C-LIEGE
Towards clean urban freight transport

Clean Last mile transport and logistics management for smart and Efficient local Governments in Europe

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C-LIEGE: Towards clean urban freight transport

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1. Executive Summary

C-LIEGE – Clean last mile transport and logistics management for smart and efficient local Governments in Europe – is conceived as a showcase for good practices and a helping hand for all European cities striving for cleaner and sustainable urban freight transportation.

On the basis of good practices the project aimed to set out an integrated framework for energy efficient Urban Freight Transport (UFT) management and planning. A set of integrated solutions and demand-oriented measures were tested and shared in order to establish roadmaps for their implementation in European cities. Seven pilot experiments in six European countries assessed the effectiveness of the C-LIEGE approach: Bulgaria, Italy, Poland, United Kingdom, Germany and Malta. C-LIEGE has successfully developed, tested and transferred demand-oriented measures and decision supporting tools towards reduction of energy, environmental and economic impacts of freight transport in urban environments.

All seven pilot cities selected and implemented a package of soft measures such as access fees and time windows restrictions, environmental zones, recognition schemes, freight maps for appropriate routes, Freight Quality Partnerships, etc. The implementation of the pilot measures was supported by newly developed C-LIEGE tools: the Stakeholder Engagement Manual, the UFT Good Practice Database, the Push and Pull Measures Database, the Guideline for the development of Urban Freight Mobility Plan as well as the C-LIEGE Toolbox for the establishment of a City Logistics Manager (CLM).

The project filled the existing gap in know-how and professionalism in the UFT domain by designing, fine tuning and delivering the complimentary capabilities of CLM. For the first time in Europe, the well-known Mobility Manager whose duties are focused on passenger transport only can now be paired with a CLM. The results and success factors achieved in the pilot cities clearly speak in favour of adopting freight transport soft measures in other cities than the ones involved in the C-LIEGE project. An assessment of transferability and relevant frameworks supporting the adoption of urban logistics processes in new settings was defined by the C-LIEGE transferability plan. It is aimed at supporting EU cities in their road maps towards cleaner and sustainable urban freight transportation.

We are convinced that the C-LIEGE tools and experiences can and will be of great value for UFT management and planning in other cities and regions across Europe.
2. Introduction

2.1 Background

Urban freight transport (UFT) plays an important role in the development of cities representing an element of great importance for the economic system, mainly distributing goods to retail, commercial establishments, offices, as well as homes. UFT cannot be seen separately from the transportation chain, particularly when focusing on environmental aspects. Freight transport operations are mostly private, which means that they are rather efficient from an internal cost point of view, but not concerned with the external costs that they often generate. Nevertheless, UFT can have relevant negative impacts on the environment, the economy and the society in general. Common negative external impacts are air and noise pollution as well as the consumption of non-renewable energy sources. High levels of pollutant emissions have negative effects on public health and congestion can be considered as one of the main negative externalities, causing delays in the delivering of goods, higher costs of logistic operators, decreased hours of productive service, increased emissions, more traffic accidents, etc. Thereby in order to minimize the negative externalities of UFT, it is essential to implement good practices in the cities to move towards clean last mile transport. Common problems and relevant issues are listed below:

- Efficient mobility of people and goods has to be recognized by local authorities as a key component of quality of life and economic growth;
- UFT is often perceived as a problem of congestion and associated externalities;
- Daily conflicts between passengers and goods transport have to be managed by local authorities with a proper mobility management;
- Local Authorities can influence UFT behaviour towards a more environmentally and energy sustainable model by the implementation of suitable soft measures;
- Soft measures do not necessarily require large financial investments, having a high benefit-cost ratio;
- Negative impacts of urban goods distribution are mainly caused from used vehicles (e.g. diesel-powered) and low system efficiency (e.g. low loading factor);
- Accessibility in urban areas remains a vital issue on top of local policy.

UFT can support the urban economy and can support the environment, but the costs of negative effects cannot be paid by freight operators alone. Public authorities should balance the positive and negative effects and the various needs of citizens/consumers and operators. Meantime mobility management is considered to encompass freight transport as part of the mobility plans. Mobility management is primarily a demand-oriented approach to passenger and freight transport aimed at supporting and encouraging a change of attitude and behaviour towards sustainable modes of transport. But, while a dedicated expert namely Mobility Manager is definitively recognized in the Member States, the respective expert in the UFT demand planning and management there remains a gap to effectively cover the whole urban mobility (passenger and freight transport). In order to fill this gap, a dedicated and skilled expert need to be established at urban level (mainly within the Local Authority), including the possibility to enlarge competences of Mobility Managers by a dedicated training activities.

The C-LIEGE project addressed the aforementioned background context by the design and implementation of a set of integrated solutions and push and pull demand-oriented measures, supported by newly developed C-LIEGE tools, namely the Stakeholder Engagement Manual, the Toolbox for the establishment of a City Logistics Manager, the UFT Good Practice Database, the Push & Pull Measures database and other relevant guidelines.

2.2 Objectives

C-LIEGE has four specific objectives as follows:

1. Define a shared framework for an energy-efficient urban freight transport demand management and planning strategy through a cooperative approach between public and private stakeholders.
2. Contribute to the reduction of the energy, environmental and socio-economic impacts of freight transport in urban environments.
3. Effectively transfer good practices addressed to achieve a better matching between supply and demand of goods transport in European urban areas, in accordance with energy saving principles.
4. Provide policy recommendations to the European Commission on energy saving transport UFT efficiency.
3. Applied approach and methodology

3.1 Main target groups and their role in urban freight transport

The urban freight distribution is organised by private stakeholders (producers, carriers, retailers, final consumers) operating in an environment, “the urban space”, which is managed by public authorities. UFT is a complex system that cannot be managed in the same way as passenger transport. A lot of particular interests are in conflict. It is not only a matter of interaction between the public authority and citizens, private sector stakeholders are involved as well. It implies a certain reconciliation of conflicts and concertation actions for shared solutions and policies. UFT involves many people and institutions such as urban traffic planners, town planners, urban construction departments, road haulers, mobility managers and logistics managers. Furthermore, there are those businesses in the cities which send or receive goods. By the engagement of relevant stakeholders, Public Administrations can identify problems perceived by those relating to the urban goods delivery, identify measures to resolve such problems, identify good practice measures as well as principles for actions.

Public authorities usually regulate essential areas of urban freight transport, mainly those referred with access restrictions (tonnage and size). By planning and implementation of measures such as access restrictions, optimization of routes, urban logistic plans, innovative financing models, incentives and distribution plan-schemes, etc., Local authorities can influence UFT planning and management towards a more sustainable governance model.

Local authorities have several ways to influence freight transport demand planning and management in urban areas:
- Setting framework conditions;
- Moderate a process;
- Getting involved as a player themselves.

The local authority has to be a “mediator” in the discussions and negotiations. Cooperation amongst all involved stakeholders should be part of an UFT policy (cooperation between public and private parties), particularly when public measures and policies are taken to influence UFT market towards sustainable models with related business implications.

Regulating UFT demand can offer a cost-effective alternative to increasing capacity. The managing role of local authorities implicates various financial activities which require less investment and comply with environmental and economic sustainability principles. To allow freight companies to pioneer new and environmentally friendly UFT solutions, Local authorities can also support the private sector to gain access to financial sources, especially for the start-up of innovative services as well as including subsidies to fleet renewal.

