implementation step and timing

The main actions implemented are:

2002: Regional traffic limitation by Euro standards

2003: DPF (diesel particulate filter) installed on vehicles for local public transport companies

2002-2011 Incentives for:

- methane/GPL conversion for private cars, only for municipalities who signed the agreement;
- DPF installation on vans for the city with city logistics projects;
- city logistics projects
- bicycle lane interconnection
- policies for integrated fares and intermodality

2010: Regional plan for electric mobility (regional infrastructure, vehicles and regional smart card)

15 Traffic limitation by Euro standards, RER (Italy)

Type of power	Type of vehicle	Euro class	Year 2011-2012	
			1 st November 2011 – 31 st March 2012 (Monday to Friday)	7 th January- 31 st March (Only Thursday)
Electric, Hybrid, CNG, LPG	All		Yes	Yes
Unlead gasoline	All	Pre Euro	No	No
		Euro 1, Euro2, Euro3	Yes	No
		Euro 4 or more	Yes	Yes
Diesel	Cars	Pre Euro, Euro1, Euro2	No	No
		Euro 2 + FAP and Euro 3	Yes	No
		Euro 3 + DPF or more	Yes	Yes
	Private buses Vehicle for goods transport	Pre Euro 1, Euro2	No	No
		Euro 2 + DPF or more	Yes	Yes
Unlead gasoline	Motorcycle Moped	Pre Euro (2 stroke engine)	No	No
		Euro1	Yes	No
		Euro 2, Euro 3	Yes	Yes

15.3.2 Resources/infrastructures

15.3.3 The Region finances all the measures up to 50% and the rest is financed by the Provinces and/or the municipalities

15.3.4 Human resources

4 people form the Department of Transport in collaboration with all regional departments involved, the municipalities and the public transport companies

15 Traffic limitation by Euro standards, RER (Italy)

15.3.5 Primary Target Group

Transport companies

Own-account transport (artisans, shop-owners, other businesses doing self-transportation).

Private cars owners

15.3.6 Monitoring procedures

Year by year monitoring and benefit comparison between the public authorities involved

15.4 Supporting Mechanism

15.4.1 Awareness/information campaigns

- Dedicated website <http://www.arpa.emr.it/liberiamo/>
- Newsletters and informative documents in the concerned cities and their respective websites
- Many articles on major local and regional newspapers
- Spreading of informative folders in city centre shops
- Spreading through trade associations
- Text message reminders sent by Emilia Romagna Region for specific limitation (ex Thursday without cars)

15.4.2 Incentive Programmes/Financial Instruments

Sustainable mobility programme
(Regional funds only)

Measure 1	Exhaust gas treatment	1.932.000
Measure 2	Clean Buses	39.999.999
Measure 3	Bike paths	7.107.000
Measure 4	Sustainable mobility	7.893.000
Measure 5	City logistics	11.000.000
	Total	67.931.999

15.4.3 Partnerships/Key supporting stakeholders

- All provinces
- The concerned municipalities

15.4.4 Other Policies

- European Union and directives (freight transportation and urban mobility)
- INTERREG IVC programme

15.5 Results

15.5.1 Expected vs. Actual benefits

- Decrease in the number of vehicles entering the city centres
- Increase in the share of cleaner vehicles (CNG and LPG cars are >15% of the total cars)

15 Traffic limitation by Euro standards, RER (Italy)

- Development of access control system on the major cities
- Support for city logistics projects

15.5.2 Quantitative results achieved

Involvement of public bodies (see actors involved)

Almost 30,000 cars converted to CNG-LPG

Regional mobility smart card (with a single card it is possible use buses, trains, bike sharing, and the recharging points for electric vehicles in all region)

Nine cities with city logistics projects and access control

15.5.3 Qualitative results

Difficult to assess, because most cities have combined different measures

Since 2002 up to today, there has been a trend towards a clear reduction in pollutants (-25% PM10)

15.6 Key Considerations

15.6.1 Lessons learned

Regional financial support can be used as a reinforcement element to develop access control in concerned cities

15.6.2 Primary Obstacles

Difficult to demonstrate the air quality improvement directly connected with the policies

Keep together all the stakeholders involved

Ensure the availability of new regional and local funds

15.6.3 Transferability considerations

The concept is exportable and transferable to other contexts, but each case has to be examined separately because of local culture and habits that can have influence the acceptability of the policies

15.6.4 Up-scaling considerations

A national and European legislation and funds can encourage the development of regional policies

15.6.5 Contacts

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16 Inter city coordination, RER (Italy)

16.1 General information

16.1.1 Description

The Region Emilia Romagna undertook a strategy of coordination in urban logistics. This strategy is part of the Sustainable mobility programme.

The purpose was to improve the knowledge of the various experiments made in all cities with more than 50,000 inhabitants and to coordinate their actions in order to improve transport systems and to foster economic development

16.1.2 Type of measure/field of application

Administrative	X
Urban planning	X
Governance	X
Awareness	
Infrastructure	X
ITS & Technical	X
Modelling	X
Supply Chain	
Information	x

16.1.3 Framework and background

Urban logistics policies traditionally belong to the jurisdiction of cities but RER considers that urban logistics also have to be integrated into a regional system

RER's strategy is to coordinate actions for an enhanced knowledge of urban goods practices between cities, to promote common programs, to support local initiatives by regional funds, and to make sure that the innovative practices implemented by some cities remain efficient in the long term

16.2 Policy design details

16.2.1 Primary Policy Objectives

Provide Incentives	X
Regulation/Enforcement Component	X

16.2.2 Policy design steps and timing

RER is involved in the development of coordinated regional policies in transport and logistics which can grant companies' competitiveness and a greater territorial sustainability of transport and logistics activities

In 2002, the "Agreements on air quality" led the Region to design five significant measures for sustainable mobility.

16 Inter city coordination, RER (Italy)

All 13 cities over 50,000 inhabitants were involved

In this chapter will be described only the 5th level of intervention "City logistics" (the list of all actions is included in "Traffic limitation by euro standard", i.e. Best Practice 15)

16.2.3 Actors involved and participation

RER

13 municipalities over 50,000 inhabitants

9 provinces (all)

16.2.4 Decision making process

- Methodology for the survey for coordinated regional logistics policies
- Identification of measures taken in cities to improve logistics activity and environmental effects
- Analysis of urban logistics measures and their financing in all RER cities
- List of applicable measures according to the domains of intervention (consolidation of flows, organizations logistics, innovations, training, services, management)
- Evaluation of the projects

16.2.5 Site characteristics

All cities involved in inter city coordination are small to medium in size, with medieval urban structure, difficult to reach and often a few tens of kilometers apart

This implies the need to consider the Region with a single logistics system, but with specific problems of accessibility and relationship

16.2.6 Leverage Points

Political and financial support to obtain the main freight data for a better understanding of the context of different measures

To display the regulations fitted to each case

16.3 Implementation details

16.3.1 Implementation step and timing

2002-2005 City logistics programme:

1. Elaboration of a relevant methodology for data collection
2. Data collection and analysis
3. Methodology for a guideline

2003: Regional Programme and funds for city logistics implementation

2005-2011: 9 cities started projects implementation, but some projects still have to be finalized

16.3.2 Resources/infrastructures

The RER Programme for the transport sector amounted €68 million in 2004-2006 including €11 million for urban logistics (action number 5)

Urban distribution analyses and system projects: €600,000 European funds (Modena, Piacenza, Ravenna, Parma) and €1,200,000 regional funds (9 other cities)

16 Inter city coordination, RER (Italy)

50% regional, 50% local funds:

- €18,299,000 for urban logistic terminals
- €4,480,000 for freight vehicles substitution

The total cost of the projects planned on 2003-2005 was approximately €24 millions (11 from regional funds)

16.3.3 Human resources

RER: 3 persons

The experts in the cities of RER: Bologna, Ferrara, Parma, Modena, Piacenza, Ravenna, Rimini, Faenza, Forlì, Imola.

16.3.4 Enforcement scheme

A common methodology has been designed with the aim of optimizing resources, knowing the problems at local and regional level, and involving all municipalities and provinces

16.3.5 Monitoring procedures

Annual project monitoring

16.4 Supporting Mechanism

16.4.1 Awareness/information campaigns

The different actions of the RER are presented in a book "city logistics: from theory to practice"

Organization of conferences and publication of articles

Dedicated webpage (see below)

16.4.2 Incentive Programmes/Financial Instruments

The RER finances numerous actions and pilots made by cities

16.4.3 Partnerships/Key supporting stakeholders

Dialogue and information are necessary as well as a good sharing of financing between stakeholders

16.4.4 Other Policies

The city logistics measures financed are only a little part of all measures implemented in the Sustainable mobility programme. The others measures are:

- 1 Exhaust gas treatment
- 2 Clean Buses
- 3 Bike paths
- 4 Sustainable mobility
- 5 City logistics (described)

16 Inter city coordination, RER (Italy)

16.5 Results

16.5.1 Expected vs. Actual benefits

The action revealed the various local measures set up in order to improve the performances of urban logistics

It evaluated the costs of implementation of the various experimentations and provided information about the financial participation of RER

Better knowledge of the existing and planned actions

16.5.2 Quantitative results achieved

9 municipalities started city logistics projects

16.5.3 Qualitative results

Several typologies concerning the current measures in all RER cities:

- Regulations about goods access in city centre
 - UCC
 - Public-private Partnerships
 - Times windows for deliveries
 - Incentives for new clean vehicles
 - Training, information
- Helped by the analysis phase, all the municipalities have measured access to the city centre, the use of loading and unloading bays and goods movements impacts (in collaboration with local businesses)
- Identification of regulations about urban distribution: restriction of access in central areas, cooperation for goods consolidation
- Regional regulations: financing of projects (Law 30 of 1998), project of regional system DG1432 of 2003, programme for air quality and sustainable mobility 2003-2005 (with new financing: measure 5 for cities over 50,000 inhabitants)
- Dialogue between all the stakeholders for common solutions

Achievement of an agreed and regional methodology

16.6 Key Considerations

16.6.1 Lessons learned

City logistics requires decisive political choices even if unpopular

Involve all stakeholders

16.6.2 Primary Obstacles

Data collection with useful details

Project development after the analysis

16 Inter city coordination, RER (Italy)

16.6.3 Transferability considerations

Even if cities have jurisdiction over urban logistics regulation, a regional policy helps by making the whole system more coherent and efficient

16.6.4 Contacts

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<http://www.regione.emilia-romagna.it/temi/mobilita/logistica-merci/vedi-anche/logistica-urbana>

17 Freight Distribution Plan, Bologna (Italy)

17.1 General information

17.1.1 Description

Municipal plan for freight distribution regulation in Bologna's city centre

17.1.2 Type of measure/field of application

Administrative	X
Urban planning	X
Governance	X
Awareness	
Infrastructure	
ITS & Technical	X
Modelling	
Supply Chain	
Information	X

17.1.3 Framework and background

Bologna is a medium size Italian city experiencing the main problems related to urban freight in other similar cities

The city has defined a restricted access zone, called LTZ (limited traffic zone) to deal with congestion, and follows the main guidelines and indications made by the Emilia Romagna Region

17.2 Policy design details

17.2.1 Primary Policy Objectives

Provide Incentives	
Regulation/Enforcement Component	X

17.2.2 Policy design steps and timing

1998: Regional legislation for urban and regional transport regulation. Introduction of urban logistics measures.

2002: First regional policy for city logistics. Guidelines for urban policy in cities with at least 50,000 inhabitants.

2003: Regional funding up to 50% for city logistics projects

2005: New control system in Bologna's LTZ.

2006: Freight Distribution Plan

2009: Revision of the Euro standards criteria for some categories of vehicles in the T zone

17 Freight Distribution Plan, Bologna (Italy)

17.2.3 Actors involved and participation

Institutional partners:

- Region Emilia Romagna
- Department of Environment
- Province of Bologna
- Municipality of Bologna

Non institutional actors:

- Freight companies
- Manufacturing and own-account transport operations

17.2.4 Decision making process

See above

17.2.5 Site characteristics

Bologna is a medium size Italian city with a historical centre characterized by small streets and important monuments

This historic centre has been included into the municipality's LTZ legislation. Moreover, two perpendicular streets in the central part of the LTZ (T zone) are particularly congested.

17.2.6 Leverage Points

Reorganization of LTZ access rules

Start the IT control system for access to the LTZ

17.3 Implementation details

17.3.1 Implementation step and timing

2002: First regional policy for urban freight distribution (guidelines to cities). See traffic limitation by Euro Standard

2003: Guidelines for city logistics projects. First application in several cities with at least 50,000 inhabitants

2005: New IT control system for accesses to the LTZ and the T zone.

2006: Freight distribution plan. "Pay-to-access" ticket system.

17.3.2 Resources/infrastructures

ICT enforcement system

Traffic control centre

17.3.3 Human resources

Local enforcement agents need training programs

The involved stakeholders are the local police or the mobility management crews, sometimes related to the public transport company

17 Freight Distribution Plan, Bologna (Italy)

17.3.4 Primary Target Group

Transportation companies

Companies with own-account transport (artisans, commercial activities, other stakeholders doing their own transportation)

17.3.5 Enforcement scheme

Limited traffic zone with restrictions for non authorized vehicles from 7:00-20:00 all days except on Saturday
Road pricing scheme with occasional one-day or 4-day tickets

17.3.6 Monitoring procedures

Traffic sensors and related statistical analysis on LTZ access

17.4 Supporting Mechanism

17.4.1 Awareness/information campaigns

- Freight distribution plan downloadable at Bologna's municipality's website
- Articles in major local newspapers
- Informative folders in commercial activities and associations

17.4.2 Incentive Programmes/Financial Instruments

Half of total funds came from the region

The other half came from the province and the municipality, although a part was channelled through European INTERREG projects

17.4.3 Partnerships/Key supporting stakeholders

Freight associations

17.4.4 Other Policies

INTERREG IVC program

17.5 Results

17.5.1 Expected vs. Actual benefits

Reduction of km travelled to deliver the same goods' volume in the LTZ

Conversion of freight vehicles to methane engine and related pollution reduction

17.5.2 Quantitative results achieved

The pollution reduction obtained is related to the general LTZ restriction and it is difficult to identify the data related only to freight vehicles

The general data is about 25% of access reduction in LTZ

17 Freight Distribution Plan, Bologna (Italy)

17.5.3 Qualitative results

Positive behavioural change in the use of access permission by freight operators

17.6 Key Considerations

17.6.1 Lessons learned

ITS are effective instrument in order to allow a good implementation of urban transport policies

17.6.2 Primary Obstacles

Difficulties in the relationships with businesses and in the enforcement of traffic rules

Traffic rules can conflict with national/European fair competition legislation

17.6.3 Critical Success factors

To reach the critical mass of small freight operators involved in the scheme

17.6.4 Contacts

Dipartimento Qualità della Città

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18 “Ecologistics” Parma, RER (Italy)

18.1 General information

18.1.1 Description

Ecologistics Parma is an urban freight distribution system that combines an urban consolidation centre, a low-emission vehicle fleet and local restrictive policies to limit and control the access to the city centre. Contrary to others, this project includes fresh produce

18.1.2 Type of measure/field of application

Administrative	X
Urban planning	X
Governance	X
Awareness	
Infrastructure	X
ITS & Technical	X
Modelling	
Supply Chain	x
Information	

18.1.3 Framework and background

Parma is the second city in Emilia-Romagna after Bologna, and the capital of Italy’s famous “food valley”
 Parma is characterised by a historical centre of 2.6 square kilometres with more than 21,000 inhabitants (the whole city is about 180,000 inhabitants). This area generates high traffic flows of both passengers and goods daily entering for the different purposes. Its original capacity was no longer sufficient to support these mobility’s needs. The negative impacts of urban goods distribution in terms of air pollution and, as consequence, of the citizens’ health mainly came from the type of energy used by the vehicles and the high frequency of freight deliveries in the city centre
 High concentration of shops, door to door and just in time delivery approaches as well as unconsolidated freight transport service caused problems in terms of air pollution, congestion, safety
 In order to overcome these problems it was necessary to reorganise the overall regulation concerning both transit and parking of freight transport inside the historical centre (Limited Traffic Zones) as well as plan and implement an innovative urban goods distribution scheme based on efficiency and effectiveness

18.2 Policy design details

18.2.1 Primary Policy Objectives

Provide Incentives	
Regulation/Enforcement Component	X

18 “Ecologistics” Parma, RER (Italy)

18.2.2 Policy design steps and timing

A first project was started in 2004. A survey to characterise the urban goods movement was undertaken in 2004-2005.

The municipality started a Planning Board to draw an Agreement Document between the municipality and businesses

Associations signed on 12/01/2005

The scheme started to operate in 2006

18.2.3 Actors involved and participation

Institutional partners:

- Region Emilia Romagna
- Department of Environment
- Municipality of Parma
- CAL (Agro industrial and Logistics Centre)
- Infomobility SpA.

Non institutional actors:

- Freight companies
- Logistics providers
- Manufacturing and own-account delivery operations

18.2.4 Decision making process

The project is based on flexibility and openness (there is no obligation to give goods to a logistics depot)

The idea is to allow truck operators to choose between two options:

- Accredited their trucks (thus obtaining a special authorization)
- Deliver goods to an accredited terminal, acting as a subcontractor for them

18.2.5 Site characteristics

Parma is a medium size city (180,000 inhabitants/261 km²) in northern Italy with an important historical centre. There are 18,600 local units and 84,300 workers (2006)

Data on freight urban mobility are as follows:

- Commercial vehicles: 12,212
- Most of vehicles engines are EURO 1 or 2 (diesel)
- 40% of deliveries in city historical centre between 7:30 and 9:30 (peak hours)
- Vehicle's load factor is very low
- 42% of vehicles are >3.5 tonnes

18.2.6 Leverage Points

A critical moment was related to the decision regarding the vehicle accreditation procedures

Another critical phase was to make the municipal decree which defines the new regulations for urban goods distribution in Parma effective according to the overall scheme previously developed

To get an accreditation, “virtuous” freight transport operators optimize the good distribution service while

18 “Ecologistics” Parma, RER (Italy)

reducing air pollution

18.3 Implementation details

18.3.1 Implementation step and timing

1. Adjustment of CAL's structures, technological and information systems at the logistics terminal in order to convert it into a urban consolidation centre
2. Implementation of ECOCITY service by CAL
3. Launch of the advertising campaign and the prosecution of the Supervising Committee activities with associations
4. Implementation of the procedure to give authorizations to the vehicles and logistics terminals
5. Adjustment of Parma's parking plan with the introduction of the new ECOLOGISTICS authorization
6. Issuing of the regulations that limits access to the city centre (October 2008)
7. New regulation for the setting up of road signals
8. Project supervision (project monitoring end: march 2010)

18.3.2 Resources/infrastructures

- Bilateral terminal with loading/unloading ramps (indoor area of 1,500 m², ca. 100 m² of which are refrigerated)
- 6 methane vehicles for Ecocity service*: engine HYUNDAI - 2,351 cc - 4 cylinders with electronic injection 16-valve (total methane capacity: 200 litres, autonomy: 350 km)
* in 2011 the number of vehicles increased to 12
- Informative system (data receipt via FTP, e-mail, manual insertion/Issue of an identificative bar-code label/loadings and tour optimization)
- Vehicle traceability with GPS-GPRS technology

18.3.3 Human resources

1 director
1 project manager
executives
managing personnel
1 technical public servant
2 technicians
2 front office personnel
vehicle drivers
warehouse employees

18.3.4 Primary Target Group

A truck is labelled if it complies with the following requirements:

- Delivery of goods belonging to the following categories: fresh goods, dry goods, packaged cargo, clothes, Ho.Re.Ca. (Hotels, Restaurants, Coffee shops) towards the historical city centre (inside the road ring)

18 “Ecologistics” Parma, RER (Italy)

- Use of eco-friendly vehicles (LPG, CNG, bifuel or electric) and/or in keeping with Euro 3, Euro 4, Euro 5
- Use of vehicles <3.5 tonnes total weight
- Truck loading rate percentage up at least at 70% (in volume/weight)
- Start of a location system allowing the traceability of the vehicle

18.3.5 Enforcement scheme

Non authorized trucks have no access to the city centre for loading/unloading operations

18.3.6 Monitoring procedures

Checks made on samples of authorized vehicles:

- Check of registration document, plate number
- Check vehicles class (emissions): through the check of registration document, control of the conformity to Euro3, Euro4, Euro 5 category or fuelled by GPL, methane, bifuel or electric
- Check vehicles class (loading capacity): through the check of registration document, control that the total weight is <3.5 tonnes
- Check % of filling up of the vehicles (in weight and/or volume):
- In weight:
 - Through DDT check verify goods - already delivered and still to be delivered- weight (A)
 - Discover, from registration document, the loading capacity (B)
 - % filling up (in weight) = A/B should be >=70%
- In volume:
 - Estimate the percentage value of the loading capacity that should be >70%
- Check of traceability system on board: through visual control check the presence of a palm-top or a board computer on the cabin
- Checks on samples of non authorized vehicles
- Check of registration document, plate number and correspondence with what indicated on the permit
- Check on goods delivered/kind of activity

18.4 Supporting Mechanism

18.4.1 Awareness/information campaigns

- Two informative letters sent to all possessors of truck driving licenses
- Many articles in major local newspapers
- Spreading of informative folders in city centre shops
- Spreading through Trade Associations
- Information on the website www.comune.parma.it
- Phone calls “one to one”

18 “Ecologistics” Parma, RER (Italy)

18.4.2 Incentive Programmes/Financial Instruments

The project has been financed by:

- Region Emilia Romagna €671,000
- Ministry of Environment €439,000
- Municipality of Parma €579,000
- Agroindustrial and Logistic sCentre (CAL) €180.000
- Infomobility spa €170,000

Total cost is about €2,050,000.

18.4.3 Partnerships/Key supporting stakeholders

Municipality of Parma, Emilia Romagna Region, Ministry of Environment, Infomobility

18.4.4 Other Policies

INTERREG IVC programme
European Regional Development fund
Regione Emilia Romagna
Italian Government (Department of environment)

18.5 Results

18.5.1 Expected vs. Actual benefits

Optimized vehicle loadings and delivery rounds
Support for the management of an urban logistics terminal
A first step towards a more environmentally friendly situation for urban freight.

18.5.2 Quantitative results achieved

The data refer only to the Ecocity services

- Number of consignments through the consolidation centre before the start of the project: 400
- Number of consignments through the consolidation centre 1 year after the project: 1,300
- During the course of 2008, almost 5,400 deliveries have been carried out equal to 16,750 quintals of goods (fresh products and parcels)
- During the course of 2010, almost 8,700 deliveries have been carried out equal to 72,000 quintals of goods (70% fresh food 30% parcels)
- Environmental results are less evident but a reduction of CO₂ emissions has been observed

18.5.3 Qualitative results

The results of a qualitative interview campaign made to observe the acceptability of the service show that retailers, businesses, transport companies, do demonstrate knowledge of the service and appreciation of it, even though other people have a very limited perception of the service
The overall assessment on the quality of work and professionalism of the service is very positive

18 “Ecologistics” Parma, RER (Italy)

18.6 Key Considerations

18.6.1 Lessons learned

After a two-year starting stage, the service is funded by the fees paid by those who take goods to the CAL for the deliveries

18.6.2 Primary Obstacles

One of the primary obstacles for the implementation of the project has been the difference between Ecologistics project interested area (the whole historical centre of Parma) and limited traffic area (some areas of historical centre)

Another obstacle was the need to grant exemptions for certain types of deliveries or goods, which can potentially result in unequal treatment.

18.6.3 Critical Success factors

- Flexibility of Ecologistics project, which, instead of finding a rigid and unique solution, leaves the operators the choice whether to get a label for their own vehicles or instead to use the last-mile service of an authorized logistics terminal
- Ecologistics project allows also the owners of logistic terminals the chance to have their terminal authorized (labelled) by certifying fixed requirements, in order to operate in free competition with CAL.
- Consultations with the various actors playing different roles in logistics process has helped to overcome the critical issues and made the implementation of the project more acceptable

18.6.4 Transferability considerations

The location of a consolidation centre requires:

- Good accessibility for carriers
- Good accessibility in the historical city centre for shops deliveries
- Proximity to the junction of the motorway
- Large areas for manoeuvres

18.6.5 Up-scaling considerations

There is also the possibility for logistics operators to have their terminals authorized if they want to manage and move goods to the historical city centre for other companies

18.6.6 Contacts

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19 ARIAMIA: electric delivery vehicles for rent, Reggio-Emilia (Italy)

19.1 General information

19.1.1 Description

The project is about the rental of electric vehicles, designed to ensure a sustainable logistics for the pick up and delivery of goods in the urban centre of Reggio Emilia

19.1.2 Type of measure/field of application

Administrative	
Urban planning	
Governance	X
Awareness	X
Infrastructure	
ITS & Technical	
Modelling	
Supply Chain	X
Information	X

19.1.3 Framework and background

The municipality of Reggio Emilia began to think of electric vehicles since 2000, inspired by a national law which gave funds to municipalities willing to trade traditional vehicles for EFV, covering as much as 65% of the total costs

The ARIAMIA project started in December 2003, as the natural consequence of policies that the municipality of Reggio Emilia has pursued since 2000 in order to promote the use of electric vehicles in urban area

The project was designed to spread the use of electric vehicles between retailers and traders in daily activities

19.2 Policy design details

19.2.1 Primary Policy Objectives

Provide Incentives	X
Regulation/Enforcement Component	X

19.2.2 Policy design steps and timing

Access reduction for traditional vehicles, and increase of electrical vehicles use

1998: National law (Decreto Ronchi) gives funds to municipalities for changing traditional vehicles for EFV

19 ARIAMIA: electric delivery vehicles for rent, Reggio-Emilia (Italy)

1999: Municipality of Reggio Emilia launches TIL (Integrated transports and logistics) to manage public transport

TIL starts to think about electric vehicles and starts to analyse supply and technical problems

2000: After the analysis TIL understands that the average use of an electric car is 30-40 km per day and finds a reliable electric vehicle, the Piaggio Porter

2001: TIL starts the project with Farmacie Riunite

Replacement of 46 traditional vehicles with electric cars for home care services (elderly and disabled persons)

2002: Replacement of 76 traditional vehicles with electric cars for different municipal services

The aim is to involve different associations and organizations, both public and private (sponsor) to find resources to reduce the cost of rent

2003: New access regulations based on emission standards and free parking for electric vehicles

Start of ARIAMIA project with 30 electric vehicles

19.2.3 Actors involved and participation

The main players involved are the Chamber of Commerce and the Local Traders Association

TIL found also a sponsor ZAPI S.p.A. (company leader in control cards of all kinds of electrical machines, including vehicles) Thanks to its economic contribution, paid off by the graphic sponsorship of the vehicles and consequent return publicity, resulting from 30 vehicles circulating daily in the city, a shoemaker could benefit from a lower rental fee, resulting in cost savings

TIL coordinates the stakeholders of the project and manages the collaboration with traders and craftsmen, in order to ensure the success of the project

It is important to underline the role of the bank: the total cost of electric vehicles was paid at 65% by the State and the remaining 35% by TIL through a bank loan

19.2.4 Decision making process

TIL coordinated the project in collaboration with all the players involved and Reggio Emilia municipality

19.2.5 Leverage Points

- Start a project with electric cars
- Decision to buy the first electric vehicles
- Funding research
- Banks' support
- Implementation of new municipal access rules to the historical centre

19.3 Implementation details

19.3.1 Implementation step and timing

See Policy design steps

Delivery of all vehicles at the same time with media events (showing the caravan of electric vehicles circulating in the city) and a press conference

Information made on an annual basis by TIL on the environmental and economic benefits achieved

19 ARIAMIA: electric delivery vehicles for rent, Reggio-Emilia (Italy)

19.3.2 Resources/infrastructures needed

Purchase of electric cars

Installation of charging points

65% of the total cost of electric cars was paid by the State, and the remaining 35% paid by TIL

19.3.3 Human resources

2 people in 2002

9 people now (1 buyer, 2 project and marketing managers, 6 mechanics)

19.3.4 Primary Target Group

Retailers, tradesmen and craftsmen who work in the urban centre of the city

19.3.5 Enforcement scheme

See Timing

19.3.6 Monitoring procedures

There are regular round tables and meetings with local businesses, in order to raise awareness about social and environmental problems

19.4 Supporting Mechanism

19.4.1 Awareness/information campaigns

TIL also produces brochures and participates in several conferences in Italy and abroad to present the project with the municipality of Reggio Emilia

TIL organizes every year an info day on electric cars in Reggio Emilia

19.4.2 Incentive Programmes/Financial Instruments

Total costs: €670,356 (20% VAT excluded) for buying 30 electric vehicles

65% of the total cost of electric cars was paid by the State, and the remaining 35% by TIL through a bank loan

Economically, the "Ariamia" project is a success

Initially the cost was high, but cooperation between TIL ZAPI Concommercio has allowed a considerable reduction

Now the rental fee is € 150 for the first month

19.4.3 Partnerships/Key supporting stakeholders

Municipality of Reggio Emilia, Chamber of Commerce, Local Traders Association, ZAPI

19.4.4 Other Policies

19 ARIAMIA: electric delivery vehicles for rent, Reggio-Emilia (Italy)

Measure taken by the municipality of Reggio Emilia: implementation of new access rules to the historical centre

In order to function as a driving force for the commercial activities of the city, the municipality of Reggio Emilia also involved its Company Farmacie Comunali Riunite, and its municipal fleet (now made by electric cars) to demonstrate a policy of “good example” to citizens and businesses, which can adopt a series of best practices that contribute to the development of a more sustainable mobility

19.5 Results

19.5.1 Expected vs. Actual benefits

The project was thought for the city goods distribution, but now the big part of the rental is done outside of the Municipality and for private transports of people (which is outside of the Ariamia project).

Quantitative results achieved

Now the project is self-financed without any intervention of outside public capital, because traders/craftsmen paying the monthly fee provide financial support, providing a gain to TIL that allows the purchase of new electric vehicles and the development of its service network

Environmental results obtained from 12/11/2003 to 12/31/2008 (net of emissions from power plants)

Total electric vehicles: 30

Total km travelled: 1,931,850 km

CO₂ reduction: 193,185 kg

CO reduction: 7,032 kg

NO_x reduction: 405 kg

PM₁₀ saving: 107 kg

Fuel saving: 160,988 litres

Noise reduction: more than 90% (compared with a traditional vehicle)

19.6 Key Considerations

19.6.1 Lessons learned

Environmental benefits can coincide with economic benefits

Electric vehicles are reliable

19.6.2 Primary Obstacles

Communication

Overcome scepticism

19.6.3 Critical Success factors

Service reliability

Low rental Price

After-rental service



19 ARIAMIA: electric delivery vehicles for rent, Reggio-Emilia (Italy)

19.6.4 Transferability considerations

The project is transferable to other contexts, but it requires the involvement of many players (see Policy design details) and funding for the start-up

19.6.5 Up-scaling considerations

The project demonstrates that a policy pursued vigorously over the years can generate environmental awareness and a change in the common understanding of electric vehicles among citizens

19.6.6 Contacts

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20 Binnenstadservice in Dutch cities (the Netherlands)

20.1 General information

20.1.1 Description

Startin in 2008, Binnenstadservice has been proposing a sustainable goods consolidation and transportation service in nine Dutch cities (Den Bosch, Arnhem, Gouda, Nimegue, Amsterdam, Maastricht, Rotterdam, Tilburg, Utrecht). This service relies on the reduction of the numbers of moves from and into the city centre. The main objective is to make city centres cleaner, nicer, safer and to improve its commercial quality and atmosphere.

20.1.2 Type of measure/field of application

Administrative	
Urban planning	
Governance	
Awareness	
Infrastructure	X
ITS & Technical	
Modelling	
Supply Chain	X
Information	

20.1.3 Framework and background

The development of the service was made possible as goods distribution in Dutch city centres leads to many issues because of the centres' poor accessibility, the increase in the number of deliveries, poor air quality, and short delivery time windows (some shops do not open before noon)

20.2 Policy design details

20.2.1 Primary Policy Objectives

Provide Incentives	X
Regulation/Enforcement Component	

20.2.2 Policy design steps and timing

The initiative originally came from two individuals, Max Prudon and Birgit Hendriks, who created "Eco2City" in 2008. It acts as a franchisor for the Netherlands and Belgium and currently employs six people

The creation of this company is linked to the set-up of Low Emission Zones in the Netherlands (the first ones were implemented in July 2007)

The LEZs currently apply to heavy-duty diesel lorries over 3.5 tonnes (there are considerations about including vans in 2013) and the penalty for non-compliance is €168

20 Binnenstadservice in Dutch cities (the Netherlands)

A National LEZ Covenant signed by the Dutch government, municipalities and other stakeholders, whereby all Low Emissions Zones in the Netherlands apply the same Euro standards, as outlined above.

- Until 1st July 2013
 - Euro 3 with retrofit particulate trap and if not older than 8 years
 - Euro 4 and above allowed in
- After 1st July 2013
 - Euro 4 and above

Therefore Binnenstadservice founders believed that an additional environmental service was necessary in those towns

20.2.3 Actors involved and participation

Indirectly, Dutch government and city councils through the application of the LEZ

Some city councils give a financial incentive for the implementation of this new service, some other do not (see incentive programmes/financial instruments)

20.2.4 Site characteristics

Proposed services are:

- Goods reception
- Temporary goods storage
- Driving services
- Added value logistics
- IT equipments
- Reverse logistics

Only sustainable transportation modes are being used, and services are proposed to those not meeting the environmental requirements of the environmental zone (LEZ)

Thus, the service requires the implementation of terminals where logistic activities will be carried out

These areas must be located as close to the city centre as possible to reduce the distance for the final deliveries (in Nimègue, the terminal is only 1.5 km away from the city)

20.2.5 Leverage Points

The implementation of LEZ in the Netherlands was a key lever to initiate the decision to create this new service

20.3 Implementation details

20.3.1 Implementation step and timing

In slightly more than three years, Binnenstadservice was implemented in nine Dutch cities:

- April 2008: the first service opened in Nimègue
- March 2009: Den Bosch
- July 2009: Maastricht
- Septembre 2009: Arnhem
- February 2010: Utrecht

20 Binnenstadservice in Dutch cities (the Netherlands)

- August 2010: Rotterdam
- Septembre 2010: Tilburg
- Early 2011: Gouda
- Septembre 2011: Amsterdam

Market studies are carried out in three steps:

1. A first feasibility study analyses the possibility for this service to solve the town's delivery issues
2. The second step deals with research for partners
3. The third one deals with financial forecasts

20.3.2 Resources/infrastructures needed

A small terminal is used close to the city centre



Goods delivery is carried out by electric bikes and GNV lorries. These lorries can accommodate eight pallets.



20.3.3

20.3.4 Human resources

In Maastricht for example, there are two people, one of them being an associate member and the other being a volunteer.

In Nimegue, two employees are in charge of goods reception and two others are drivers.

20.3.5 Primary Target Group

This service is targetted towards three different stakeholders:

1. Final receivers, who get their goods delivered by different suppliers so that they only receive their merchandise once.

