SUSTAINABLE URBAN FREIGHT TRANSPORT MANAGEMENT – THE CHALLENGE FOR EUROPEAN CITIES

dr Stanisław Iwan
Wydział Inżynieryjno-Ekonomiczny Transportu
Akademia Morska w Szczecinie

Baltic Connectivity Conference
Szczecin
2013-08-28
Agenda

- Background and the future
- Influences of the urban freight transport on city environment
- The measures for the sustainable urban freight transport
- Examples of the solutions
- Example projects
At the beginning of the XXI century more than 46% of the European population lived in the cities.

It is estimated that till 2025 more than 75% of European population will be living in the cities.

Probably till 2050 this number will increase to 84%.

Source: World Bank data
Background and the future

The increasing of the cities population (source: World Bank data)
Background and the future

Cityscope can shed light on the evolution of the global economy at a granular level

Global population and GDP, 2007

<table>
<thead>
<tr>
<th>Rural areas</th>
<th>51</th>
<th>13</th>
<th>100% = 6.6 billion</th>
<th>$55.5 trillion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Small cities and</td>
<td>15</td>
<td>13</td>
<td></td>
<td></td>
</tr>
<tr>
<td>other urban areas</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other Cityscope</td>
<td>12</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(~1,400 cities)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>City 600</td>
<td>22</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Number of cities

Global GDP, 2007 (height of box)

Megacities

- 23

Middleweights

- 577

- Developed: 7
- Developing: 16

- Developed: 170
- Developing: 407

---

1. Estimate based on global GDP not including agriculture and mining; and GDP contribution of smaller Cityscope cities.
2. Megacities include cities with over 10 million inhabitants in 2007.
3. Middleweight cities have a current population between 150,000 and 10 million.

SOURCE: McKinsey Global Institute Cityscope 1.0
Background and the future

- The increasing number of the cities' inhabitants influence on the increase of the needs for the freight movement (delivering of the goods, movement of the materials, removal of the city waste etc.).
- In view of the fast growth of cities combined with the growing needs of city dwellers, the problem of efficient functioning of goods transport and distribution in urban areas is gaining more and more importance.
- Moreover, due to the increasing popularity of e-commerce a considerable portion of goods deliveries is made directly to individual customers.
The importance of urban freight transport management

- The total cost of freight transport and logistics is significant and has a direct bearing on the efficiency of the economy.
- The role it plays in servicing and retaining industrial and trading activities which are essential for major wealth generating activities.
- It is a major employer in its own right.
- The contribution that an efficient freight transport sector makes to the competitiveness of industry in the region concerned.
- It is fundamental to sustaining our existing life styles.
- The negative social and environmental effects of urban freight transport.

The challenge for the European cities

- The European Council has set the target to reduce EU greenhouse gas emissions by 20% by 2020.
- Greenhouse emissions are mostly produced in urban conurbations being a half of overall road transport fuel combusted in urban areas.
- The negative impacts of urban goods distribution in terms of energy consumption and air pollution are mainly caused from low cooperation among relevant value chain stakeholders as well as from low system efficiency.
The challenge for the European cities

- Active policy making on the part of the city authorities with regard to goods deliveries in urban areas contributes to activating various stakeholders groups and enables dynamic cooperation towards a consensus.

- Reaching a high usability level of any adapted solutions is determined by complementary synergistic measures underlying the possibly full implementation of the resultant bundle of goals of the stakeholders.
The challenge for the European cities

So...
Municipalities should change their point of view on functioning of urban freight transport.

According to that...

**URBAN shouldn’t mean**

„realized at the urban area”

but...

„organized and managed by the municipality”
The challenge for the European cities

But what does it exactly mean?!!!
The challenge for the European cities

Implementation and development of the **regulations** and **rules** for the sustainable urban freight transport
Push and pull measures

- **Push measure** is one that is imposed on operators with a view to influencing delivery or operational practices. These can be divided into financial instruments (e.g. higher parking charges and road tolls) and technical and regulatory constraints (e.g. access restrictions). Push measures are closely related to more efficient and equitable transport pricing which seeks to require transport users (including freight operators) to bear a greater proportion of the real costs of their journeys, including costs of pollution, accidents and infrastructure.