The Chamber of Commerce consists of committees which can directly influence UFT sector. These committees can assist with projects and operations and access local funding schemes, lobby and play a central role in successfully implementing policies. The delivery patterns required by manufacturers, retailers and other businesses have changed substantially in recent years, with a tendency towards more frequent, smaller deliveries. This move towards just-in-time deliveries has resulted in a rapidly growing use of smaller commercial vehicles.

Manufacturers are commonly experienced with freight transport because of its necessity for transporting goods through Business-to-Business (B2B). The companies usually have extensive logistics tasks concerning export and warehousing.

Freight transport operators ensure the distribution process and the delivery of the product to the consumer. Their main role is distribution, warehousing and other supporting activities. Usually logistics service providers, do not consider themselves as key players whose strategies and actions. They tend to complain on the regulations implemented by city administration, not typically considering the wider scope of the problems and proposed solutions. This means that for service providers there is significant potential for improving their performance instead of complaining about regulations and solutions imposed by the local administrations. The C-LIEGE pilots represent show cases where companies achieved benefits by a constructive dialogue and local concertation actions. Private stakeholders are very important in the decision making and implementation process of urban logistics measures, and from the pilots experiences, it became clear that public-private partnerships are crucial to develop innovative and efficient last mile solutions.

City residents elect the local Council and therefore have an indirect influence on their actions. The city users can be car drivers and they affect congestion, noise pollution levels etc. To achieve a good environment for residents, the public authority is becoming more actively involved in co-ordinating the conflicts among
residents, retailers and freight carriers. Regular round tables are helpful to discuss problems and implement city logistics initiatives in cities.

The role of the private sector consists in the private initiatives, that can be in cooperation amongst agents and can be part of an urban freight transport policy (cooperation between public and private parties), particularly when public measures are taken to support this. The implementation of measures can be supported by making correct behaviour more attractive (financial support and licensing) or by discouraging other behaviour (pricing and regulation).

The C-LIEGE project will benefit decision makers and professionals in administrations as well as in freight mobility suppliers all over Europe. C-LIEGE provides solutions for city stakeholders that play a vital role in developing urban freight transport.

The C-LIEGE project will benefit both demand and supply stakeholders as follows:

**Public Authorities (Local and Regional Administrations), citizens and economic operators:**
- reduction of urban congestion and consequent improvement of traffic flows, pedestrian and parking circulation;
- reduction in the use of common areas and urban areas requalification;
- reduction of emissions and energy consumption from polluting vehicular traffic;
- increase in regional competitiveness;
- increased safety and security across roads and at logistics hubs;
- increase in local taxation;
- increasing consensus among the value chain stakeholders;
- improving life quality of citizens.

**Transport and logistics operators:**
- increased logistics systems efficiency;
- increase in the internal economic and organizational efficiency of the companies, gaining a competitive advantage in the market;
- reduced transportation and logistics costs;
- improved conditions for workers throughout the logistics chain;
- sharing intervention strategies and policies with the local administration;
- promotion of innovation technology.

### 3.2 The C-LIEGE approach and overall methodological framework

C-LIEGE empowers a cooperative approach between public and private stakeholders that is targeted on the reduction of energetic and environmental impacts of freight transport in European cities and regions. On the
basis of good practices, the C-LIEGE project has defined an integrated framework for energy efficient UFT management and planning.

A detailed and systematic methodology was developed to identify, select and evaluate Good Practices (GPs) for the State of the Art review and integration.

The methodology for good practices identification was structured in three main actions:
1. Identification of the good practices in the C-LIEGE pilot sites
2. Identification of European good practices
3. Identification of the good practices in the Plenary Knowledge Sharing Workshops

The methodology for the good practices selection for the SWOT analysis:
- All good practices identified in the C-LIEGE pilot sites are selected, in order to obtain detailed information from the project’s case studies.
- The good practices selected and presented in the C-LIEGE Plenary Knowledge Sharing Workshop being consolidated UFT initiatives and relevant to C-LIEGE.
- From the European good practices identified by the State of the Art Review, 15 good practices were selected to be analyzed by the SWOT analysis.

The methodology adopted for the Good practices elicitation was the SWOT analysis, based on identifying the strengths, weaknesses, opportunities and threats. The two main components of the SWOT were the indicators of the internal situation (Strengths and Weaknesses) and the indicators of the external environment (Opportunities and Threats).

A thorough state of the art review of relevant European projects and good practices dealing with energy-efficient Urban UFT was carried out with the aim to establish a comprehensive framework of the current situation in Europe. The collected information was included in a database, the UFT Good Practice Database.

The final results of the aforementioned analysis contributed to an initial identification of soft measures and their characteristics (e.g. measure types, means of implementation, benefits, barriers and threats, actors involved, etc.) successfully implemented in European cities. This acted primarily as input to the stakeholders round tables organised in the seven C-LIEGE pilot cities for the purpose of the “Local joint strategic exercise”.

In order to guarantee that a consistent and complete local strategy for each C-LIEGE pilot site, the local joint strategic exercise was performed at the local round tables as well as a completeness and consistency check of the pilot selected measures. The C-LIEGE project adopted a routine procedure with concrete check points that were developed and applied to all pilots performing the same assessment. This routine procedure is complementary to the guidelines defined in the Stakeholder Engagement Manual allowing to make a double check of consistency of proposed measures selected at the round tables.

The Local joint strategy exercise implemented in each pilot case, pointed out the need to build strong cooperation and partnership among public bodies and logistics and transport operators for more efficient urban transport and efficient logistics management. The approach followed in C-LIEGE towards the Local Joint Strategy definition was as follows:
1. Identify and involve key stakeholders and key issues in urban logistics;
2. Define common goals and measures to achieve those goals – action plan;
3. Link with existing local, regional and national plans;
4. Get the stakeholders actively involved and committed to adopt the plan;
5. Set-up monitoring processes.

At the sametime a state of the art review and good practice elicitation provided the baseline knowledge platform to ultimately define a suitable set of push and pull measures for an efficient and energy saving UFT, feeding the development of a complete database of 45 push and pull freight transport demand-oriented measures, namely the Push and Pull Measures Database. The outcomes of state of the art review, good practices elicitation as well as Local Round Tables were the input for the development of the C-LIEGE framework for freight transport...
3. Applied approach and methodology

demand management and planning through an integrated and multidisciplinary vision: the C-LIEGE Toolbox for the establishment of a City Logistics Manager and the Guideline for development of an Urban Freight Mobility Plan.

The novel set of integrated solutions and “push-and-pull” demand-oriented measures were tested and shared in roadmaps for the implementation in European cities. Seven pilot experiments in six European countries have ensured the applicability of the C-LIEGE approach: Bulgaria, Italy, Poland, United Kingdom, Germany and Malta. C-LIEGE followed a well-tested approach in selecting the seven pilot sites. A dedicated report for the pilot design was produced which provided guidance on the design and implementation of the C-LIEGE pilot cases. Three measures to be implemented in the pilot cities deserve special treatment in the pilot methodology, namely creating a Local Freight Quality Partnership (LFQP), developing a Local Freight Development Plan (LFDP) as well as appointing City Logistics Manager (CLM). Pilot soft measures were finally selected to properly fit local problems, characteristics and ambitions in the pilot cases, according with local joint strategy exercise.