Thus, businesses located in city centres give the Binnenstadservice address so that all their goods are delivered there. Binnenstadservice gathers all the parcels and proceeds to only one and single tour to

20 Binnenstadservice in Dutch cities (the Netherlands)

the city centre. Final addressees may be department stores as well as shopkeepers

Goods must however be homogeneous, for instance, only in Tilburg can frozen products use the service

2. Public stakeholders (city council, region, transport department) can give financial incentives for the development of this new service

3. Transport and logistics companies. Logistics companies may become partners through the sharing of their own terminal as it is the case in Nimegue

The service then benefits from logistics expertise

This is also the case with some transport companies, as in Amsterdam through a partnership with Mokum Maritean, a naval transport operator

20.3.6 Monitoring procedures

Service profitability is assessed through the number of retail businesses using the service

In Maastricht, the experiment increased from 30 customers in July 2009, to 70 in July 2011, while a minimum of 110 customers are necessary to make the service profitable

20.4 Supporting Mechanism

20.4.1 Awareness/information campaigns

An information campaign was made by a website and articles Eco2City participated in many local meetings

20.4.2 Incentive Programmes/Financial Instruments

Recently some public stakeholders have brought financial help. Maastricht city council gave €200,000 in May 2011, after two years of operation

Getting as many customers as possible remains the best condition to reach the financial equilibrium

Today in Nimegne, the service is priced €8 to €20 per parcel depending on the service chosen

20.4.3 Partnerships/Key supporting stakeholders

With waste management company Van Gansewinkel for reverse logistics

20.5 Results

20.5.1 Expected vs. Actual benefits

The main Binnenstadservice benefits are on the environmental side, the purpose being to make cities cleaner and nicer to live in

20.5.2 Quantitative results achieved

Number of trucks reduced (in Tilburg, 1 lorry is necessary in place of 7 or 8)

Better air quality (no estimation as for now)

20.5.3 Qualitative results

Higher service level for retailers

20 Binnenstadservice in Dutch cities (the Netherlands)

City centre is easy to reach, time windows are reduced as well as all difficulties (there is still a time window from 7:00 to 12:00)

20.6 Key Considerations

20.6.1 Lessons learned

Consolidation services must come from a private initiative

20.6.2 Primary Obstacles

Transport companies can not deliver before 10:00, so all the goods inside one single day can not be delivered to the customer (final delivery must be done before 11:00)

Morning delivery is not guaranteed today, so retailers remain suspicious of the service

There might be requests from the retailers for one-hour deliveries but in that case it does not meet the initial objective, namely reducing the number of delivery movements in the city centre

Some businesses can not access the service: retailers needing more than six pallets a day

In Nimegue, only 350 retailers are eligible out of 600 in total

20.6.3 Critical Success factors

Implementation of Low Emission Zones in Dutch cities

A good communication with the other transport companies that deliver the city centre

Implementing an urban logistics terminal as close to the city centre as possible

20.6.4 Transferability considerations

No constraint on the transferability of the concept

20.6.5 Up-scaling considerations

Geographical extension of this service. Other city councils have a positive view on this kind of service

Partners would like to increase the service fame and convince more retailers

In Nimegue, the transported volume increases and increasing the resources and the number of vehicles may be possible

20.6.6 Contacts

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21 Cargotram, Zurich (Switzerland)

21.1 General information

21.1.1 Description

Use of a tramway to collect goods such as bulky waste and electrical and electronic equipment (for electronic material, a specific service was established in 2006 - the tram is called the "E-tram") throughout the city, and to forward them up to the waste collection centre located in the suburbs.

21.1.2 Type of measure/field of application

Administrative	X
Urban planning	
Governance	
Awareness	
Infrastructure	
ITS & Technical	X
Modelling	
Supply Chain	
Information	

21.1.3 Framework and background

This choice is the result of the overall waste management policy which Zurich has been implementing since the mid 1990s. Further to the implementation of a measure charging the removal of bulky waste by the municipal services (€25 for the first five minutes, then €5 for any additional minute), uncontrolled deposition of garbage increased, reaching more than 180 tonnes in 2002. As a consequence, the municipality chose to implement a user friendly waste transport by rail.

21.2 Policy design details

21.2.1 Primary Policy Objectives

Provide Incentives	X
Regulation/Enforcement Component	

21.2.2 Policy design steps and timing

Several factors led to a use of the tramway to transport bulky waste:

- Only half of all Zurich households own a car,
- The average age of the population of the city of Zurich is increasing. In areas where people do not have cars, the average age is high,
- Zurich is not surrounded by a beltway, therefore the traffic stands still or moves in stops and goes

21 Cargotram, Zurich (Switzerland)

- twice a day,
- In 1996 and 1997 Zurich had up to 3,000 tonnes of illegally disposed garbage.

The initial situation led to the following conclusions:

- The municipality has to move away from the road and get as close as possible to the clients,
- It has to provide the facilities at hours when the working population is no longer at work.

21.2.3 Actors involved and participation

Public stakeholders (the municipality and the public transport operator) had a major role in this project. The municipal waste management department contacted the city public transport company (Verkehrsbetriebe Zürich) to make a Cargo-Tram. The ERZ (Entsorgung und Recycling Zürich), the city waste management company also played an essential role because it provides the manpower for sorting garbage in station and receiving it in the collection centre. Finally, the municipality allowed the operation, authorizing tram cars dedicated to goods on the tram network, so far exclusively dedicated to passenger traffic. A concession of ten years was signed.

21.2.4 Decision making process

The department of transportation and waste management decided to make a test run. An old snowplow and two trailers were painted white, and two containers built, for a total cost of about €35,000. No consultant was involved and the choice was to limit to a minimum preliminary studies and advertising and marketing campaigns.

21.2.5 Site characteristics

There was an important existing tram network (dedicated to passenger transportation), owned by the city.

21.2.6 Leverage Points

There have been no critical moments, because the directors decided to go ahead. Despite general scepticism from technical bodies (department of transportation, department of waste...).

21.3 Implementation details

21.3.1 Implementation step and timing

This service, set up in 2003 and free of charge, is dedicated to Zürich residents which move on foot, in bicycle or with public transportation. Once a month, residents have the possibility to bring bulky waste (small furniture, skis, flowerpots, cycles...) or worn electric and electronic devices (vacuum cleaners, hairdryers, TV sets...) (this service was implemented in 2006) to any of the ten collection stations implemented for that purpose. According to the established calendar, Cargo-Tram or E-tram parks there for four hours. On location, agents commissioned by ERZ receive waste, which cannot exceed 2.5 meters of length and 40 kg. On average, six to seven tonnes of bulky waste and more than a tonne of electric and electronic devices are dumped in each station and at each collection. After four hours, the tram restarts towards one of the two Zürich waste disposal centres. The waste is unloaded, sorted out there then recycled.

21 Cargotram, Zurich (Switzerland)

21.3.2 Resources/infrastructures needed

Initial costs for the transportation company VBZ and ERZ are €35,000. Trains consist of a locomotive and two cars. The used locomotives date from the 1940s and cars are even older. Originally dedicated to travellers, they have been renovated.

To the initial costs, it is necessary to add the construction or the renovation of the garage tracks.

Secondly:

- In the West end of the city, of Zurich a new recycling centre with tram sidings was built permitting an efficient loading/unloading of the Cargo Tram,
- New containers are provided with a press for bulky goods.

21.3.3 Human resources

The employees of ERZ are in charge of sorting the waste.

21.3.4 Monitoring procedures

No special measurement was set up, considering the limited scale of the project. The positive echo from the population and an award from the Swiss travel association are considered sufficient "proofs" of the usefulness of the service to the population.

21.4 Supporting Mechanism

21.4.1 Awareness/information campaigns

At the end of the year, each household receives the "ERZ disposal calendar" which also contains a timetable about the Cargo-Tram.

21.4.2 Partnerships/Key supporting stakeholders

Waste management and transportation departments of the city of Zürich.

21.5 Results

21.5.1 Expected vs. Actual benefits

In Zurich, 380 tonnes of bulky wastes were collected during the first year of operation. This represents twice the tonnage of uncontrolled waste left on the pavements of the city before the implementation of the Cargo-Tram.

21.5.2 Quantitative results achieved

In 2004, 785 tonnes of garbage were collected at 8 stops in 94 collecting rides from which 644 tonnes were bulky goods and 141 tonnes were metal.

This represents approximately €3,200 per ride including operative and back-office costs (information to the population, logistics...).

21 Cargotram, Zurich (Switzerland)

21.5.3 Qualitative results

Cargo-Tram of Zürich offers a new service to the residents, representing a valuable addition to the concept of a better quality of life without automobile.

21.6 Key Considerations

21.6.1 Lessons learned

Take into account the needs of the citizens.

All the actors must be associated from the beginning of the project

Decisions must be taken quickly before too many political controversies arise.

21.6.2 Primary Obstacles

Sharing tramway infrastructure between passenger transport and goods transport.

21.6.3 Critical Success factors

Needs have to be indeed identified.

The investments must be minimized.

Three main players (the operator, the municipality, the waste management administration) have to get involved.

21.6.4 Transferability considerations

There are strong technical constraints to a tramway to transport goods or solid waste. First of all, a preliminary tramway network must already exist. Furthermore, it must not be saturated so that goods trains can suitably circulate and so that the passenger train traffic is not hampered.

The existing network must be dense enough and connect the centre with the suburbs to limit the costs of infrastructure.

21.6.5 Up-scaling considerations

There were no further actions taken to widen the business. There is some potential, depending on the development of the traffic in general. For example, the collection of WEEE material of smaller companies, including bulky waste, transportation of waste from collection points to waste incinerators during the nights.

21.6.6 Contacts

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22 City Cargo, Amsterdam (the Netherlands)

22.1 General information

22.1.1 Description

City Cargo is a private initiative to develop a comprehensive freight service (usually called a Cargo Tram) using Amsterdam tramway infrastructures. It was supported by the municipality and a test was made in May 2007 but the project has been under consideration for a long time and was abandoned in July 2009. The required investment to launch the initiative on a broad scale was estimated to be €150 million.

22.1.2 Type of measure/field of application

Administrative	X
Urban planning	
Governance	
Awareness	
Infrastructure	X
ITS & Technical	X
Modelling	
Supply Chain	
Information	

22.1.3 Framework and background

Amsterdam, as well as other Dutch cities, have been active in designing city logistics schemes since the 1990s. The main rationale behind these schemes (urban consolidation centres, low emission zones, night deliveries with silent equipment...) is the protection of the urban environment and lately the reduction of the cities' carbon footprint.

City Cargo was a private initiative which gained a lot of media attention (both national and European) in the years 2006-2009. It was supported by the municipality of Amsterdam which was ready to give a long term concession to the cargo tram company for the exclusive use of the tramway tracks.

22.2 Policy design details

22.2.1 Primary Policy Objectives

Provide Incentives	X
Regulation/Enforcement Component	X

22.2.2 Policy design steps and timing

A market study and a technical study were done in 2005-2007

A pilot experiment was implemented for one month during May 2007 with partnerships from major brands (Mexx and McGregor for clothes, Heineken for bottles). Two traditional (but reorganised) tramway cars were

22 City Cargo, Amsterdam (the Netherlands)

used.

The business plan and more technical studies were done from June 2007 until July 2009. Potential investors were contacted (transport companies such as Veolia or Transdev, or consulting firms such as Cap Gemini...). The municipality committed itself to design and enforce access regulations for polluting trucks, giving a favourable framework to the City Cargo experiment.

22.2.3 Actors involved and participation

A private initiative from an entrepreneur and inventor (Peter Hendriks), founder of City Cargo

An interest and support from the municipality, excluding direct financial support

A necessary involvement of private investors

22.2.4 Decision making process

The municipality agreed to let City Cargo use the tramway tracks to implement a pilot experiment in 2007

If the scheme had become permanent, the municipality would have signed a 10 year concession with City Cargo for the use of the tracks

22.2.5 Site characteristics

Amsterdam is a complex urban environment due to the canals and the historic neighbourhoods. The Supreme Court in the Netherlands is very strict in applying European regulations on cities' air quality and municipalities have to comply with the reduction of ozone, NOx and particulates generated by automobile traffic (specifically truck and van traffic)

This explains why Dutch municipalities are eager to set up experimental schemes such as the cargo trams

22.3 Implementation details

22.3.1 Resources/infrastructures

From delivery points outside the city centre the trams would have taken the goods to four or five hubs (specifically built) throughout the centre from where the deliveries to the final destinations were to be handled by small electric vehicles, called "e-cars"

The hubs were to be located strategically just outside the centre and the tram cars were to be taken out of the loop to the hubs on specifically built private rail sidings (the cargo tram cars were to use the tramway infrastructures for the most part, then specifically built secondary tracks leading to the transshipment hubs)

50 tram cars and 400 electric vehicles were planned

22.3.2 Human resources

At the maximum, the scheme involved 1,200 jobs, including handling jobs within the transshipment terminals.

22.3.3 Primary Target Group

City Cargo aimed to take out half the number of trucks that enter the city

In Amsterdam it meant cutting the number from 5,000 trucks to 2,500 a day

22 City Cargo, Amsterdam (the Netherlands)

22.4 Supporting Mechanism

22.4.1 Awareness/information campaigns

A lot of media attention (both domestic and European) was gained by City Cargo since the May 2007 pilot experiment.

22.4.2 Partnerships/Key supporting stakeholders

Private investors (major players such as Veolia Transport) were needed due to the cost of the project. A strong public interest from the municipality was also important. The municipality did not wish to invest money directly into the scheme but was willing to provide a favorable regulatory framework and a legal access to the tramway infrastructure

22.5 Results

22.5.1 Expected vs. Actual benefits

Benefits were hard to monitor during the pilot phase because of its short duration (one month). Expected results for the permanent scheme were targeted as a decrease of 20% of greenhouse gas emissions and the reduction of 50% of the number of trucks circulating into the city streets

22.5.2 Quantitative results achieved

Quantitative impacts were hard to monitor during the pilot phase because of its short duration (one month).

22.5.3 Qualitative results

The pilot phase (one month in May 2007) provided satisfactory results in terms of:

- Technical feasibility
- Qualitative perception by citizens and shops about the scheme

22.6 Key Considerations

22.6.1 Lessons learned

According to the municipality (interview 30 June 2009) "the cost of the project is very high because of the investments in small private rail sidings to reach the transfer hubs. Investors will be difficult to convince".

22.6.2 Primary Obstacles

Investment costs and lack of interested investors. No guaranteed returns of investments.

22.6.3 Transferability considerations

Cargo trams are extremely difficult schemes to implement. Their technical feasibility is not fully guaranteed. Investments in specific rail infrastructures (hubs and private sidings) are extremely costly in cities.



22 City Cargo, Amsterdam (the Netherlands)

22.6.4 Up-scaling considerations

The scheme was planned as a full scale and was considered, from the beginning, as a very ambitious transport system.

22.6.5 Contacts

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23 Cityporto, Padua (Italy)

23.1 General information

23.1.1 Description

The aim of Cityporto is to optimize and consolidate the urban distribution of goods in order to contribute to the decongestion of traffic in city centres.

Cityporto proposes a freight distribution service using an urban consolidation centre (UCC) and a fleet of low-polluting vehicles.

23.1.2 Type of measure/field of application

Administrative	X
Urban planning	X
Governance	X
Awareness	
Infrastructure	X
ITS & Technical	X
Modelling	
Supply Chain	X
Information	X

23.1.3 Framework and background

The main urban transport problems in Padova are traffic congestion and noise, low air quality and important commercial vehicle traffic into the city centre. Like other medium size Italian cities, new distribution schemes have to be developed to reduce congestion in historical city centres.

The city (local policy) has defined a restricted access zone, called ZTL (Zone with Limited Traffic). Further regulations are proposed by the Veneto region (regional policy).

23.2 Policy design details

23.2.1 Primary Policy Objectives

Provide Incentives	
Regulation/Enforcement Component	X

23.2.2 Policy design steps and timing

1997: the Municipality of Padua promotes a survey to identify the movement of goods in cities

1999: A regional law promotes urban logistics projects in the Veneto Region

2001: the municipality of Padua identifies its Mobility Policy. Goods traffic access to the ZTL is restricted. APUM (Urban Mobility Plan) is adopted.

2003: Protocol of Agreement between the Municipality and associations (trade, industry, utilities company) to

23 Cityporto, Padua (Italy)

promote a more environmentally friendly commercial vehicle fleet, including the implementation of an urban Consolidation centre (UCC)

2003: the Municipality entrusts Interporto di Padova to do a study of feasibility to reorganize the urban distribution of goods

Meetings between Interporto and transport operators

04/04/2004: Program agreement signature

04/21/2004: The service starts its operations

23.2.3 Actors involved and participation

Interporto di Padova (intermodal terminal): project leader and service management operator.

City of Padua: co-leader of the project and regulator.

Commercial Chamber of Padua, A.P.S. Holding S.p.A.: provides funding and regulation advice.

Twenty freight transport operators in 2004 - 40 in 2009: users of the system.

23.2.4 Decision making process

Grants attribution from public administrations: €360,000 (4 yearly instalments from Municipality, Province, Region and Chamber of Commerce).

Decreasing amounts granted with the increasing success of the UCC.

2004: 85% grants on total inflow

2005: 50%

2006: 24%

2007: 22%

No public funding as of 2007

23.2.5 Site characteristics

Presence of a logistics centre near the city.

Terminal's operator with experience in logistics management.

23.2.6 Leverage Points

Economic sustainability

Industrial Plan development

Consultation process (direct involvement of transport operators, consultation with shopkeepers)

Choice of the terminal's location in a strategic position

23.3 Implementation details

23.3.1 Implementation step and timing

During the first 6 months, the capacity of delivery means was underestimated compared to the demand.

During the first two years, activity was performed with two vehicles only, to ease management.

It took four years to get to the breakeven point (considering the public funding).

From September 2004, four vehicles, from October 2005 six vehicles (including two for perishable goods)

23 Cityporto, Padua (Italy)

23.3.2 Resources/infrastructures needed

A terminal for consolidation (it is not necessary to arrange for a large facility, 300 to 550 sqm are enough)
 Management software (tracking and tracing of deliveries)
 10 vehicles running on CNG

23.3.3 Human resources

One operation manager directly employed by Cityporto
 Goods' handling and distribution of goods entrusted to a third party (1 person for handling and 2 truckers)

23.3.4 Primary Target Group

Freight transport operators (including fresh products).
 The restrictions apply to vehicles' technical standards (Euro III) and time windows.

23.3.5 Enforcement scheme

2001: ZTL, limited time window to access the ZTL
 2003: implementation of electronically monitored gates to access the ZTL

23.3.6 Monitoring procedures

- Monthly Monitoring Statistics of the number of deliveries
- Time windows for access and loading/unloading
- Tariff per delivery agreed with third party operators (couriers, forwarders)

A survey was made in order to estimate the effects of the UCC (Sept 2004-Dec 2005)

23.4 Supporting Mechanism

23.4.1 Awareness/information campaigns

Frequent media coverage in specialised and general press since 2004.
 Talks in conferences, workshops and round tables.
 Organization of City Logistics Expo in 2007.

23.4.2 Incentive Programmes/Financial Instruments

Infrastructure financed by public funds.
 Advantages for the transport operators belonging to the consortium.

23.4.3 Partnerships/Key supporting stakeholders

Interporto di Padova S.p.A./City of Padua/Chamber of Commerce of Padua/Municipal Mobility Company (APS Holding) partnership.

23 Cityporto, Padua (Italy)

23.5 Results

23.5.1 Expected vs. Actual benefits

Reduction in the level of pollutant emissions during the surveyed period (15 months).
Reduction of traffic and congestion.

23.5.2 Quantitative results achieved

Reduction of:

- CO₂: 38.4 tonnes
- CO: 202 kg
- NOx: 163 kg
- VOC: 58.1
- PM₁₀: 41.4 kg (15 months)

Reduction in the level of externalities:

- Air pollution accounts for 76% of social costs saved,
- Noise for 11%,
- Accidents for 6%,
- Energy saving for 4%
- Global warming for 3%

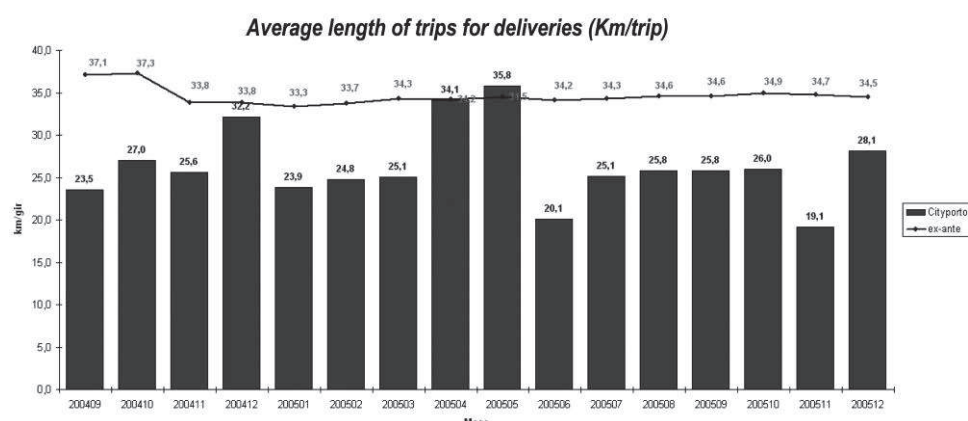
33 couriers/forwarders/3 PLs + 2 operators on own account are involved

55,000 deliveries per year (2005)

Prerating days: 313

Delivery trips (accounted by tracking and tracing): 1,892

Reduction of the length of trips for deliveries in km/trip



The total net reduction of traffic performance is over 127,000 vehicles-km in 15 months.

Operators using Cityporto save 19-20 trips per day.

23 Cityporto, Padua (Italy)

23.5.3 Qualitative results

More than the double of transport operators involved compared to the beginning.

The consolidation of goods traffic in the city centre (less vehicles) gives space to different mobility policies for citizens (pedestrian zones, bike lanes).

23.6 Key Considerations

23.6.1 Lessons learned

Transport operators have to be involved in the project on a voluntary basis.

Economic sustainability is necessary.

23.6.2 Primary Obstacles

Express courier operators do not like these systems as they see it as an anti competition policy

23.6.3 Critical Success factors

Know-how of Interporto di Padova

Neutrality of the UCC managing operator towards transport operators

Location of main transport operators inside the interporto zone

Location of the logistic terminal near the city centre

23.6.4 Transferability considerations

A survey is needed among local transport operators to evaluate if they will accept a City Logistics service. Based on the number of operators it is possible to understand the quantity of goods with which (and if) to start a project of city logistics.

But the municipality always has to be involved to enforce a mobility policy.

23.6.5 Up-scaling considerations

If a city logistics experiment is successful for “traditional” goods (non bulky, non fresh), the consolidated distribution of fresh products (medicine, perishable foods) may then be tested.

23.6.6 Contacts

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24 Cityssimo, La Défense (France)

24.1 General information

24.1.1 Description

Since December 2006, the retail areas of the Paris underground subway system include a new service, Cityssimo. Cityssimo (a service of the French Post) is a system of dedicated locker banks which constitutes an alternative to home deliveries for parcels delivered by Colissimo, the Poste parcels delivery service. In 2011, 31 Cityssimo boutiques were available in France, most of them in the Paris region. Two boutiques are located in the subway, including one in La Défense, an important subway station West of Paris.

24.1.2 Type of measure/field of application

Administrative	
Urban planning	
Governance	
Awareness	
Infrastructure	
ITS & Technical	X
Modelling	
Supply Chain	X
Information	X

24.1.3 Framework and background

The first Cityssimo boutique was implemented at the end of 2005 in a context when distance selling and thus home deliveries were growing very rapidly. Indeed, the turnover of distance selling business almost doubled in France between 2003 and 2007, from €11.4 to 22.1 billion.

24.2 Policy design details

24.2.1 Primary Policy Objectives

Provide Incentives	X
Regulation/Enforcement Component	

24.2.2 Policy design steps and timing

The policy of RATP (Paris public transport operator) was to rent retail areas in its network. Some of the retail activities were abandoned because the booths were too small. This provided opportunities for Cityssimo to develop boutiques for locker banks (see photo under). These locker banks serve as automated pick up points from which customers pick up their parcels ordered on the internet.

24 Cityssimo, La Défense (France)

24.2.3 Actors involved and participation

- RATP (Paris public transport operator)
- Promométro, subsidiary of the RATP with a responsibility over the management of all RATP's retail areas
- Coliposte, a subsidiary of the French Post dedicated to parcels' delivery

24.2.4 Decision making process

Between 1998 and 2000, a distance selling company tried to set up a partnership with Promométro to develop pick up points in RATP's underground retail areas. Prototypes were implemented but eventually the partnership did not succeed, partly because of a lack of trust from RATP with regards to these new B2C services. It took nearly ten years for a new project proposing a pick up point system to be successful. The decision to integrate Cityssimo into the RATP network was largely due to a preliminary knowledge of the main players and to the fact that the market was more mature (with the increase in internet shopping).

24.2.5 Site characteristics

The common choice of location for a Cityssimo boutique in the metro is close to other retail activities. For the La Défense location, however, the Cityssimo was implemented close to other services such as the Post office. The floor area of the boutique is 38 m².



24.2.6 Leverage Points

- The first contacts between the partners were key elements
- The question of the safety and security of the customers constitutes an essential stake for RATP

24.3 Implementation details

24.3.1 Implementation step and timing

June 2006: first contacts made by Coliposte for the setting-up of Cityssimo

- Official beginning of works (elaboration and validation by the various partners)
- Request for safety certificates from the fire control service of the RATP (IGSI) and the service for the control of risks, quality, safety and environment (SOCOTEC) - which had managed the

24 Cityssimo, La Défense (France)

- renovation and development of the site of La Defense - to validate any new construction
- Building of the boutique
- Conformity check by SOCOTEC
- Authorization for public opening by IGSi

December 2006: opening of the first Cityssimo in the RATP network

24.3.2 Resources/infrastructures needed

The renting of the boutique costs €1000/m² a year to Coliposte for La Defense location (representing €50 000/year). Building a boutique includes costs such as the reinforcement of the ground, high security doors and the installation of a security system by cameras. The cost of the locker banks is also quite high. The profitability of the service depends only on the number of parcels delivered by site.

24.3.3 Human resources

Cityssimo does not require any staff in these locations.

24.3.4 Monitoring procedures

Coliposte (La Poste) has implemented a permanent monitoring procedure but results are not public.

24.4 Supporting Mechanism

24.4.1 Awareness/information campaigns

Coliposte has set up an advertising campaign to inform its customers of the availability of this new service. The information was given mainly in post offices and on the internet (www.cityssimo.fr).

24.4.2 Partnerships/Key supporting stakeholders

Coliposte partners for Cityssimo services are the e-merchants who integrate this new mode of delivery on their sites, as well as the companies which accept to accommodate Cityssimo locations such as Casino (supermarket chain) or the RATP

24.5 Results

24.5.1 Expected vs. Actual benefits

Because of the innovative character of this new service (in a competitive market), the results are not public. However, according to Coliposte, the first assessments proved very satisfactory both for Coliposte and for Promomètre. Two Cityssimo boutiques were opened in metro stations at the end of 2008. Volume is still low as the number of parcels picked up every day is about 30. Coliposte is currently designing strategies to advertise the Cityssimo service to customers.

24.5.2 Quantitative results achieved

In 2007, 35,000 subscribers were recorded for 12 sites, (3,000 subscribers by site). The objective is to reach 4,000 to 6,000 subscribers by site. More recent figures are not available to this day (2011).

24 Cityssimo, La Défense (France)

24.5.3 Qualitative results

Satisfaction surveys with Cityssimo users showed that 96% were satisfied.

24.6 Key Considerations

24.6.1 Lessons learned

The collaboration between the partners has to take place from the very first phases of the project. Indeed, previous experiences failed by a lack of early cooperation.

24.6.2 Primary Obstacles

Site and deliveries' safety for Promométro.
Site accessibility for Coliposte.

24.6.3 Critical Success factors

A common objective and a coordinated timing between partners.
An understanding of each partner's the constraints from the other ones.

24.6.4 Transferability considerations

Cityssimo can be implanted in all types of metro stations although safety can be an important issue in some locations. Up-scaling considerations

24.6.5 Contacts

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25 Congestion charging, Stockholm (Sweden)

25.1 General information

25.1.1 Description

After one year of test and a referendum, Stockholm adopted the implementation of a congestion charging scheme in August 2007.

Stockholm was the second European city (after London) to test such a large scale payment system intended to reduce congestion and improve the traffic environment.

This system aims at reducing global automotive traffic, with heavy good vehicles also included in the scheme. To our knowledge, no specific assessment of the scheme impact on freight traffic has been made.

25.1.2 Type of measure/field of application

Administrative	X
Urban planning	
Governance	
Awareness	X
Infrastructure	
ITS & Technical	X
Modelling	
Supply Chain	
Information	X

25.1.3 Framework and background

The primary objectives were to reduce congestion, increase accessibility and improve the environment.

The secondary (more specific) objectives were to:

- Reduce traffic to and from the city by 10-15% during rush hour
- Increase level service in Stockholm city traffic
- Reduce the emissions of carbon dioxide, nitric oxide and particulate matters

25.2 Policy design details

25.2.1 Primary Policy Objectives

Provide Incentives	
Regulation/Enforcement Component	X

25.2.2 Policy design steps and timing

06/02/2003: Decision of Local Parliament in Stockholm to request a national law to the national government that allows Stockholm to introduce congestion charging.

25 Congestion charging, Stockholm (Sweden)

06/16/2004: the Swedish national parliament adopts the Congestion Tax Law.
07/01/2004: Stockholm hands over the procurement process to the SRA (Swedish Road Administration).
03/31/2005: Final decision from the Supreme Court for administrative cases, deciding that the agreement between SRA and IBM is legal.
08/22/2005: Extended Public transport service started.
01/03/2006: Starting of the congestion tax.
07/31/2006: Last day with congestion tax (end of trial).
09/17/2006: Referendum: 53% in Stockholm voted Yes.
End September 2006: The new conservative government declares that they will continue the scheme (3 out of 4 parties in the new government had opposed the scheme before the referendum).
08/01/2007: Restarting of the scheme.
08/01/2008: New type of payment. Monthly invoice from SDA.

25.2.3 Actors involved and participation

The City of Stockholm started the project in early 2003.
The Swedish Road Administration (SRA) took over in July 2004 (By the constitutional law, a local municipality is not allowed to charge anyone else but their own citizens).
The city kept the responsibility for the general information and the huge evaluation program.
The Swedish national government that wrote the legislation and payed for the trial including extended public transport service.
IBM who made the system. The contractor hired by the SRA, IBM, had several sub-contractors.

25.2.4 Decision making process

See Policy design steps and timing.

25.2.5 Site characteristics

All through traffic drives past the city over a few bridges. The traffic volume on the two main bridges were often greatly exceeding the capacity for which they were originally built.
The population of Stockholm County is growing at a rate of some 20,000 people a year, which inevitably means more traffic, and an even greater burden on city streets and roads.

25.2.6 Leverage Points

Before the implementation of the system, the debates and controversies were many and virulent.
The referendum could have put an end to the project.
The change of government could also have ended the project.

25.3 Implementation details

25.3.1 Implementation step and timing

The congestion tax is levied between 6:30 and 18:30. The tax per passage is SEK10 (around €1), SEK15 or SEK20 depending on the time of day. The highest amount charged is during rush hours between 7:30 and 8:30 and 16:00 and 17:30. The maximum amount per vehicle and day is SEK60. Payment can only be made retroactively, and there is no opportunity to pay at the control points.

25 Congestion charging, Stockholm (Sweden)



Source: Vägverket

Vehicles are registered when driving through a control point. In order to be able to determine the vehicle owner's tax liability, he or she is identified via the licence plate number

Means of payment:

- Most people pay automatically via direct debit. Then they receive an electronic onboard unit to affix to the windscreen.
- It is possible to pay over the counter at Pressbyrån kiosks and 7-Elevens (convenience stores).
- Payment could be made via Internet banking.

If the congestion tax was not paid in time, the vehicle owner received a reminder by mail, including a SEK70 service charge.

25.3.2 Resources/infrastructures needed

18 control points

164 cameras

159 laser detectors

62 MLC (Multi-Lane Controller) units

78 traffic lanes

The test cost about SEK2 billion (€200 million)

25.3.3 Human resources

A huge number of IBM experts and IT-staff. Call centre began with 400 people but they were too numerous, today they are under 100. In Stockholm about 10 people work for the scheme, and a small call centre for FAQ at the SRA (Swedish Road Administration) employs 30 - 50 people.

25.3.4 Primary Target Group

The congestion tax applies only to vehicles registered in Sweden with the following exceptions: emergency service vehicles, buses with a total weight of 14 tonnes or more, diplomatic cars, taxis, motorcycles, transportation service vehicles, vehicle used by a person with a disability parking permit, vehicle equipped with technology for running.

25 Congestion charging, Stockholm (Sweden)

25.3.5 Enforcement scheme

If the congestion tax is not paid on time, the vehicle owner receives a reminder by mail, including a SEK70 service charge. This is to be paid within four weeks from the day of passage. If this is not paid on time the vehicle owner is sent an additional reminder with a SEK500 surcharge. All service charges and surcharges have to be paid within a month from the date on which the surcharge has been decided.

25.3.6 Monitoring procedures

The assessment work, analyses and reports have been conducted and produced by government agencies and administrations as well as consulting companies that specialise in the different sub-areas of the evaluation programme. The report "Facts and results from the Stockholm Trial", was finalized in December 2006. In this report the effects of the congestion charge on road traffic, public transport, pedestrian and cycle traffic, parking but also travel patterns, road safety, air quality, emission calculation and noise are estimated.

25.4 Supporting Mechanism

25.4.1 Awareness/information campaigns

Stockholm has launched advertisement campaigns "Why and when" and has published assessment results. During the first week of the test, a press conference was given every day and then once a month. SRA did a huge advertising campaign about how it will work, how to pay.

Information channels: websites, customer services, letters to vehicle owners, advertisements in the daily and trade press, media/press information, information in the traffic environment, information on the radio, public service television, Pressbyrån kiosks and 7-Eleven shops, meetings, trade fairs/exhibitions, information pamphlets, fact sheets, leaflets, film.

25.4.2 Incentive Programmes/Financial Instruments

National Government funding. Today the revenue from the scheme is about €100 million/year, for operational cost of €20 million. Net revenue will be spent on infrastructure investments in the Stockholm region.

25.4.3 Partnership/Key supporting stakeholders

Implementing congestion charging has been very political. The left party, Green party and social democrats were in favor. The conservatives, liberals, and Christian democrats were against. The centre party (a non socialistic green party, the old farmers party) were in favor. Environmental organisations, green car owners... were supporting it as well as most traffic experts (as they appreciated it to be a full scale experiment) There was also a small but important group of members in the liberals and Christian democrats that were supporting the scheme.