- **Pull measure** is designed to encourage more sustainable and energy-efficient freight traffic by offering various additional services (e.g., improved mapping), facilities (e.g., preferential access to loading bays for “clean” vehicles) or incentives (e.g., access to priority lanes) to operators or shippers. In many cases, the measures are combined with information and publicity campaigns designed to further reinforce the good practice measures.

- **Push-and-Pull measures** involve a combination of the two, aimed at providing incentives for good practice whilst simultaneously using fiscal or technical tools to deter practices we wish to discourage.
Hard and soft measures

- **Soft measure** is the one that help to increase the demand for sustainable transport (e.g. campaigns, information, dissemination), support the market penetration of successful experiences or policies and transfer of experience, promotion of best practices, education and training, capacity building.

- **Hard measure** could be considered as fundamental to achieve overall improvements in urban freight transport planning and development (e.g. infrastructures, traffic management systems, etc).
## Push and pull soft measures: Administrative measures

| Access restrictions for (un)loading and transit | Push | Access restrictions for loading/unloading operation as well as for moving/circulating related to (a) the type of transport means, and most commonly to vehicle emissions, weights and sizes; (b) access time within specified areas; (c) preferred truck routes and designated lanes; (d) loading and unloading zones; (e) based on licences. |
| Access incentives for (un)loading and transit | Pull | Giving incentives to freight companies to implement environmentally friendly operations. Such behaviour would be encouraged by - for example - giving these companies i) additional access 'time windows' for loading and unloading (e.g. possible night deliveries) in restricted areas, ii) additional freight loading/unloading slots, iii) ad-hoc routes for freight distribution. |
### Push and pull soft measures: Administrative measures

<table>
<thead>
<tr>
<th>Advance booking of (un)loading slots</th>
<th>Pull</th>
<th>From an environmental, business and traffic flow/security point of view it is best for freight vehicles to avoid double lane stops and reduce waiting times for getting into a loading/unloading parking space. To this end a service can be offered that gives drivers the ability to book a delivery parking space before they reach their delivery point.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low Emission/Environmental Zone</td>
<td>Push</td>
<td>Institution of protected areas that include both vehicle access restrictions and incentives for environmental or historical/heritage reasons</td>
</tr>
</tbody>
</table>
## Push and pull soft measures: Financial measures

<table>
<thead>
<tr>
<th>Mobility credits schemes/congestion charging</th>
<th>Push &amp; Pull</th>
</tr>
</thead>
</table>
| "Limiting the access of freight vehicles to an urban area by making freight operators ‘pay’ for each access with mobility credits that were initially distributed by the public administration (or money payments for entries in excess of the assigned credits). Access control equipment in freight vehicles record every entry to the zone and permits the implementation of a mixed pricing / enforcement scheme for different users."

<table>
<thead>
<tr>
<th>Vehicle financing schemes</th>
<th>Pull</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attractive, publicly subsidised financing (e.g. leasing) models that stimulate freight operators to use more environmentally friendly freight vehicles.</td>
<td></td>
</tr>
<tr>
<td>Promotion campaigns for sustainable freight traffic</td>
<td>Pull</td>
</tr>
<tr>
<td>Driver training for sustainable freight traffic (ecodriving)</td>
<td>Pull</td>
</tr>
<tr>
<td>Freight Operators Recognition Scheme (FORS)</td>
<td>Pull</td>
</tr>
</tbody>
</table>
**Push and pull soft measures:**