The final evaluation included the last step to assess the likely impacts of the C-LIEGE pilot measures with respect to their implementation within the project phase and beyond. Monitor the implementation of the pilot measures and evaluation of their impacts were the main assessment activities performed during the course of the pilots roll out.

The C-LIEGE impact evaluation consisted of three main components:

► an impact chain analysis;
► a comparison with reference projects (where available) and/or initiatives implementing similar urban freight transport measures;

Figure 3: Main components of the C-LIEGE evaluation system

- a scenario-based impact assessment (including ex-ante evaluation).

A multi-stage impact chain analysis was conducted in order to better focus the impact assessment and tailor it to the specific nature of the soft (push and pull) measures that was implemented in the C-LIEGE pilot cities. The aim was to identify and analyze the causal chain of events (or pathway) all the way from a specific measure or implementation activity via intermediate steps to direct outputs created by the measure up to the indirect outcomes.

The second component of the C-LIEGE evaluation framework (comparison with reference projects) was to use comparisons with selected reference projects/cities where innovative soft measures, similar to the ones tested in the pilot cities, were already implemented.

The third and final component of the evaluation framework was to the scenario-based impact assessment. Scenarios are commonly used to explore future developments on the premise of certain pre-defined assumptions. The preceding impact chain analysis and
comparison with reference projects served to establish the logical and empirical interrelations between key elements of the model underlying the scenarios developed in the C-LIEGE project.

Two main scenarios were analysed as follows:
- the “do nothing scenario” or business as usual scenario which assumes that general framework conditions and urban freight transport in the pilot cities do not fundamentally change – in particular that no C-LIEGE soft measures are implemented;
- the “C-LIEGE scenario” which assumes that the soft measures selected by the pilot cities are fully implemented and will have an effect upon UFT demand in the pilot cities.

The final evaluation was also based on monitoring the local processes of pilot implementation and identified key drivers and barriers which will ultimately be considered in the project’s lessons learned as part of the evaluation results. These insights are especially important for the transferability of project results.

Monitoring forms were used with separate for documenting and discussing implementation processes and quantifiable impacts. The overall design of the monitoring system consisted of three interrelated components, namely institutional process mapping, progress monitoring and conventional input/output/impact monitoring. The monitoring exercise was a dynamic process that evolved throughout the pilot implementation phase to include new and/or more fine-tuned monitoring elements.

An essential element of the C-LIEGE project was to draw up Local Freight Development Plans (LFDPs) in the pilot cities. These Plans are essential tools to guide the work of local Freight Quality Partnerships (FQPs) and the selection of integrated pilot soft measures. LFDPs set out goals to be achieved (based on the analysis of problems identified) in the respective pilot city as well as demand-oriented measures necessary to meet those goals.

A methodological approach was followed to ensure the development of LFDPs in a structured and harmonized way reflecting the local needs and constraints of each pilot city. All the LFDPs followed a logical approach of identifying transport-related problems affecting urban freight in the respective pilot areas as well as outlining solutions based on suitable package of soft measures, arising out of consultation with the relevant local stakeholders.

The majority of the measures outlined in the LFDPs were drawn from the C-LIEGE toolbox. In some cases, the soft measures delivered or proposed involved a combination of the C-LIEGE toolbox solutions or a modified version of the toolbox measures to meet local needs.

All the aforementioned results achieved in the C-LIEGE pilot sites allowed to undertake an assessment of transferability and finally propose a framework supporting the adoption of urban logistic processes in new settings. The exercise of transferability is all about looking properly at the enablers (success drivers) and the conditioning barriers affecting the adoption of measures. Transferability plan for local governments on energy saving and sustainable demand management in UFT sector was produced which establishes the conditions to facilitate the transfer of good practices (including the successful C-LIEGE pilot measures) from one context to the others. The transferability process was applied to the pilot sites and the roundtables were conducted so that it was possible to apply the process itself.

Action plan for energy saving and sustainable demand management was defined at the final stage of the C-LIEGE project which provides a clear presentation of
the policy implications of the C-LIEGE project, through the establishment of prioritized actions as well as their evaluation in terms of policy implications. The results of the Action Plan are intended to provide a fundamental input for the energy efficiency dimension of urban logistics actions as foreseen in the Urban Mobility Action Plan and 2011 Transport White Paper, looking for the long-term impact of the C-LIEGE project’s findings across Europe.

3.3 The C-LIEGE supporting tools and solutions

The implementation on the local level is supported by newly developed C-LIEGE tools:

- Stakeholder Engagement Manual,
- UFT Good Practice Database,
- Push and Pull Measures Database,
- Guideline for development of an Urban Freight Mobility Plan,
- C-LIEGE Toolbox for the establishment of a City Logistics Manager (CLM).

All the C-LIEGE tools listed above are available on www.c-liege.eu.

The C-LIEGE project developed the Stakeholder Engagement Manual which provides methodology on how to involve all different types of stakeholders throughout the planning process, addressing their specific requirements. Stakeholder involvement supports the development of a more effective and cost-efficient plans. A dedicated strategy is required for the involvement of stakeholders, drawing on different formats and techniques, when dealing with authorities, private businesses, civil society organisations as well as all of them together.

The C-LIEGE project developed a database containing the good practices on UFT identified in the C-LIEGE pilot sites, the European good practices identified by the state of the art integration as well as the ones presented in the plenary knowledge sharing workshops. A structured and manageable repository of the good practices identified was developed namely the UFT Good Practice Database. It was developed in Microsoft EXCEL, in order to obtain a directly usable, easily compatible and sustainable database, which has high quality multimedia applications allowing for an easy integration in computers that operate any of the usual software programmes (Windows, Mac OS, Linux). This database contains a list of projects and good practices applications, catalogued according to the good practice typology. It is an informative supporting tool for stakeholders of the UFT sector.

The main benefits are: delivers on-demand access to valuable performance benchmarks and good practice research findings from relevant applications at EU cities;

![Figure 7: UFT Good Practices Database (GP Directory Soft Measures)](image)