The chamber of commerce and motorists organisations were against the scheme. 75% of the citizens were against it before its introduction in January 2006. After the trial, a majority voted for a continuation. Today all political parties are supporting the congestion tax, almost no opinion groups are against. The latest opinion pools show that 2/3 support the system.

25 Congestion charging, Stockholm (Sweden)

25.4.4 Other Policies

The Stockholm trial consisted of three parts:

1. Extended public transport (SEK1.3 billion)
2. Environmental charges/congestion tax
3. Additional park and ride

The congestion pricing scheme was introduced with accompanying measures.

25.5 Results

25.5.1 Expected vs. Actual benefits

Motor traffic decreased more than expected, access improved, traffic reduction led to less environmental impact and better health as well as increased road safety.

But it was more difficult to determine if Stockholmers experienced improved city environment.

25.5.2 Quantitative results achieved

The total traffic volume declined by 28% in 2006 compared with 2004 during the period when the congestion tax applied. Light goods vehicles were reduced by 22%. Heavy goods traffic declined by slightly more than 10%. The emissions of particles and nitrogen oxides from road traffic in Stockholm's inner city are estimated to have fallen by between 8% and 12%.

Greenhouse gasses such as carbon dioxide have fallen by 40 percent in the inner-city and by two to three percent in Stockholm County.

Today there are 20% less traffic in and out from the inner city during peak hours, 10-14% less emissions and 30% less travelling times.

25.5.3 Qualitative results

Both the general public and the business community became more positive to the charges and to the test as residents saw the benefits.

25.6 Key Considerations

25.6.1 Lessons learned

The most important lesson is that people like a new system or innovation when they actually experience it. A referendum before the introduction will almost always end up in a defeat, which happened in Edinburgh and Manchester. Only in Copenhagen did voters say Yes to a scheme before experiencing it as a test.

25.6.2 Primary Obstacles

Almost no problems so far. But the preparation time has been long and difficult. Political problems and appealed procurement process.

25 Congestion charging, Stockholm (Sweden)

25.6.3 Critical Success factors

A strong political will at the national level was necessary.

Furthermore, once the congestion charge is implemented, enforcement constitutes a determining factor of success.

25.6.4 Transferability considerations

There are no particular constraints in the transferability of this project if critical success factors are taken into account.

25.6.5 Up-scaling considerations

Many cities throughout the world, particularly in Europe and the USA, exhibited interest in the project, and a large number of international delegations visited Stockholm to study the project firsthand.

25.6.6 Contacts

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26 Data collection-Modelling, Bordeaux, Marseille, Dijon (France)

26.1 General information

26.1.1 Description

The French National programme "Urban Goods Movements" has been organising an ambitious urban goods movements data collection for many years. The Laboratoire d'Economie des Transports (Lyon) has built and analysed three large original Urban Goods Movement (UGM) surveys in order to provide the quantitative elements useful for demand forecasting and vehicle flow generation in French cities. Surveys have been carried out in the French cities of Marseille (1.1 million inhabitants), Bordeaux (750,000) and Dijon (240,000). The results have notably been used as a data base for the FRETURB model calibration, and as decision aid for the transport master plans of several large and medium sized French cities.

26.1.2 Type of measure/field of application

Administrative	
Urban planning	
Governance	
Awareness	
Infrastructure	
ITS & Technical	
Modelling	X
Supply Chain	
Information	X

26.1.3 Framework and background

Since the 1990s, the rapid growth of car traffic, congestion, pollution and the lack of space generating difficulties in managing cities, have led to the implementation of surveys to understand how city logistics is carried out. No data was available on global urban logistics, including all operators (own account and third party carriers), all delivery vehicles (heavy and light vehicles), a large perimeter (city centre, conurbation and surroundings), all deliveries and pick ups (from express to full payload). The decision makers did not have any tool for town planning

26.2 Policy design details

26.2.1 Primary Policy Objectives

Provide Incentives	
Regulation/Enforcement Component	X

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26.2.2 Policy design steps and timing

Methodology: choice of unit (the "movement of vehicle", i.e. deliveries or pick-ups achieved in each establishment), perimeter (in accordance with the individual household surveys areas, in order to have available data about car and public transport road occupancy), sample of establishments(stratified sampling method according to the activity, size and location).

Pilot survey to test the method.

Surveys in three cities (with different sizes and morphology).

Model building for diagnosis, simulations and energy assessment .

Dissemination of results and a user-friendly version of the model.

26.2.3 Actors involved and participation

Ministry of Ecology, ADEME (French Environmental Agency), syndicates of local authorities, chambers of commerce, research laboratory (methodology), consulting (surveys), steering committee, technical committee.

26.2.4 Decision making process

1 year: methodology, questionnaire, to find a city to be surveyed, financial arrangements, remit for invitation for tender, ground analysis (specificity spotting).

1 year: surveys, data collection, data processing.

1 year: expansion and weighting, Report.

2 years: modelling and calibration.

26.2.5 Site characteristics

Need to have a representative survey (all the establishments located in the city), a global vision (all products, all vehicles, all operators, all generators) and to have results transferable to others cities.

The data collected had to be integrated into the modelling process.

26.2.6 Leverage Points

The involvement of cities and local decision-makers.

The financial aspect.

The acceptability of the surveys (from local businesses, from, deliverymen and from carriers).

The surveyors' training was also a key issue.

Consultants and the survey company had to be controlled closely so that mistakes were not made during the field survey.

26.3 Implementation details

26.3.1 Implementation step and timing

1993: start up: methodology and pilot survey in Lyon.

1994: first survey in Bordeaux.

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1995-1996: treatments and results.
1997: Surveys with a similar methodology in Marseilles and Dijon.
1998-1999: treatments and results.
2000: Modelling (FRETURB building).
2008: 30 towns are using FRETURB in France and abroad, new pilot survey in Lyon for testing new tools (GPS, Internet).
2009: start up of new surveys: discussions with potential cities to be surveyed (Paris region and others).
2010-2012: surveys in Ile-de-France region (Paris region) and Bordeaux urban resources.

26.3.2 Resources/infrastructures needed

Large information campaign.
Posters in shops.
Notes and brochures for carriers and deliverymen.
Announcements in news bulletin (CCI).

26.3.3 Human resources

Six researchers.
30 surveyors.
6 consultants.
40 persons in the Steering committee.
20 persons in the technical committee.
2 technical staff from the municipalities.

26.3.4 Primary Target Group

Number of ratified surveys per city:
1500 establishments (industrial, commercial, tertiary sectors), 900 delivery-men having delivered establishments (own account and professionals, with all types of vehicles, all types of goods...), 50 carriers involved in urban distribution.

26.3.5 Monitoring procedures

Tests and punctual surveys have been made in order to verify the results in some cities which have not been surveyed. Comparison with other surveys (as "cordon" surveys). Comparison between FRETURB model results and data collection results in other cities.

26.4 Supporting Mechanism

26.4.1 Awareness/information campaigns

Large information campaigns in cities (signs), in shops (posters) in the local news.

26.4.2 Incentive Programmes/Financial Instruments

A lottery was organised for the establishments which had filled the questionnaires.

26 Data collection-Modelling, Bordeaux, Marseille, Dijon (France)

A little gift was given to deliverymen who had described their rounds precisely and answered all questions.

26.4.3 Partnerships/key supporting stakeholders

Ministry of environment, ADEME, municipality and all business stakeholders.

26.4.4 Other Policies

The data collection and then the modelling permitted to have a better knowledge of the urban logistics. Starting from this better knowledge, experiments in city logistics were carried out by French cities. These experiments often have been supported by local authorities.

A program has been initiated and financed by the Ministry about urban logistics spaces in order to enlighten the stakeholders on the appropriateness between needs and the type of logistic consolidation to promote.

26.5 Results

26.5.1 Expected vs. Actual benefits

UGM data collection and the FRETURB model give a global view of all the flows of vehicles generated by each economic activity in urban areas. It shows the links between activities and the organisation of the logistics chain: management mode (own account/carriers)-organisational mode (direct trip/rounds), the size of vehicles, the number of deliveries, the time for delivering, the different ways of truck parking.

These surveys make it possible to simulate the effects of new firms' implantation on vehicles flows and road occupancy. And above all, an evaluation of pollution and carbon emissions is possible from the UGM surveys.

26.5.2 Quantitative results achieved

Numerous results are available. Among the most well-known ratios are the following:

1 delivery or pick up/week/employee.

>50% deliveries made on own account.

>50% deliveries made with light commercial vehicles.

UGM = 25% CO₂ emissions, 44% particulates.

UGM components: 39% (inter-establishments), 51% (households' shopping trips with motorised vehicles).

10% (urban services such as waste disposal).

75% direct trips account for 25% deliveries.

Numerous results concerning road occupancy, the delivery-time, the link between activity and vehicles flows generation.

26.5.3 Qualitative results

This programme made it possible for local authorities to measure the stakes of UGM in city management. Numerous regulations have been implemented thanks to the programme (Charter of Delivery Good practices in Paris and Toulouse for example).

26 Data collection-Modelling, Bordeaux, Marseille, Dijon (France)

26.6 Key Considerations

26.6.1 Lessons learned

Making different surveys at the same time (specific survey to establishments + log for description of all deliveries and pick up during a week + driver-survey describing the rounds + carriers survey describing their logistic organisation) is the most efficient way to explain the complexity of Urban Good movements.

The results in the three surveyed cities in France are very similar, so it is possible to use the FRETURB model to other cities without making expensive and comprehensive surveys.

It seems necessary to do new UGM surveys every 10 years, with the same frequency as passengers' mobility surveys in order to be able to have a global view of mobility in cities and to adapt regulation and infrastructure to the needs of all stakeholders.

26.6.2 Primary Obstacles

The cost and size of the surveys: three parallel surveys are needed: a survey for businesses (generators of flows), a delivery-man survey (for the delivery rounds' description), and a survey among carriers. Face to face interviews were chosen over written or phone interviews. One survey costs about €750,000 per city.

The cost can increase according to the perimeter and the number of establishments surveyed (1,500 in each city) + 1,500 deliverymen + 300 carriers.

26.6.3 Critical Success factors

The involvement of municipalities (political impulse). For local politicians, investing in UGM surveys is not as interesting politically as investing in passengers mobility surveys.

26.6.4 Transferability considerations

The transferability has been tested with a similar methodology. In 2008 a new pilot survey has been made. In 2009 the survey will be carried out in the Ile de France Region (Paris region, including a much larger perimeter, 2,500 establishments instead of 1,500).

26.6.5 Up-scaling considerations

The new surveys will enable the FRETURB model to evaluate new issues such as home deliveries or climate change assessment. New technologies will be used (GPS).

26.6.6 Contacts

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27 Dynamic delivery areas, Poitiers (France)

27.1 General information

27.1.1 Description

The local governments of Poitiers in 2007 set up a dynamic system of on-street parking space use: parking spaces are reserved for deliveries between 5.00 and 11.00, and outside of this time slot, the spaces are used for short term car park (10 minutes, free). The municipality controls the use of the spaces from a distance.



Statio-minute (Technolia) developed in Poitiers

27.1.2 Type of measure/field of application

Administrative	X
Urban planning	X
Governance	
Awareness	
Infrastructure	
ITS & Technical	X
Modelling	
Supply Chain	
Information	

27.1.3 Framework and background

During the renovation of the main railway station in Poitiers, a major car park near the station (where numerous shops are) has been reorganised in order to propose an experimental dynamic control of parking uses.

27 Dynamic delivery areas, Poitiers (France)

27.2 Policy design details

27.2.1 Primary Policy Objectives

Provide Incentives	
Regulation/Enforcement Component	X

27.2.2 Policy design steps and timing

Design of the parking areas, implementation of the physical bollards, discussion about practical details. Five bollards were settled to manage 10 parking places. The scheme was assessed. There was a satisfactory increase of vehicles' turnover. Today 23 bollards are implemented in the city centre of Poitiers.

27.2.3 Actors involved and participation

City Council.
Metropolitan government.
Company developing the technique (Technolia).

27.2.4 Decision making process

Proposition by technical services, pre-approval by the council and cooperation with retailers, approval by the council.

27.2.5 Site characteristics

The vicinity of the train station included 124 spaces of "minute" stops and 760 parking spaces to facilitate short-term car parking near the shops, while facilitating deliveries (75 deliveries/week).
23 inter active bollards were settled. The principle is simple: a sensor is put in the ground; it detects the presence of a vehicle. On the bollard, a screen displays the authorised park use currently operational (that is delivery or private car parking). When a vehicle is present, the time of authorized parking is displayed on the bollard. If the car is not moved within 10 minutes, a SMS is sent to the local police so that it moves the car.

27.3 Implementation details

27.3.1 Implementation step and timing

Selection of the technical system.
Contract with the company (1 month).
Commissioning, training (1 week).
Start-up .

27 Dynamic delivery areas, Poitiers (France)

27.3.2 Resources/infrastructures needed

Set up of 23 interactive bollards.

Signing.

Sensors under the road.

Information system between the bounds and the local police services.

Cost of bollards: 3 to €4,000 each.

27.3.3 Human resources

Four persons, training about maintenance and settings.

27.3.4 Primary Target Group

All the users of park spaces, delivery men.

All types of vehicles.

27.3.5 Enforcement scheme

The set up of 18 more bollards was decided after an analysis of the results of the first phase of experimentation.

27.3.6 Monitoring procedures

Statistical analysis has been made:

Time of stopping.

Number of vehicles stopping.

Number of rule-breaks.

27.4 Supporting Mechanism

27.4.1 Awareness/information campaigns

Information in the news and many media.

Regular presence of enforcement officers during the first.

27.5 Results

27.5.1 Expected vs. Actual benefits

Results conform to what was predicted. As the system is beneficial for car turnover and it is well used by car-users and delivery men, retailers want to increase time dedicated to minute-stop.

27.5.2 Quantitative results achieved

More than 40 vehicles actually use one parking space between 8.00 and 20.00:

- 74% of cars park for less than 10 minutes.
- 48% for less than 5 minutes.
- On the 26% cars breaking the time rule, 63% leave in the 5 minutes after receiving the first alert.

27 Dynamic delivery areas, Poitiers (France)

27.5.3 Qualitative results

Improvement of delivery times and a better road occupancy.
The display of a possible fine on the bollard's screen is good for enforcement.

27.6 Key Considerations

27.6.1 Lessons learned

Such an experiment is interesting because it obliges space users (cars or delivery vehicles) to abide by the rules. An efficient link between the system and the police is necessary. Police responsiveness is key.

27.6.2 Primary Obstacles

The main problem can come from the weak availability of the police services which cannot spend time for car parking issues.

27.6.3 Critical Success Factors

Responsiveness of enforcement officers, partnership with retailers, implementation in spaces with a high turnover of cars.

27.6.4 Transferability considerations

Bollards are not very expensive. They can be implemented in all critical sites where numerous vehicles have to share the space (near train or major bus stations, city centres).

27.6.5 Up-scaling considerations

Possibility to develop this system in the upcoming pedestrian city centre in Poitiers (2012).

27.6.6 Contacts

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28 Elcidis urban consolidation centre, La Rochelle (France)

28.1 General information

28.1.1 Description

La Rochelle was involved in the European project “Elcidis” (Electric vehicle City Distribution systems), initiated in 1998. The choice was to set up a UCC in order to reduce traffic, noise and pollution in the historical city centre. The UCC started to operate in 2001. The main objective was environmental, as the city chose to use electric delivery vehicles.

28.1.2 Type of measure/field of application

Administrative	X
Urban planning	X
Governance	X
Awareness	X
Infrastructure	X
ITS & Technical	X
Modelling	
Supply Chain	
Information	X

28.1.3 Framework and background

Car traffic had doubled in 1990s, increasing traffic on the major roads and streets of La Rochelle. Since the beginning of the 1980s, La Rochelle has designed a PDU (Urban Mobility Plan). There was a strong political willpower for an environmental approach to transport planning, including goods transport. Pollutant emissions as well as noise emissions due to deliveries in the city centre, congestion due to deliveries also contributed to the new policy.

28.2 Policy design details

28.2.1 Primary Policy Objectives

Provide Incentives	
Regulation/Enforcement Component	X

28.2.2 Policy design steps and timing

From the Elcidis terminal (located close to the city centre), six electric vans and one small electric truck are used to deliver the goods to the historic centre of La Rochelle. No delivery can be made in La Rochelle city centre (220 ha), with trucks (above 3.5 tonnes) after 7:30 in the morning. These deliveries have to be subcontracted to the Elcidis terminal operator.

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UCC la Rochelle is a public transshipment depot from which goods are dispatched in a consolidated way with clean delivery vehicles (electric). Subsidies helped to finance the rental of the terminal, handling equipment, electric vehicles, as well as the coverage of operating deficit (initially €0.70/parcel). Restriction: ban of trucks >3.5 tonnes for delivering, except between 6:00 and 7:30. There are many exemptions for full load shipments and specific products.

28.2.3 Actors involved and participation

Strong local support from local politicians and a partnership with the metropolitan authority, the chamber of commerce and Industry, the PREDIT (French Ministry of transport) and the local public transport operator.

28.2.4 Decision making process

The first Elcidis transport operator (transports Genty) was given the electric vehicles and they also received an operating subsidy. This subsidy has helped them keep the charge which is imposed on the Elcidis terminal users to a minimum (at market level). He was also given access to the terminal at no charge (the rent is paid by the City of La Rochelle).

28.2.5 Site characteristics

La Rochelle is a medium size city. It has been the first European city which organized an electric car sharing in the city centre. Environment is a key focus of La Rochelle administration. Congestion in the historical centre with narrow streets was a problem for the image of the city.

28.2.6 Leverage Points

The most difficult task to organize has been the management of the UCC. There was a legal problem concerning the management of the terminal, as carriers were forced to give parcels to a competitor. The second issue was linked to electric vehicles. In the first phase, no electrical truck was accredited in France, so small vehicles were not able to delivery pallets and large parcels. While the vehicles were non-polluting, they create congestion. Phase 2: new large vehicles operated and a new legal form was organized (a concession for a public service). That implies an invitation to tender.

28.3 Implementation details

28.3.1 Implementation step and timing

3 steps:

- 2001: phase 1, first implementation, ELCIDIS terminal.

The objectives were: to reduce pollution, noise and congestion caused by lorries in the city centre, to reorganise deliveries.

Operation: parcels and pallets forwarded by carriers unloaded at the terminal, sorted by geographical sector, in electrically powered vehicles, development of services.

- 2005: evaluation (see lesson learned).

- 2005-2008: phase 2, integration approach.

Renovation of Elcidis, new services, involvement of stakeholders. The involvement of all stakeholders was increased (new collaboration processes, target groups and appropriate approach to learn their operating modes and requirements).

Extend the domain from parcel distribution to city logistics (products, area, activities).

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Prepare new ways of sharing (streets, resources, time).

• 2006: Innovative partnerships.

Global partnership on new services for mobility which puts together all activities based on electric and hybrid vehicles (shuttles, seasonal buses, car sharing and goods distribution).

New legal frame: Since 2006, there is a concession for a public service for a 12 year period between the city and a private operator called Proxiway (Veolia group).

28.3.2 Resources/infrastructures needed

Large investments have been necessary by the EU and the French agency for the environment (€760,000). In the beginning a subsidy was provided (2.5 €/parcel). Additional services had to be proposed in order to make the scheme profitable. The feasibility study estimated a capacity of 600 parcels/day. The terminal, near the historical zone serves the historical centre of La Rochelle (220 ha). Its area is 700 m².

8 vehicles have been purchased (6 vehicles less than 3.5 tonnes, one thermic vehicle, 1 commercial electric vehicle).

Signalling: the local regulation forbids the entrance for 3.5 tonnes vehicle (with some exemptions).

Subsidies came from the EU Civitas program, PREDIT (French Ministry) and local authorities.

28.3.3 Human resources

Four employees work for the ELCIDIS terminal.

28.3.4 Primary Target Group

To reduce pollution, noise and congestion caused by lorries in the city centre:

- Parcels and pallets forwarded by carriers unloaded at the terminal.
- Sorting by sector and delivery, in electric vehicles.
- Ban of other vehicles except exemptions .

28.3.5 Enforcement scheme

Since 2006, shared costs: operating costs and investments are paid by the operator who receives the profits generated by the service. There was a financial support by the city during the first years of the project (operational subsidy). Diversification of activities (B to C deliveries, logistic provider for shopkeepers, temporary storage for building craftsmen).

New services: information kiosk/freight forum.

28.3.6 Monitoring procedures

An assessment of the experiment was made in 2002: 80 carriers used the ELCIDIS service and 72,477 parcels were delivered in 2002. 1,300 shops were concerned.

28.4 Supporting Mechanism

28.4.1 Incentive Programmes/Financial Instruments

The subsidies amounted to €54,000 in 2002. The production costs (estimated) were €3.8/parcel whereas the price asked to UCC users was €1.7 (2001) and €3 (2002).

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28.4.2 Partnerships/Key supporting stakeholders

The EU (Civitas program), the French Agency for the Environment and the Urban goods Movements French national program, local authorities in the La Rochelle area.

28.5 Results

28.5.1 Expected vs. Actual benefits

Decreasing traffic, pollution and noise. Improved delivery organisation (consolidation, less vehicles , better loading rate).

28.5.2 Quantitative results achieved

For the quantitative results, the evaluation method is based on surveys to carriers and deliverymen and for the qualitative results, on interviews with shopkeepers and local authorities. They compared the rounds going through the UCC in 2003 and the same delivery tours made before the UCC opened. The ratios used are the number of vehicles, the covered distances, the average loading rate, the itinerary followed, the number of stops. The calculation for consumption and pollutants emission uses the French Agency for the Environment. The urban congestion, insecurity, noise nuisance are based on counting and local authorities expertise. The calculation method for land use is the number of vehicle.km and the delivery time. The study in 2003 used 2002 data. On the whole, this study indicates that:

Electric vehicles have brought a huge benefit regarding exhaust gas emissions, noise emissions and CO2 emissions (61% saving: 1,575 kg/year). The pollutants decreased by about 61% to 63%.

It has increased urban congestion and visual impacts, due to the very small loading capacity (3 m3) of the vehicles used (+50%) and road occupancy in m².h.veh.km (+33%).

28.5.3 Qualitative results

For stakeholders: retailers have been in favor of the scheme. Transport operators using Elcidis have been satisfied. However, transport operators not using Elcidis perceive it as too costly. Today, the city of La Rochelle has stopped subsidies.

For service providers: Elcidis operator has applied (successfully) to a second bid to operate the centre, after the first 3 years of experiment. Then he went bankrupt. The new organisation (with a Veolia subsidiary managing all electric mobility services in la Rochelle) has not been evaluated.

For the public (inhabitants): Inhabitants are either favourable or indifferent to Elcidis. The experiment is rather well known among residents.

28 Elcidis urban consolidation centre, La Rochelle (France)

28.6 Key Considerations

28.6.1 Lessons learned

In phase 1 Commercial aspect: competition between ELCIDIS and other carriers has to be dealt with, strong effort in marketing required (rates).

Technical aspects: numerous little electric vehicles (size not adapted to the needs (electric trucks were not accredited in France) and handling equipment has to be adapted. Since 2006 a better functioning thanks to the introduction of an electric truck transporting pallets.

The size of the city. Organisational aspect: Position of the City/operator (partnership?), and application of rules (enforcement).

28.6.2 Primary Obstacles

Cost of the vehicles. Limited capacity of the vans and difficulty in finding larger vans or small trucks running on electric power. From an administrative point of view, it has been difficult to register the FAAM 3.5 tonnes vehicle. Elcidis managers have had to overcome a very suspicious French central administration before being given approval for using this truck in the city centre.

28.6.3 Critical Success factors

Technical success (the electric vehicles run well and are well accepted by the drivers). Approval of the public (retailers, residents).

28.6.4 Transferability considerations

The experiment is transferable to other sites, but at a cost (in La Rochelle, the city's global financial support is still very high).

According to the situation it seems that urban consolidation centres may be limited to some specific cities: cities wanting to be exemplar, tourist cities or cities with a highly sensitive historic centre, cities located apart from the main traffic flows and deprived of private transshipment facilities.

28.6.5 Contacts

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29 Espace Logistique de Proximité (ELP), Bordeaux (France)

29.1 General information

29.1.1 Description

ELP was implemented as an innovative system facilitating the process of incoming goods in city centres. It is a set of delivery areas with an innovative design and management.

This type of delivery areas have been implemented in large urban projects (such as the introduction of a new tramway network in a city).

29.1.2 Type of measure/field of application

Administrative	
Urban planning	X
Governance	
Awareness	
Infrastructure	X
ITS & Technical	
Modelling	
Supply Chain	X
Information	X

29.1.3 Framework and background

The first ELP has been initiated in Bordeaux in 2003 because of the building of a new tramway network which made goods deliveries difficult in some neighbourhoods. It responds to needs for more proximity logistic services. Bordeaux has a large pedestrian zone and a historical centre with narrow roads

29.2 Policy design details

29.2.1 Primary Policy Objectives

Provide Incentives	X
Regulation/Enforcement Component	X

29.2.2 Policy design steps and timing

1. Surveys were made on the conditions for deliveries during the beginning of the tramway works
2. 2001: Study of feasibility of a new delivery system (Ministry of Transport and French Environmental Agency)
3. 2003: implementation of the ELP experiment, delivery vehicles are not authorised in the ELP

29 Espace Logistique de Proximité (ELP), Bordeaux (France)

- defined zone, except between 7:00 and 11:00
4. Setting up of an on-street "cabin" (a small covered space of about 20 m²) and signalling.

29.2.3 Actors involved and participation

The initiative of the project came from the Bordeaux Chamber of Commerce (the CCIB). A partnership was made between carrier's organisations, an association of shopkeepers and the CCIB. Then the Bordeaux metropolitan authority joined the partnership, followed by the "Association for jobs' development" of the Region (ADESA) which provided the employees.

29.2.4 Decision making process

See policy steps.

29.2.5 Site characteristics

The city centre has a large pedestrian area.
The tramway service building was strongly perturbing traffic, the shops were not properly delivered.

29.2.6 Leverage Points

At the beginning of the project, an innovative scheme to finance the workforce was critical to the success of the project. Legal problems had to be solved because ELP agents were not officially registered as third account carriers therefore could not handle and deliver parcels.
In the second phase, local authorities decided not to subsidize jobs anymore.

29.3 Implementation details

29.3.1 Implementation step and timing

Studies and preliminary ideas.
March to July 2001: dialogue, consultation.
September 2001-January 2002: pilot committee set up.
2002: study and implementation of the system.
1st experiment on 02/17/2003.
November 2003: change of the location of the ELP (in order to adapt to tramway building sites).
June 2004: 2nd phase on two new sites.
2005: evaluation, results.
Comparison between the two zones (one with building works, the other one without works).
Surveys made with shopkeepers and carriers.

29.3.2 Resources/infrastructures needed

A "cabin" of about 15 to 20 m²
Signalling for 6 truck parking spaces (70 m²).
Road design and marking.
Handling equipment.

29 Espace Logistique de Proximité (ELP), Bordeaux (France)

Public financing:

2003: 90%

2004: 40 to 45%

2005: 10 to 15%

2005: Privatisation and professionalisation: a private company, "la Petite Reine," manages the ELP with electrically powered tricycles.

29.3.3 Human resources

1st phase: 1 permanent agent + 2 mobile deliverymen (subsidised jobs)

2nd phase: TNT company pays for a part time employee

3rd phase: 2005 the new manager la Petite Reine hires 6 employees

29.3.4 Primary Target Group

Carriers (users).

Own account transport operators and deliverymen (users).

Federation of shopkeepers pays 1 employee (1st phase).

Organization of carriers for information.

All goods and types of shipments are targeted.

29.3.5 Enforcement scheme

1st phase: public funding for experimentation:

A cabin is used as a base for a permanent reception agent. Nearby, a 75 m² area allows for the accommodation of 4 to 6 commercial vehicles parked at an angle to the kerb.

Two mobile deliverymen help the drivers for parking, keep an eye on the ELP, are able to deliver, on foot (under the truck driver's authority, because of the responsibility rule), place handling equipment at the truck driver's disposal (trolley, Chronocity or delivery electric tricycle).

The last meters are made on foot, this allows for a 400 meter walking distance with appropriated handling equipment, or a one hundred meter distance without handling means.

2nd phase: thanks to new concepts of electrically powered delivery containers ("Chronocity"), 1.5 m³ capacity has been achieved, with 300 kg load. This has been used by Chronopost for mail and parcels (Chronopost is a subsidiary of the French Post). Also, electric tricycles (1 m³ capacity, 200 kg payload, able to carry pallets) were designed and used by a private delivery company, "la Petite Reine". This extended the perimeter to a 1 km radius.

3rd phase: Privatisation of the management, "La Petite Reine" becomes the sole operator managing the ELP.

29.3.6 Monitoring procedures

Consultants have been hired to assess the impacts of the project: Euroium (a subsidiary of Veolia Transport), Gérardin Conseil.

29 Espace Logistique de Proximité (ELP), Bordeaux (France)

29.4 Supporting Mechanism

29.4.1 Awareness/information campaigns

Distribution of paper brochures to promote the project. The brochures were made and financed by the organization of truck carriers involved in the project.

29.4.2 Incentive Programmes/Financial Instruments

The Chamber of Commerce (CCIB) had an important role in involving the carriers into the project: 6 carriers agree to pay for about 30% of the operational costs of the project (these operators are the main users of the ELPs). The city has gradually reduced its financial involvement. Carriers and shopkeepers actively participated to the project. Today, ELPs are run on a purely private basis.

29.4.3 Partnerships/Key supportino stakeholders

The Urban Community of Bordeaux (a metropolitan authority), the Bordeaux municipality, CCIB, Organizations of carriers and shopkeepers, National support came for subsidised jobs.

29.4.4 Other Policies

The project was part of a major urban redevelopment project. Local regulations ban deliveries in identified restricted zones except between 7:00 and 11:00.

29.5 Results

29.5.1 Expected vs. Actual benefits

The success of this innovation is linked to:

- Incentives for all the players to find a solution to the disruptions caused by the new tramway network building or other urban projects,
- Involvement of carriers, because they have difficulties in reaching their destination to deliver,
- An efficient partnership, with a fair share of the costs and of the organisation.

We observe a perfect relevance between the ELP concept and the innovative tools at its disposal.

29.5.2 Quantitative results achieved

12 employees in 2009.

13 electric tricycles (150 kg payload, 12,000 litre capacity) + 1 electric vehicle for pallets.

A large potential market: not only express transport but all types of carriers and shopkeepers use the ELP.

The ELP operates from Monday to Friday 9:00 to 17:00.

The first impact assessment (2005): 9,400 vehicles did not enter the inner city.

Road occupancy: the distance covered decreased from 0 to 5 km for the vehicles through the ELP.

Results: 2.77 Tep/year were saved (about 10,600 stops/year).

1.44 vehicle.km saving per stop.

29 Espace Logistique de Proximité (ELP), Bordeaux (France)

Congestion decrease, energy consumption and pollutant reductions per stop in gep (gram equivalent petroleum): 261 gep of energy, 843 gep of CO₂, 3.35 gep of NO_x.

29.5.3 Qualitative results

Benefits to the carriers: time saving permitted to make additional delivery tours within the day, so the efficiency increased.

A very good image for the city.

Social impacts: a better relationship between deliverymen and shopkeepers.

A better acceptance of disturbance caused by the tramway building works.

Better working conditions for the truck drivers that do not need to enter the restricted zone with their truck.

They do not drive the last 2 to 500 meters (the most expensive and the most difficult).

The shopkeepers are satisfied with the scheme, or indifferent.

29.6 Key Considerations

29.6.1 Lessons learned

As the first urban proximity logistic space, the ELP in Bordeaux was an exemplar experiment (a best practice). The delivery market share of the ELP is low, however ELP is the best solution for central areas where deliverymen cannot access easily to the final clients.

29.6.2 Primary Obstacles

A legal problem linked to the responsibility of the final delivery. At first, mobile ELP agents (the deliverymen) were able to deliver, on foot, under the truck driver's authority, because of the responsibility rule. Today, the "Petite Reine" manager obtained a full third party carrier status and can act as a substitute for the truck driver to whom the shipment was consigned.

Paying for ELP employees has been difficult. The question was: who have to pay? The city? The Chamber of Commerce? The users (truck companies)? The shopkeepers?

Operational costs: a necessary evolution. How to go from public subsidies to financial autonomy?

29.6.3 Critical Success factors

The experimental phase is complex. The delivery problem is caused by urban development and public works.

The local authorities must bear the financial costs of the experimental phase.

The difficulty is to make the scheme permanent and find the best solutions.

29.6.4 Transferability considerations

The ELPs were implemented at first in Bordeaux, then in others cities (recently, Rouen, Montpellier, Clermont-Ferrand).

It is a low cost operation in terms of infrastructure.

29 Espace Logistique de Proximité (ELP), Bordeaux (France)

It is easy to set up.

It can be moved from one site to another one.

29.6.5 Up-scaling considerations

It can be implemented in different parts of a city where truck drivers have difficult access conditions.

It is adaptable to different city sizes and morphologies.

29.6.6 Contacts

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30 Heavy goods Vehicle Fee (HVF) on local and urban roads in Swiss cities (Switzerland)

30.1 General information

30.1.1 Description

Since the beginning of 2001, to limit transalpine traffic (transit, international traffic from or towards Switzerland, domestic traffic), Switzerland perceives a Heavy goods Vehicle Fee (HVF).

The HVF applies to vehicles of more than 3.5 tonnes; it is calculated according to the distance made on the Swiss territory, gross weight and polluting emissions of the vehicle. It applies to urban roads, which makes it interesting for SUGAR.

30.1.2 Type of measure/field of application

Administrative	X
Urban planning	
Governance	
Awareness	
Infrastructure	
ITS & Technical	X
Modelling	X
Supply Chain	X
Information	

30.1.3 Framework and background

Located in the centre of Europe, Switzerland wished to limit the transalpine road traffic which was growing rapidly since the 1980s, while financing new railway infrastructures allowing a transfer from trucks to freight trains or the use of freight rail highways (trucks on rail cars).

What is most interesting for city logistics is that urban roads are included in the road pricing scheme, contrary to other countries' schemes (Germany, Austria).

30.2 Policy design details

30.2.1 Primary Policy Objectives

Provide Incentives	
Regulation/Enforcement Component	X

30 Heavy goods Vehicle Fee (HVF) on local and urban roads in Swiss cities (Switzerland)

30.2.2 Policy design steps and timing

1984: Switzerland introduces a royalty on heavy vehicles.

1994: approval of the constitutional article on the HVF by referendum.

1997: the federal chambers confirm the law on the HVF. This policy has been approved by the Swiss who voted at several occasions on these subjects (initiative of the Alps in 1994, HVF in 1998). Negotiations with the European Union have been permanent since the beginning of the project.

2001: the Swiss, being forced to accept the passage of the vehicles of 34 tonnes (as a replacement of the 28 tonne threshold,) were authorized to introduce the HVF.

2005: the authorized tonnage is revised to 40 tonnes, and in return the HVF rules were revised.