**Urban planning and governance measures**

<table>
<thead>
<tr>
<th>Local (freight) transport plan, Local Freight Development Plan (LFDP)</th>
<th>Push &amp; Pull</th>
<th>Strategic freight transport plans (formal or informal), which are based on a systematic analysis of freight traffic and local stakeholders and include goals and planned measures for the medium or long term.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Distribution plan-scheme</td>
<td>Pull</td>
<td>Distribution schemes/plans are a set of actions intervening on an administrative level aiming for efficient and sustainable urban freight transport by addressing freight operators and retailers to (re)organise their freight delivery processes.</td>
</tr>
<tr>
<td></td>
<td>Push</td>
<td>Pull</td>
</tr>
<tr>
<td>------------------------------------</td>
<td>-------</td>
<td>----------------------------------------------------------------------</td>
</tr>
<tr>
<td>Freight transport Quality Partnership</td>
<td></td>
<td>Freight Quality Partnerships (FQPs) are means for urban authorities, businesses, freight operators, environmental groups, the local community and other interested stakeholders to work together to address specific freight transport problems. Typically, partners exchange information, experiences and initiate transport projects.</td>
</tr>
<tr>
<td>Special urban planning conditions</td>
<td>Push</td>
<td>Integrating sustainable transport conditions into the land use and urban planning process, e.g. by making special freight traffic related contractual arrangements (including enforcement powers) a precondition for a new business or large complex to receive a building permit.</td>
</tr>
</tbody>
</table>
Some examples – regulations
Some examples – vehicles
Some examples – packstations
Some examples – UCC

Urban freight delivering with UCC
Some examples – Szczecin
Instead of the conclusions

The help for the municipalities...

...European project and activities for the sustainable urban freight transport development
European projects

- SUGAR
- CVIS
- FREIGHTWISE
- CITY PORTS
- Urban Transport Benchmarking
- MEROPE
- eDRUL
- MOSCA
- SMARTFREIGHT
- FLEAT
- START
- INTERACION
- TRAILBLAZER
- CityMove
- CityLog
- FREDERIC
- BESTUFS (I, II)
- CITY FREIGHT
- TURBOLOG-WW
- CASTLE
- PILOT
C-LIEGE

CLEAN LAST MILE TRANSPORT AND LOGISTICS MANAGEMENT FOR SMART AND EFFICIENT LOCAL GOVERNMENTS IN EUROPE
The C-LIEGE project – introduction

- C-LIEGE overall approach: integrated and shared framework for energy-efficient urban freight transport (UFT) demand management and planning by a novel set of integrated solutions and “push-and-pull” demand-oriented measures.

- 17 Project Partners
- 11 different EU Countries involved
- 6 different EU Countries (pilot cities) testing C-LIEGE approach
- C-LIEGE project duration: 30 months (from June 2011 to November 2013)
# The C-LIEGE project – partners

<table>
<thead>
<tr>
<th>Participant name</th>
<th>Participant short name</th>
<th>Country code</th>
<th>Participant Logo</th>
</tr>
</thead>
<tbody>
<tr>
<td>FIT Consulting srl</td>
<td>FIT</td>
<td>IT</td>
<td><img src="image1" alt="FIT Consulting srl Logo" /></td>
</tr>
<tr>
<td>European Regions Research and Innovation Network</td>
<td>ERRIN</td>
<td>BE</td>
<td><img src="image2" alt="ERRIN Logo" /></td>
</tr>
<tr>
<td>TIS.pt - Transportes, Inovaçao e Sistemas, S.A.</td>
<td>TIS-PT</td>
<td>PT</td>
<td><img src="image3" alt="TIS.pt Logo" /></td>
</tr>
<tr>
<td>Impact Consulting srl</td>
<td>IMPACT</td>
<td>RO</td>
<td><img src="image4" alt="Impact Consulting srl Logo" /></td>
</tr>
<tr>
<td>National Technical University of Athens</td>
<td>NTUA</td>
<td>GR</td>
<td><img src="image5" alt="National Technical University of Athens Logo" /></td>
</tr>
<tr>
<td>Imperial College London - Department of Civil and Environmental Engineering</td>
<td>IMPERIAL</td>
<td>UK</td>
<td><img src="image6" alt="Imperial College London Logo" /></td>
</tr>
<tr>
<td>University of Dortmund - Institute of Spatial Planning</td>
<td>TUDO</td>
<td>DE</td>
<td><img src="image7" alt="University of Dortmund Logo" /></td>
</tr>
<tr>
<td>LEITAT Technological Center</td>
<td>LEITAT</td>
<td>ES</td>
<td><img src="image8" alt="LEITAT Technological Center Logo" /></td>
</tr>
<tr>
<td>Paragon Europe Ltd</td>
<td>PARAGON</td>
<td>MT</td>
<td><img src="image9" alt="Paragon Europe Ltd Logo" /></td>
</tr>
<tr>
<td>Centro Agroalimentare e Logistica di Parma</td>
<td>CAL</td>
<td>IT</td>
<td><img src="image10" alt="Centro Agroalimentare e Logistica di Parma Logo" /></td>
</tr>
<tr>
<td>Leicester Energy Agency (Leicester City Council)</td>
<td>LEA - LCC</td>
<td>UK</td>
<td><img src="image11" alt="Leicester Energy Agency Logo" /></td>
</tr>
<tr>
<td>Bermag Sp.j.</td>
<td>BERMAG</td>
<td>PL</td>
<td><img src="image12" alt="Bermag Sp.j. Logo" /></td>
</tr>
<tr>
<td>IKU GmbH Kommunikationsberatung</td>
<td>IKU</td>
<td>DE</td>
<td><img src="image13" alt="IKU GmbH Kommunikationsberatung Logo" /></td>
</tr>
<tr>
<td>KLOK Kooperationszentrum Logistik e.V</td>
<td>KLOK</td>
<td>DE</td>
<td><img src="image14" alt="KLOK Kooperationszentrum Logistik e.V Logo" /></td>
</tr>
<tr>
<td>Newcastle City Council</td>
<td>NCC</td>
<td>UK</td>
<td><img src="image15" alt="Newcastle City Council Logo" /></td>
</tr>
<tr>
<td>Municipality of Montana</td>
<td>MONTANA</td>
<td>BG</td>
<td><img src="image16" alt="Municipality of Montana Logo" /></td>
</tr>
<tr>
<td>Maritime University of Szczecin</td>
<td>MUS</td>
<td>PL</td>
<td><img src="image17" alt="Maritime University of Szczecin Logo" /></td>
</tr>
</tbody>
</table>
The C-LIEGE project
The C-LIEGE project – major objectives