<table>
<thead>
<tr>
<th>GP Number</th>
<th>Project / Good Practice</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>PROJECT START: Promote and facilitate the efficient, economic, safe and sustainable distribution of freight-Bristol, UK</td>
</tr>
<tr>
<td>2</td>
<td>PROJECT START: Increasing load factors and the usage of cleaner vehicles to reduce van/truck pollution and traffic congestion-Ravenna, Italy</td>
</tr>
<tr>
<td>3</td>
<td>PROJECT START: Short Term Actions to Reorganise Transport of goods- Ljubljana</td>
</tr>
<tr>
<td>4</td>
<td>PROJECT CIVITAS SMILE: Priority access for clean goods vehicles- Norwich, UK</td>
</tr>
<tr>
<td>5</td>
<td>PROJECT CIVITAS MODERN: Urban Freight Logistics-Vitoria-Gasteiz, Spain</td>
</tr>
<tr>
<td>6</td>
<td>PROJECT CIVITAS MODERN: Freight Distribution-Brescia, Italy</td>
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<tr>
<td>7</td>
<td>PROJECT CIVITAS ELAN: Freight Delivery Restrictions-Zagreb, Croatia</td>
</tr>
<tr>
<td>8</td>
<td>PROJECT Sustainable Freight Distribution in a Historic Urban Centre (Pilot Transport Research Programme)</td>
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<tr>
<td>9</td>
<td>PILOT SITE: Parma-Regulation</td>
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<td>10</td>
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<tr>
<td>11</td>
<td>PROJECT CIVITAS MIMOSA: Marking Routes for Smooth Freight and City Logistics-Tallinn, Estonia</td>
</tr>
<tr>
<td>12</td>
<td>PROJECT CIVITAS SUCCESS: Freight Partnership, Planning and Routing-Ploiesti, Romania</td>
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<tr>
<td>13</td>
<td>PROJECT INTERACTION</td>
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<tr>
<td>14</td>
<td>PROJECT Urban Truck Navigation System</td>
</tr>
<tr>
<td>15</td>
<td>PILOT SITE: Leicester - Restriction of UFT Routes</td>
</tr>
<tr>
<td>16</td>
<td>PILOT SITE:Individual destination maps</td>
</tr>
<tr>
<td>17</td>
<td>PILOT SITE: Stuttgart-Truck Routing Concept &quot;Filder&quot;</td>
</tr>
<tr>
<td>18</td>
<td>PROJECT CIVITAS TRENDSETTER: Extending the Environmental Zone-Praha, Czech Republic</td>
</tr>
<tr>
<td>19</td>
<td>PROJECT CIVITAS ARCHIMEDES:Environmental zone-Aalborg, Denmark</td>
</tr>
<tr>
<td>20</td>
<td>PROJECT CIVITAS CARAVEL: Creating a new goods distribution scheme-Burgos, Spain</td>
</tr>
<tr>
<td>21</td>
<td>PROJECT TURBLOG Four measures: Low Emission Zone-Utrecht, Netherlands</td>
</tr>
<tr>
<td>22</td>
<td>PROJECT CIVITAS SUCCESS: Strategic extension of city logistics-La Rochelle, France</td>
</tr>
<tr>
<td>23</td>
<td>PROJECT CIVITAS MIMOSA: Urban Freight Delivery Plan-Bologna, Italy</td>
</tr>
</tbody>
</table>
coverage of most types of good practices including both soft and hard measures; informative and knowledge supporting tool for relevant stakeholders.

The C-LIEGE project also defined a suitable set of actions/measures to encourage more efficient and energy saving methods of organizing freight transport and delivery in urban areas. The Push and Pull Measures Database was developed which provides 45 push and pull freight transport demand-oriented measures, based upon the C-LIEGE analysis of UFT good practices around Europe, with advice from the Tyne and Wear Freight Partnership.

“Push” measures are the ones imposed to freight operators with the purpose of influencing delivery and/or operational practices. “Pull” measures are designed to encourage more sustainable and energy-efficient UFT by offering added-value services, facilities or incentives to operators and/or shippers. “Push-and-pull” measures involve a combination of the above two types, aimed at providing incentives for good practices, whilst simultaneously using fiscal or technical disincentives to deter bad ones.

This database sets out for each measure: type of measure, key stakeholders, expected impacts, timescale, possible barriers, transferability, etc.

The main benefits are: offer a range of measures potentially applicable to areas with different characteristics for a better managing of freight movements; providing

Figure 8: The C-LIEGE Toolbox (push and pull measures)
empirical evidence of success demand-oriented measures; providing practitioners with an ad-hoc supporting tool.

A guideline document for local authorities for the development of urban freight mobility plans, as a component of their Local Transport Plans, was produced. The Guideline for development of an Urban Freight Mobility Plan was successful tested in pilot experiments supporting the C-LIEGE pilot cities in drawing up of Local Freight Development Plans (LFDPs). This guideline documents aims to assist local authorities in developing and implementing an effective and successful Freight Strategy as a component of their Local Transport Plan in order to achieve balancing between efficiency of freight, save energy as well as minimising transport externalities.

3.4 The C-LIEGE Toolbox: functions and roles of the City Logistics Manager

The C-LIEGE Toolbox is a decision support tool for Local Authorities to plan, implement and monitor appropriate push and pull measures aimed at integrated and energy-efficient freight transport demand management and planning in urban areas. By planning and implementing appropriate measures such as access restrictions, optimization of routes, operators recognition schemes or incentives, Local Authorities can influence last mile delivery to achieve cleaner, more cost-effective and more energy efficient freight transport in cities.

The C-LIEGE Toolbox includes a total of 45 measures, out of which 8 are “push” measures, 30 are “pull” measures, and 7 are both “push and pull”.

The C-LIEGE Toolbox provides a support tool to define and establish the functions and roles of a new figure who can help coordinate effective and integrated UFT demand management and planning, namely the City Logistics Manager (CLM).

The establishment of the CLM represents an important step towards delivering a new strategy for integrated passenger and freight transport in cities, supporting the EU’s promotion of the decarbonisation of European cities and regions, to meet 2020 targets.

The C-LIEGE project filled the existing gap in know-how and professionalism in the UFT domain by designing, fine tuning and delivering the complimentary capabilities of CLM. For the first time in Europe, the well-known Mobility Manager role can now be complemented with the CLM.

The CLM must have an expanded range of skills with respect to national standards that are already enforced for the figure of Mobility Manager.

The profile of the CLM should match with the need to communicate with the diverse groups that are involved in the UFT: freight carriers, engineers, environmental and traffic technicians, elected officials, retailers as well as the public. CLM’s role, main functions and tasks are in-depth described which includes the relevant “workflow” to the development of energy-efficient UFT governance models, integrated with the overall urban mobility.

The role of the CLM is to manage freight transport demand in urban areas through:

- classification and analysis of the situation charactering urban context;
- discussion and sharing with key local actors (e.g. trade associations, transport operators, traders, retailers, etc.) and institutions (e.g. Province, Region, etc.);
definition of shared intervention strategies to apply to the surveyed urban context;
preliminary, definitive and executive planning of the UFT model;
monitoring and impacts evaluating of the planned and implemented UFT model.

An ad-hoc training process addressed to educate this novel processional is also provided.

The establishment of the CLM in cities represents the most important intermediate step towards new ideas for policy approach and strategy for joint passenger/freight transport in the urban environment, which represents one of the main drivers of the C-LIEGE project.

All the C-LIEGE pilot sites successful established their CLM, filling the existing gap in either know-how and professionalism in the UFT domain by delivering its complimentary capability.

4. Results, findings and impacts achieved

4.1 The C-LIEGE showcases: implementation and evaluating C-LIEGE approach

Seven pilot experiments in six European countries have assessed the effectiveness of the C-LIEGE approach: Bulgaria, Italy, Poland, United Kingdom, Germany and Malta.

Under the supervision of Newcastle-upon-Tyne, C-LIEGE pilot sites have introduced a varied and wide range of soft measures aimed at reducing the impacts of UFT. These range from a Fleet Operator Recognition Scheme (FORS) in Newcastle (UK) to the introduction of access restrictions for heavier freight vehicles in Montana (Bulgaria), from new freight mapping in Leicester (UK), accessible via smart phone, to re-routing measures in Stuttgart (Germany) as well as Hal-Tarxien (Malta), up to the establishment of FQPs as well as drawing up of LFDP in all the pilot cities. The C-LIEGE cities also established functions and role of the CLM.

The range of push and pull measures delivered in the C-LIEGE pilot cities, based upon the C-LIEGE toolbox, are summarized in the below table.