30.2.3 Actors involved and participation

Among the main stakeholders of this policy:

- The Swiss Confederacy and more specifically the federal Department for environment, transport, energy and communication which carried this project,
- The freight transport business community, which was against HVF because of the additional costs generated. They introduced a referendum by collecting a compound request of more than 50,000 signatures,
- The Swiss population voted for the laws (57% of the Swiss voted yes to the HVF in 1998),

The European Union for the implementation of the laws and the definition of the weight criteria imposed for vehicles composing the transalpine traffic.

30.2.4 Site characteristics

Politically, Switzerland is not a member of the European Union. Geographically, Switzerland is located at the centre of Europe. Both partners set up a bilateral agreement to authorize trucks to go through Switzerland while allowing Switzerland to implement the HVF.

30.2.5 Leverage Points

The first one was the phase of negotiation with the European Union. The second one was the controversy between some political parties and freight transport companies, also initiators of a referendum.

30.3 Implementation details

30.3.1 Implementation step and timing

The actual fee is based on three criteria:

- Distance (v.km, all roads),
- Acceptable maximum total weight of the vehicle (Vehicle and Trailer),
- Level of polluting emissions (Euro categories).

In 2001: rate of 1.1 Cts/tonnes.km, increase of the weight limit from 28 to 34 tonnes.

In 2005: rate of 1.6 Cts/tonnes.km, increase of the weight limit of 34 to 40 tonnes.

In 2008: rate of €1.8 c/tonnes.km.

30 Heavy goods Vehicle Fee (HVF) on local and urban roads in Swiss cities (Switzerland)

The HVF has thus increased by 50%.

Emissions (situation since 2005):

- Euro 0/1: 1.8 c/tonne.km
- Euro 2: 1.6 c/tonne.km
- Euro 3-5: 1.4 c/tonne.km

30.3.2 Resources/infrastructures needed

The data capturing electronic device meets high requirements by using several technologies among which the DSRC (Dedicated Short Range Communication) and GPS. Coupled with the tachograph, it computes the travelled kilometres within the Swiss territory.

The on board unit (OBU) costs €800 for a truck, for a total of €48 million (60,000 trucks equipped). The OBU was distributed free of charge until 2004, the owners being responsible for the installation and operating costs.

In addition:

- Development costs (€25 million)
- Capital costs (€80 million)
- Operating costs (€16 million)

The total cost thus reaches approximately €35 million which represent 3 to 4% of HVF revenue.

30.3.3 Human resources

8% of revenue generated by the HVF is used to pay for the workforce.

The entity responsible for this policy is the federal customs administration.

The Swiss customs are responsible for implementing these regulations. The customs staff is authorized to collect the fees.

30.3.4 Primary Target Group

Vehicles subjected to the HFV are the vehicles over 3.5 tonnes. Moreover some vehicles are subjected to a standard charge (coaches for example). Others are exempted (military, agricultural vehicles, public transport).

30.3.5 Enforcement scheme

In case of non compliance, the fine is at least €66 and can go up to 5 times the amount of the fraud.

30.3.6 Monitoring procedures

Two systems exist:

- For vehicles equipped with an electronic data collection device ("on-board units" or OBU), vehicle characteristics and routes are taken into account. All Swiss vehicles are equipped with an OBU and the owner of the truck transfers OBU data to the customs on a monthly basis.
- For non-equipped vehicles, an alternative system is available. Every time the driver crosses the border, he/she introduces an ID card in an electronic reading device. Controls are randomly made by the customs administration.

30 Heavy goods Vehicle Fee (HVF) on local and urban roads in Swiss cities (Switzerland)

30.4 Supporting Mechanism

30.4.1 Awareness/information campaigns

Strong intervention of the administration to inform about the necessity of the HVF implementation. Information brochures were distributed by the federal Department for environment, transport, energy and communication. The main document of the information campaign is called "fair and efficient, The royalty on the traffic of heavy goods vehicles fee in Switzerland".

30.4.2 Incentive Programmes/Financial Instruments

Neither incentive programmes nor financial instruments.

30.4.3 Partnerships/Key supporting stakeholders

No partnership.

30.4.4 Other Policies

The HVF is part of a policy of modal transfer which also includes the NLFA (new alpine rail links) and the railroad market deregulation reform. The objective is to make alternative transport modes more competitive.

30.5 Results

30.5.1 Expected vs. Actual benefits

Studies were made in 2005 then in 2006-2007.

Economically the results are positive but these measures did not meet the objectives set for the number of heavy vehicles composing the transalpine traffic. Indeed, the objective was an annual amount of 650,000 trucks in transalpine traffic in 2009. But in 2005, there were still 1.2 million trucks crossing the Alps. Moreover transfer to alternative transport modes, although effective, remains limited (66% of the whole transalpine traffic). Furthermore, the decrease of road traffic comes from a higher efficiency in trucking operations rather than an actual transfer from road to rail.

30.5.2 Quantitative results achieved

Road Transport has become more efficient:

- Less kilometers travelled by vehicle (but higher load),
- Renewal of the vehicle fleet,
- Net income of €900 million in 2007 (€500 million in 2002),
 - 2/3 for the federal state (rail projects)
 - 1/3 for cantons
- Compensation of effect of higher weight limit,
- High share of rail freight (40%) maintained.

The HVF allowed to reduce yearly traffic by 400,000 vehicles.

30 Heavy goods Vehicle Fee (HVF) on local and urban roads in Swiss cities (Switzerland)

To our knowledge, no specific study related to the urban territories has been made.

30.5.3 Qualitative results

The introduction of the HVF allowed a renewal of the truck fleet (as the most polluting trucks pay more), a rationalization of routes and new concentration of haulage companies. A fleet of about fifty trucks is considered a minimum to provide a good logistic service at a reasonable cost.

Impact on the road transport business:

- Adjustments of the fleet composition,
 - Cleaner = cheaper
 - Lower weight = lower fee
- Concentration in the haulage business,
 - Better use of logistics means (less empty trips)
 - Fleet adaptation

To our knowledge, no specific study related to the urban territories has been made.

30.6 Key Considerations

30.6.1 Lessons learned

A HVF policy is possible at a nation's scale. The policy must rely on a win-win relationship between the State and the European Union. Enforcement through a tight collaboration with the customs is crucial.

However, to our knowledge, no specific study related to the urban roads has been made and we don't know of the impacts of the HVF on urban goods' mobility.

30.6.2 Primary Obstacles

European regulations led to some difficulties, by imposing higher and higher truck weight thresholds for accessing the Swiss territory, though Swiss is not part of European Union.

30.6.3 Critical Success factors

A strong presence of the initiator during the project procedure.

Strong constraints for both parts.

Another success factor is the approval of the scheme by urban residents. Indeed, in the 1998 referendum, if urban neighborhoods massively approved the HVF (64% of yes), rural districts rejected it (45% of yes). Furthermore, the project was particularly approved in the big centres (Zurich, Basel, Bern, Geneva and Lausanne) with 78% yes on average. A relation has been established between the proportion of yes and the means of transportation used by the residents to go to work. There was 75% of yes in the municipalities where almost half of the persons go to work in public transport.

30 Heavy goods Vehicle Fee (HVF) on local and urban roads in Swiss cities (Switzerland)

30.6.4 Transferability considerations

Such a measure is only possible in countries with a high rate of truck through traffic. Fees must be high enough to finance railway infrastructures. Economic balance must also be attainable.

30.6.5 Up-scaling considerations

What is missing from the Swiss experience, to our knowledge, is a specific study related to the urban roads, in order to know the impacts of the HVF on urban goods' mobility.

30.6.6 Contacts

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31 Life CEMD, Lucca (Italy)

31.1 General information

31.1.1 Description

CEMD (Centre for Eco-friendly City Distribution) is a project partly funded by the European Commission under the LIFE Environment initiative whose goal is the implementation of a number of measures (regulatory, organisational and technological) to enable a new city logistics system.

It is based on a City Distribution Terminal (CDT), or urban consolidation centre, as a main structure to support rationalised -eco and business- efficient- city distribution schemes.

31.1.2 Type of measure/field of application

Administrative	X
Urban planning	X
Governance	X
Awareness	
Infrastructure	X
ITS & Technical	X
Modelling	
Supply Chain	X
Information	X

31.1.3 Framework and background

As many Italian and European historical cities, Lucca is vocationally oriented towards services, commerce and tourism. Currently, the historical city centre is partly closed to private traffic but not to freight traffic, thus specific innovative measures are needed to reduce impacts and preserve not only the quality and sustainability of the urban environment but also its attractiveness for commerce, service and economic activities.

The goods' distribution service is targeted towards shops and retailers from Lucca city centre, but the extension of the designated area is an upcoming objective of the municipality.

31.2 Policy design details

31.2.1 Primary Policy Objectives

Provide Incentives	X
Regulation/Enforcement Component	X

31.2.2 Policy design steps and timing

2004: decision and public funding of Lucca CDT (CEMD, Centre for Eco-friendly City Distribution).

30/04/06: State of the art and user needs analysis.

31/07/06: CEMD measures requirements (most important requirements: robustness and security).

2007: implementation.

31 Life CEMD, Lucca (Italy)

31.2.3 Actors involved and participation

Municipality of Lucca (financing body)
Toscana Region (financing).
European commission (financing)
Retailers and shopkeepers (users)

31.2.4 Decision making process

2002-2004: investigation and feasibility study for a City Distribution Terminal for Lucca (partly funded under the Interreg III MEROPE project)
2004: decision and public funding of Lucca CDT
2005-2008: CEMD pilot phase 1, start of CDT building, experimental core services (provisional CDT; partially-funded under EU LIFE programme)
2008-2010: CEMD phase 2, service consolidation, completion of final CDT, value-added services (part-funded by Italian Ministry of Environment, LUSLIN project).

31.2.5 Site characteristics

Lucca is a middle sized city with a congested historical centre made of small streets not adapted to all types of vehicles.
Target area with about 1,500 economic entities (retailers...)
High "pressure" on urban environment by commercial traffic: 2,000 parcels/day delivered in the area, 680 commercial vehicles/day entering the area in peak days (tuesday, friday), 450-500 vehicles during rush hours (8.00-10.00).

31.2.6 Leverage Points

Adoption of restrictions to regulate freight deliveries, time windows for different types of goods, and promotion of electric vehicles for final distribution.

31.3 Implementation details

31.3.1 Implementation step and timing

2002-2004: investigation and feasibility study of a City Distribution Terminal (funded under Interreg III MEROPE project)
2004: decision and public funding of Lucca CDT.
2005-2008: CEMD pilot phase 1, start of CDT building.
July 2006: Measurement requirements.
January 2007: City Logistics solution development.
June 2007: assessment plan.
October 2007: Delivery system pilot test.
February 2008: Test results.
2008-2010: CEMD phase 2, service consolidation, completion of final CDT, value added services (funded by the Italian Ministry of environment, LUSLIN project).

31 Life CEDM, Lucca (Italy)

31.3.2 *Resources/Infrastructures needed*

A Centre for Eco-Friendly City Freight Distribution operations located at the periphery of the city, for freight transshipment and freight collection (UCC).

An ICT platform: a distributed, internet based e-Services system, hosted in the CEDM and linking all main stakeholders of the city logistics system. This multi-service architecture operates as a virtual platform providing business-to-business (B2B), business-to-consumer (B2C) and business-to-administration (B2A) services to enable cooperation between the different players involved and to improve the operation of city logistics schemes.

Electrically powered vehicles.

31.3.3 *Primary Target Group*

Freight distribution operators (last mile).

Electric vehicles.

Retailers and shopkeepers .

31.3.4 *Enforcement scheme*

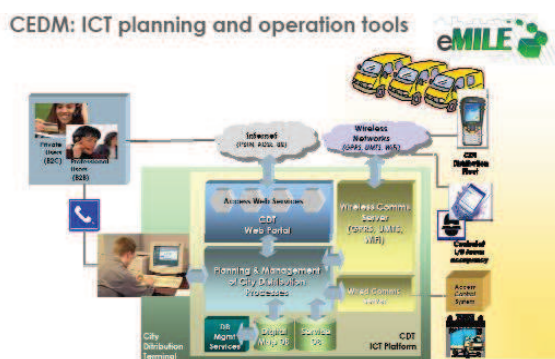
The service is provided with the use of 2 electric vehicles (1.6 tonnes and 3.5 tonnes payload).

Access for deliveries in the protected centre granted only to freight operators meeting access requirements.

Co-operation between freight operators to cover last kilometers (load consolidation, transshipment at freight transit points), to meet access requirements and reach economic efficiency.

Implementation of innovative citizens and tourists oriented delivery schemes with goods consignment via dedicated collect points (hotels, freight transit point...).

ICT platform for the management of the service.



31.3.5 *Monitoring*

procedures

01/31/06: CEDM Project Handbook & Inception Report

05/30/06: First Progress Report

11/30/06: CEDM GO/NO GO Report.

11/30/06: Second Progress Report.

05/07: Mid-term Report.

11/30/07: Third Progress Report.

31 Life CEMD, Lucca (Italy)

04/30/08: CEDM Layman's Report.

06/30/08: Final Report.

31.4 Supporting Mechanism

31.4.1 Awareness/information campaigns

Conferences, workshops, participation to specialised exhibitions and to research and innovation events.
Website and periodic newsletters.

31.4.2 Partnerships/Key supporting stakeholders

Municipality of Lucca/shopkeepers/operators.

31.4.3 Other Policies

Coherence between the Ministry and the municipality.

31.5 Results

31.5.1 Expected vs. Actual benefits

The pilot transit point will enable to:

- Reduce the present levels of congestion of commercial and freight traffic by reducing the total number of vehicles in the historical centre and optimizing loads and delivery routes,
- Reduce the current levels of environmental pollution by reducing traffic and the adoption of zero emission vehicles,
- Reduce noise pollution and risk for historical buildings due to vibrations resulting from freight traffic,
- Increase pedestrians safety, improve the quality of life in the historical centre for residents, visitors and tourists,

Implementing the Regional Agreement on Air Quality (issuing progressively higher restrictions, providing a public distribution service).

31.5.2 Quantitative results achieved

The project is currently under evaluation (the pilot tests were finished in 2007-2008).

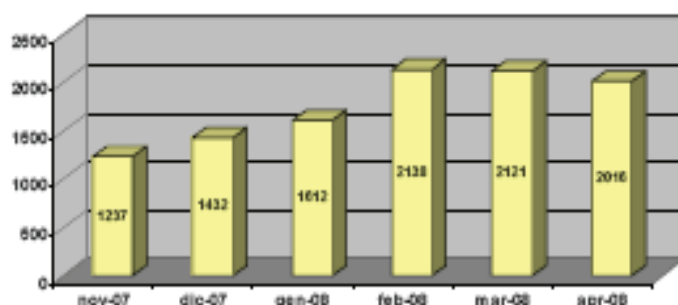
The average savings referred to the total commercial traffic in the limited traffic zone have been estimated (ENEA with CORINAIR/COPERT III):

- Energy consumption and CO₂ emissions reduced by 20%
- CO by 10%
- NO_x by 18%
- Particulates by 27%

In 5 months the number of deliveries has doubled.

31 Life CEMD, Lucca (Italy)

Deliveries during the last months of the LIFE Demonstration phase



31.5.3 Qualitative results

The project is currently under an evaluation phase (the pilot tests were finished in 2007-2008). Lucca CED appears to be the only one in Italy that is reaching the goal to build a new infrastructure totally dedicated to city logistics (1,700 m²).

31.6 Key Considerations

31.6.1 Lessons learned

Direct and positive involvement of local freight transport operators.
 Significant number of deliveries (round 15% of all deliveries in the targeted area).
 Different services supplied: pallets and parcels deliveries, pick up, delivery to hotels, reverse logistics.
 Service cost in line with market ones paid by the users according to common uses in logistics business-no public subsidies.
 Effectiveness of the IT platform.
 Validation of the chosen clean vehicles fleet.

31.6.2 Critical Success factors

To find the best management for the platform: entirely private? PPP?
 From consolidated period phase to permanent operation.
 Competition between the terminal's manager and other freight operators.
 Balance between a competitive market approach and a regulated approach required in environmentally sensitive towns and cities.

31.6.3 Transferability considerations

The project is similar in several aspects to other European urban consolidation centres even though each case is specific. A serious feasibility study is necessary (consultation, targets, location, vehicles...).

31 Life CEMD, Lucca (Italy)

31.6.4 Up-scaling considerations

The next phases are the following:

- Temporary CDT still up and operating until its final location is completed (resources from the Municipality).
- Completion of the permanent CDT were due before June 2009 (resources from the municipal budget + Italian environmental ministry).
- Selection of the company that will run the terminal (PPP? Private?, expected by the end of 2009).
- Transfer of the pilot services in the final location and start of the long term Lucca-Eco-Distribution centre (September 2009), implementation of 3 PL services (remote warehousing).

31.6.5 Contacts

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32 Lorry routes, Bremen (Germany)

32.1 General information

32.1.1 Description

In 1991, the City of Bremen implemented the concept of “integrative transport planning” (IVP). Economic, social and planning aspects are considered in an integrated framework including all transport modes for freight and private transport and their interactions. The Urban Truck route system is a part of it. The truck route system consists of the routes which are important to through traffic.

32.1.2 Type of measure/field of application

Administrative	X
Urban planning	
Governance	
Awareness	
Infrastructure	X
ITS & Technical	X
Modelling	X
Supply Chain	X
Information	X

32.1.3 Framework and background

The IVP was developed for three main reasons:

- To resolve the problems caused by the increase of the volume of goods transported by road because of the reduction in road transport prices and the lack of flexibility of the railroad.
- To alleviate the increase of the traffic truck on smaller roads in residential areas due to the increase of the congestion on main roads (motorways, highways, arterial roads).
- To avoid a regulation by traffic bans. These regulations can lead to detours and possibly to even greater problems in some residential areas.

32.2 Policy design details

32.2.1 Primary Policy Objectives

Provide Incentives	X
Regulation/Enforcement Component	

32.2.2 Policy design steps and timing

1999, additional measures:

Based on the results of the counting, modifications to the truck-route system were discussed and suggested

32 Lorry routes, Bremen (Germany)

by the administration. Two sensitive roads with insufficient decreases of truck through traffic were excluded from the truck-route network in 1999 by changing the local law. This modification was the basis to impose night-time bans (22.00-6.00) on these roads,

Repairs of roads of the truck route system were given priority.

1999-2005, development:

On the main roads, traffic night time bans (22.00-6.00) were imposed,

Roads excluded from the system were reconstructed with smaller widths.

2005: updating of the truck guidance system.

Updating due to a new important road going to the DaimlerChrysler factory(Hemelinger tunnel).

Reduction of the number of roads,

Implementation of the Variable Message Sign System (VMS) for rerouting "Hemelinger tunnel" and "Multimodal Freight Platform".

Modification of the truck route system in 2005:

Due to non attainment of the particulate emission limit imposed by the European Union, a modification of the system by the implementation of a "Green Zone" was necessary: through traffic of trucks in the city centre will no longer be possible in the truck route system,

Subsequent change of the highway signs in the direction "city-centre".

32.2.3 Actors involved and participation

The draft of the truck route system as part of the IVP concept was discussed in seven working groups.

These groups consisted of delegates of local authorities (city and its surrounding municipalities), organizations and lobbies and other sectors affected.

Public side:

- Road design and geometry,
- Sign posting and legislative measures,
- Dynamic traffic management (variable message signs), interurban and urban.

Private side:

- Navigation system providers (offline),

Special truck navigation data and system provider (online).

32.2.4 Decision making process

Resolution and Legal Framework I:

- The decision on the implementation of the truck route and guidance system passed the Senate and the council of Bremen in February 1997.

Resolution and Legal Framework II:

- The truck route system becomes a basis of decisions of local/regional transport policies (e.g. bans),
- Traffic counts to evaluate the impact of the truck route system on urban traffic,
- The voluntary appliance of the truck routes is promoted by the distribution of a map to truck drivers,
- The signs leading to industrial areas were checked and minor changes were made,

Extensions and repairs of roads of the truck route system are given priority.

32.2.5 Site characteristics

Reasons for developing the truck guidance network:

32 Lorry routes, Bremen (Germany)

- Traffic increase on main routes (motorways, arterial roads) lead to a shift of through traffic to roads in residential areas,

Route guidance has been seen as more relevant than bans. These restrictions can lead to detours and possibly (when areas with a high population density are affected by diverted traffic) to even greater problems in some residential areas.

32.2.6 Leverage Points

The time of discussion about the truck routes system between all stakeholders was crucial in the success of the project.

The business organizations in industry and commerce approved the system because it secures truck traffic in the city and guarantees planning.

32.3 Implementation details

32.3.1 Implementation step and timing

Measures for implementation:

1st stage: Voluntary avoidance

- Map indicating truck routes for drivers. Exception made for low emission trucks,
- Enlargement of the guiding system to industry parks,
- Extension of city logistics measures.

2nd stage: avoidance by measures

- Traffic regulation: e. g. restrictions on through traffic and/or on night traffic, possibly differentiated by truck weight,

Construction measures: e. g. Guidance to extended routes of the IVP.

32.3.2 Resources/infrastructures needed

Implementation of a Variable Message Sign System (VMS) to recommend the use of alternative routes especially for freight transport. Access is possible under www.verkehrsinform.bremen.de/lkw.

Creation of a "Multimodal Freight Platform".

Implementation of a new sign on the highways and in the city.

Reconstruction of the roads excluded from the system (with smaller widths).

For static navigation systems, average costs of about €460 per vehicle per year are regarded as acceptable.

For navigation systems that provide real-time information about traffic and weather conditions, average costs of €615 per vehicle per year are regarded as acceptable.

32.3.3 Primary Target Group

The objective of the lorry guiding network is to provide help to operators and forwarders. Concerned vehicles are trucks over 3.5 tonnes.

32.3.4 Monitoring procedures

To improve the voluntary use of the truck routes, the road administration started a study of satellite based truck navigation systems with regards to truck guidance network. The study was part of activities within the ITS-project VIKING, supported by DG TREN of the EC. The study of satellite-based truck navigation systems

32 Lorry routes, Bremen (Germany)

is targeted:

1. To define truck specific requirements for on-board navigation systems (what is the most important additional static and dynamic information?),
2. To identify potential user groups (type and number),
3. To analyse possible data sources for truck attributes,
4. To investigate the technical feasibility to include truck attributes in existing navigation systems,
5. To assess the possible market share of on-board navigation systems for trucks,
6. To judge on the chances for implementation

32.4 Supporting Mechanism

32.4.1 Awareness/information campaigns

5,000 copies of the lorry map for Bremen have been printed and distributed to forwarding companies and transport operators (1st edition in January 1998).

32.4.2 Other Policies

In 1991, the City of Bremen implemented the concept of “integrative transport planning” (IVP). Economic, social and planning aspects are considered in an integrative framework including all transport modes for freight and private transport and their interactions.

Other measures were taken within the framework of the IVP:

- Promotion of combined transport (rail/road).
- Strengthening of the multimodal freight village (GVZ), extension of city logistics system.
- Linking the GVZ and the harbour directly.
- Implementation of a truck guidance network and a Variable Message Sign System (VMS).
- Provision/reservation of land for commercial purposes.

32.5 Results

32.5.1 Expected vs. Actual benefits

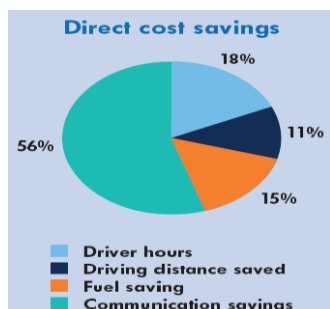
Expected benefit of the truck guidance network: minimize travel times and trip lengths of all trucks on the Bremen road network and the number of residents affected by freight traffic.

32.5.2 Quantitative results achieved

Acceptance of the recommended truck routes:

- Before (1997) and after (1998) the distribution of the map, traffic counts were conducted in the Bremen road network to evaluate the acceptance.
- Average increase was about 1.5% on highways and highway-like roads.
- In parallel, a decrease of truck volume on minor roads which are not part of the truck routes system by about 11%.
- For residential roads a decrease of about 40% was recorded.

32 Lorry routes, Bremen (Germany)



32.5.3 Qualitative results

The benefit most frequently mentioned by fleet operators is savings in time and costs. The fleet operators also expect a reduction in their drivers' workload and, therefore, an improvement in road safety. The interest in navigation systems for trucks is, additionally, influenced by the open-mindedness of fleet operators.

32.6 Key Considerations

32.6.1 Lessons learned

There are other solutions that regulations to improve private car and heavy vehicles traffic in cities. The incentive provided by using an ITS constitutes a real solution today. All the stakeholders of the city (business entities and residents) can find a public interest in making the urban distribution of goods more efficient.

32.6.2 Critical Success factors

A narrow collaboration between the various actors is needed starting at the very beginning of the project. An important financing is necessary allowing for:

- Data collection during the upstream phase of the project
- The implementation of variable message signs
- Upgrading of infrastructures

32.6.3 Transferability considerations

There are no specific constraints concerning the transferability, nor specific context needed (except critical success factors expressed above).

32.6.4 Up-scaling considerations

Static development system is a key factor to optimize the trucks route system.

32.6.5 Contacts

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33 Low Emission Zone, Utrecht (the Netherlands)

33.1 General information

33.1.1 Description

Utrecht has a low emission zone (LEZ) in place since 1st July 2007.

In the Netherlands, twelve LEZ were in operation by the end of 2010 (including Maastricht, Rotterdam and Utrecht) with several more under preparation. There is a national framework that cities can join, meaning all LEZ have the same emissions requirements. Currently LEZ apply only to heavy goods vehicles, over 3.5 tonnes.



33.1.2 Type of measure/field of application

Administrative	X
Urban planning	
Governance	
Awareness	
Infrastructure	
ITS & Technical	X
Modelling	
Supply Chain	
Information	X

33 Low Emission Zone, Utrecht (the Netherlands)

33.1.3 Framework and background

Air pollution endangers the life of thousands of urban residents, and is estimated to cost the European economy between €427 and €790 billion per year in human health impacts. The European Union has set health-based air quality targets, which are not met or not expected to be met in many parts of the EU. Low Emission Zones (LEZs) are one of the ways that can help meet these standards.

33.2 Policy design details

33.2.1 Primary Policy Objectives

Provide Incentives	X
Regulation/Enforcement Component	X

33.2.2 Policy design steps and timing

The objectives of this measure are the use of extra clean vehicles for transporting goods in the city and a reduction of emissions from road freight traffic. One of the innovative factors is the flexible access to pedestrian zones based on environmental characteristics.

2006: Air Quality Action Plan (including one measure about low emission zone for heavy goods traffic)

2007: Air Quality Act

- Translating EU directives into national legislation
- Linked to implementation of Master Plans

National Collaboration Programme on Air Quality (NSL)

33.2.3 Actors involved and participation

National government

Municipality of Utrecht

33.2.4 Site characteristics

Medieval city centre

Expansions, new second city centre

Main city in region

Part of Randstad area

Central position in the national road, rail and water system.

33.3 Implementation details

33.3.1 Implementation step and timing

A minimum standard of Euro 2 and 3 plus a particulate filter or Euro 4 were in force up until 1st January 2010, Between 1st January 2010 and 1st July 2013 the minimum standard is a mixture of both an age-based

33 Low Emission Zone, Utrecht (the Netherlands)

standard (less than 8 years) and a Euro 3 plus filter.

After July 2013 the minimum standard will be Euro 4.

Exceptions:

- Special lorries (permanent),
- Euro 2/Euro 3 lorries for which a certified particulate trap is not yet available or for which a particle filter has been certified less than 5 months ago,




Lorries that are allowed a single access by the municipality.

33.3.2 Resources/infrastructures needed

Costs for the municipality:

- Cameras: €0.5-0.8 million in five years
- Traffic signs: 55-60 stations
- Communication costs: approximately €10,000

Capacity costs for the requests of single access permits (1,000 - 5,000)

You are approaching an LEZ	
You are entering an LEZ	
You are leaving an LEZ	

33.3.3 Primary Target Group

Heavy goods vehicles over 3.5 tonnes.

33.3.4 Enforcement scheme

1. Filtered observations sent from camera to police
2. Police automatically asks vehicle data (engine, particulate trap...) from the RDW (national vehicle register)
3. RDW gives result
4. (A) violation: camera requested to send photo data
(B) no violation: camera requested to delete photo data

33 Low Emission Zone, Utrecht (the Netherlands)

5. After 4A: photo data to police
 6. Order sent to the fine handling system.
- Penalty: €160

33.4 Supporting Mechanism

33.4.1 Awareness/information campaigns

An information campaign has been launched to raise awareness, and to announce and promote the measure.

33.4.2 Other Policies

A National LEZ Covenant signed by the Dutch government, municipalities and other stakeholders, whereby all Low Emissions Zones in the Netherlands apply the same Euro standards, as outlined above. On 30 September 2008, the Utrecht City Executive (responsible for the day-to-day running of the city of Utrecht) adopted the Utrecht Air Quality Action Plan. This plan consists of a wide range of measures to ensure that the whole city of Utrecht meets the European air quality standards by 2015. After evaluating the public input, the City Executive submitted the final plan for approval to the City Council in spring of 2009. This plan includes a low emission zone.

33.5 Results

33.5.1 Expected vs. Actual benefits

An expected result is improved air quality. This objective is reached today.

33.5.2 Quantitative results achieved

Environmental effects in the central area:

- Border of centre zone: 0.2-0.6 $\mu\text{g}/\text{m}^3$ reduction (disappearing through traffic not taken into account).

Environmental effects larger zone:

- Border town zone: 0.2-1.8 $\mu\text{g}/\text{m}^3$ reduction (disappearing through traffic not taken into account),
- 25%-60% already achieved with centre zone.

Economic effects in the central area:

- 6,500 HDV's on a regular basis ($\geq 1\text{x}/\text{week}$).
- 99% needs to be adapted or replaced.
- Costs for private companies (sophisticated variant): €69 million (€10,000 per vehicle),
- No disproportionately affected companies (companies owning lorries, based within the LEZ).

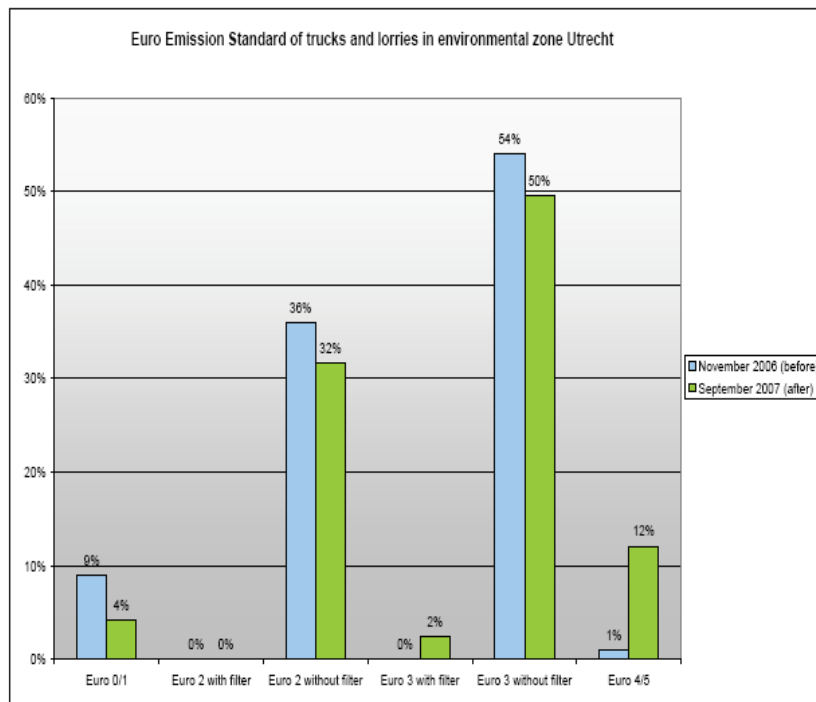
Economic effects in the larger zone:

- Additional 4,000 lorries adapted or replaced.
- €46 million added (total of €115 million).
- Many disproportionately affected companies (companies owning trucks, based within the LEZ) among which large transport companies.

Many small and medium firms with a small number of trucks, for which adaptation costs are a relatively

33 Low Emission Zone, Utrecht (the Netherlands)

heavy burden.



33.5.3 Qualitative results

Less traffic accidents
Higher quality of life for the city and the citizens.

33.6 Key Considerations

33.6.1 Critical Success factors

Strict enforcement is necessary for full effects.

33.6.2 Transferability considerations

This experiment is transferable.

33.6.3 Up-scaling considerations

33 Low Emission Zone, Utrecht (the Netherlands)

Expansion of low emission zones:

- Step by step to EURO 5 (period 2007-2013),
- Wider zone.
- Will apply to vans.
- Passenger cars EURO 1 and EURO 2.
- Environmental criteria for differentiation of parking rates.

Linking real time air quality information on route information: freight traffic guided to the most desirable routes of the moment.

33.6.4 Contacts

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34 Motomachi Urban Consolidation Centre (UCC), Yokohama (Japan)

34.1 General information

34.1.1 Description

Motomachi is a neighbourhood with a very strong retail store community marketing upscale brands. In 2004, a consolidated delivery scheme for all the shops was implemented. It is very successful today. It is managed by three shopkeepers' associations, with some initial financial help from the Ministry of Transport (from Pilote Programmes in clean urban transport). The truck companies that use the UCC pay ¥150 (€1.25) per parcel delivered. The service contributes to making the neighbourhood pleasant and less polluted from truck traffic.

34.1.2 Type of measure/field of application

Administrative	
Urban planning	
Governance	
Awareness	
Infrastructure	
ITS & Technical	
Modelling	
Supply Chain	X
Information	X

34.1.3 Framework and background

Three retailers' associations (with more than 450 shopkeepers) were facing problems of congestion, double-parked heavy goods vehicles impeding shop window visibility, and traffic accidents. These problems were preventing retailers from developing their businesses and cultivating a better environmental image. The municipality then proposed a project to the Japanese government (as part of the national Pilote Programmes in clean urban transport), which in turn suggested experimenting with the concept of consolidated logistics, based on the work of academics. Motomachi urban consolidation centre (UCC) was chosen because it is a neighbourhood with a very strong retail community distributing well known brands.

34.2 Policy design details

34.2.1 Primary Policy Objectives

Provide Incentives	X
Regulation/Enforcement Component	

34 Motomachi Urban Consolidation Centre (UCC), Yokohama (Japan)

34.2.2 Policy design steps and timing

The project required six full years of work before implementation. The project calendar was:

- April 1999: Initiation of the project, definition of objectives, investigation and problem analysis, pre-definition of service.
- 2000: Initial experiments and measurement of effects.
- 2002-2003: Dialogue and definition of service extensions.
- June 2004: Full implementation.

34.2.3 Actors involved and participation

Motomachi urban consolidation centre (UCC) is for the most part a private initiative with some quantitatively minor BUT QUALITATIVELY DECISIVE support from the public side. Retailers' associations have been the key players in the implementation of the scheme. The President of the main Motomachi retailers' association is a very active entrepreneur (in the bakery business) and he is behind the initiative.