Considering the overall objective of the C-LIEGE project, this pilot exercise sets a very good example of implementation of promising and effective measures targeting freight traffic pollution across Europe. The documentation of challenges encountered, strong points and proposed solutions for common freight issues provides the foundations for a comprehensive guide to successful and tailored implementation of the C-LIEGE demand-oriented measures.

The results and success factors achieved in the pilot cities clearly speak in favour of adopting freight transport soft measures in other cities than the ones involved in the C-LIEGE project.

Newcastle (United Kingdom)

Introduction
The city of Newcastle-upon-Tyne is situated in North East England on the River Tyne. With a population of approximately 250,000 and 112 km² it is one of the five metropolitan boroughs making up Tyne and Wear. Often described as the capital of the North East region, Newcastle is a major city with a range of ambitious regeneration plans, of which transport plays a key part. Newcastle is currently the 20th most populous city in the United Kingdom.

Measures
- Fleet Operators Recognition Scheme (FORS)
- Freight Map for appropriate routes and vehicular restrictions
- Urban Traffic Management Control Centre for traffic announcements
- Multi-Modal Carbon Calculator
- Rail Freight Partner Group
- Information campaign to reduce accidents
4. Results, findings and impacts achieved

**Figure 12: The pilot soft measures implemented in the C-LIEGE sites**

<table>
<thead>
<tr>
<th>C-LIEGE-Pilots</th>
<th>Measures for Clean Urban Freight Transport</th>
</tr>
</thead>
<tbody>
<tr>
<td>Montana</td>
<td>Access restriction (related to the tonnage of the vehicles) + Introduction of differentiated access fees for loading/uploading + Web application for appropriate freight routes and vehicular restrictions + Local Freight Development Plan + Freight Quality Partnership + City Logistics Manager establishment</td>
</tr>
<tr>
<td>Szczecin</td>
<td>Development of loading/unloading bays + ITS application for re-routing + relocation of pack stations + Promotion campaigns for sustainable freight transport (including eco-driving promotion and assumptions for FORS) + Local Freight Development Plan + Freight Quality Partnership + City Logistics Manager establishment</td>
</tr>
<tr>
<td>Newcastle</td>
<td>Fleet Operators Recognition Scheme (FORS) + Development of mobile Freight map application + UTMC centre: traffic management and improvement for city of Newcastle + Rail Freight Partner Group + Multi-Modal Carbon Calculator + Information/education campaign to reduce accidents + City Logistics Manager established + Freight Quality Partnership</td>
</tr>
<tr>
<td>Stuttgart Region</td>
<td>Location analysis among neighboring municipalities for gas station for trucks – Mobility Master Plan + Electric goods delivery by shared van (city of Ludwigsburg) + Ad-hoc-routes for freight traffic (Stuttgart) + Local Freight Development Plan (city of Ludwigsburg) + Freight Quality Partnership (Stuttgart) + City Logistics Manager established</td>
</tr>
<tr>
<td>Hal Taxis</td>
<td>Re-routing transit light traffic during main unloading time of freight traffic + Allocation freight loading/unloading bays with time windows for freight traffic + Access restriction for heavy vehicles + Local Freight Development Plan + Freight Quality Partnership + City Logistics Manager establishment</td>
</tr>
<tr>
<td>Leicester</td>
<td>Downloadable Freight Map for appropriate routes and vehicular restrictions + Sign posting freight routes + Access restrictions for polluting vehicles (feasibility study into low emission zone for Leicester) + Web Promotion of Sustainable City Logistics + Eco Driver Training – Greener Safer Driver Training for Businesses + Freight Quality Partnership + City Logistics Manager established</td>
</tr>
<tr>
<td>Emilia-Romagna Region</td>
<td>Time window restrictions + Access restrictions for polluting freight vehicles + Local Freight Development Plan + Freight Quality Partnership + City Logistics Manager establishment</td>
</tr>
</tbody>
</table>

**Figure 13: Newcastle land-use distribution in core city (left) and large urban zone (right)**
(source: own illustration based on Urban Atlas 2006)
Figure 14: FORS certificate of the scheme in Newcastle (UK)
4. Results, findings and impacts achieved

Objectives
The objectives are to promote safe and sustainable freight movement through Newcastle and the wider Tyne and Wear area – with particular emphasis on accurate information (Online Freight Mapping, Urban Traffic Management Control Centre), raising operating standards (FORS) and promoting modal shift (Rail Partner Group, Multi-modal Carbon Calculator).

Results
Newcastle provides a fine example of efficient implementation of the pilot measures with a number of lessons learned. It is expected that any city wishing to adapt the C-LIEGE measures implemented in Newcastle thanks to this experience. In terms of reaching quantified targets, Newcastle has shown significant evidence for environmental efficiency.

Barriers and drivers
The main barrier is the need to identify funding to introduce measures in a challenging fiscal environment, especially as many measures (e.g. FORS) take time to have a significant effect and require a funding commitment over a number of years. The most important drivers are the wish to reduce the adverse impacts of freight movements by raising operating standards, encouraging drivers to use the most appropriate routes and change behaviour.

Leicester (United Kingdom)

Introduction
The city of Leicester is situated in the East Midlands region of England at the River Soar. With a population of approximately 330,000 and 72 km² it is the largest...
city in the East Midlands, both – population-wise and area-wise. It is the county seat of Leicestershire which is the commercial and manufacturing centre of the East Midlands.

**Measures**
- Freight map for appropriate routes and vehicular restrictions
- Sign posting freight routes to industrial estates
- Establishment of an environmental zone
- Web Promotion of sustainable City Logistics
- Eco Driver Training
- Freight Quality Partnership (FQP) – reactivation

**Objectives**
A recent report confirmed that Leicester is one of the tenth most congested cities in the UK. All of the measures aim to tackle congestion, air pollution, carbon emissions and economic needs. The selected measures were highlighted as priorities in the Local Transport Plan.

**Results**
The implementation of C-LIEGE soft measures in Leicester has been performed well throughout the experiment. It is expected that the measures will be fully operational at the end of the year, since funding has been secured.

**Barriers and drivers**
The Local Authority has responsibility for the road network in the city (Highways Agency for national routes) thereby any changes need to go through a political decision making process. This takes a lot of time and requires a lot of preparation. As budgets are often agreed a year in advance, it is difficult to get spending approval for any new initiatives within a running year. Due to the strong political commitment for regeneration including rejuvenating the economy, the work improving freight flow is seen as a positive. The funding from the National Government allowed to perform the Low Emission Zone study. Regular meetings and good communication helped to keep freight on the agendas. The strong commitment to cross party working and to freight issues from senior figures was helpful to attract and motivate people to participate. Partnership working helped to share soft measures in a successful manner.

**Montana (Bulgaria)**

**Introduction**
Montana is situated in Bulgaria and has a population of roughly 43,000 inhabitants. European Corridor 4 (E79) crosses along Montana Municipality and passes through Montana city. Montana city is located 50 km away from the European Corridor 7 (Danube river). The distance between Montana and the second Danube Bridge at Vidin-Calafat, which will provide road access and rail links with the EU is 100 km. The bridge construction will be completed in September 2012. The distance to the nearest international airport is 120 km.

**Measures**
- Freight Quality Partnership (FQP)
- Differentiated fees for loading/unloading and time windows restrictions
- Freight map for appropriate routes
- Local Freight Development Plan (LFDP)

**Objectives**
Fees for freight movements in Montana’s city centre have been significantly raised particularly for vehicles manufactured before 2000, and operating during the day. This push measure is legally binding since March 2013 after approval of the Municipal Council, and is
governed by 2 municipal ordinances. The charging and restricting scheme has been introduced in order to encourage night deliveries, shared logistics services and the use of newer delivery vehicles. In addition, a freight route map indicating vehicular restrictions has been designed, and printed on the flipside of the access permits for logistic operations in the city centre which are granted to freight companies in compliance with the charging and restricting scheme. The goal of the map is to streamline new patterns of efficient logistic operations after the introduction of new freight traffic regulations.

Results

The overall experience of the pilot phase in Montana shows considerable success.

Barriers and drivers

The Municipal Council was initially opposed to the introduction of the new financial schemes. The sound argument of the local consensus building actions with the private sector as well as the support by the City Mayor led to the approval by the Council. For the financial implementation of the map, the Municipality identified pragmatic synergies with the charging and

Figure 18: Land-use structure of Montana

Figure 19: Results in Montana, 2013

-11.9 % -11.9 % -7.7 %
restricting scheme. The expenses for print production was covered by payments ensuing from the access applications. The presence of media and stakeholders during the local round tables significantly contributed to surmounting the low concertation culture in Montana.

**Szczecin (Poland)**

**Introduction**

Szczecin is the capital city of the West Pomeranian Region and is situated along the Oder River close to the Baltic Sea coast. It is the seventh-largest city of Poland with a population of more than 400,000 and one of its major seaports. Szczecin is one of the oldest and biggest Polish cities. The city has developed in an arc around the port and waterside areas. The historic city centre has developed a series of lower density residential areas in recent years, around denser inner districts of apartment blocks.

**Measures**

- Freight Quality Partnership (FQP)
- Local Freight Development Plan (LFDP)
- Development of loading/unloading slots
- Relocation of packstations
- ITS application for re-routing
- Promotion campaigns for sustainable freight transport

**Objectives**

The major objectives for integrated measures are the optimization of the routes and improvement of the deliveries in the pilot area (city centre) of Szczecin.

**Results**

Szczecin served as very interesting case study for the selected C-LIEGE measures. The evidence from the first experiments clearly shows the great potential in the soft measures.

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*calculated by MUS without the distances and effects of the assumed detour trips avoiding the bridges (15% of all trips)
4. Results, findings and impacts achieved

Barriers and drivers
The most important barriers are organizational problems, financial resources, legislative problems, involvement of the private stakeholders, heterogeneously structure of UFT stakeholders, fragmentation of deliveries, insufficient utilization of alternatively powered vehicles, insufficient knowledge regarding environmental friendly transport and sustainable development. These problems and barriers should be solved by cooperation in a FQPs which helps to share the knowledge as well as will make possible to establish objectives and tasks based on compromise between the different expectations of all stakeholders groups.

Stuttgart/Ludwigsburg (Germany)

Introduction
Stuttgart is the capital city of Baden-Württemberg and has a population of 600,000 rendering it the sixth-largest city in Germany. It is situated in a densely populated area, the Stuttgart region, is economically and population wise the core of the region. Stuttgart Region, covering the area of Stuttgart plus the area of five ad-joining counties, has about 2.6 million inhabitants on 3.500 km2.

Measures
► Freight Quality Partnership (FQP)
► Local Freight Development Plan (LFDP)
► Electric vehicle goods delivery - Van sharing
► Planning of optimum location of new lorry refueling station
► Ad-hoc routes for freight traffic

Objectives
There is a strategic objective to prevent serious congestion. Besides the shift from private cars to public transport in passenger traffic, goods transport also has to
4. Results, findings and impacts achieved

contribute to that goal. This is to be combined with environmentally-friendly solutions. With inner Stuttgart in a narrow valley, there is a special emphasis on the last mile. As for Ludwigsburg, there is also a general interest to promote electromobility.

Barriers and drivers
Generally, beyond financial barriers, the main problem is the diversity of logistics chains which is not obvious when just seeing transport problems. This makes it difficult to promote measures in a way that they can be operationally handled in a city. There must be a driver behind the FQP who, with the backing of some key actors, prepares topics that can turn into UFT measures. In medium to long term this can only be the City Logistics Manager. Another key factor will be that the FQP must not develop into one commercial logistics consortium but must work on projects which are open and of interest even for competing companies.

Emilia-Romagna region/Piacenza (Italy)

Introduction
Emilia-Romagna region is a wide territorial context with more than 4.3 million inhabitants, 400,000 active companies, settled in nine Provinces and in 348 Municipalities. Emilia-Romagna region, includes all the main municipalities (among which Piacenza, Parma, Reggio Emilia, Modena, Bologna, Ferrara, Ravenna, Forlì, Cesena, Rimini). Due to a strong urban sprawl, from a city logistics perspective Emilia-Romagna is characterized by a territorial continuity of the urban...
settlements, which brings logistics challenges to the regional policies.

**Measures**
- Regional harmonization of UFT regulations in respect of time windows
- Regional harmonization of UFT regulations in respect of access restrictions for polluting freight vehicles
- Local Freight Development Plan (LFDP)
- Freight Quality Partnership (FQP)

**Objectives**
The objective was the development of harmonized city logistics regulations by the cooperation between the Emilia-Romagna Regional and the Local Governments. Starting from a very diversified status quo in the different regional Municipalities, the objective was the development of a minimum regional set of harmonized rules on time windows and access permissions to Limited Traffic Zones (LTZs) in the different Municipalities, by integrating different types of C-LIEGE demand-oriented measures concerning governance aspects. The aim was to simplify city logistics regulations with a joint regional minimum common denominator favouring those operators investing in more efficient and less polluting fleets.

**Results**
Emilia-Romagna region served as an excellent unique example within the C-LIEGE initiative, highlighting the way of transferring C-LIEGE measures to areas significantly larger than cities. Starting from different histories on city logistics in its municipalities, the pilot in Emilia Romagna developed a regional set of harmonized rules on time windows and access permissions to Limited Traffic Zones in cities of the region. The consistency with the national and regional plans in similar initiatives and actions is the key to ensure best possible results.

**Barriers and drivers**
The main barriers concerned the very diversified status of city logistics regulations in the different cities, as well as the wide territorial scope (12 Municipalities) of the pilot activities, which required significant governance and cooperation efforts. The main drivers were the technical soundness of the C-LIEGE performed work in terms of detailed analysis of the single Municipalities rules and constraints, a governance work and the strong driving force of Emilia-Romagna Region in guiding the reaching of an agreement on a minimum set of harmonized rules.

**Hal-Tarxien (Malta)**

**Introduction**
Hal-Tarxien is a small village in the south east of Malta. Hal-Tarxien is one of the oldest inhabited villages. The existence of this neighbourhood accounts for about 4,000 years of local history. It is considered to be a main city by scholars of Archaeology. The population of Hal-Tarxien today accounts for 8,580 people.

**Measures**
- Freight Quality Partnership (FQP)
- Local Freight Development Plan (LFDP)
- Allocation of additional freight parking spaces
- Re-routing of freight traffic
4. Results, findings and impacts achieved

**Objectives**
The overall aim is to define sustainable freight transport practices and measures for Hal-Tarxien to reach three main goals as follows: better freight transport management, a safer and cleaner environment and auxiliary measures for public and private transports services. The FQP wants to present itself as an example to other communities encouraging other towns to adopt a similar partnership. The FQP will induce a change on transport mentality.