- The operating budget is ¥55 million (about €412,000), 95% of which comes from the revenue generated by the carriers' remitters.
- A subsidy covering the operational deficit of 2.4 million yen (4.4%) is paid by the shopkeepers' association.
- A national "Pilot Programme" from the Ministry of Land, Infrastructure, Transport and Tourism has been providing funding to experiments in urban mobility since 1999.
- The municipality of Yokohama identified Motomachi neighbourhood to propose it for application to the national "Pilot Programme".

34.2.4 Decision making process

A very entrepreneurial retailers' organization was the key to the success of the Motomachi UCC. It took more than six years to convince shopkeepers to agree to and become active in the distribution scheme. The municipality of Yokohama was involved from the beginning. The municipality took the initiative to propose the scheme for an application to the national Pilot Programme on clean urban transport.

34.2.5 Leverage Points

A key element of the decision making process has been to propose a transport provider that was not before delivering to the city centre. This made it easier for carriers delivering to Motomachi UCC to accept not to deliver to their clients anymore.

34.3 Implementation details

34.3.1 Implementation step and timing

April 1999: Studies, first design of a project, various accompanying measures.
2000: Experimental measures introduced and monitoring of first impacts
2001: Official introduction of experimental test
2002-2003: Coordination, consultation with stakeholders on a global scale.

34 Motomachi Urban Consolidation Centre (UCC), Yokohama (Japan)

Creation of a public private partnership involving: residents' associations, the police, the municipality's department of transport and other departments (commerce), environmental organizations, the departmental branch of the main Japanese carriers' organization, and the retailers' associations.

2004: All measures are implemented.

34.3.2 Resources/infrastructures needed

The UCC terminal itself occupies 330 m². On an average day, 22 remitters use the facility. Sagawa (one of the most important Japanese parcel and B2C transport companies) is the most significant at 60% of UCC activity, with the top three users at 80% and the top five at 90%. The UCC processes 340 to 350,000 parcels per year, and operates from 8.00 to 20.00.

The operating budget is ¥55 million (€412,500).

Three low-emissions CNG trucks make delivery rounds from the Urban Consolidation Centre situated a few hundred metres away from the retailing streets.

34.3.3 Human resources

Fourteen employees (of which seven are full-time) work for the centre.

34.3.4 Primary Target Group

The target is on all retail shops in the Motomachi neighbourhood (about 450). In practice some 15% of goods do not transit through the UCC, which reduced profits. Today, the UCC also processes home deliveries for the 820 households in the district, which provides additional revenue. The remaining 15% consist of fresh products, furniture, and goods for retail chains that manage their own logistics.

34.3.5 Enforcement scheme

To a European audience, the absence of accompanying legal regulations (such as local ordinances prohibiting environmentally unsound trucks) is surprising. Truck companies and shopkeepers, once having agreed to participate to the system, now continue to apply its terms. They do not want to suffer from a negative image if they do not respect this kind of gentleman's agreement. A sign reading 'reserved delivery area for truck companies currently delivering goods' is enough to protect the delivery bays from illegal parking.

34.4 Supporting Mechanism

34.4.1 Awareness/information campaigns

Six years of negotiations and awareness campaigns were necessary to convince shopkeepers that the consolidation scheme was beneficial for the neighbourhood.

34.4.2 Incentive Programmes/Financial Instruments

In order to preserve the neighbourhood's quality of life, three potential vehicle reception areas were identified in proximity to, but hidden from commercial streets. Two of them required negotiations with local residents' groups because they were to be implemented in existing green spaces. The third location is rented from a

34 Motomachi Urban Consolidation Centre (UCC), Yokohama (Japan)

private owner.

34.4.3 Partnerships/Key supporting stakeholders

The retailers' associations have been the key players in the project. They bear the majority of the costs and took all the risks associated with the experiment.

However, the involvement of the municipality of Yokohama has been crucial too. The municipality was involved from the beginning. It took the initiative to propose the scheme for an application to the national Pilote Programme on clean urban transport. Without the municipality, no application would have been made to the national Programme. The support from the national Programme provided fundings but also publicity and legitimacy.

34.5 Results

34.5.1 Expected vs. Actual benefits

The UCC has managed to break even financially. The quality of the service has been recognised by shopkeepers, customers and carriers.

Initial market surveys had identified 1,800 parcels a day. Only 1,500 were delivered initially but today with deliveries to private customers' homes the UCC is back to initial targets.

34.5.2 Quantitative results achieved

There has been no true economic or environmental assessment of the project, but the media fallout is estimated to be equivalent to a ¥100 million (750,000€) advertising expenditure.

34.5.3 Qualitative results

The quality of the service has been recognised by shopkeepers, customers and carriers.

34.6 Key Considerations

34.6.1 Lessons learned

At first, the shopkeepers' association wanted a specific large carrier to manage operations at the UCC. However, about ten other carriers were opposed to this option for obvious reasons of unfair competition, and the plan fell through. The current UCC manager is called Fujiki. As a freight handling specialist in the port of Yokohama, it has no direct stake in the parcel transport sector.

34.6.2 Primary Obstacles

Retailers did not perceive potential benefits in the initial phase. Awareness was slow to build.

Fear of carriers to see a competitor make the final deliveries.

Costs and funding were not major obstacles.

34 Motomachi Urban Consolidation Centre (UCC), Yokohama (Japan)

34.6.3 Critical Success factors

Initiative of a handful of highly motivated business people, who were able subsequently to find support from retailers' organizations and from the public authorities (local and national).

Wealthy neighborhood with capacities to support initial operating deficits.

Patience.

34.6.4 Transferability considerations

Transferability requires the following elements (combined):

- A high density of retail shops in at least three or four streets,
- Preferably high value shops with well known brands organized in an active retailers' association,
- Some interest and support from the public side - quantitative funding is not as important as qualitative promotion and interest.
- An available transport company that does not represent a threat to the other carriers, i.e. a transport company that did not deliver to the area before.
- Great care taken to the design and lay out of environmentally friendly loading and unloading zones, use of environmentally friendly vehicles.
- Available space at the immediate vicinity of the city centre for the location of a consolidation terminal (300 to 1,000 m²).

34.6.5 Up-scaling considerations

The national Pilote Programmes on clean urban transport in Japan have considered supporting more urban consolidating schemes but few experiments were candidates for funding.

34.6.6 Contacts

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35 Packstation for B2C, German cities (Germany)

35.1 General information

35.1.1 Description

Launched in Dortmund and Mainz in 2002, Packstation is a service set up by Deutsche Post. It is about the first example of urban locker boxes displayed on a national scale in Europe. It offers businesses and private individuals, free of charge, the possibility of collecting and returning their parcels on a 24 hour and seven day basis. In 2010, this network, present in all the German cities of more than 100,000 inhabitants, counted 800,000 customers and 2,400 stations located in the main cities of Germany (2009).

35.1.2 Type of measure/field of application

Administrative	
Urban planning	X
Governance	
Awareness	
Infrastructure	
ITS & Technical	X
Modelling	
Supply Chain	X
Information	

35.1.3 Framework and background

The growth of e-commerce generated new streams of goods leading to difficulties for storekeepers, truck companies and consumers (cost of the last kilometer). So the big players of distant selling retail services designed alternatives to home deliveries and provided networks of local pick up points.

35.2 Policy design details

35.2.1 Primary Policy Objectives

Provide Incentives	X
Regulation/Enforcement Component	

35.2.2 Actors involved and participation

Stakeholders involved:

- A large private company (DHL/Deutsche Post)
- Private users
- Public authorities
- City planners

35 Packstation for B2C, German cities (Germany)

The city is not the main player for initiating the Packstation network but it plays a very important role as a mediator with regards to the realization and installation of pick up points (planning and building permission for locker boxes on public places).

To have permission to locate packstations in the street, the Deutsche Post successfully negotiated with the main German municipalities: these guaranteed the conditions necessary for the installation of this new type of street furniture. The German municipalities play a major role in the constitution of the Packstation network (reduction of the real-estate costs, greater visibility). The support of large-sized cities is also very important for the benefits of the provider in term of image and credit.

35.2.3 Leverage Points

Key conditions for implementation are:

- A strong stakeholder (i.e. a private company) with strong interest in implementation. The company or group of companies has to be responsible for a critical mass of deliveries which allow for an economically viable scheme already existing at full 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.

35.3 Implementation details

35.3.1 Resources/infrastructures needed

There are no cost for the city administration (only if some infrastructure adjustments are necessary), but in some cases a revenue is possible from renting out public space for the installation of pick up points.

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.

35.4 Results

35.4.1 Quantitative results achieved

Studies made in 2006 in Cologne (1 million 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 locker box as part of the client's daily routine.

Alternative solutions for home delivery contribute to the following policy goals:

- Reduction of energy consumption.
- Improvement of transport efficiency.
- Improvement of the quality of life.

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

The optimization of transport flows leads to a reduction of unnecessary trips in the city centre. The results are less pollution and energy consumption, and an improved quality of life for all citizens.

35 Packstation for B2C, German cities (Germany)

35.4.2 Qualitative results

In 2005, 87% of the users of Packstation rated the service “good” (42% of the users) or “excellent” (45% of the users). User’s rating the service “excellent” increased between 2004 and 2005, passing from 34% to 45%. During the same period, users not rating the service “good” or “excellent” remained stable (14% in 2004, 13% in 2005).

The users of Packstation consider the service as being modern, practical, innovative and flexible. They are more critical as for privacy ease of the service and the confidence which this system inspires.

35.5 Key Considerations

35.5.1 Lessons learned

Solutions for last mile deliveries appear today, allowing environmental gains. Networks of locker boxes in the public space constitute a recognized valid solution as an alternative to home deliveries.

35.5.2 Primary Obstacles

To offer the maximum of opportunities for boxes’ implementation, municipalities and Deutsche Post have to find an agreement allowing the setting-up of locker boxes. In Germany a setting-up of such boxes is possible on the public space, but it is not always the case for other European countries. French municipalities have opposed such projects for esthetic or security reasons.

35.5.3 Critical Success factors

The interest of the local population must be high enough to make this type of service profitable. Large cities are best because their residents are more often interested by 24/7 locker box services for their parcels bought on the internet.

The absence of cost for the municipality is also a very important factor.

35.5.4 Transferability considerations

The size of the city is important (more than 100,000 inhabitants seem optimal today to have a number of users sufficient enough for making the locker box system profitable).

The places of implementation must be accessible and this means a close collaboration with the municipality.

35.5.5 Contacts

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36 Partnership on Good Practices, Toulouse (France)

36.1 General information

36.1.1 Description

In 2004, the Mayor of Toulouse started a partnership with the chamber of commerce (CCIT) and the union of carriers in order to create a "charter" fixing the rules and good practices for the urban transport of goods.

36.1.2 Type of measure/field of application

Administrative	X
Urban planning	X
Governance	X
Awareness	X
Infrastructure	X
ITS & Technical	X
Modelling	
Supply Chain	
Information	X

36.1.3 Framework and background

1. To harmonise the regulations (there were numerous different regulations, for each street, which prevented an optimisation of rounds for delivery companies),
2. To improve the sharing of the road space between cars, delivery vehicles, pedestrians and other street space users,
3. To decrease through traffic,
4. To re-organise the deliveries in the city centre: to create well adapted delivery spaces.

Faced with the difficulties to deliver goods in the city centre, the mayor, the CCIT and carriers tried to assign rules to each category of stakeholders in order to reach common objectives. These rules concern both national and local regulations.

36.2 Policy design details

36.2.1 Primary Policy Objectives

Provide Incentives	X
Regulation/Enforcement Component	X

36.2.2 Policy design steps and timing

December 2004: first consultation with the main carriers' organisation and the chamber of commerce (CCIT) in order to define: the allowed time windows, the load limits, the length of vehicles, the perimeter of implementation.

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January 2006: 2 consultations with all the carriers in the department having a €10,000 capital (400 companies).

March 2006: consultation with all the city centre's shopkeepers (2,000 businesses).

April 2006: consultation with freight transport organisations and the CCIT.

19 January 2007: signature of the Charter.

36.2.3 Actors involved and participation

Institutional: municipality, chamber of commerce.

Private actors: shopkeepers, carriers.

36.2.4 Decision making process

1. Diagnosis: state of the art, analysis of the malfunctioning with regards to urban goods deliveries, survey on offences concerning delivery parking, of the weight and load of the vehicle;
2. Consultation with carriers and shopkeepers, suggestion for a new regulation concerning deliveries;
3. Co-ordination: drawing up of a charter for deliveries in the urban centre, co-ordination with the local police, communication towards shopkeepers and carriers;
4. Setting up the Charter.

36.2.5 Site characteristics

The area concerned is located within the boulevards which delimit the city centre.

This area is historical with narrow streets and an important vehicular as well as pedestrian traffic.

36.2.6 Leverage Points

In the first phase: the main difficulties consisted in reaching a consensus between the city authority, carriers and shopkeeper on the following items:

1. Give clear objectives for good practices.
2. Define the objectives for each player: City council, carriers, shopkeepers.
3. Find the adequate rules acceptable to all.

After signing the charter, the main issue remains the control and enforcement. The role of the project leader is essential. In Toulouse, the freight project leader (an employee of the municipality) planned to set up a dedicated team of policemen on motorbikes to do a permanent control. When the freight project leader changed jobs, it was difficult to organise a follow-up of the enforcement plan. A strong political will is necessary because the measures can bother some stakeholders and endanger upcoming local elections.

36.3 Implementation details

36.3.1 Implementation step and timing

See policy and step.

36.3.2 Resources/infrastructures needed

Signalling for time windows, size of vehicles and delivery spaces

Times windows:

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20:00-7:00: allowed on street deliveries even on non designed areas

7:00-9:00: allowed deliveries only on designed delivery areas

9:00-11:30: allowed on street deliveries even on non designed areas

11:00-20:00: allowed deliveries only on designed delivery areas

Size of vehicles: <9 meter length

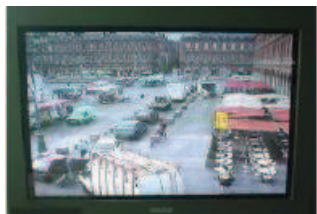
Interactive bounds (carriers/customers) for having access to the delivery zone



Urban redevelopment for new delivery spaces.



Controlled logistic area implementation.



The costs have been integrated in a global budget for urban redevelopment.

36.3.3 Human resources

The project leader and the office of the mayor of Toulouse, the carriers and logisticians organizations (6 persons), the president of the Chamber of Commerce and Industry.

The project is based on the project leader. The difficulty is to keep the position on a long term basis (key of the success).

36.3.4 Primary Target Group

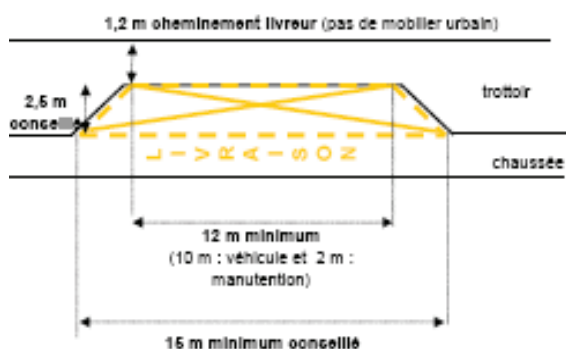
Vehicles authorised: length of vehicles 9m

Time windows for deliveries.

36.3.5 Enforcement scheme

36 Partnership on Good Practices, Toulouse (France)

Harmonisation of regulations in the designed perimeter.
Delimitation of new size and ergonomomy of delivery areas.



Implementation of bollards to control access

Access to the city centre based on the length of vehicle (9 meters) instead of tonnage (7.5 tonnes), 24h/24.

The time windows are based on the opening hours of shops.

The City of Toulouse commit itself to do its best to establish new regulation, to control it, and to design exemptions in accordance with strict rules, to adapt delivery areas according to the results of dialogues with users, to have them enforced, to design a better allocation of the street space according to the user's needs, to design a better lay out of the delivery areas, to improve ergonomics (Controlled Logistics Spaces).

Carriers commit themselves to apply the new regulation, to use the delivery areas, to respect the rules of the road.

Shopkeepers commit themselves to allow for deliveries from 9.00 to 11.30, to promote the enforcement of new delivery time-windows, to vacate the delivery areas and use them only for loading/unloading.

36.3.6 Monitoring procedures

Harmonisation and simplifying of the regulation.

Preservation of the central area.

Better management of the delivery areas (strengthening of controls, better distribution of delivery areas, better ergonomomy and design of delivery areas).

Reduction of through traffic. Setting up an "ELC" (controlled logistic space for deliveries) on the roadway made available.

Laying out of road (integration in urban development).

In the code area of the city centre:

- Access for the vehicles from 5:00 to 11:00 with permanent police control .
- After 11:00, pedestrian area.
- Delivery companies can contact the shopkeeper by security phone (for pushing down the bollards).

An experimental tool for helping enforcement by sensors:

- Analysis of delivery area occupancy.

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- Detection of vehicles coming.
- Transfer of informations to the police station.

36.4 Supporting Mechanism

36.4.1 Awareness/information campaigns

The communication is made by three groups of stakeholders:

- The City for the setting up and enforcement of the regulation.
- The shopkeepers for easing deliveries between 9:00 and 11:30.
- The carriers and logisticians for enforcing the new regulation.

36.4.2 Incentive Programmes/Financial Instruments

Controlled logistic space.

Another urban logistic space was planned on 2,000 m² near the city centre in order to consolidate the goods. It did not succeed because of the distance of carriers' terminals (already too close to the city, <20 km of the city centre) and the size of vehicles used for city centre deliveries (<3.5 tonnes).

36.4.3 Partnerships/Key supporting stakeholders

Local authority.

Organization of carriers and logisticians (3).

CCIT (Chamber of Commerce and Industry of Toulouse).

The announcements have been made in the media, by the CCIT, and by 3 organisations of carriers and logisticians.

36.4.4 Other Policies

Local authorities (city, Chamber of commerce and industry) encourage shopkeepers to call in carriers who deliver with electric or CNG powered vehicles.

36.5 Results

36.5.1 Expected vs. Actual benefits

A better sharing of the infrastructure.

Decrease of through traffic.

Better quality of life.

36 Partnership on Good Practices, Toulouse (France)



36.5.2 Quantitative results achieved

Today it is difficult to obtain quantitative results because of a lack of follow up of the experiment.

36.6 Key Considerations

36.6.1 Lessons learned

A very interesting experiment. It represents a very good practice of the delivering of urban goods. It allows for a better sharing of the road space and a better understanding of the necessity for a good delivery system in order to keep local shops in the city centre and to promote local economic development.

36.6.2 Primary Obstacles

To reach a consensus for the setting up of the Charter, and above all to make the Charter easy to enforce.

36.6.3 Critical Success factors

The main problem is to reach a long term involvement of the administration and elected officials. Carriers have been in favor of the Charter. Only one minority of actors can be failed the effects.

36.6.4 Transferability considerations

This experiment is transferable in cities where a real political willpower exist s for establishing good practices for goods' deliveries. It needs a thorough dialogue between all concerned players, an adapted regulation, some degree of urban planning.

36.6.5 Up-scaling considerations

The experiment can be extended citywide as it was done in Paris.

The larger the city the more complex the conditions of control are. The harmonisation of regulations across jurisdictions also becomes more difficult.

36.6.6 Contacts

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37 Petite Reine (electrically assisted tricycles for deliveries), Rouen (France)

37.1 General information

37.1.1 Description

This experiment is based on a new concept of vehicles, the “cargocycle”. It is a tricycle with electrical assistance, adapted to the last mile of urban goods transport. It is used to provide last mile delivery services for carriers and retailers. The drivers of the trucks unload the parcels at the ELP (special delivery areas – see Best Practice 29 above). Then the ELP agents (mobile deliverymen) load the cargocycle in order to deliver to the consignees.

37.1.2 Type of measure/field of application

Administrative	
Urban planning	X
Governance	
Awareness	
Infrastructure	
ITS & Technical	X
Modelling	
Supply Chain	X
Information	X

37.1.3 Framework and background

The “Petite Reine” was first implemented in the 4 central districts of Paris in 2003. A small space in an underground parking facility was used as a “proximity terminal”.

The experiment was a success. In 2005, the Petite Reine operated in Bordeaux (see the specific file ELP in Bordeaux).

Because of the building of a new tramway line in Rouen, the Chamber of Commerce of Rouen (CCIR) decided to experiment an ELP with the final delivery made by cargocycles.

The objectives were to reduce the number of trucks in the city centre and to improve the competitiveness of operators.

37.2 Policy design details

37.2.1 Primary Policy Objectives

Provide Incentives	X
Regulation/Enforcement Component	

37 Petite Reine (electrically assisted tricycles for deliveries), Rouen (France)

37.2.2 Policy design steps and timing

1. June 2005: feasibility study made by a consultant in order to set up 2 ELPs (funding from the French research programme for transport PREDIT):
 - Analysis of practices and capacities for delivering retailers,
 - Analysis of existing regulation,
 - Analysis of data regarding access to the conurbation,
 - Modelling of goods movements,
 - Analysis of the needs of the shippers and the delivery rounds of carriers.
2. November 2005: a consultation between France telecom and carriers on a new tracing and tracking software in order to help the drivers access the ELP.
3. Start of the experiment.
4. January 2006: introduction of "la Petite Reine".

37.2.3 Actors involved and participation

The City of Rouen, the Chamber of Commerce (CCIR), the PREDIT (French Ministry of transport), ADEME (French Environmental Agency).

The budget comes from local governments, the CCIR and ADEME.

La Petite Reine, private company, manager of the ELP TEOR has its own business plan.

07/20/2011: The specialist of the logistics of the last kilometer, Star Service, acquired 51 % of La Petite Reine shares. It should therefore benefit from its infrastructure to offer an innovative transport service and accelerate its growth.

37.2.4 Decision making process

The decisions were based on the previous experiments made in Bordeaux (transfer), the choice of the operator was simple because of its expertise for this kind of service.

37.2.5 Site characteristics

Rouen has a large urban redevelopment project with the new tramway line and a global vision for logistics activities.

A historical centre with a pedestrian zone.

The Seine river crosses the city.

Around the city a large logistic zone and the port area bring important flows of goods.

37.2.6 Leverage Points

It is too early to assess which decisions were the most critical.

37 Petite Reine (electrically assisted tricycles for deliveries), Rouen (France)

37.3 Implementation details

37.3.1 Implementation step and timing

Feasibility study.
Surveys about ex ante delivery operations.
Implementation.
2008: ideas for new services.

37.3.2 Resources/Infrastructures needed

A small cabin.
Signalling for parking places accommodating 6 trucks.
Road marking.
Handling equipments.

37.3.3 Human resources

“La Petite Reine” has 5 employees
3 agents work on the ELP.

37.3.4 Primary Target Group

Own account and third party carriers.

37.3.5 Monitoring procedures

The assessment procedure is on going.



37.4 Supporting Mechanism

37.4.1 Awareness/information campaigns

CCIR and City of Rouen have made available to the public an important information (brochures, press

37 Petite Reine (electrically assisted tricycles for deliveries), Rouen (France)

coverage).

37.4.2 Incentive Programmes/Financial Instruments

Access to the service is free and open for all operations and types of goods, for own account as well as third party operators.

37.4.3 Partnerships/Key supporting stakeholders

“Pôle de compétitivité” NOVALOG (Competitiveness Clusters are international research clusters based in different French regions - NOVALOG is based in Rouen and has specialised on freight and logistics research).

37.4.4 Other Policies

A strict regulation has been set up for the use of the ELP.

The ELP is dedicated to commercial vehicles loading or unloading (no long term parking).

The ELP agent controls the access.

The delivery/pick up time is 30 mn maximum.

No limit of vehicle weight has been set to access the zone serviced by the ELP.

Opening hours are: 9:30-16:30.

37.5 Results

37.5.1 Expected vs. Actual benefits

Main results achieved are the following:

- To facilitate delivery vehicles' stopping on dedicated spaces
- To limit traffic
- To facilitate loading/unloading without modifying current transports contracts

To reduce global time for delivery and road occupancy.

37.5.2 Quantitative results achieved

In the first 2 months, 1,600 deliveries were made from the ELP.

37.5.3 Qualitative results

A very good perception by the retailers. Other assessments are on-going.

37.6 Key Considerations

37.6.1 Lessons learned

The organisation mixing an ELP and cargocycles has proved to be very efficient, adaptable and cheap.

Efficiency increases with the number of ELPs implemented (many ELPs make a network, which increases the quality of service and the efficiency for transport companies using the ELP). Several years have been

37 Petite Reine (electrically assisted tricycles for deliveries), Rouen (France)

necessary to set up an ELP in Paris, two years were needed in Bordeaux, and only a few months were needed in Rouen: implementing ELPs can be quick as expertise has increased among French local stakeholders.

37.6.2 Primary Obstacles

The choice of location is critical (it must be convenient with regards to the carrier's own terminals). Other handling equipments and types of vehicles had been imagined by the City to be used for the ELPs. It has proved difficult to insert them into the scheme.

37.6.3 Critical Success factors

Regulation: to adapt the regulation to the global urban regulation (to continuity problem the strict regulation set up in order to promote the ELP has to be coherent with the whole regulation. The carriers don't have obstacles to optimise their runs.

37.6.4 Transferability considerations

The ELP is transferable (5 European cities have implemented it already).
La Petite Reine is a flexible concept well fitted to the needs of urban goods transport especially for parcels' transport. La Petite Reine operator has developed activities in London, Geneva, Dijon, Paris and Bordeaux.

37.6.5 Up-scaling considerations

La Petite Reine has developed an innovative concept which has received several awards.
The vehicle has been upscaled. In 2009, the last model is 1,400 litres and 180 kg payload. It has autonomy of one day, and can run both on streets, bus lanes and bicycle lanes. The cargo-cycles are marketed. The vehicle can serve as a method for advertising.
A new concept of cargocycle with solar panel is under consideration.
The Petite Reine has set up a programme to hire employees with social difficulties.
Value added services may be provided in the near future such as a parcel collecting services or automated locker boxes customers).

37.6.6 Contacts

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38 Pick up Points for B2C in French cities (France)

38.1 General information

38.1.1 Description

At the end of 1980s, the distance sellers developed a new service able to provide an alternative for home deliveries: pick up points. These points are in fact convenience stores which, in order to increase the stores' revenue, serve as local parcels' depots where customers can pick them up instead of having them delivered at home.

38.1.2 Type of measure/field of application

Administrative	
Urban planning	
Governance	
Awareness	
Infrastructure	
ITS & Technical	X
Modelling	
Supply Chain	X
Information	X

38.1.3 Framework and background

The growth of e-commerce and consequent home deliveries, as well as the increasingly complex delivery operations in cities due to urban congestion, was at the origin of the development of new collection point networks in France.

Five large networks of pick up points exist today:

- Relais-Colis, Sogep (4,000 points)
- Points-Relais 3 Suisses, Mondial Relay (6,000 points)
- Points-relais Kiala, Kiala (5,000 points)
- Points A2pas, Pick up Services/Altadis (3,100 points)
- Points Chrono Relais, Chronopost/Altadis (3,500 points)

Some of these networks can actually share the same physical stores (this is the case, for example, of Chrono Relais and A2pas).

38.2 Policy design details

38.2.1 Primary Policy Objectives

Provide Incentives	
Regulation/Enforcement Component	X

38 Pick up Points for B2C in French cities (France)

38.2.2 Policy design steps and timing

At the beginning of the 1980s: distance sellers investigated a new type of marketing technique inspired by the traditional "party plan" (selling a product in a limited group of people such as friends or neighbors). "Ambassadors" (private individuals) served as interface between a mail order company and the customers, and receive parcels in their home where customers go and pick them up. The objective was to reduce the costs of deliveries.

At the end of the 1980s: difficulties bound to the status of the "ambassadors" (difficulties for them to always be available for the on-call periods, or reluctance from the customers to go to a private home), as well as economic difficulties (low decrease of transport costs) were at the origin of a new distribution model: the network of pick up points in local stores

1989: The first pick up point is opened in France. The network gradually increased with the rise of B2C operations.

38.2.3 Actors involved and participation

Shipper:

Distance sellers.

Collection points service provider:

The first players were the logistic subsidiaries of the distance sellers. They developed the concept of pick up points (Sogep, Mondial Relay, acting for La Redoute and 3 Suisses, historically the two largest mail order companies in France).

Logistics service providers developed integrated services from the 2000s, because of the rapid growth of e-commerce (Kiala).

Integrators (Chronopost).

The administrators of the collection points:

The owners or the managers of local stores, convenience stores.

The Altadis network of tobacconists (local cafes with a licence to sell cigarettes) which supplies a service of collection points (since 2006).

38.2.4 Decision making process

See policy design steps and timing.

38.2.5 Site characteristics

The collection points service is available nationwide. The objective for every supplier of this service is that 85 to 90% of the French population have access to a pick up point within 10 minutes by car, bike or foot.

38.2.6 Leverage Points

The choice of locations to be used to provide a pick up point service.

The negotiation of partnerships between service suppliers and the owners or the managers of local stores.

38 Pick up Points for B2C in French cities (France)

38.3 Implementation details

38.3.1 Implementation step and timing

1. The storekeepers apply to the network's managers and propose a pick up service.
Criteria to be selected are the following:
 - A surface of at least 3-4 m² to process and store the parcels
 - Businesses should not sell the same articles as those distributed by distance sellers
 - Their access must be easy for deliverymen as well as for customers
 - The image conveyed by the business must be good
 - Opening hours must be wide enough to meet the needs of the customers.
2. In case the business meets the conditions, a contract is signed with the collection points network manager.

Things have evolved however. Kiala, for example, has terms of reference much stricter to select the pick up point locations than other suppliers.

38.3.2 Resources infrastructures needed

This kind of pick up point delivery service requires logistic technological tools allowing:

- To collect customers' information related to the parcel,
- A physical follow-up by optical reading,
- Dissemination of the traceability data (internet, phones, SMS),
- Invoicing management.

Kiala developed sharper tools and in particular an innovative logistic terminal which allowed a distribution cost cutting by 40%.

38.3.3 Human resources

Pick up points benefit from a human presence. They are familiar to French customers. The opposite concept is the locker banks network, which is a network of automated pick up points (see Packstation and Cityssimo). It is more developed in Germany and the Netherlands.

38.4 Supporting Mechanism

38.4.1 Awareness/information campaigns

Today, B2C websites propose alternatives to home deliveries, such as pick up points, during the on line purchase process. This constitutes the main information source for customers on these new services.

38.4.2 Partnerships/Key supporting stakeholders

Several types of partnerships are present in France:

1. Kiala concluded a partnership with Mondial Relay, logistics subsidiary of 3 Suisses, and has managed its 3800 collection points since 2002.
2. Altadis concluded a partnership with Pick-up service to manage the integration of collection points service in tobacconists. Furthermore, pick-up service concluded its own partnerships with Distrihome (delivery in 48 hours, management of returns and of the cash on delivery), Chronopost

38 Pick up Points for B2C in French cities (France)

(J+1 before 13:00 for sensitive goods and after-sales service) and Ciblex (J+1 before 8:00).

38.5 Results

38.5.1 Expected vs. Actual benefits

The collection point services aimed at minimizing distribution costs. At first the experiments turned out to be ineffective, but in the end the choice to develop a service of collection points in local stores resulted to be sensible. All pick up point networks have been developing since the beginning of the 2000s.

38.5.2 Quantitative results achieved

In 2009, a study carried out by the FEVAD (Federation of French distance sellers) measured the environmental effects (CO₂ emissions) of an on-line purchase compared with a purchase in a store. The distance sale divides CO₂ emissions by four during the distribution of a parcel. Distance selling represents a possible solution for the reduction of greenhouse gases in cities.

38.5.3 Qualitative results

A service of pick up points establishes a relevant means for local stores to increase their revenue and in certain cases to maintain their activity. This service can indeed preserve the viability of some businesses located in downscaling city centre.

38.6 Key Considerations

38.6.1 Lessons learned

Collection points establish an important service as an alternative solution to home deliveries.

38.6.2 Primary Obstacles

Find the relevant model distribution network.

Choose the businesses which best answer carriers' expectations.

Build partnerships with e-storekeepers which allows to have a sufficient volume of distributed parcels.

The important financial investments to develop these new channels of distribution (specifically the creation of innovative platforms).

38.6.3 Critical Success factors

Building good partnerships represents a crucial success factor.

In the case of Kiala, there was the necessity of generating an important turnover very quickly after its creation in order to invest into the development of the network and assure the service's viability.

38.6.4 Transferability considerations

The setting-up of this collection point service is possible in all cities, big as small, but a minimum meshing on a national scale is necessary. The only condition to be filled is the construction of partnerships between the e-commerce retailers or the distance sellers, the carriers and the distributors, in that case the convenience stores.



38 Pick up Points for B2C in French cities (France)

38.6.5 Up-scaling considerations

Pick up points are the most developed alternative solution to home delivery in Europe today. Main players in France are also in Benelux, Austria, Spain, United Kingdom. Other European countries could be integrated into these networks as far as their market seems relevant.

38.6.6 Contacts

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39 Protected delivery zones, Prague (Czech Republic)

39.1 General information

39.1.1 Description

Reduction of lorry access in some areas of the city, especially in the historical city centre. This measure is a simple straight forward regulation based on the weight limit of trucks allowed to circulate into the historic centre of Prague.

39.1.2 Type of measure/field of application

Administrative	X
Urban planning	X
Governance	
Awareness	X
Infrastructure	
ITS & Technical	
Modelling	
Supply Chain	
Information	

39.1.3 Framework and background

One of the biggest problems in Prague has been a very fast increase in the number of private cars. They have more than doubled since 1990. A new traffic policy promotes public transport, development of traffic infrastructure and regulation of car traffic, particularly in the city centre. The objectives are to protect the historical city centre and to create better conditions for free flowing traffic. This policy is part of the European project Trendsetter.

39.2 Policy design details

39.2.1 Primary Policy Objectives

Provide Incentives
Regulation/Enforcement Component

39.2.2 Policy design steps and timing

The objectives of the Municipality are:

- To protect the historical city centre.
- To create better conditions for a free flowing traffic.
- To set parameters to delivery time windows in the city centre.

Three stages were necessary:

1. A feasibility study to identify the optimal area for the environmental zone.

39 Protected delivery zones, Prague (Czech Republic)

2. Information campaigns to ensure support within the concerned districts of the city.
3. Update of the new environmental zones measurement of the traffic situation before and after the extension.

39.3 Implementation details

39.3.1 Implementation step and timing

The first regulation in the historic centre of Prague was taken in the 1960's with an environmental objective. Access of heavy goods vehicles (vehicles over 5,500 kilos) was forbidden in some areas of the city. Later, this measure was extended. Vehicles over 6,000 kilos were then forbidden. This decision is due to the change in the structure of vehicle fleets. In the 1990s, a new regulation was implemented. In 1999, a regulatory measure was implemented for the restriction of growing traffic, by the implementation of a zone with restricted access for heavy vehicles and buses over 3,500 kilos in the inner city centre. The first zone from the 1960's included approximately 6 km² of the downtown area. This coverage was gradually extended to cover approximately 17 km². The zone for heavy vehicle traffic and buses from 1999 covers an area of 5 km² of the city centre. These two zones work together.

39.3.2 Resources/Infrastructures needed

Traffic signs at the streets before the crossroads where the zone begins.
Website implementation.

39.3.3 Primary Target Group

This measure concerns vehicles over 6 tonnes and those over 3.5 tonnes for the inner city centre.

39.3.4 Enforcement scheme

The municipal authority provides special permits (short-term or long-term permits) for the purpose of goods deliveries, building works.
In accordance with traffic regulations (Czech Highway Law), the police control the access into this zone.

39.4 Supporting Mechanism

39.4.1 Awareness/information campaigns

The information is provided by means of general city maps, internet website (www.udipraha.cz) and traffic signs at the streets before the crossroads where the zone begins. An information campaign was performed in the press and other media. No specific consultation or information was made targeted towards truck companies.

39.4.2 Other Policies

Policies.
Measure.
Access Restrictions.
Widening of Environmental Zone for vehicles > 3.5 tonnes.

39 Protected delivery zones, Prague (Czech Republic)

Public Passenger Transport.
Linking different means of public transport.
Integration of Transport Management Systems.
More adaptative signal control in a bus priority system.

39.5 Results

39.5.1 Expected vs. Actual benefits

This measure has achieved its objective. The project was successful because environmental considerations were the driving elements for this concept.

39.5.2 Quantitative results achieved

After the implementation of these regulatory measures, the volume of lorry traffic declined by 85% on the busiest routes. This traffic was transferred to more appropriate roads, namely to the parts of the city ring road on the southern border of the central part of the city. At the same time the volume of lorry traffic on the ring road stretches increased approximately by 30-50% after the implementation of regulatory measures.

39.5.3 Qualitative results

In Prague, the environmental zone rules have resulted in operators gradually shifting their fleets into smaller and more modern vehicles.

39.6 Key Considerations

39.6.1 Lessons learned

Restricted zones constitute a good solution for the preservation of the historic cities which are subject to a strong increase in traffic.

This project shows that an overall policy including both passenger and goods transportation is possible.

The success of this project relies in the setting up of a protected zone but also in the creation of a ring road.

Finally a narrow collaboration between the different stakeholders is crucial.

39.6.2 Primary Obstacles

The efficiency of the measures applied depends on the way local authorities deal with local businesses and how they understand their transport needs.

39.6.3 Critical Success factors

In Prague the enforcement of access restriction rules into this zone is guaranteed by the police and fines are issued in case of non compliance.

39 Protected delivery zones, Prague (Czech Republic)

39.6.4 Transferability considerations

The efficiency of the measures applied depends on the way local authorities understand local businesses' transport needs. Enforcement is very important.

The existence of a historic centre constitutes a favorable factor justifying the establishment of a protected zone.

The existence or the possibility to have a way of unballasting are necessary.

The municipality must be particularly committed and the control must be really ensured.

39.6.5 Up-scaling considerations

Possibility of including protected zones into national policy

Possibility of extending the area.

39.6.6 Contacts

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40 Silent deliveries with PIEK labelling in Dutch cities (the Netherlands)

40.1 General information

40.1.1 Description

Silent technical parts have been developed for silent deliveries funded by Dutch government.

40.1.2 Type of measure/field of application

Administrative	X
Urban planning	
Governance	X
Awareness	
Infrastructure	X
ITS & Technical	X
Modelling	
Supply Chain	X
Information	X

40.1.3 Framework and background

Many municipalities are increasingly confronted with bad environmental conditions due to high exhaust gas and noise emissions, even in less densely populated areas that have not been considered problem areas before.

According to the law implemented in 1998 the PIEK-programme has been initiated. At the end of 1998 the renewed "Decree Retail Trade Environmental Protection" came into effect. This Dutch decree sets down that the noise emission level must remain within the noise emission standard. It stipulates that the noise emission generated when loading and unloading goods, in particular with trucks, between 19.00 and 07.00 must comply with strict peak noise standards. The PIEK/PEAK programme is currently focussed on subsidising acquisition of "quiet" vehicles and equipment. This subsidy program is valid for the period 2004-2008 and is meant to reduce the disturbance for inhabitants.

40.2 Policy design details

40.2.1 Primary Policy Objectives

Provide Incentives	X
Regulation/Enforcement Component	X

40 Silent deliveries with PIEK labelling in Dutch cities (the Netherlands)

40.2.2 Policy design steps and timing

1998: the renewed "Decree Retail Trade Environmental Protection" came into effect.

1999: PIEK programme on going: new vehicles, forklifts, floors for lorries, frizzing, roll containers... are implemented by manufacturers until 2002-2003.

2007: A pilot supermarket (Albert Heijn) tests the potential of evening and early morning distribution with drivers training.

2007: A large test on 10 pilot projects is carried out in 8 municipalities.

2008-2010: investments in quiet material by Albert Heijn (1,000 trucks at PIEK level).

2009: extension in Paris by the "Demeter club".

40.2.3 Actors involved and participation

Dutch Ministries.

Albert Heijn Supermarkets.

Vehicles manufacturers.

Handling means manufacturers.

40.2.4 Decision making process

Feasibility study.

Follow up of the experiment.

Permanent measures of the noise caused during the loading/unloading.

Surveys to the citizens about the eventual nuisances.

Setting of a labelling of PIEK vehicles.

Official labelling office in the Netherlands, then in other countries.

40.2.5 Site characteristics

Ten pilot projects in 8 municipalities.

Out of them, 4 pilots have been initiated at the request of municipalities due to the complaints from residents about noise of early morning deliveries on the concerning location.

6 pilots started at the request of business sector.

40.2.6 Leverage Points

The leverage point was the implementation of the PIEK noise rules by Dutch government.

40.3 Implementation details

40.3.1 Implementation step and timing

To fix the standard.

To find a large group able to involve itself in experiment.

To follow the implementation.

To create the label.

40 Silent deliveries with PIEK labelling in Dutch cities (the Netherlands)

To create a national organism for control and labelling.

40.3.2 Resources/Infrastructures needed

Large costs for implementing new technologies.
Few costs for animation of the programme.

40.3.3 Human resources

One person from Senter Novem from 2007 to 2010.

40.3.4 Primary Target Group

A large distribution group in Netherland Albert Heijn.
Cities for the restrictions.
Material manufacturers.
Residents.

40.3.5 Enforcement scheme

New rules for night deliveries.

40.3.6 Monitoring procedures

Surveys have been carried out in different situation with a large distribution group in Netherlands in 2007.
Recently in Paris.
The main criteria is the complaints rate from residents.

40.4 Supporting Mechanism

40.4.1 Awareness/information campaigns

Firstly a national program and after relationship with shippers.

40.4.2 Incentive Programmes/Financial Instruments

The only incentive programme was about official communication and benefits for companies.

40.4.3 Partnerships/Key supporting stakeholders

Albert Heijn.

40.4.4 Other Policies

Synergies with local rules to allow night deliveries after testing them.

40 Silent deliveries with PIEK labelling in Dutch cities (the Netherlands)

40.5 Results

40.5.1 Expected vs. Actual benefits

Surveys by 10 shops, 9 cities, 1,000 deliveries in the evening, during 3 months. 5.00-7.00 or 19.00-2.00 deliveries.

The results are, for the same distance, the same type of vehicle, the saving is:

- 1 hour for the trip
- 10 litres of gasohol
- Cost in working hour €12,600

The evaluation by year concerning environmental effect: CO₂ emissions 57 tonnes, NO_x emissions 147 kg, PM₁₀ Emissions 3 kg.

Several others measures have been realised with larger vehicles
1,000 lorries or trailers at PIEK level purchased by Albert Heijn.

40.5.2 Quantitative results achieved

The standards:

2008: several manufacturers of trailer.

18 manufacturers of components.

14.000 other products have been certified.

40.5.3 Qualitative results

Labelling is very successful.

Many countries are involved in experiment.

Labelling offices are created in Europe.

Surveys results: larger time slot for delivery, better use of trailer use, lower rate of accident (easier handling), less drivers.

40.6 Key Considerations

40.6.1 Lessons learned

A governmental certification.

A durable approach for a long time.

PIEK standard vehicles permit a nocturnal delivery.

40.6.2 Primary Obstacles

15% costly than usual components, but between 15 to 35% cheaper for deliveries cost.

40.6.3 Critical Success Factors

More money for investments.

40 Silent deliveries with PIEK labelling in Dutch cities (the Netherlands)

40.6.4 Transferability considerations

Labelling must be at an European level because the market manufacturers are at an European level. Cities can involve them in order to use labelled quiet materials.

40.6.5 Up-scaling considerations

Several implementations are going in different countries. Each country has a labelling organism.

The experiment began international (Australia, Belgium, Denmark, France, Germany, UK, Ireland, France, Spain, Sweden).

The Large distribution group involved in the Netherlands is changing all the 1,000 trailers and all the tractors in PIEK trailers.

40.6.6 Contacts

<http://www.piek-international.com>

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www.cemafroid.fr

41 SMARTFREIGHT, Trondheim (Norway)

41.1 General information

41.1.1 Description

The SMARTFREIGHT project aimed to make urban freight transport more efficient, environmentally friendly and safe by answering to challenges related to traffic management, freight distribution management, and a better coordination between the two. More particularly, SMARTFREIGHT specified, implemented and evaluated Information and Communication Technology (ICT) solutions that integrate urban traffic management systems with the management of freight and logistics in urban areas.

41.1.2 Type of measure/field of application

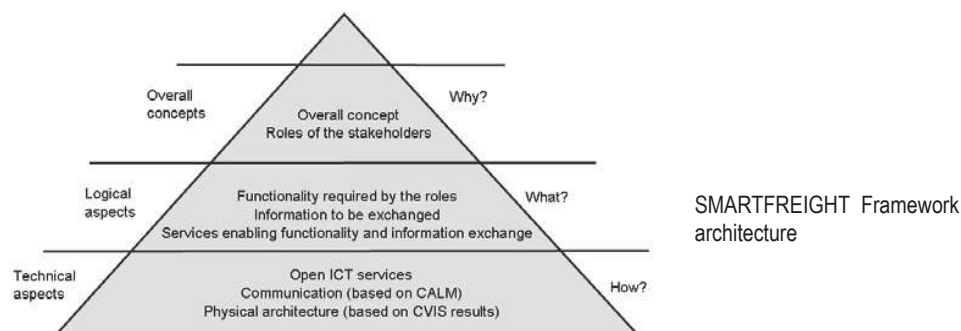
Administrative	
Urban planning	
Governance	
Awareness	
Infrastructure	
ITS & Technical	X
Modelling	X
Supply Chain	
Information	

41.1.3 Framework and background

The project original idea is that identifying all lorries carrying goods could, so that they can be easily noticed inside daily traffic, would help reducing the number of vehicles, the time they spend inside the city and the load they transport.

The three main objectives of this project are :

1. The use of ITC through the development of new processes for the management of goods-carrying lorry traffic,
2. The examination of interaction between traffic and goods management systems.
3. The last objective allows to study the coordination of all goods moves inside the city.



41 SMARTFREIGHT, Trondheim (Norway)

41.2 Policy design details

41.2.1 Primary Policy Objectives

Provide Incentives	X
Regulation/Enforcement Component	

41.2.2 Policy design steps and timing

The Smartfreight project duration is 3 years. It started in January 2008 and was closed early 2011. The project is structured in 9 work packages in which the requirements, possibilities and the impact of the new SMARTFREIGHT solutions will be identified and assessed.

41.2.3 Actors involved and participation

Smartfreight project benefits from finance supplied by European Commission DG INFSO. The SMARTFREIGHT team is composed of a variety of experts of traffic management and freight distribution management:

- Commercial technology companies (Q-Free, ETRA),
- Research institutes (University of Southampton, Chalmers University of Technology, Sintef),
- Freight distribution stakeholders (ADL),
- Local/regional authority representative. (Dublin Transportation Office, Statens vegvesen, Commune di Bologna),

Each expert has a specific role in each workpackage:

- WP1 Project management – Sintef,
- WP2 Analysis of urban freight transport challenges and requirements) - University of Southampton, Commune di Bologna, Dublin Transportation Office, Statens vegvesen, ADL,
- WP3 Traffic Management and Distribution Management Services – ETRA,
- WP4 Onboard support and control on top of CALM (Communications Air-Interface Long and Medium Range). - Q-Free,
- WP5 Framework architecture for open solution for urban freight transport – Sintef, Commune di Bologna, Dublin Transportation Office, Statens vegvesen, ADL,
- WP6 Proof of concept and verification of ICT solutions - Chalmers, Commune di Bologna, Dublin Transportation Office, Statens vegvesen,
- WP7 Impact evaluation of the new concepts - Chalmers, Commune di Bologna, Dublin Transportation Office, Statens vegvesen,
- WP8 Dissemination – POLIS,
- WP9 Exploitation - ETRA.

41.2.4 Site characteristics

The city of Trondheim in Norway hosted the SMARTFREIGHT test site, while simulations were done for Winchester (UK) and Bologna (Italy). Dublin carried out a desk-top study.

41 SMARTFREIGHT, Trondheim (Norway)

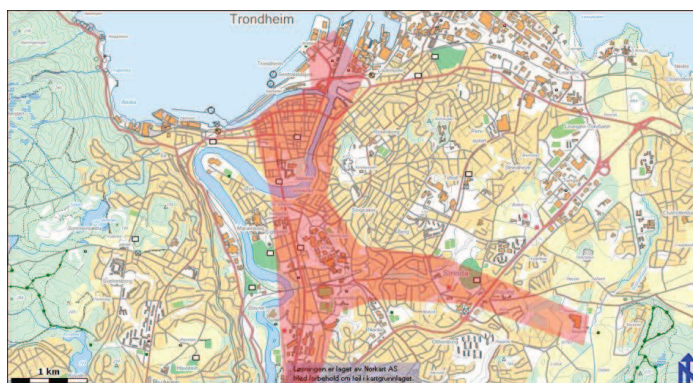
In their 2010-2019 plan Trondheim municipality states that efficient freight transport is important for the competitiveness of the area. Annually, some 9 million tonnes of goods are transported to and from Trondheim, half of this is transported by road. The city centre freight distribution has been identified as a challenge, with difficult conditions for deliveries, and low exploitation ratio for the distribution vehicles. As other European urban areas, Trondheim has since a long time a traffic management system which basically consists of an urban traffic signal system. The traffic signals are used to control the traffic demand in the urban road network. The system of signals is operated by the Public Roads Administration (PRA).

41.3 Implementation details

41.3.1 Implementation step and timing

The Norwegian University of Science and Technology (NTNU) is situated in Trondheim. The university initiated in 2006 a R&D project called "Wireless Trondheim". The goal of the project is to offer a city-wide physical high capacity communication network, connecting a number of lab stations to the university network. The new communication network was from the start based on Wi-Fi technology, but it will now gradually be transformed to other technologies.

The concept of "Wireless Trondheim" was also recognized as interesting for the transport sector when it comes to ITS solutions. A parallel research project called "Wireless Trondheim Network lab" (NETLAB) has been set. This is a dedicated communication network designed for ITS purposes and consist of 14 street lab stations, covering at least 5 km of a main road in Trondheim, and 4 roof top stations to support pedestrians and other users. Two additional stations are planned to cover the harbour terminal and the railway terminal in Trondheim. Each roadside station is connected through high-speed optical fibers.



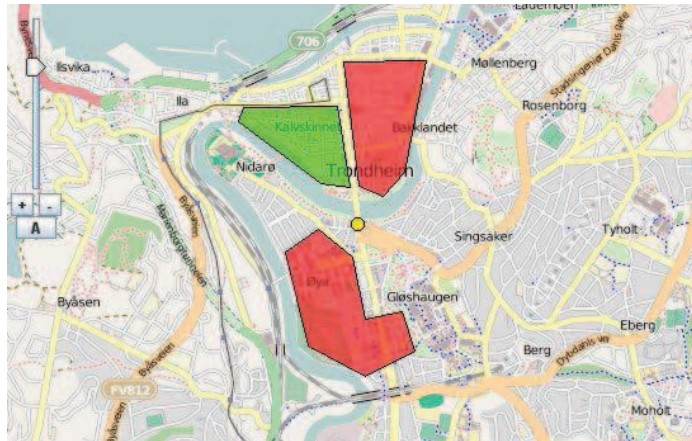
NETLAB coverage area.

NETLAB is now being instrumented in a national project where Statens vegvesen, Norwegian University of Science and Technology and Q-Free are partners. Based on the results from the CVIS (Cordless Voice Intercom System) project on cooperative systems and technology provided by Q-Free, a CALM based infrastructure on top of this platform will be established.

The main objective of the access control service in SMARTFREIGHT is to enable control of who may access, and on what terms, different defined transportation network sections and areas in a city. The service enables a dynamic definition of such areas and their access requirements (e.g. in case of unpredictable traffic situations like accidents), and monitoring of behaviour and road usage for vehicles entering such areas or

41 SMARTFREIGHT, Trondheim (Norway)

zones.



Access restricted areas

This figure also shows with colors which areas one individual vehicle will have access to and not. The color on these areas will depend on the individual vehicles' properties like physical dimensions, engine type and class, and cargo. By comparing the vehicle properties with the area requirements, the access rights can be shown to both the driver and the freight distribution manager handling a transport company's operations and routing. The policy will also be made available beforehand in order to optimise route planning by the freight distribution manager.

In this context the Urban Traffic Management Centre (UTMC) is responsible for defining the controlled areas and associated access requirements, which are all included in the policy.

41.3.2 Resources/Infrastructures needed

Devices.

The current Sensor Board is a research tool.

It could be made as small as 40 x 60 mm.

Price comparable with tolling tags (≈€30).

Vehicle Equipment.

Q-Free is continuing on work started in CVIS 1.1 to create a more optimized vehicle platform.

Road Side Equipment.

All equipment can be put into antenna enclosure.



A roadside station

41 SMARTFREIGHT, Trondheim (Norway)

41.3.3 Primary Target Group

For cities/society:

- Greener cities
- Improved traffic safety
- Better dangerous cargo control

For cargo owners/recipients:

- Predictable and timely delivery
- Efficient return of cargo and waste

For transport companies:

- Efficient and reliable distribution

Ability to adapt to requirements to get advantages.

41.3.4 Monitoring procedures

See Work packages.

41.4 Supporting Mechanism

41.4.1 Awareness/information campaigns

SMARTFREIGHT, as the other European projects, relies on diverse information campaigns:

- Conferences
- Reports
- Varied presentations.

41.4.2 Incentive Programmes/Financial Instruments

ICT for energy efficiency: projects financed by European Union to reduce energy consumption using all available ICT (GPS, SIG...).

41.4.3 Partnerships/Key supporting stakeholders

Transport companies, fleet operators.

Drivers.

Managers of the urban traffic.

City in general/society.

Retailers and cargo owners.

Resource managers (e.g. those managing accesses to resources like loading bays).

Technology providers.

41.4.4 Other Policies

Cooperation with EURIDICE project. EURIDICE is an integrated project with a duration of three years, co-funded by the European Commission under the 7th framework programme. The project basic concept is "to build an information services platform centred on the individual cargo item and on its interaction with the surrounding environment and the user".

41 SMARTFREIGHT, Trondheim (Norway)

41.5 Results

41.5.1 *Expected vs. Actual benefits*

Initial positive feedbacks were expected for the following actors:

- Authority perspective (or wish list):
 - Better mobility in cities
 - Cleaner and greener cities
 - Dangerous goods control
 - Traffic data collection
 - Direct savings estimated
 - Operational costs
 - Survey and data collection
 - Indirect savings estimated
 - Better urban mobility
 - Reduction infrastructure costs
 - Reduction pollution, accidents, noise
 - Reduced costs
 - Increased benefits
 - Direct savings estimated
 - Fuel/energy
- Transport company perspective:
 - Logistics costs
 - Demand estimation
 - Indirect savings estimated
 - Better distribution services

The results of impact analyses performed are based on data collected from the local test site activities:

- Performance indicators and data collection needs
- Data collection from local sites
- Impact analyses on urban freight
- Deployment issues (incl. transferability analysis)
- Generic findings on urban transport and future outlook.

41.5.2 *Quantitative results achieved*

Quantitative results are not yet published.

41.5.3 *Qualitative results*

The validation of the SMARTFREIGHT framework was threefold. The framework had to fulfil the user needs (see chapter 9); it had to be possible to specify ICT solutions that fulfil the functionality that is defined by the objectives of SMARTFREIGHT and the solutions that are realised and demonstrated at the Trondheim test site had to confirm that the framework was appropriate.

In Trondheim the technical solutions were validated and demonstrated.

41 SMARTFREIGHT, Trondheim (Norway)

41.6 Key Considerations

41.6.1 Lessons learned

The technology is currently tested at various test beds such as the one in Trondheim. The technology is therefore not yet mature enough for commercial solutions. As it matures it may however become an alternative for Smartfreight services.

41.6.2 Primary Obstacles

Who will pay? For investment in infrastructure? For everyday running cost and maintenance?.

41.6.3 Critical Success factors

At this step of SMARTFREIGHT project, critical success factors can be defined through questions such as:

- Is a gradual introduction of SMARTFREIGHT possible/feasible?
- Is a "SMARTFREIGHT light" possible?
- What infrastructure is a necessary minimum requirement?
- Can the SMARTFREIGHT Concept work without CALM and the CVIS platform?
- What are the necessary regulations? Are they all in place?
- Priority offer? For whom? What are the consequences for citizens, other businesses...?

41.6.4 Transferability considerations

The implementation of the SMARTFREIGHT concepts in Trondheim has been successful; the technology works. The realisation technology will very much depend on the application to be deployed. Many applications will not require the advanced setup Trondheim has, while other applications will demand some sort of local information provided by the roadside stations. If applications with different requirements to realisation are to be deployed, CALM will provide vehicles with continuous communication based on available mediums.

41.6.5 Up-scaling considerations

One the possibilities would be to create a public company (through city council) to control the goods distribution after the arrival of the vehicles in the city.

41.6.6 Contacts

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42 SPEDITHUN, Thun (Switzerland)

42.1 General information

42.1.1 Description

SpediThun has been running since April 2000. The goods are delivered by truck to a terminal opened 24/7, located in the suburbs, not far from the highway. Goods are then transhipped to vehicles using eco-diesel for final delivery.

42.1.2 Type of measure/field of application

Administrative	X
Urban planning	X
Governance	X
Awareness	
Infrastructure	
ITS & Technical	
Modelling	
Supply Chain	X
Information	

42.1.3 Framework and background

The association Stadtmobilität Thun was initiated in 1997 by VCS, an association for transport and environment and the IG Velo, a cyclist lobby organisation. The Stadtmobilität Thun association works on any question or problem in relation to urban mobility in the city of Thun.

42.2 Policy design details

42.2.1 Primary Policy Objectives

Provide Incentives	X
Regulation/Enforcement Component	

42.2.2 Policy design steps and timing

SpediThun was started in the summer of 2000 under the motto “delivering together”. It emerged from the project “urban mobility” that was launched in 1997 by the municipality of Thun (40,000 inhabitants) and various transport associations. It was aimed at improving heavy goods transport to carry out deliveries in the historical centre of Thun.

42 SPEDITHUN, Thun (Switzerland)

42.2.3 Actors involved and participation

The members of the association Stadtmobilität (public private partnership) are among others the local public transport operator, the municipality and several cyclist lobby organisation. The association of inner city trade and retailers is currently being integrated.

The members involved:

- The municipality as political partner and donor (project leader),
- Büro Rundummobil, a private mobility consulting company that elaborated the scheme,
- The association "Stadtmobilität Thun" as the representative for alternative mobility,
- Organisations and mobility supplier (see above),
- The association of inner city trade and retail companies,
- The Swiss post as an important representative of the local transport business,

An innovative transport operator who runs the terminal.

42.2.4 Decision making process

The association meets on a regular basis (3 to 4 times per year) in a kind of "open general meeting". In the 5 years since its foundation, several innovative mobility projects have emerged from the association acting as an initiating platform or a facilitator.

42.2.5 Leverage Points

At the beginning, personal contacts were crucial but finally the partnership worked out well. Nevertheless the steering group broke up after the launch of the project and a first evaluation meeting.

42.3 Implementation details

42.3.1 Implementation step and timing

The current organization is the following one:

At the terminal, the goods are reconsolidated and then delivered twice a day to the retailers in the inner city using appropriate vehicles adapted to the network of narrow streets in the city centre.

All the goods arriving before 8.30 are delivered to the addressees at 11.00 at the latest. Those arrived before 13.00 are still delivered the same day till 18.00.

The returnable or recyclable packages are collected back.

42.3.2 Resources/Infrastructures needed

In collaboration with two local transport operators a terminal was built in the outskirts of Thun.

The project did not receive any subsidies apart from a kick-off loan.

42.3.3 Human resources

The drivers of the eco-diesel vehicles are quite familiar with the city and the city streets.

42.3.4 Primary Target Group

Heavy goods vehicles which deliver to the city centre.

42 SPEDITHUN, Thun (Switzerland)

42.4 Supporting Mechanism

42.4.1 Awareness/information campaigns

The project was started with an intensive marketing campaign targeting over 300 transport operators as well as local businesses.

42.4.2 Partnerships/Key supporting stakeholders

A public private partnership was concluded between different partners (municipality, Büro Rundum mobil, association Stadtmobilität Thun, association of inner city trade and retails companies, the Swiss post and an innovative transport operator who runs the terminal).

42.4.3 Other Policies

The global project includes:

- A bike delivery system,
- A mobility information brochure for new residents,
- The project SpediThun.

42.5 Results

42.5.1 Expected vs. Actual benefits

There are not yet statistics or monitoring.

42.5.2 Quantitative results achieved

The costs for the service varie between €10 for up to 50 kg and €30 for 600 kg. The time saving for the transport companies (due to the fact that they can avoid entering the inner city) is estimated to outweigh these costs, making the service also economically attractive.

In average, around 50 tonnes every month are delivered into the city by the SpediThun vans.

42.5.3 Qualitative results

Transport operators: further business development for local operators, use of large trucks and no time loss in the city centre for long haul operators.

Shops: positive public image gained by participating shops.

42.6 Key Considerations

42.6.1 Lessons learned

The private public partnership constitutes an interesting approach and is a key success factor.

42 SPEDITHUN, Thun (Switzerland)

42.6.2 Primary Obstacles

The steering group broke up after the launch of the project and a first evaluation meeting. Although the partnership was attached to a project, though temporary, it was broken up too quickly.

42.6.3 Critical Success factors

A success factor for the partnership and the project respectively was the broad composition of the steering group. An innovative player is needed for initiating the project, but broad partnership is necessary in order to reduce the implementation risk. Although the partnership was attached to a project, though temporary, it was broken up too quickly. The partnership should have continued in order to elaborate further measures supportive to the project.

Furthermore the involved transport operators are known to be highly innovative, have good local contacts and have a close relation to the project.

The location of the terminal and its opening hours have been considered crucial for the success of the project.

42.6.4 Transferability considerations

Any city can lead this experiment, at no particular constraint. However a specific demand has to exist (needs to protect a historic centre, traffic difficulties in the city centre...).

42.6.5 Contacts

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43 Urban Consolidation Centre, Bristol (UK)

43.1 General information

43.1.1 Description

In Bristol a UCC started up in May 2004. The UCC was designed to serve the Broadmead shopping area, a major retail location in the centre of Bristol. Broadmead contains about 350 retails and other commercial establishments and further development is expected to increase this by 40%.

This experiment was initially realised within the CIVITAS European Programme framework (Vivaldi Project) and then continued within the START project (Jan 2006 - Jan 2009).

The UCC is located on an established industrial estate, approximately 16 km from Broadmead with a typical journey time of 25 minutes.

43.1.2 Type of measure/field of application

Administrative	
Urban planning	
Governance	
Awareness	
Infrastructure	
ITS & Technical	
Modelling	
Supply Chain	X
Information	X

43.1.3 Framework and background

The Council's Local Transport Plan & Air Quality Action Plan recognises the need to minimise the impact of freight vehicles whilst ensuring the economic vitality of the city centre. The city centre retailing area, Broadmead, received 100,000 delivery vehicles a year (about 300 deliveries/retailer/year receives contributing to congestion, traffic related air pollution and vehicle conflict in loading areas).

The delivery operations were carried out by a wide range of companies including both third party and own-account operations. The types of goods delivered were very varied and a wide range of vehicle types and sizes were used to serve the Broadmead. Some deliveries came from a long distance while others arose from more local points. An initial survey established that the focus should be on flows of non-perishable and not very high value goods for medium-sized retailers.

43.2 Policy design details

43.2.1 Primary Policy Objectives

Provide Incentives	X
Regulation/Enforcement Component	X

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43.2.2 Policy design steps and timing

Feasibility and scoping carried out 2003 (target area Broadmead, Survey of retailers to gauge interest and views, types of goods).

Initial support through Vivaldi Project within CIVITAS 1 funding (2004-2006) and then continued support through the START Project (2006-2008). Initially service was free to users (retailers). Now all companies pay for the use.

Numerous meeting held with the many stakeholders: Bristol City Council DHL (Exel), retailers (see “Actors” below).

No regulations were changed specifically upon implementation of the UCC. However, some spaces on on-street loading and there has been a general tightening of regulations. Also during construction of Cabot Circus a large new pedestrianised area was created.

Use of the UCC by the retailers is voluntary and it is the responsibility of the operator of the UCC (DHL) to engage the interest of the retailers and work with them to achieve changes to the final delivery.

In late 2008, 70 retailers were served by the UCC.

43.2.3 Actors involved and participation

Bristol City Council, The Broadmead Board, The Galleries Shopping Centre, Business West (formerly Chamber of Commerce), Exel (now DHL).

EU funding through the Vivaldi project (part of CIVITAS).

43.2.4 Decision making process

The Broadmead shopping area was being redeveloped from 2004 (Cabot Circus opened September 2008) this increased retail space by some 40%. The surrounding road network, servicing and delivery areas for the redevelopment is new challenge for goods distribution while in support of the Council's Air Quality Action Plan work focus on managing deliveries more effectively with priority measures where appropriate.

The aim being to reduce travel times for vehicles accessing the city centre and provide more reliable journey times on congested routes. In parallel, city centre access control and restriction measures are considered to support and help develop the business model for consolidation activities. UCC vehicles get priority in making the delivery to Cabot Circus. Exempting consolidation centre delivery vehicles from these access control measures are designed to further enhance the attractiveness of the consolidation scheme to retailers.

UCC initiated through a tendering exercise organised by Bristol City Council i.e. third party logistics companies were invited to bid to operate the UCC. Financial support to start the UCC and to meet the on-going costs was also agreed.

43.2.5 Site characteristics

The main aims of the scheme are to reduce congestion and pollution in Bristol, with the following more specific objectives:

- Reduce the number of delivery vehicles in the area served by the UCC.
- Assist with improving air quality.
- Ameliorate conflicts between vehicles in unloading areas and delivery bays.
- Reduce conflicts between delivery vehicles and other road users, including pedestrians.
- Improve the delivery service provided to retailers.
- Give the opportunity for added-value services to retailers (e.g. packaging collection, remote stock

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storage).

43.2.6 Leverage Points

Initial decision on need to identify innovative solutions.

Development as part of the strategy to improve the environment in Bristol.

Mechanism to operate the UCC (i.e. public support but operated by a third party logistics company).

UCC seen as a critical feature when the Vivaldi project ended.

Engagement with the retail sector.

Continued support for the UCC (albeit at a diminishing level of total costs during the period 2004 to 2009).

43.3 Implementation details

43.3.1 Implementation step and timing

Regulation.

Access restrictions of delivery windows: 5:00-8:00 and 18:00-20:00 for front door deliveries (to encourage the use of UCC).

Meetings with different involved actors.

Business plan of the operator.

43.3.2 Resources/infrastructures needed

The UCC covers approximately 500 sq. m.

Two vehicles for deliveries: a 7.5 tonnes + a 18 tonnes. A 9 tonnes electric vehicle has been introduced and used successfully and it is intended to continue the scheme by introducing a second electric vehicle.

Initially retailers did not have to pay to use the centre. However, public funding has been gradually reduced over time with current support of about £200,000.

43.3.3 Primary Target Group

Retailers.

DHL (operator).

3 vehicles Euro 4 standard.

1 x 9 tonnes electric truck purchased by DHL.

non-perishable and not very high value goods for medium-sized retailers.

As part of the air quality action plan, goods deliveries by diesel vehicles have been identified as important.

Therefore there is a need to reduce the freight vehicle movements within the air quality action area.

43.3.4 Enforcement scheme

In Bristol planned activities will seek to efficiently manage and where appropriate prioritise the movement of freight vehicles particularly where these access control and priority techniques will promote and support the use of the consolidation scheme.

The Broadmead shopping area redevelopment has increased retail space by some 40%.

The surrounding strategic road network, servicing and delivery areas for the redevelopment has brought new challenges for goods distribution and therefore, in support of the Council's Air Quality Action Plan work will focus on managing deliveries more effectively with priority measures where appropriate. The aim being to reduce travel times for vehicles accessing the city centre and provide more reliable journey times on

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congested routes.

In parallel, city centre access control and restriction measures will be considered to support and help develop the business model for consolidation activities. These measures will look to manage access to the city centre shopping area where conflict with pedestrians and public transport currently occurs in streets surrounding the existing pedestrianised area. Exempting consolidation centre delivery vehicles from these access control measures will further enhance the attractiveness of the consolidation scheme to retailers.

43.3.5 Monitoring procedures

Monitoring is carried out by the following means:

- Survey of retailer satisfaction,
- Monthly operations monitored (origins and destinations noted), type of vehicle monitored, monthly reduction in emissions calculated. Able to calculate CO₂ and NO₂ savings,
- Recycling levels monitored,
- Reporting of activity by DHL,
- Regular meetings DHL/Bristol City Council.

43.4 Supporting Mechanism

43.4.1 Awareness/information campaigns

Window Stickers displayed in retailers shops to promote their green credentials.

Many presentations and discussions about the UCC and these have been used to carry out an evaluation based on a 12 month period during 2007/2008 and comparing the ex-post and ex-ante situation.

43.4.2 Incentive Programmes/Financial Instruments

Incentive measures in Bristol focus upon improving the efficiency of 5-10 freight fleets through a package of support, technical guidance and training tools. These include techniques to improve the efficiency of lorry fleets embracing the vehicle (operation and maintenance considerations), the driver (safe and efficient driver training for 50 people) and the management of operations to reduce mileage and increase load factors.

43.4.3 Partnerships/Key supporting stakeholders

The use of the UCC by retailers is voluntary. At the start of the project the use of the UCC was free to the retailers with the costs met from the City Council – over time the retailers have been expected to meet a growing proportion of the costs. There is no publicly available comprehensive evaluation report.

The UCC is operated by DHL (formerly Exel Supply Chain) and supported by Bristol City Council.