**Barriers and drivers**
- Refusal by Transport Malta (Maltese Transport Authority) of first measure proposal; impracticality of having the unloading bays due to width of the road.
- Transport Malta authorised the measure for limited access to heavy goods vehicles for trial period. This measure will be discussed further on submission of final report.
- Ministry of Transport is interested in the measures and indicated interest in results.
- When dealing with national authorities, although proposals might initially be rejected, discussion and flexibility from all sides will lead to a compromise.
- The importance of stakeholders engagement, keeping them involved at all stages.

![Figure 27: Impact of the measure mix in Hal Tarxien (freight parking spaces and re-routing of freight traffic in 2013)](image)

![Figure 28: Limited access for trucks (re-routing of freight traffic in Hal Tarxien)](image)
4. Results, findings and impacts achieved

4.2 Stakeholders involvement, local concertation and Freight Quality Partnerships

A central key element of the C-LIEGE project was the Local Round Table approach. It brought together stakeholders and key actors from different categories (public institutions, business associations, private actors and other institutions).

The C-LIEGE Local Round Tables developed a common understanding of UFT issues, problems and needs, among all stakeholders of each pilot case. Those common issues promoted the definition of common objectives towards efficiency, environmental and social concerns as well as the selection of soft measures finally implemented in each pilot city.

The involvement of target groups in the Local Round Tables organized in each pilot city was mainly aimed at shaping the local and regional strategy towards urban freight transport, debating and selecting most promising soft measures towards a more sustainable UFT.

Local Authorities are becoming more actively involved in coordinating conflicts among residents, retailers and freight carriers. By engaging relevant stakeholders, Local Authorities in the pilot cities identified problems perceived by those related to freight delivery, elaborate appropriate policies to solve such problems and select effective demand-oriented measures.

The summary of the Local Round Tables held in the C-LIEGE project is provided below.

Emilia-Romagna region and Stuttgart region also held a 5th Round table within the project.

C-LIEGE showed as the overall objective of improving UFT can be reached when Local Authorities set-up and coordinate a Permanent Concertation Table (Local Round Tables).

Starting from members of the Permanent Concertation Table, Public Authority promotes a medium-long term agreement among the relevant parties, namely FQP. The
pilots results and relevant European experiences confirm
the usefulness of formalizing such agreements.

One success story of the C-LIEGE project was the set-
up and establishment of the FQP in the pilot sites of
Montana, Emilia-Romagna, Hal-Tarxien, Szczecin,
Stuttgart as well as the re-activation of the FQP in
Leicester. FQPs bring together public and private stake-
holders in order to jointly advance common issues and
joint projects in the UFT sector.

4.3 Transferability and policy recommendations on
energy saving UFT

An assessment of the transferability and relevant frame-
work supporting the adoption of urban logistics proc-
esses in new settings was defined in C-LIEGE, namely
Transferability plan for local governments on energy
saving and sustainable demand management in UFT
sector. The exercise of transferability is all about looking
properly at the enablers (success drivers) and the con-
ditioning barriers affecting the adoption of demand-
oriented measures.

Whilst there is plenty of information available on dif-
ferent soft measures used in many cities as shown in
C-LIEGE databases and toolbox, in most EU studies less
attention is given to the methodological approach for
the successful transfer of these measures. In the real
world what can be observed is the implementation of
measures is usually imported from elsewhere where
they were part of a successful case, often without a
careful assessment of the appropriate transferability
conditions, thus ending up as failures. The most prom-
ising way to follow a transferability process is a step by
step procedure at the local level, with clear milestones.
There is never a single optimal solution. The success
of a number of individual measures depends on sev-
eral different and specific conditions. This means that
the transferability analysis of an individual measure
might be insufficient for a city that wishes to assess
its own situation. One has to look for a combination
of measures that is specifically aimed at achieving the
desired result such as reduce the problems identified
in the analysis.

The transferability approach is constructed around a
“10 step process” as presented in figure 30.

Figure 30: Conceptual diagram of an impact chain

TRANSFERABILITY: ... as the ability to transfer/adopt in a given city successful measures previously adopted
elsewhere, and achieve comparable results...
This approach can be seen as a “lessons learning” approach to minimize the risk of implementing in the same manner a measure (or package of measures) that needs certain conditions to be applied in a successful way, so that it achieves the same good results.

Conducting the meetings and guiding all stakeholders through a step by step approach in order to evaluate an urban area in terms of urban freight policy and solutions, a city should gather a specific amount of information that will enable the understanding of the city context through a “screening” process. This consists in the first four steps of the transferability methodology. The remaining six steps correspond to the transferability process itself. Measures are quite different in what their impact is concerned.

The C-LIEGE Action Plan to improve energy efficiency of urban freight transport in EU Member States was developed. It provides a clear presentation of the policy implications of the C-LIEGE project, through the establishment of prioritised actions and their evaluation in terms of policy implications. Throughout this document an overall consolidation of the roles and actions that could be undertaken at each government level is provided. In particular this aims for a clear identification of the actions that could be undertaken at the EU level to facilitate and promote energy efficiency on UFT, having in mind the constraints derived from the limited role of EU on urban level. The results of this Action Plan are intended to provide an overall consolidation of the roles and actions that could be undertaken at each government level (Local, National and EU) to promote and enhance UFT energy efficiency and sustainability.

The five principles of the C-LIEGE Charter are:
1. Co-operation: the urban freight transport management is guided by the principle of continuous consensus building between public and private stakeholders achieved through a Freight Quality Partnership.
2. Integration: C-LIEGE has proved the effectiveness of combining various push and pull measures into an integrative soft policy mix.
3. Systematisation: Local Freight Development Plans ensure a systematic process of envisioning desired goals and applying a sequence of necessary steps and measures to achieve these goals.
4. Institutionalisation: the introduction of City Logistics Manager ensures an effective coordination, implementation, monitoring, assessment and improvement of measures for sustainable urban freight transport.
5. Proliferation: C-LIEGE is free and transferable, and the Charter is open for every interested local administration in Europe.

A political statement, namely the “C-LIEGE Charter for sustainable urban transport”, encouraging local authorities and private stakeholders to share C-LIEGE common goals and principles of was signed by 35 cities. These statements reinforce the commitment of European cities in relation to the C-LIEGE actions and policies, encouraging the European Commission to act at this level, namely promoting the role of CLM and soft measures towards energy efficiency.

The C-LIEGE Charter subscribers confirm that the city/region/association that they represent shares the following three common goals:

1. looks forward to implement future actions and policies - based upon the results of C-LIEGE project co-funded by the Intelligent Energy Europe (IEE) Programme - that will contribute to an energy-efficient urban freight transport through a cooperative public-private approach;
2. looks forward to promote and support the introduction of the City Logistics Manager (CLM) to properly manage and contribute to the definition of targets, measures and solutions for an effective urban freight transport management and planning that benefits all parties;
3. looks forward to setting up planning and future implementation of specific urban freight transport demand-oriented measures, based upon the C-LIEGE measures portfolio, to facilitate and promote energy efficiency of urban freight transport in the city.