The local stakeholders: Broadmead Board, Mall Galleries, Business West, Bristol Alliance.

43.4.4 Other Policies

Through START programme, add new aspects:

- Providing value added services to retailers (remote stock warehousing and pre-retailing, with reverse flows of packaging/waste for recycling/disposal to improve vehicle utilisation,
- Exploring the possibility to broaden the geographical coverage of the scheme including integrating the scheme with new retail development (to support the scheme moving to a sustainable business model where contributions are made in line with the benefits derived from the scheme),

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- Examine the linkages between the consolidation scheme and a range of local and national developments such as the working time directive, managing freight movements during the construction phase of city centre developments, review of loading and waiting restrictions... to seek to maximise the potential to promote consolidated deliveries.

43.5 Results

43.5.1 Expected vs. Actual benefits

In the period being evaluated 64 retail outlets used the UCC to manage their deliveries - this amounts to about 20% of all retail outlets in the Broadmead area. The evaluation and comparison is based on changes in the delivery requirements of these 64 retailers.

In 2007, 4 more retailers entered (encouraged by the delivery windows restrictions).

43.5.2 Quantitative results achieved

Decreasing by 77% the delivery vehicles movements (5,374 lorry trips and 106,556 lorry.km).

Estimations: CO₂ and other emissions savings based on the reduction in vehicle kms for a 12 month period (2007/2008): 89 tonnes of CO₂, 870 kg NO_x and 25 kg PM₁₀. 14 tonnes of cardboard and 3 tonnes of plastic recycled (returned by the city centre retailers).

No details of the acoustic emissions but the vehicles used are Euro 4 Specification and drivers are SAFED trained which means they have received training in safe and fuel efficient driving techniques.

43.5.3 Qualitative results

Retailers involved in the project request their suppliers to deliver consignments to the UCC. DHL then receive the consignments and organise the delivery to the retail store in Broadmead. There have been no reports of transport companies resisting this change. For some companies that have to deliver to Bristol there can travel savings because they now only need to go to the edge of the city centre whereas before they had to go to Broadmead itself.

43.6 Key Considerations

43.6.1 Lessons learned

The success is linked to a voluntary experiment.

Only the efficiency of the system possessed the retailer to use it.

The involvement of Bristol Council permits to help the UCC to start.

The involvement of a good operator is necessary for success.

43.6.2 Primary Obstacles

The main obstacles are reluctance by some retailers to use the UCC and therefore the continued need to promote and market the benefits. As more retailers use the UCC the volumes of freight increase and the commercial and economic model improves.

The scheme is voluntary so there is no/limited leverage for the local authority to make retailers use the UCC.

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43.6.3 Critical Success factors

Initial support from Bristol City Council.

The supply chain skills of the UCC operator (DHL).

Motivation of retailers to seek improved delivery performance and the wish to reduce to environmental impact in the city centre.

Good example of a public private partnership where the scheme has been nominated for a number of awards.

Collaborative working is a critical success factor.

43.6.4 Transferability considerations

Others UCC are built with similar scheme (Padua, Lucca, Vicenza...).

Important factors of success: the size of the city, the volume and the type of goods to be processed, the involvement of local authorities, specific regulation.

43.6.5 Up-scaling considerations

Providing value added services to retailers such as remote stock warehousing and pre-retailing, together with reverse flows of packaging/waste for recycling/disposal to improve vehicle utilisation.

Exploring the possibility to broaden the geographical coverage of the scheme including integrating the scheme with new retail development. These initiatives will support the scheme moving to a sustainable business model where contributions are made in line with the benefits derived from the scheme.

Through START have also examined the linkages between the consolidation scheme and a range of local and national developments such as the working time directive, managing freight movements during the construction phase of city centre developments, review of loading and waiting restrictions... to seek to maximise the potential to promote consolidated deliveries.

43.6.6 Contacts

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44 Urban logistics terminals, Tokyo (Japan)

44.1 General information

44.1.1 Description

Land use and building code regulations in Japanese cities allow for multiple uses in city centres, including logistic activities in the first floors of office buildings or the accommodation of multi story terminals in urban areas. One good example is, in Tokyo, the ProLogis Park Tokyo II facility, located in the Shinsuna, Koto-ku neighbourhood of Tokyo. It is a seven story building which includes office space, warehousing and parcel sorting facilities for diverse clients.



44.1.2 Type of measure/field of application

Administrative	
Urban planning	X
Governance	
Awareness	
Infrastructure	X
ITS & Technical	
Modelling	
Supply Chain	
Information	

44.1.3 Framework and background

In Japan, in the 1980s and 90s, existing warehousing capacity was fragmented into many small facilities that made inventory control difficult, impeded freight consolidation, and had a negative effect on the efficiency and cost of logistics services. In addition, after the real estate crisis, both shippers and logistics operators preferred to rent facilities rather than own them. Thus, the demand for large, modern, centrally located rented facilities grew. Scarcity of land resources resulted in high density, multi-story buildings with up to seven levels. The cost of construction is rather high: €1,000 per square meter, as compared with €700 for a one-level warehouse in Europe. However, multilevel construction lessens associated land costs, which are very high. In Japan, the floor area ratio in such areas is generally from 2 to 6, as compared with 0.5 in France. Ramps accept even the heaviest lorries carrying 40 containers.

44 Urban logistics terminals, Tokyo (Japan)

44.2 Policy design details

44.2.1 Primary Policy Objectives

Provide Incentives	
Regulation/Enforcement Component	X

44.2.2 Actors involved and participation

- A major logistic developer (ProLogis)
- The municipality
- Residents and local businesses' organisations

The developer identified the optimal location for an urban logistic terminal (with direct access to public transport in order to facilitate the employees' commute, and close to a major road artery to accommodate the trailers).

The logistic provider then negotiated with the municipality and local groups (residents' organisation and existing businesses) on the specifications of the building permit: dimensions of the building, environmental and safety regulations, truck accesses. The building permit was then granted in three months.

44.2.3 Decision making process

See above.

44.2.4 Site characteristics

In spite of its cost, this location in the Tokyo bay area (one of the most densely populated areas of Japan) is adequate for the circumstances. It is close to the harbour and airport, and close to an exceptional consumer market. 60% of the developer (ProLogis)'s portfolio in Japan is in Tokyo, 30% in Osaka, and only 10% elsewhere in the country. The developer made an effort to integrate sustainable development practices, producing electricity from solar cells on roofs, using a special road surface that absorbs carbon monoxide and nitrous oxide, and designing the building with adequate anti-seismic structure.

44.3 Implementation details

44.3.1 Resources/Infrastructures needed

A special element in the building process was a ramp with a road surface that absorbs carbon monoxide and nitrous oxide, and that reduces noise; Adequate anti-seismic structures were also needed. In total, the cost of construction is rather high: €1,000 per square meter, as compared with €700 for a one-level warehouse in Europe. However, multilevel construction lessens associated land costs, which are very high. In Japan, the floor area ratio in such areas is generally from 2 to 6, as compared with 0.5 in France. Ramps accept even the heaviest lorries carrying 40 containers.

44.3.2 Primary Target Group

Logistics providers, logistics developers.

44 Urban logistics terminals, Tokyo (Japan)

44.4 Supporting Mechanism

44.4.1 Partnerships/Key supporting stakeholders

This very original type of land use planning results from a close partnership between a private entity (a major international logistic developer) and the municipality of Tokyo. Mixed land uses are authorized and specific regulations applying to the project are discussed between ProLogis and the city. ProLogis also decides unilaterally to enforce stricter environmental standards than required by the municipality, following consultations with neighbourhood groups.

44.5 Results

44.5.1 Expected vs. Actual benefits

The main result of such a policy is to provide logistic services close to the market (business areas, main residential areas). This provides for a more efficient logistics and also reduces the amount of truck-kilometers that are necessary to deliver freight and parcels to the Tokyo area.

44.5.2 Qualitative results

The building is well integrated and accepted by neighboring businesses and residents.

44.6 Key Considerations

44.6.1 Lessons learned

The city of Tokyo has managed to provide logistic space to logistic developers and their clients in very costly urban areas. Building permits are rapidly granted at no environmental expense, as a process of consultation resulted in close environmental standards for the building. Locating logistic facilities within urban areas results in a reduction of truck-kilometers travelled to supply the Tokyo area.

44.6.2 Transferability considerations

Transferability may be difficult in European cities due to strict land use regulations. Industrial or logistic activities are not well recognized in office or residential areas. A great care for environmental considerations has to be taken by logistic developers wishing to implement terminals in urban areas. Standards are not yet sufficient in many European cities (road surfaces absorbing truck noise for example).

44.6.3 Contacts

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F. Transversal Analysis

F.1 Five successful policies

Following our analyses of forty-four best practices (see chapter E), we have identified five major areas where local governments, within or outside of SUGAR sites, have been active in urban goods issues and have led successful policies. By successful, we mean policies that have had an impact on the city's economy and/or its environment, at a reasonable cost for the city, and that have become permanent or at least have lasted a significant amount of time.

These areas are the following:

- Traffic and parking regulations, access regulations. These are the least costly measures any local government can take, with the exception of enforcement. These measures can be quite basic, yet they can generate important impacts on the city's environment, provided that enforcement be sufficient. Recent and more sophisticated measures such as congestion charging or low emission zones are included in this set of policies.
- Intelligent Transport Systems (ITS). ITS are not widely used for the management of freight transport in cities but the identified practices have proved extremely efficient. Strategies to use ITS to better manage goods transport will develop in the future as ITS become more precise and less costly. ITS are especially efficient for enforcement of access measures but they may also become crucial in data collection and real time information for truck drivers on traffic and parking conditions.
- Planning strategies. Integrating freight into planning policies (urban and/or transport planning) and building codes can be quite an interesting strategy for a local government. Some experiences have shown that these strategies have both short and long term positive impacts.
- Consultation processes and labelling schemes. These policies have proved crucial in raising awareness among freight transport companies. Providing forums for discussion can ensure that a policy targeted towards freight transport is successful. Giving specific labels to virtuous truck companies (companies using clean vehicles for example) has proved useful in some cities.
- Consolidation schemes and measures targeted towards urban supply chains. Setting up urban consolidation centres and urban logistic spaces can be experimented by cities, but only if specific conditions are fulfilled.

These five categories of successful policies are described in detail in sections F.3 to F.7 below.

F.2 General conditions for a successful transfer of best practices

Some conditions must be met for a successful transfer of best practices. It is important:

- To take into account the city's economic situation and its evolution
- To make an analysis before the implementation of the project (ex ante analysis)
- To take into account the global supply and transport chain (not only the link which is being reorganised by the implemented measure)
- To detect and suppress the bias which can be introduced when making practice choices
- To identify the constraints of scale of the project
- To identify the projects which can go along different types of innovations
- To implement a follow up with permanent assessment surveys using relevant indicators in order to be able to draw comparisons between the ex-ante and ex-post situations, and to assess the implemented measure's impacts.

The best practices we have identified reveal the crucial role of a project leader.

Each experiment contains numerous positive results, but each case can be very specific. So when transferring a solution to another city (and another country), the organisation has to be adapted. The main lessons learnt are the following:

- The preparatory phase is often longer than planned,
- One of the critical success factors is achieving a transition phase from the feasibility study to the actual implementation, then to the perpetuation of the measure,
- The project leader has the main role: a change in project leader can lead to an abandonment of the project (or important delays),
- The project develops (and evolves) between the conception phase and the implementation.
- An active involvement of a public body such as a municipality can deter transport operators from stepping in, therefore a careful dialogue is crucial between all involved stakeholders.
- A thorough analysis of the relevance of the project must be made.
- It is necessary to organize for a follow up and a close monitoring of the measure.
- Legal analyses at different steps of the project implementation, sometimes leading to useful modifications, are important.

F.3 Traffic and parking regulations, access regulations

Among the best practices we have analyzed, 10 lean exclusively, or almost exclusively, on regulations.

Cities are in charge of local traffic and parking regulations, including all regulations that relate to delivery vehicles. These are the least expensive measures any local government can take on last mile deliveries, with the exception of enforcement, which can represent quite an important financial burden for a municipality. Despite their many mandates, actual local public policies regarding freight are quite modest. Historically, most of the traffic and parking regulations have aimed at solving punctual problems at the level of a street or a neighborhood. Rules are generally very parochial and can be conflicting. In the Lyon metropolitan area (France) as many as thirty different rules on trucks' access regulations based on weight and size exist, forcing truck drivers to decide which rules they will comply with, and which ones they will disregard. However, some recent innovative policies in freight traffic and parking activities actually provide solutions.

Truck access regulation

The tool that cities use in priority is truck access restriction. These restrictions are based on various criteria, used alone or combined: time windows, weight - total or per axle-, size (length, height, surface), and more recently noise emission, air pollution, loading factor, type of goods (hazardous, voluminous).

According to the London Lorry Ban, in place since 1978 (see Best Practice 9), heavy goods vehicles over 18 tonnes cannot circulate at night and weekends on a delimited network. On the opposite, Paris bans large trucks (defined as over 29 m²) during daytime. In Tokyo, many neighborhoods are not accessible to trucks over three tonnes. In Seoul, trucks have been banned from central areas during working hours since 1979 (Castro & Kuse, 2005). In Sao Paulo, to alleviate congestion, access is based on the plate number, with two days per week allowed per vehicle, including freight vehicles.

Truck access rules based on weight or size policies tend to promote small capacity vehicles (vans, light trucks), increasing total congestion and reducing the efficiency of freight transport.

Low emission zones

The most recent trends in access restrictions are environmental standards and road pricing. Both can be combined, as is the case for the London congestion charge (see Best Practice 10). Urban tolls are not specific to commercial vehicles, while many environmental zones or "Low Emission Zones" are. These zones apply truck access restrictions based on environmental criteria: only recent trucks, or fully loaded trucks, are permitted to enter the city centre. In London, since 2008, the Low Emission Zone prohibits trucks older than the Euro III standard (i.e. trucks manufactured before 2001) to enter the area surrounded by the M25 highway totalling 1,580 km². Since January 2012, the rule has been reinforced, as only Euro IV compliant trucks over 3.5 tonnes can enter the LEZ (see Best Practice 10). Energy consumption and the related CO₂ emissions could well be targets of LEZ or tolls' differentiation policies for the future.

Introducing environmental standards within local truck access regulations is a simple way of reducing urban freight negative impacts, by replacing old trucks and vans in city streets with newer types of vehicles. The

environmental benefits are high, as old trucks and vans emit a large amount of current cities' air pollutants (NOx and particulates). See the example of Gothenburg, Sweden, below.

Table 3 Effects of truck environmental regulations in Gothenburg, Sweden (trucks more than 7 years old prohibited)

	PM ₁₀ (kg/year)
Trucks < 16 tonnes with regulation	187
Trucks < 16 tonnes without regulation	566
Trucks > 16 tonnes with regulation	3312
Trucks > 16 tonnes without regulation	4531

Data from City of Gothenburg, May 2006, after 4 years of implementation

These new types of regulations have a positive secondary outcome. As old trucks cannot access a city anymore, small truck operators need to adapt their fleet. One way to do so is to grow bigger: very small companies are therefore replaced by medium-size truck companies, which are more efficient.

Enforcement technologies

In some European and many Asian cities, new enforcement technologies have increased the efficiency of truck access restriction policies. Automatic control systems such as automatic number plate recognition cameras, mobile enforcement, vehicle positioning and on-board equipment have been introduced (see Best Practices 17, 30 and 32). This highly efficient technology comes at a cost, such as in London where it costs £30,000 per traffic enforcement camera to be installed and monitored. Although expensive, plate-reading cameras provide an extremely efficient enforcement system. Trucks register their plate within the city's register. Plate-reading cameras then, distinguish between complying and non complying vehicles. Non-complying vehicles are fined when trying to access a restricted zone. *A contrario*, since 2007, the city of Paris has implemented an environmental regulation, with afternoon deliveries authorized for clean trucks only, but the regulation is not sufficiently enforced. No technical means of enforcement such as cameras have been implemented. As a result of poor enforcement, too many small independent carriers, with very old trucks, continue circulating in the city streets.

Night deliveries and other time-sharing initiatives

The reduction of noise generated by deliveries and the promotion of night (or early morning/late evening) deliveries are a new target of urban freight policies. Some cities implement a policy combining the promotion of silent equipments and noise regulations. See the description of PIEK (see Best Practice 40): in the Netherlands, in twenty-five pilot cities, the national government provided financial help for operators investing in PIEK labeled vehicles and handling equipment, to be used for night (or early morning) deliveries at supermarkets. Tests have shown that companies can save up to 30% in delivery cost and 25% in diesel consumption. This program is now being duplicated in other European cities (Barcelona, Dublin, Paris). The city of New York is promoting similar schemes for Manhattan (Holguin-Veras, 2008).

Efficient loading/unloading areas

Freight needs dedicated urban spaces, such as loading and unloading areas. Insufficient delivery spaces transfer delivery operations on traffic lanes or sidewalks, and lead to congestion and traffic accidents. A Paris transport department's guideline imposes a minimum of one delivery bay every 100 meters in the city streets (see Best Practice 3). Alternative designs exist, such as loading bays positioned at an angle to the curb. Attention is paid to removing obstacles around the loading bay, such as humps and posts, which prevent drivers from operating on-board handling equipment. In Paris, some bus lanes are shared with delivery vehicles. Other layouts exist in other cities including dedicating entire sections of a parking lane to deliveries during certain time windows (Toulouse, France) (see Best Practice 36).

Roadway time sharing also exists in Barcelona, Spain, where the municipality has created an innovative organisation, called "vias multi-uso" (multi-use lanes) on many of its main boulevards, by devoting the two lateral lanes to traffic during peak hours, deliveries during off peak hours, and residential parking during the night (see Best Practice 11). One of the main positive results of this policy is that while street space is guaranteed to delivery trucks when they need it, overall traffic has been eased on these boulevard as shown below (Table 4).

Table 4. Travel time on Barcelona boulevards with multi-use lanes (100= base situation before implementation)

Day of survey	9:00	11:00	13:00
May 3, 2002 (before the implementation of a multi-use lane)	100	100	100
Oct 18, 2002	88	47	84

Source of data: Municipality of Barcelona, 2004

Also, a dedicated mobility motor squad consisting of 300 agents circulating with a motorbike has been organised to control all on-street parking activities including loading/unloading zones. This has prevented illegal long term parking and made these zones always available to delivery truck drivers.

F.4 Intelligent Transport Systems (ITS)

A local administration can generate great benefits from using intelligent transport systems in an urban freight policy. Among the best practices analysed (in chapter 3 above), 17 are based on, or use extensively, a technology identified as an ITS. There are different categories of ITS applications in an urban environment, the most common of which are the following:

- Automatic enforcement (plate-reading cameras)
- Real time information by variable message signs
- Traffic lights management

- Electronic toll collection.

Many other types of applications exist but are not widely used yet, such as car-to-car or car-to-infrastructure communications. Specifically dedicated to urban freight, ITS applications are potentially very numerous but so far have not been used in many cities. Indeed, very few ITS are specific to (dedicated to) urban freight issues. Among the most anticipated solutions are: real-time traffic information focused on truck drivers (see Best Practice 32), on-line reservation of loading/unloading areas, and systems for urban deliveries' consolidation. A consortium of cities cooperating in the European SMARTFREIGHT project (www.smartfreight.com), finished in June 2011²) has explored different categories of urban freight ITS. The main objectives of the project were "to develop new traffic management measures towards individual freight vehicles through open ICT services, on-board equipment and integrated wireless communication infrastructure;" To "improve the interoperability between traffic management and freight distribution systems;" and, quite ambitiously, to "coordinate all freight distribution operations within a city by means of open ICT services, on-board equipment, wireless communication infrastructure and CALM³ MAIL implementation in on-board and on-cargo units, for all freight vehicles." Among the partner cities, Trondheim in Norway was the main test site,⁴ while Winchester in the UK and Bologna in Italy performed simulations. Dublin carried out desktop studies. In Winchester, studies focused on retail waste and returns management strategies. Another work was the identification of suitable waiting areas to hold vehicles before they enter the city centre, and shared freight-bus lanes. Bologna used a satellite positioning system to improve the efficiency of its projected urban freight consolidation scheme⁵. In Dublin, a user needs assessment was made regarding ITS and urban freight (see Best Practice 41).

Although the project is finished, some SMARTFREIGHT experiments are still on-going.

In another European project, CVIS (Cooperative vehicle Infrastructure Systems,⁶ finished in June 2010) some work was dedicated to urban freight transport. One sub-project looked at commercial parking, loading zones booking and vehicle access control to sensitive areas, as well as the management of the transport of hazardous goods.⁷

More common are technologies that are used by municipalities *in support* of policies on urban freight. The control of vehicle plates by cameras to enforce access rules is the best example of an efficient support provided by an ITS technology. This type of automatic control is used in congestion pricing zones or low emission zones. This technology is developed in many European cities today (in the U.K., Spain and Italy for example), with the notable exceptions of German and French cities. In London, the recent Low Emission Zone preventing access to old trucks could not be a success without a system of automated control by cameras. A *contrario*, since 2007, the city of Paris when implementing an environmental regulation (reserving afternoon

² See final report trq1.civil.soton.ac.uk/sf/D1.2%20%20SMARTFREIGHT%20Final%20Report.pdf

³ Communications Access for Land Mobiles – ISO 15628:2007

⁴ In Trondheim the "Wireless Trondheim Network Lab" already offered a city-wide high capacity communication network, helping to test transport services connected to the CALM standard.

⁵ *Satellite Navigation Services for City Logistics, The Experience in Bologna*, Communication to the POLIS Conference, Barcelona, 25-26 November 2008.

⁶ www.cvisproject.org (European Commission, Information Society and Media).

⁷ See test site results on

www.cvisproject.org/download/Deliverables/DEL_CVIS_5.2_Test%20Site%20Results_V1.0.pdf.

deliveries to clean trucks), failed to introduce an efficient enforcement strategy. Too many small independent carriers, with very old trucks, continue circulating in the city streets.

Information to truck drivers represents another potentially important use of ITS in cities. The freight internet portal organised by Transport for London (see Best Practice 6) provides specific information to truck drivers such as incidents, works, maps, advice on safe driving, abnormal loads, regulations (lorry ban...). The portal is connected to other websites of interest such as the congestion pricing scheme (to pay on-line for example). In other cities, so far, freight transport operators have not been targeted as specific users of information on traffic conditions. Lorry routes are mostly notified by traditional signing. Variable Message Signs do not yet provide much specific information on freight issues, with some exceptions such as the variable message signs that display real time access regulations on the multi use lanes in Barcelona (see Best Practice 11).

Few of the currently marketed softwares designed for the freight industry (i.e. tour or delivery route planning, (see Best Practices 9 and 41) are connected to municipal information such as traffic conditions or access and parking regulations. Even quite widespread systems of logistics network optimization are not as common as one would expect in urban areas. Freight operators using some kind of ITS for pick up and delivery services in cities are still a minority. Actually, many urban freight activities remain disorganised and inefficient (Dablanc, 2007) with little investment in new technologies. This could change quite rapidly as the cost of these technologies decreases.

In the past, many municipalities have tested innovative ITS technologies for specific urban freight applications. In Barcelona, in the years 2000-2004, a system has been tested to make on line reservations for on-street loading/unloading areas. An automated enforcement of loading/unloading parking provisions by cameras was also projected but it proved too costly (see Best Practice 11). The city of Rouen, in France, had an ambitious strategy for developing real time information on traffic conditions for truck drivers. The project was never implemented because of legal issues and also because truck drivers did not express much demand for dedicated information. GPS is not yet a very efficient technique in densely built urban areas, as the precision of identification cannot be better than 30 to 100 meters (a higher precision requires very expensive technologies). In the Netherlands, a comprehensive project of road pricing was put on hold following the 2010 general elections. Vehicles using the country's roads including city streets were to be monitored by GPS and taxed according to their kilometers, time of circulation and emission levels (see Best Practice 41).

Information and communication technologies are very important for some sectors of the urban freight industry, which are developing rapidly, such as B2C (business to consumer trade) and C2C (consumer to consumer) deliveries. The increase of e-commerce requires new logistics arrangements in the city centres, such as space for reception boxes, terminals concentrated on providing logistics operations tailored to the needs of e-commerce as well as new traffic arrangements and information services. The examples of Packstation in Germany (see Best Practice 35) and Kiala (see Best Practice 38) in France and Belgium show the development of pick-up-points, avoiding direct deliveries to the homes of the customers (Augereau and Dablanc, 2008). These new organisations are based on information technologies.

As a conclusion, ITS should become an important part of an urban freight policy. In one way or another, most local measures on traffic today already include new technologies. We can foresee that these technologies will become better tailored to the different needs of urban activities, and urban freight will become an important

direction of ITS applications. Intelligent transport systems are also important for urban freight policies in that they could prove interesting for data collection. Despite processing challenges and privacy issues, GPS provides a potentially powerful method to enrich commercial vehicle data collection (Greaves and Figliozzi, 2008).

F.5 City planning strategies

Planning strategies for urban freight represent all policies and regulations using Master and Land Use Plans, as well as land use and building ordinances with a direct impact on freight and deliveries. The compulsory building of off-street delivery areas within companies' premises is amongst the most common urban planning strategies that can be used to regulate freight transport in cities.

Although the use of city planning measures is quite uncommon for cities implementing an urban freight transport policy, it seems however that it could prove to be an interesting solution today to achieve a more sustainable goods mobility in city centres. In the 44 best practices we have identified, two cities emerge in this field: Paris and Barcelona.

In Paris, the measures requiring loading and unloading areas in private buildings (commercial, industrial and office buildings) rely partly on the urban planning tools imposed by national laws (the "Urban Mobility Plans": see Best Practice 2). On the contrary, Barcelona implemented a local measure on its own initiative (see Best Practice 13).

In the Ile de France (Paris region)'s Urban Mobility Plan of December 2000, two actions were identified towards the organization of deliveries. The first action was to suggest that city planning documents should better integrate goods' transport by better organizing the deliveries. Until then, very few municipalities used their city planning documents to promote goods' deliveries. The second action proposed a more offensive and more appropriate treatment of on-street delivery areas based on a set of actions combining information, prevention and enforcement if necessary.

All municipal Land Use Plans in France have the following objectives (by law): a conservative use of the public space, a balance between traffic reduction and car traffic, a balance between urban development and conservation of natural areas as well as a balance between the various urban functions. In this frame, it specifies the land use regulation applicable to each ground. The Paris Local Land Use Plan (Plan Local d'Urbanisme, or PLU) was approved by the Paris City Council in 2006. Three main orientations are defined in the Paris PLU for the transportation of goods: 1. Implementing logistic areas in some urban areas, 2. Giving priority to the setting-up of logistic activities in areas with a rail or waterway connection, 3. Integrating regulations in the article 12 of the Paris PLU imposing that main generators of freight (supermarkets, warehouses, hotels, large office areas...) do integrate delivery areas within their premises proportional to the freight volume they generate.

In Barcelona, a municipal ordinance of February 1999 organised the compulsory provisions for the building of loading/unloading spaces in buildings, as well as other land use and building measures for freight and deliveries.

These two city planning initiatives in Paris and in Barcelona have a common objective of regulating the implementation of loading and unloading areas within buildings. These measures apply to new buildings, or buildings subjected to important transformations or new activities. Many economic sectors are included in the regulations: offices, small businesses, industry, hotels, warehouses, movie theaters. Table 5 below provides a summary of the regulations applied in Paris and Barcelona.

Table 5. Paris and Barcelona municipal rules applying to the provision of delivery bays within new buildings

	Paris (article 12 of the 2007 Paris Local Land Use Plan, or PLU)	Barcelona (1999 Ordenança Municipal de Previsió d'espais per a càrrega i descàrrega als edificis: municipal ordinance for off-street loading/unloading spaces)
<u>General Rules</u>		<p>Delivery bays will be chosen according to the characteristics of the projected developments (frequency, volume, duration, deliveries' regularity) and their minimum capacity will be fixed by this order.</p> <p>Main rules are the following:</p> <ul style="list-style-type: none"> • Minimal height of 3.70 m for bays \leq 3x14 m • Minimal height of 4.75 m for bays \leq 3x20 m • Dimensions of parking bays for goods vehicles: <ul style="list-style-type: none"> ○ 3x5 m for vans ○ 3x8 m for light lorries ○ 3x14 m for medium lorries ○ 3x20 m for large lorries
<u>Office buildings</u>	For floor areas larger than 2,500 m ² : necessity to accommodate the adequate zones required to ensure common loading or unloading tasks	

<u>Commerce and industry</u>	For floor areas larger than 2,500 m ² : necessity to accommodate the adequate zones required to ensure common loading or unloading tasks	<u>Business uses</u> New buildings or building subjected to important transformations or new activities: <ul style="list-style-type: none"> Sales' floor of 400 m² to 1,300 m²: one loading/unloading bay Sales' floor of 1300 m² to 2500 m²: two loading/unloading bays <u>Industry uses</u> <ul style="list-style-type: none"> 600 m² to 1,500 m²: one bay 1,500 m² to 3,000 m²: two bays For each additional 3,000 m²: one additional bay
<u>Hotels</u>	Hotels with more than 150 rooms, situated outside of pedestrian areas: they have to provide an area for buses with accesses presenting a height of at least 4 meters. This area must also be able to be used as a delivery area.	1,500 m ² to 3,000 m ² : 1 bay 3,000 m ² to 6,000 m ² : 2 bays More than 6,000 m ² : 3 bays
<u>Entertainment uses</u>		Theater from 500 to 1,000 seats: one bay Theater of more than 1,000 seats: 2 bays Other entertainment uses: <ul style="list-style-type: none"> 400 to 1,500 m²: one bay More than 1,500 m²: two bays For other uses than entertainment: one bay for every floor area of more than 1000 m ² .
<u>Warehouses</u>	For all warehouses: need to accommodate the adequate zones required to ensure common loading or unloading tasks A loading/unloading bay is required for any new implementation, including a building being transformed into a warehouse. It has to be of sufficient dimension to allow for the access of commercial and industrial vehicles while ensuring pedestrians' safety.	
<u>Constructions necessary for public services or general interest</u>	Necessity to accommodate the adequate zones required to ensure common loading or unloading tasks	
<u>Storage: specific regulations in</u>		Storage is an area not open to the public where goods for sale are positioned. All new restaurants and bars or cafés and similar

<u>Barcelona</u>		activities will have to provide a storage area covering at least 5% of the premises' floor area with a minimum of 4 m ² . The total storage space cannot exceed 20% of the premises' floor area. The storage area can be located in an adjoining building or at maximum at a distance of 50 m.
<u>Special classification</u>		This classification allows for the construction of loading/unloading bays in new adjoining spaces. Solutions for the creation of collective loading/unloading zones and storage areas for the collective use of a definite number of buildings or businesses located in the same housing block or street section are allowed.

The measures taken to identify the compulsory accommodation of loading/unloading areas originate mostly from local initiatives from municipalities, which know the needs of their cities' residents and businesses. However, Paris and Barcelona have quite different strategies. In Paris, the building prescriptions are vague, obliging only the "accommodation of adequate zones required to ensure common loading or unloading tasks." In Barcelona, the regulations are more precise, imposing a number of spaces according to the number of square meters of built floor area. Barcelona is also innovative in two ways:

- Storage areas must be accommodated for activities such as restaurants and bars. This is a very original policy, aiming at reducing the demand for transport and deliveries by obliging restaurants to store bottles for the use of several days, thereby reducing the need for frequent deliveries.
- Under certain conditions, collective delivery bays (shared delivery bays) can be arranged by several businesses. Delivery bays can be built in adjacent buildings, and do not have to be built in each individual building.

City planning ordinances and building codes requiring the accommodation of off-street delivery bays for large buildings establish an easy and effective mean to limit the congestion of roads due to on-street deliveries. However, a municipality that wishes to implement such measures must make sure that these regulations will not induce developers and shopkeepers to implement their businesses somewhere else, where no delivery parking provisions are required. Also, enforcement of such measures must be effective. Many cities which have imposed the implementation of off-street delivery bays have failed to inspect the effectiveness of these delivery bays several months after the new buildings were in activities: in many cases, delivery bays had been transformed into car parking areas, garbage collection zones or storage areas. Truck drivers could not use them anymore for deliveries.

F.6 Consultation processes and labelling schemes

The urban distribution of goods is organised by private stakeholders (producers, carriers, retailers, final consumers), operating in an environment, the urban space, which is managed by public authorities. In this

regards, private/public partnerships, or Freight Forums, represent an option. Consultation processes with private stakeholders provide a better understanding of the constraints and obligations of each party, and allow the development of concerted action programs. In France, when a local transport plan is designed, consultation procedures provide, often for the first time, an opportunity for local authorities and transportation professionals to meet. In June 2006, the city of Paris and the most important carriers' and shippers' associations signed an urban freight transport "Charter", in which they committed to several points which are favorable to the environment, to the drivers' working conditions, and to the productivity of urban delivery activities (see also Best Practice 2 and Best Practice 36 for Toulouse). In the United Kingdom, in many cities in general and in London in particular, it has been a common practice for years to discuss and negotiate with transport and logistics professional organizations, leading to compromises. For example, the level of the congestion tax assigned to delivery trucks, which was £5 a day at the start of the congestion charging scheme in 2003, was a result of a two year discussion: truck companies wanted no tax, as no alternative other than road transport was available for goods transport; the municipality wanted commercial vehicles to pay much more than cars because of the severe road damages caused by trucks. At the end, both parties compromised on a fee equal to that paid by private cars.

All stakeholders are not always equally represented in local consultation processes. On the one hand, small operators usually do not have a representative organisation (professional syndicate). On the other hand, large transport and logistics companies or their organisations are not willing to participate to local consultations in cities other than in major or capital cities, because of a lack of interest or insufficient staff. Local shopkeepers' organisations tend to find no interest in freight groups. However, consultation processes in urban freight can provide unique collaborative opportunities between private companies that otherwise would not be willing to work together. Consultation processes can lead directly to initiatives such as recognition schemes, which is a certification process that identifies the best urban freight operators. Certification confers privileges on an operator, such as extended delivery hours or the use of designated loading/unloading facilities. It may also provide operators with a competitive advantage when bidding for contracts, as clients are increasingly committed to selecting bidders that offer the best environmental guarantees. The best example of such an initiative is the FORS (Freight Operator Recognition Scheme) in London (Best Practice 7). FORS provides a performance benchmark for the trucking industry by certifying operators that comply with a list of efficiency, safety, and environmental impact criteria at bronze, silver and gold levels. It gives certified companies access to data, benchmark information and training programs for their drivers.

Another incentive-based policy implemented successfully in London is the Delivery and Servicing Plans (DSP) program, a simplifying process of deliveries initiated by a company or hospital or institution. Creating a DSP with an organization allows TfL to engage with the customers of freight and let them take the lead in a reduced delivery program. TfL's own Palestra building in Southwark (south east London) reduced the number of deliveries by 20% through a DSP program in 2009-2010.