The Local Round Table process in each pilot city provided the background for local communication actions which were deeply implemented in each C-LIEGE city.

The overall communication plan proved to be fit for the reality test. All interlinked strategies and implemented...
4. Results, findings and impacts achieved

actions produced the expected results. The C-LIEGE project was presented in many international and national events across Europe such as the Annual POLIS Conference 2012 (Italy), the Euromobility Conference (Italy), the TRAILBLAZER Final Conference (Czech Republic), World Conference on Transport Research (WCTR) 2013, etc.

Two main C-LIEGE public workshops were held as follows:
- the Mid-Term Workshop (Newcastle, October 2012);
- the Final event (Brussels, November 2013).

The C-LIEGE Mid-Term Workshop
Stakeholders and UFT experts from Europe were invited and over 50 participants shared the C-LIEGE results and experiences. The presentations of the C-LIEGE solutions and results clearly documented that the project offers cities and regions striving for cleaner UFT a strong and comprehensive “helpful hand”. The discussions in four parallel groups confirmed the value of the support tools among stakeholders and experts. The panel discussion of political representatives from the C-LIEGE pilot cities demonstrated the need for cooperative actions.

The C-LIEGE Final Workshop
The final workshop was a public event with the objective to disseminate the C-LIEGE final results to other European cities and stakeholders. The event was effective in carrying the C-LIEGE “helping hand” message to new cities and regions. An overall scientific impact assessment highlighted the success in all C-LIEGE pilot cities, based upon tailored packages of demand-oriented measures as well as the establishment of CLM’s functions.
Administrations can importantly influence freight delivery tendencies and outcomes, pushing all relevant stakeholders towards a more sustainable, green, safe and energy efficient UFT. Cohesion and synergy between projects funded under the same European programme (IEE STEER) has been extremely important and essential. C-LIEGE invited other complementary projects: TRAILBLAZER and ENCLOSE. An extremely valuable session with pilot site stakeholders closed the event. Public and private sector representatives were invited for a round table discussion answering tailor-made questions and drawing conclusions.

5. Conclusions and recommendations

Whilst all places are unique, there are clearly a number of common issues and challenges affecting urban goods transport throughout Europe. This means that the experience gained through C-LIEGE can benefit a wide range of municipalities in old and new Member States. Based on the pilot measure experiences key factors have been identified for successful UFT management and planning. They are summarised below as overall recommendations.

Local embedding of new measures and functions

A thorough assessment of existing institutions’ functions, strengths, weaknesses and potential needs to be conducted in order to determine if and where a new measure could best be embedded institutionally – or whether a new institution (like a FQP) needs to be created. Local embedding is crucial for soft demand-oriented measures because they are often new and innovative and have a pronounced institutional component.

Clarifying linkages between key institutions and tools

The linkages between existing and new institutions and tools of soft urban freight measures need to be identified, clarified and possibly redefined. This regards especially the relations between LFDPs, FQPs and CLMs. The success of soft measure oriented institutions and tools depend to a large degree on the fact if these linkages have been addressed.

Early involvement of political and regulatory actors

In order to avoid rejections and delays stemming from political and regulatory institutions and decision-making processes it is suggested to invite and involve representatives from these institutions from early on. Thus reservations and stumbling blocks can be recognised and taken care of earlier. Furthermore, learning in both directions would be fostered, which is very important for novel solutions like the soft measures implemented in the pilot cities.

Nested system of local and regional urban freight transport cooperation

C-LIEGE showed how important local cooperation of urban freight stakeholders is for successful soft measures. But freight transport is of course not only or primarily shaped by local factors. Therefore regional cooperation needs to be pursued, which builds on local cooperation efforts in the cities but also shapes and strengthens the right overarching conditions for local transport policies (like the example of Emilia-Romagna showed).

Comprehensive and issue-specific cooperation

Parallel, interrelated platforms for a) overall, comprehensive problems and solutions and b) for issue-specific purposes or even measure-specific purposes need to be established in order to have efficient communication processes that avoid overburdening local stakeholders. But this also calls for more coordination to shuffle up (or down) the issues and results of the various groups and cooperative institutions.

Mentoring between cities

Mentoring relationships should be fostered between cities that are already experienced in a particular soft measure and those that are contemplating or starting to adopt it. Such mentoring encourages local initiators to move forward with a measure, provides a demonstrable example to convince other actors, provides benchmarks, proven procedures, templates and technical solutions that ensure efficient and effective implementation.

Data and monitoring of freight traffic

Developing tailor-made solutions to urban freight transport requires comprehensive and up-to-date freight traffic data. Ideally freight traffic surveying and monitoring should be a continuous or at least regular activity that is coordinated either by the municipality and CLM.
5. Conclusions and recommendations

Combining hard and soft measures

Soft measures and hard measures for improving local freight transport should not be seen as opposites or even competing. Hard measures, such as transport infrastructure investments, should go hand in hand with soft measures that support and valorise the hard measures. It needs to be ensured that both hard and soft measures are part of an overarching local transport policy, e.g. developed and implemented in the context of local freight development plans, freight quality partnerships or city logistics management.

Integration into commercial solutions

In order for certain innovative soft measures to have a greater effect it is necessary to move successful local innovations to supra-local and commercial levels. For example, innovative freight map solutions like the ones developed in Newcastle and Leicester should possibly be integrated or coupled with commercial satellite navigation systems that freight operators and freight vehicle drivers already use.

Dissemination and marketing are crucial

Most soft urban freight transport measures require persuasion and voluntary participation of freight operators and vehicle drivers. Thus, in order to be effective and really make a large-scale impact it is crucial to spend considerable time, effort and hence also money on dissemination and ‘marketing’ of these essentially non-coercive and non-profit services.

Short-term piloting

In order to convince local stakeholders and show the effectiveness of soft measures it should be explored whether and how short-term pilots can be implemented. Through such pilots valuable experiences (and monitoring data) can be built up, doubtful actors be persuaded by demonstrated effects and opportunities for optimisation or compromise be identified.

Emphasising benefits to freight operators and freight vehicle drivers

Since most soft measures are based on persuasion and voluntary uptake it is crucial that freight operators and vehicle drivers can see real, tangible benefits from a measure, i.e. how it saves them time, stress and/or costs in their day to day operation. Such benefits to the end user should always be emphasised – even when other motivations, e.g. environmental concerns are in fact more important to the initiators of a measure or the public at large.

Engaging all public sector organisations

Besides focussing on private users, it is important to engage all public sector organisations in taking up a particular freight transport soft measure. After all, the public sector is responsible for a significant share of the overall freight transport in a city. Soft measures can gain greater relevance and unfold greater effects if the public sector realises and uses its power as a significant freight market actor.

The results and success factors presented above clearly speak in favour of adopting freight transport soft measures in other cities across Europe. C-LIEGE pilot sites are to be congratulated for delivering a range of interesting pilot projects, despite resourcing challenges. The wide selection of measures implemented (including the CLM establishment) should ensure that all cities, from the largest to the smallest, can identify those that may be relevant to their local needs and can study the enablers and the barriers to each measure.
### How to contact C-LIEGE components managers

#### Urban Freight Transport Good Practices Database
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#### Stakeholder Engagement Manual
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#### C-LIEGE guideline for the development of urban freight mobility plans
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#### C-LIEGE push and pull measures database
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#### C-LIEGE Toolbox
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