Best Practice 18 (Parma) and Best Practice 40 (PIEK) display yet other types of labelling schemes. In Parma, delivery operators can apply for a certification procedure that allows them to deliver in the city center (or else they need to go through a municipal consolidation center). And in the Netherlands, the government has established a labelling system for all vehicles and delivery equipment that follow strict noise reduction objectives.

F.7 Consolidation schemes and 'city logistics'

Some cities believe that they need to go further than just regulating truck traffic or establishing a freight forum. Their strategy is oriented towards city logistics' representing a global organization of physical and informational flows that makes deliveries to urban residents and businesses possible in a manner that promotes economic and environmental standards and is adequate to local needs. City logistics includes physical operations such as order preparation, shipments consolidation, transport (including home deliveries), short or medium term storage of goods, management of drop-off/pick-up boxes for parcels, return of pallets and empty packages.

Different levels of initiatives coexist, involving various stakeholders such as large transport operators and logistics providers, real estate developers, major retailers, but also many start-up companies. Initiatives include urban logistics spaces and urban consolidation centres. Urban consolidation centres (UCC) are a specific case of city logistics as they provide a specific service of bundled and coordinated deliveries, often requiring public subsidies. Such consolidation schemes aim at reducing the number of vehicles for delivery and the distances they travel, and increase their load factor.

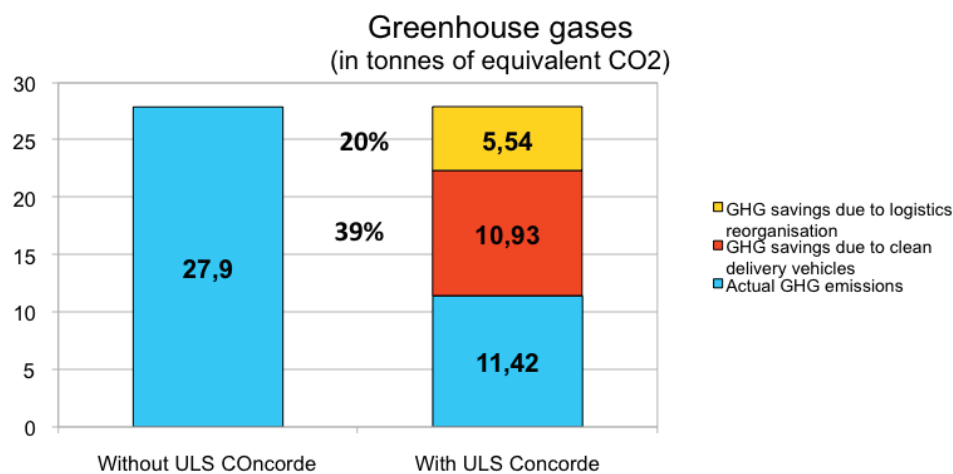
Urban logistics spaces and pick-up points

Some cities promote the development of urban logistics spaces, such as small terminals located in dense urban areas providing logistics services to neighborhood businesses and residents. These logistics spaces (of about 500 to 2,000 m²) can be provided directly by public authorities on their own properties, such as underground car parks. The municipality of Paris organizes bids for tender so that freight operators demonstrating the best practices with regards to environmental, social and economic objectives become users of the facilities at low rental cost (see the example of Chronopost below, Best Practice 4). Underground car parks in city centres are often used as they are well located to reach the zones of high commercial density, they often belong to municipalities and are managed by private companies which try to make the space profitable with added value activities. The reduction of car traffic in city centres (effective in many cities around the world) has opened new opportunities for logistics activities within underground parking. An additional advantage of underground consolidation centres in cities is that they are secured and truck drivers feel safe for their loading/unloading operations.

In Paris, the Chronopost Concorde facility located in the Concorde underground parking lot, below the Place de la Concorde (an expensive area) is a good example of an urban logistics space (Best Practice 4). Before 2004, the space was used to collect coins from on-street parking toll machines. In September 2004, Chronopost (an express parcel transport company dominant on the French market) won the bid organized by the City of Paris and developed a new organization for delivering parcels in the 7th and 8th boroughs of Paris, the busiest neighborhoods of Paris in terms of offices, shops and administration. The scheme is based on a main transport link from a hub outside of Paris to the Concorde terminal, and final deliveries using a fleet of 16 electric vehicles from the Concorde terminal to the clients. An assessment study made by Grant Thornton in 2008 (courtesy of the city of Paris) provided the following results. From a strictly operational point of view, the Concorde urban logistics space gives Chronopost the advantage of being very close to its clients. This means a higher productivity (70 addresses per route instead of 56 addresses when the route started from a hub outside of the city limits). The total cost per parcel delivered has not changed significantly. Annual CO₂

emissions have decreased by about 60% (23 tonnes from 56 tonnes). Two thirds of the reduction are due to the use of an electric fleet for final deliveries; one third is due to the new logistics organization (there is only one consolidated shuttle a day between the urban terminal and an external hub instead of five or six small trucks before).

Figure 1. Chronopost Concorde Urban Logistics Space's environmental results



Source: data courtesy of the city of Paris

The total distance travelled by traditional vans was decreased by 75%. Local emissions of NO_x decreased (compared to the previous year) from 192 to 48 kg, and PM₁₀ emissions from 12 to 3 kg. Employees working for the ULS now reach their workplace by public transport, which was not possible before. The use of electrical vehicles replaced noisy vehicles with silent ones. The implementation of the terminal has located 19 new jobs within Paris (mainly low qualified jobs). The impact assessment study showed that employees relocated to Paris premises were quite satisfied to work in the Concorde logistics terminal. They provided the following reasons during interviews: less time spent in congestion; driving electric vehicle is more comfortable; the starting hour for the delivery tours is later than previously when employees started their work in the suburban terminal.

Pick-up points

At a smaller scale, urban logistics spaces also include pick-up points. In recent years, there has been a strong development of these local depots in urban and suburban areas. The first experiments regarding pick up points were quite unsuccessful in the 1990s and early 2000s (see literature review in Cairns *et al.* (2004)). However, since 2003 and the rapid increase in e-commerce the development of pick up points, drop boxes and relay points has been remarkable (see Best Practices 1 and 38).

Pick up points are local collection and distribution depots, or boxes, from which consumers can pick up goods they have ordered via mail order or on the internet. They provide an innovative and technology intensive alternative to home deliveries. Some of the most developed networks of pick up points in Europe today are in the United Kingdom, Germany, Benelux and France. In Germany, Hermes Group has an extended relay-point network. The Kiala network in France and Benelux, and the Packstation network in Germany are well known. These two systems differ in many ways: Packstation are automated locker banks designed for the needs of one transport operator (DHL Deutsche Post), whereas Kiala provides a network of pick up services in local businesses to many different transport operators. Kiala points are managed by local businesses (flowershops, grocery shops, etc.), as an additional service provided to customers. They handle products from all retailing companies that have a partnership with Kiala.

Although rather successful, pick-up-points are confronted with difficulties, linked to the very expensive investments in ITS and in safety equipment and to the cost of their location. In Germany, the success of Packstation is linked to two factors: the partnership with the Deutsch post/DHL, providing freight volume, and the possibility to set up lockers in public places and on the street. In some countries, for safety or aesthetic reasons, such implementations are forbidden.

Urban consolidation centres: pros and cons

Among the most popular urban logistics concepts are urban consolidation centres (UCC), aimed at providing a specific service of bundled and coordinated deliveries. A UCC is a logistics facility located in close proximity to the city centre (or any kind of dense commercial area), from which consolidated deliveries are carried out, and in which a range of other value-added logistics and retail services can be provided (Allen et al., 2007). The objective is to serve the city with fewer vehicles that are better loaded and make less frequent deliveries to each recipient. Often, these vehicles run on natural gas or electricity in order to lessen the environmental impact of the new system. UCC usually (but not necessarily) require financial support from public authorities to operate.

Many such terminals (up to 150) existed in European cities over one decade ago, but due to operating costs, most of them closed down when municipalities could no longer subsidize them. Today, a few UCCs are operating, mostly in medium-size cities: Bristol in the U.K. (see Best Practice 43), many Italian cities (see Best Practice 18), La Rochelle in France (see Best Practice 28), Motomachi in Japan (see Best Practice 34). Some of them are dedicated to specific economic sectors, such as commercial streets' retail (Bristol UCC, Cityporto in Padua or Vicenza - see Best Practices 23 and 43), airport retail (Heathrow - see Best Practice 8) or building sites (London, Stockholm).

The London Construction Consolidation Centre was implemented in 2006 with funds from Transport for London and private investors, aiming at consolidating and organizing all deliveries of construction materials made for major construction sites in the city. Some results have been provided by (Transport for London, 2007) which noted a reduction of 68% of the number of vehicles delivering or picking material to the building sites served by the LCCC; average reduction of two hours for the delivery time (including loading/unloading) of building supplies, CO₂ emissions reduced by 75%, waste of material reduced by 15%; Productivity increase of the workforce by 30 minutes a day. Despite these achievements, the CCC was closed after three years of operation due to financial problems. Although reducing collective costs, the allocation of investment and

operating expenses of the terminal could not be settled. The LCCC experience, however, benefitted the management of the Olympics construction sites (interview with Ian Wainwright, Transport for London).

The Italian case is specific as about six urban consolidation terminals are currently in existence. All share the purpose of protecting historic centres with rich architectural heritage. Also, Italy is characterized by many self supplied shop owners and small truck companies ("padroncini") who do a small number of truck trips per week or less than truckload poorly organized tours. This explains why Italian local officials attempt to impose more efficient freight transport strategies in city centres. In Parma, only accredited carriers can deliver the historic centre, or else they have to use the services of Ecologistics, the municipal UCC. To receive accreditation, vehicles must meet the Euro III standard, they must be loaded to 70% of capacity (in volume or weight) and they must possess a geo-positioning system that allows tracking.

Motomachi is an upscale retail area of Yokohama in Japan. In 2004, a consolidated delivery scheme was implemented and has proved successful since then (SUGAR, 2010). It is managed by a shopkeepers' association and serves most of the stores in the area. Retailers' associations have been the key players in the implementation of the scheme. A consolidation terminal of 330 m² is located a few hundred metres away from the retailing area. On an average day, twenty-two truck companies use the facility. Sagawa, one of the most important Japanese parcel and B2C transport companies, represents 60% of all UCC activity. The UCC and its fourteen employees process about 350,000 parcels per year. Three low emission CNG trucks make delivery rounds from the consolidation centre to the shops. The scheme has managed to break even financially. The operating budget is ¥55 million (about €412,000), 95% of which comes from the revenue generated by the fees (¥150 or about €1.25 per parcel delivered) paid by the freight carriers using the UCC. A subsidy from the shopkeepers' association covers the remaining operational deficit.

UCCs have been popular because they generate important savings in vehicle-kms, CO₂ and local pollutants' emissions, as many local impact assessment studies demonstrated. However, because of their central locations, UCCs often require significant real estate expenditures. They often require electric or gas vehicles which have remained much more expensive than regular vehicles and can cause maintenance or depreciation problems. The allocation of UCC's operating costs is often complex, generating governance issues. Past UCCs ran up against difficulties related to municipalities' hesitancy to continue subsidising experiments. UCCs can also lead to legal complications and risks for municipalities and the UCCs' operators. To ensure UCCs' effectiveness, many municipalities implement strict vehicle access rules for the zone covered by the UCC, and provide regulatory or financial benefits to UCC operators (for example, in La Rochelle, only UCC electric vehicles can use the city's bus lanes). The question then emerges as to how far authorities can carry regulations before they risk legal challenges. In Vicenza, Italy, a local regulation favoring a municipal UCC led to litigation brought by an association of freight transport carriers. Two court rulings were needed in 2006 and 2009 to allow the city to go forward with its regulation (Ville et al., 2011). Many other cities, observing these difficulties, are now reluctant in promoting similar concepts.

Among the recently established UCC, Motomachi, Bristol, Lucca and Padua provide some elements regarding (limited) success factors:

1. Local authorities elaborated a specific regulation giving priority to city centres to the carriers using the UCC (but legal issues).



2. The operation of the final deliveries (from the consolidation centre to the shopkeepers) was not handed out to a competitor but to a logistics provider which was not involved previously in local trucking activities, generating a better acceptance from UCCs' users.
3. The definition of the consolidation scheme has been based on a profitable business plan. It allows the municipality to decrease its subsidies in proportion with the consolidation centre's development.
4. Most of the consolidation centres' experiments were made through public-private partnerships. The feasibility studies were often financed by the administrations (particularly in France), the impact assessment of the experiments were made by consultants and financed partially by the administration.

However, in most cases, local subsidies remain necessary.

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Existing measures in good practice sites

Measures	Good Practice sites	Objectives*	Target Groups	Policy target territorial level	Policy promoting bodies
1- Administrative measures	Access regulations based on delivery time window	Paris all	Private	Local	City
		Londres DC +RI	Private	Local	City
		RER ISC+ICA	Private + PPP	Local	City
	Access regulations based on emission standards	Paris EPR+DC	Private	Local	City
		Londres EPR	Private	Local	City
		RER EPR	Private + PPP	Local + region	City + region
	Access regulations based on loading/unloading time	Paris EIU+ICA+DC+RI	Private	Local	City
		Londres	Private	Local	City
	On-street loading bays	Paris EIU+ICA+DC+RI	Private	Local	City
	Off-street loading bays	Paris EIU+ICA+DC+RI	Private	Local	City
	UCC	RER EPR+ISC	Private + PPP	Local	City
	Lorry routes	RER EIU+APR+RI	Private	Local	City + region
	Signing	Paris EIU+EPR+ISC+ICA+DC	Private	Local	City
	Lorry Lanes	RER EIU+ICA	Public + Private + PPP	Local	City
	Tax reductions and advantages for environmental fuels and filters technology	Paris EIU+ISC+ICA	Private	Local	City
		RER EPR	Public	Local + region	Region

Measures	Good Practice sites	Objectives*	Target Groups	Policy target territorial level	Policy promoting bodies
	Incentives for EFV buying	EPR	Public + Private + PPP	Local + region	State+Region+City
	Pedestrian areas	EIU+EPR+ICA+RI	Private	Local	City
	Harmonisation of regulations	EIU+EPR+ISC+ICA+DC	Public + Private	Local	City
	Fuel stations for EFV	EPR	Private	Region	Region
	On street loading bays	EPR		Region	City
2- Urban planning measures	Integrative transport plan for passenger and goods traffic	RI	Public + Private + PPP	Local	City
		EIU+EPR+ICA+DC+RI	Public + Private	Local	City
		EIU+RI		Local	City
3- Governance measures	PPP	All	Public + Private	Local	City
	Cooperation among municipalities in city logistics	ISC		Local	City
5- Infrastructural measures ⁹	UCC	EPR+ISC+DC	Public + Private + PPP	Local	City
	ELP	All	Private	Local	City
	Noise techniques and equipments financing	ICA	Public + Private + PPP	State + Region + Metropolitan + Local	State
6- ITS and technical measures	Traffic management systems	EIU + DC	Public + Private + PPP	Local	Region + City
	Traffic detection techniques	EIU	Public + Private + PPP	Local	City
	Rail transport for city logistics	All	Private	Local	City

Measures		Good Practice sites	Objectives*	Target Groups	Policy target territorial level	Policy promoting bodies
7 - modelling tools measures	Data acquisition and analysis	Paris	All	Public + Private	Local	City
		RER	ICA		Region	Region
8- Supply chain management measures	UCC and distribution channels	RER	ISC	Private + PPP		City
	Van sharing	RER	ISC	Private	Local	City
9- information measures	Web sites	Paris	All	Public + Private	Local	City
		RER	ICA	Public + Private + PPP	Region + Local	Region + City

* Efficient infrastructure use (EIU), emissions and pollution reduction (EPR), improving supply chain (ISC), improving city attractiveness (ICA), decrease congestion (DC), reducing interference between freight and passenger flows (RI)

Conclusion

Objectives:

- Efficient infrastructure use (EIU): 18%
- emissions and pollution reduction (EPR): 19%
- improving supply chain (ISC)
- improving city attractiveness (ICA) : 18%
- decrease congestion (DC): 15%
- reducing interference between freight and passenger flows (RI): 14%

"Target groups": "private" dominates at 47%, then public+private+PPP (23%).

78% of "Policy target territorial level" are located at local scale, 8% at regional scale.

76% "Policy promoting bodies" are located at city scale, then at "city+region" scale (10%).

Projected measures in good Practice sites

Measures	Good Practice sites	Objectives*	Target Groups	Policy target territorial level	Policy promoting bodies
1- Administrative measures					
	Harmonisation of regulations	EPR + DC	Private	Region	Region
Add					
	Fuel stations for EFV	EPR		Region	Region
	City logistics monitoring	EIU	Public + Private + PPP	Region + Local	Region
	Public bodies training	EIU	Public	Region + Local	Region
5- Infrastructural measures	UCC	EPR + ISC	Private + PPP	Local	City
6- ITS and technical measures	Freight transport management systems and technologies	EIU + DC	Private + PPP	Local	City
8- Supply chain management measures	Freight transport management systems and technologies	ISC	Public + Private + PPP	Local	City
Add	Van sharing	ISC	Private	Local	City

* Efficient infrastructure use (EIU), emissions and pollution reduction (EPR), improving supply chain (ISC), improving city attractiveness (ICA), decrease congestion (DC), reducing interference between freight and passenger flows (RI)

Conclusion

Only RER has answered. Half of these measures correspond to the deepening of the existing measures.

Existing measures in transfert sites

Measures	Transfer site	Objectives*	Target Groups	Policy target territorial level	Policy promoting bodies
1- Administrative measures	Access regulations based on delivery time window	Athens	Private	Local	City
		Celje	Public+private	Local	City
		Crete	Private	Local	City
		Palma	Public+private	Local	City
		Poznan	Private	Local	
		Vratsa	Public	Local	City
	Access regulations based on emission standards	Poznan	Private	Local	
		Athens	Private	Local	
	Access regulations based on loading/unloading time	Crete	Private	Local	
		Palma	Public+private	Local	City
	On-street loading bays	Athens	Private	Local	State+City
		Palma	Public+private	Local	City
	Lorry routes	Athens	Public	State	State + City
		Crete	Public	State	State City
		Palma	Private	Region + local	City
		Usti	Public+private	Metropolitan + local	City
		Vratsa	Private	Local	City

Measures	Transfer site	Objectives*	Target Groups	Policy target territorial level	Policy promoting bodies
Night deliveries regulations and enforcing	Athens	ISC+ICA+DC+RI	Public+private	Local	City
	Celje	All	Public+private	Local	City
Signing	Poznan	ICA+DC	Private	Local	
	Athens	ICA+RI	Public+private	Local	State+city
	Crete	ICA+RI	Public+private	Local	State+city
	Palma	EIU+ISC+ICA	Public	State+region+ local	City
	Usti	EIU+EPR+DC	Public+private	EU	City
Noise regulation	Athens	ICA	Public+private	State	State+city
	Celje	all	Public+private	Local	City
	Crete	ICA	Public+private	State	State+city
	Palma	EPR	Public	Local	City
	Poznan	EIU	Private	State + local	
Road charging systems	Athens	ICA+DC+RI	Public+private	Local	City
	Celje	All	Public+private	Local	City
Parking pricing	Poznan	ICA+DC	Private	Local	City
	Vratsa	EIU+EPR+ICA+DC		Local	City
Tax reductions and advantages for "environmental fuel" and filters technology				State	
Pedestrian areas	Athens	ICA+RI	Public	Local	City

Measures	Transfer site	Objectives*	Target Groups	Policy target territorial level	Policy promoting bodies
	Celje	All	Public+private	Local	City
	Crete	ICA+RI	Public	Local	City
	Palma	EIU+ICA	Public+private	Local	City
	Poznan	ICA+DC+RI	Public+private	Local	
	Vratsa	EIU+EPR+ICA		Local	City
2- Urban planning measures	UCC	ISC	Public+private+PPP	Local	City
	Athens	ISC+ ICA+ RI	Private	Local	City
	Crete	ISC+ ICA+ RI	Private		
	Palma	ISC+DC+RI	Public+private	Local	City
	Athens	ICA+RI	Public	Local	City
	Celje	All		Local	City
	Crete	ICA+RI	Public	Local	City
3- Governance measures	Vratsa	EIU+EPR+ICA		Local	City
	Poznan	EIU+EPR+ICA+DC+RI	Public + Private	Local	City
	Athens	EIU+EPR+ICA+DC+RI	Public	State	State
4- Awareness	Crete	EIU+EPR+ICA+DC+RI	Public	State	State
	Athens	EIU+EPR+ICA+DC+RI	Public + Private	Local	City

Measures	Transfer site	Objectives*	Target Groups	Policy target territorial level	Policy promoting bodies
	Crete	EIU+EPR+ICA+DC+RI	Public + Private	Local	City
5- Infrastructural measures	Loading/unloading areas	EIU+ISC+DC+RI	Public + Private	Local	City
	Parking	EIU+EPR+ICA+DC	Private	Local	City
		All		Local	City
		EIU+EPR+ICA+DC	Private		
	Poznan	EPR+ISC+ICA+DC+RI	Public + Private + PPP	Local	
6- ITS and technical measures	Athens	EIU+EPR+ICA+DC+RI	Public + Private	Local	State
	Crete	EIU+EPR+ICA+DC+RI	Public + Private	Metropolitan + Local	City
	Poznan	DC	Private	Local	
	Usti	EIU+EPR+DC	Public + Private	Metropolitan + Local	State+ City
	Celje	All		Local	City
	Poznan	EPR+ICA	Public	Local	
	Celje	All		Local	City
	Celje	All		Local	
	Celje	All		Local	City

Measures	Transfer site	Objectives*	Target Groups	Policy target territorial level	Policy promoting bodies
7 - Modelling tools measures	Poznan	EIU+ DC	Public	Local	
	Usti	EIU+EPR+DC	Public + Private	Metropolitan + Local	State+ City
	Athens	EIU+EPR+ICA+DC+ RI	Public + Private	Local	State
	Palma	EIU+ DC	Public	Local	City
	Poznan	ICA+DC+RI	Public	Local	
	Vratsa	EIU+EPR+ICA+DC+ RI	Public	Local	City
8- Supply chain management measures	Athens	EIU+EPR+ICA+DC+ RI	Public + Private	Local	State
	Crete	EIU+EPR+ICA+DC+ RI	Public + Private	Local	State
	Athens	EIU+EPR+ICA+DC+ RI	Public + Private	Local	State
9- Information measures	Athens	ISC+ICA+DC+RI	Public + Private	Local	State
	Athens	EIU+EPR+ICA+DC+ RI	Public + Private	Local	City
	Celje	AI		Local	City
	Crete	EIU+EPR+ICA+DC+ RI	Public + Private	Local	City
	Athens	ICA+RI	Public + Private	Local	City



* *Efficient infrastructure use (EIU), emissions and pollution reduction (EPR), improving supply chain (ISC), improving city attractiveness (ICA), decrease congestion (DC), reducing interference between freight and passenger flows (RI)*

Conclusions

Objectives:




- Efficient infrastructure use (EIU): 16%
- emissions and pollution reduction (EPR): 14%
- improving supply chain (ISC) 9%
- improving city attractiveness (ICA): 22%
- decrease congestion (DC): 20%
- reducing interference between freight and passenger flows (RI): 19%

“Target groups”: “public and private” dominate in 50% (47% of private for the best practice sites), then “public” or “private” (23% each).

“Policy target territorial level” are at 75 % situated on the local scale (the same proportion as for the best Practice sites) then 14% for state+city (8% for the region for the best Practice sites).

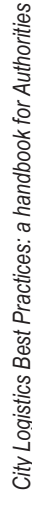
“Policy promoting bodies” are situated on the city scale in 81 %, then on the scale of state (9%) (10% for “city+region” for the best Practice sites).

Measures	Transfer site	Objectives*	Target Groups	Policy target territorial level	Policy promoting bodies	
1- Administrative measures	Access regulations based on delivery time window	Athens	ICA+DC+RI	Private	Local	City
		Celje	all	Public+private	Local	City
		Crete	ICA+DC+RI	Private	Local	City
		Palma	EIU+ICA+DC	Public+private	Local	City
		Poznan	ISC+ICA+DC+RI	Private	Local	City
	Access regulations based on emission standards	Athens	EPR	Private	Local	State+City
		Crete	EPR	Private	Local	State+City
		Poznan	EIU+EPR+ICA	Private	Local	City
	Access regulations based on loading/unloading time	Vratsa	EIU+EPR+ICA+DC+RI	Public+private+PPP	Region + local	Region+City
		Crete	ISC+RI	Private	Local	
		Palma	EIU+ISC+DC	Public+private	Local	City
		Poznan	ISC+ICA+DC+RI	Private	Local	City
	ELP	Athens	All	Public+private	Local	City
		Crete	All	Public+private	Local	City
	On-street loading bays	Poznan	EIU+ISC	Private+PPP	Local	City
Crete		ISC+ICA+RI	Private	Local	State+City	
Palma		EIU+ISC+DC+RI	Public+private	Local	City	
Off-street loading bays	Crete	ISC+ICA+RI	Private	Local	State+City	

Measures	Transfer site	Objectives*	Target Groups	Policy target territorial level	Policy promoting bodies
<div>    </div>		ICA+RI	Private	Local	State
	UCC	EIU+EPR+ISC+ICA+D C	Private+PPP	Local	City
	Lorry routes	ICA+DC	Public	Region + local	City
		EIU+EPR+ICA+DC	Public+private+PPP	Region + local	Region+City
	EFV permissions	EPR	Public+Private	Region+Local	State+Region+City
		EPR+ISC+DC+RI	Public+Private+PPP	Local	City
	Night deliveries regulations and enforcing	ISC+ICA+DC+RI	Public+private	Local	City
		All	Public+private	Local	City
		ISC+ICA+DC+RI	Public+private	Local	City
		ISC+ICA+DC+RI	Private	Local	City
		ICA+RI	Public+private	Region+Local	State+Region+city
	Signing	EIU+ISC+ICA	Public	State+region+ local	City
		EIU+DC	Private	Local	City
Noise regulation		EIU+EPR+DC	Public+private	Metropolitan+Local	City
		EIU+ISC+ICA+DC	Public+private+PPP	Region+Local	Region+City
		all	Public+private	Local	City
		EPR	Public	Local	City
		ICA+RI	Private	Local	City

Measures	Transfer site	Objectives*	Target Groups	Policy target territorial level	Policy promoting bodies
Freight operators recognition scheme Parking pricing Tax reductions and advantages for "environmental fuel" and filters technology Incentives for EFV buying Load factor regulation Multipick/multidrop permissions Pedestrian areas Harmonisation of regulations at different administrative levels UCC	Poznan	All	Public+Private	Local	City
	Celje	All	Public+private	Local	City
	Crete	ICA+DC+RI	Public+private	Local	City
	Poznan		Public	State+Local	State+City
	Celje				State
	Poznan	EPR	Public+private+PPP	State	State
	Celje				State
	Poznan	EPR	Public+private+PPP	State	State
	Poznan	EPR+ICA	Public	State+Local	City
	Athens	EIU+EPR+ISC+ICA+D	Public+Private	Local	City
2- Urban planning measures	Poznan	EIU+EPR+ISC+DC	Private+PPP	Local	City
	Celje	All	Public+private	Local	City
	Palma	EIU+ICA	Public+private	Local	City
	Poznan	ICA+DC+RI	Public	Local	City
	Athens	EIU+EPR+ICA+DC	Public+private	Local	State
	Poznan			State+Region+Metropolitan+Local	City
	Celje	All	Public+private	Local	City
	Palma	ISC	Public+private+PPP	Local	City

Measures	Transfer site	Objectives*	Target Groups	Policy target territorial level	Policy promoting bodies
	Poznan	EIU+EPR+ISC+ICA+D	Private+PPP	Local	City
	Usti	All	Private	State+region+Metropolitan+Local	City
	Celje	All	Public+private	Local	City
	Palma	EIU+ISC+DC+RI	Public+private	Local	City
	Poznan	ICA+RI	Private	Local	City
	Athens	All	Public+Private	Local	City
	Crete	All	Public+private	Local	State+Region+City
	Poznan	EIU+EPR+ISC+DC	Private+PPP	Local	City
	Usti	IEU	Public+Private+PPP	Region+Local	City
	Poznan	ICA+DC+RI	Public	Local	City
	Usti	ICA	Public	Local	City
	Palma	EIU+ISC+ICA+DC	Public+private	Local	City
	Poznan	EIU	Public+Private+PPP	State+Region+Metropolitan+Local+EU	City
	Vratsa	All	Public+Private+PPP	Local	State+Region+city
3- Governance measures	Freight operator recognition scheme	All	Public+Private	Local	City
	Cooperation among	All	Public	Local	City








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Measures	Transfer site	Objectives*	Target Groups	Policy target territorial level	Policy promoting bodies
8- Supply chain management measures	Modelling city logistics for solutions definition	Usti	EIU+ICA+ISC+DC+RI	Region+local	City
	Traffic detection techniques	Usti	EIU+ICA+ISC+DC+RI	Region+local	City
	UCC	Celje	All	Local	City
		Usti	EIU+ICA+ISC+DC+RI	Region+local	City
	Night deliveries	Poznan	EIU+++EPR+ISC+ICA+DC	Local	City
		Athens	ISC+ICA+DC+RI	Local	City
		Crete	ISC+ICA+DC+RI	Local	City
	Freight transport management systems and tools	Poznan	ISC+ICA+DC+RI	Local	City
		Poznan	ISC+DC+RI	Local	City
		Poznan	EIU+EPR+ISC+DC+RI	Local	City
9- Information measures	Delivery systems and tools	Poznan	ISC+DC	Local	City
	Home shopping via e-commerce	Poznan	RI	Local	City
	Outsourcing	Poznan	RI	Local	City
	ICT for supply chain management	Poznan	RI	Local	City
	Drop off points	Poznan	EIU+EPR+DC	Local	City
	Transport operation management	Poznan	EPR+DC	Local	City
	Information measures	Poznan	All	Local	City
	Web sites	Palma	EIU+ICA+DC	Local	City

Measures	Transfer site	Objectives*	Target Groups	Policy target territorial level	Policy promoting bodies
Urban freight information and maps	Usti	EPR+ISC+DC	Public+private	Local	City
	Athens	All	Public+private	Local	City
	Crete	All	Public+private	Local	City
Signing (informing) /conventional VMS	Usti	EPR+ISC+DC	Public+private	Local	City
	Crete	ICA+RI	Public+private	Region+Local	State+Region+City
	Vratsa	All	Public+private+PPP	State+region+metropolita n	

* Efficient infrastructure use (EIU), emissions and pollution reduction (EPR), improving supply chain (ISC), improving city attractiveness (ICA), decrease congestion (DC), reducing interference between freight and passenger flows (RI)

Conclusions

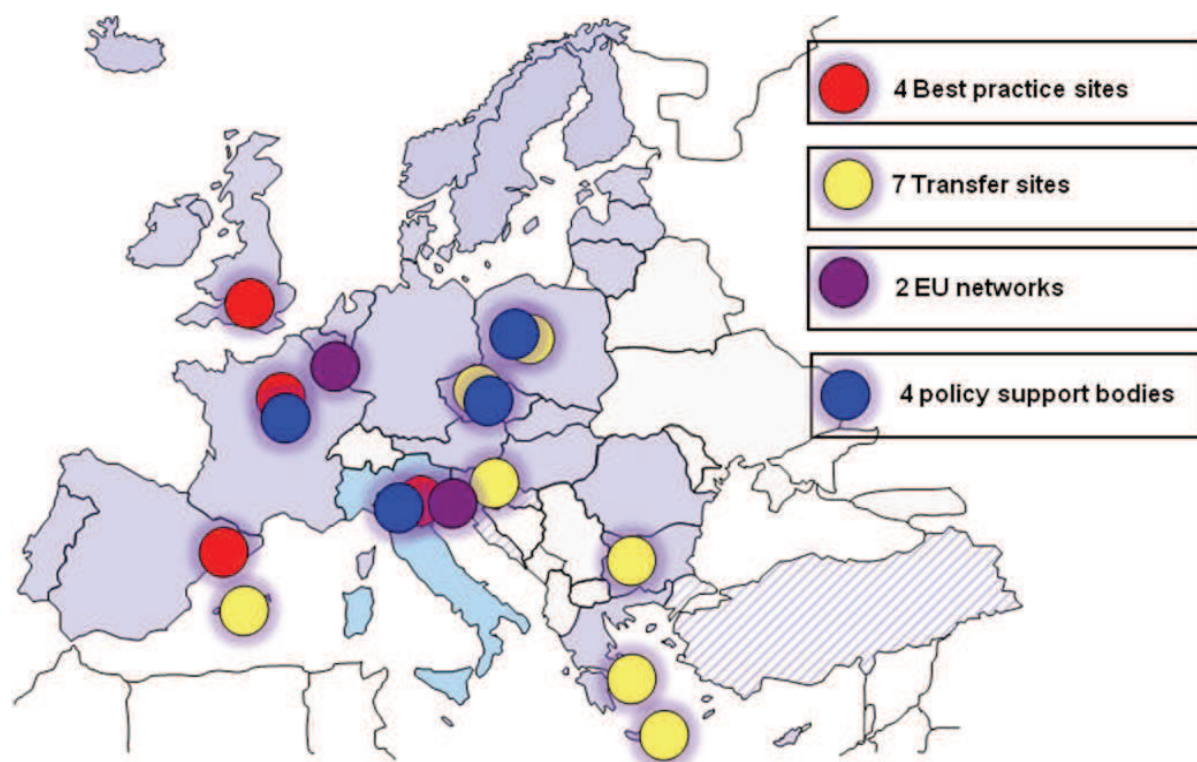
The data treatment has been tough because of the great amount of data.

Objectives:

- Efficient infrastructure use (EIU) : 17%
- emissions and pollution reduction (EPR): 15%
- improving supply chain (ISC) 16%
- improving city attractiveness (ICA) : 16%
- decrease congestion (DC): 20%
- reducing interference between freight and passenger flows (RI): 16%

“Target groups”: “public and private” represent 42% of the target groups and “public, private + PPP” represent a real expectation (only 3% of the existing measures, 15% of the objectives).

The SUGAR Partnership



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SUGAR aims to address the problem of inefficient and ineffective management of urban freight distribution, a critical component of the overall urban transport system and a primary source of vehicle pollutant emissions.

SUGAR promotes the exchange, discussion and transfer of policy experience, knowledge and good practices through policy and planning levers in the field of urban freight management, between and among Good Practice and Transfer sites.

SUGAR's approach is structured along three main strands:

- The refinement of policies of SUGAR Good Practice Sites;**
- The development of policies in SUGAR Transfer Sites;**
- The creation of interest, knowledge, tools and exchange for new administrations from outside the SUGAR partnership through the Enlarged Transfer Programme.**

SUGAR activities are divided in three main pillars:

- Best practices collection and analysis, identification of key performance indicators;**
- Transfer of Experiences through round tables, train-the-trainer sessions and joint planning workshops, including the participation of new administrations;**
- Action Plans development for all SUGAR sites through SWOT analysis and local workshops.**