- Define a shared framework for an energy-efficient UFT demand management and planning strategy through a cooperative approach between public and private stakeholders addressed to the reduction of energetic, environmental and socio-economic impacts of freight transport in urban environments.

- Effectively transfer good practices and lessons learned among Local Authorities and relevant stakeholders in EU Member Stats to achieve a better matching between supply and demand of UFT, according with energy saving principles.

- Increase energy efficiency in freight distribution by changing behaviour of stakeholders and define novel policy approaches and strategies for joint passenger/ freight transport to support a “new culture for urban mobility”.

- Provide policy recommendations for improving UFT energy efficiency in EU Member States to support European Commission on the achievement of 2020 targets.
The C-LIEGE project – results

- State of the art review of EU good practices in energy-efficient UFT domain
- 2 Plenary Knowledge Sharing Workshops (Spain, Belgium)
- Local Round Tables in each of pilot site (Newcastle-UK, Parma-IT, Stuttgart-DE, Leicester-UK, Birzebbuga-MT, Montana-BL, Szczecin-PL)
- Roadmap to establish and promote “Premium Quality Partnership”
- Definition of suitable set of actions/measures for an efficient and energy saving organization of freight transport in urban areas
- C-LIEGE toolbox for the establishment of the City Logistic Manager
- Premium Quality Partnership for Freight in the pilot cities
- Transferability plan for EU Local Administrations on energy saving and sustainable demand management and planning in (UFT) domain.
- Action plan for the EC on measures and policies to make UFT more energy-efficient, sustainable and professional.
The C-LIEGE project – tools

- Urban Freight Transport Good Practices Database
- Stakeholder Engagement Manual
- C-LIEGE guideline for the development of urban freight mobility plans
- C-LIEGE push and pull measures database
- C-LIEGE Toolbox
- C-LIEGE Transferability Plan and Road Map for Europe
- C-LIEGE Evaluation

C-LIEGE website: http://www.c-liege.eu/
GRASS
GReen And Sustainable transport Systems in cities
The time period

☐ Beginning: **1.06.2013**

☐ Ending: **30.04.2016**
The major objectives

- Review, compare and analyse effects of current practices and adaption of public regulations and stakeholders requirement on use of energy and technologies that impact limiting of greenhouse gases in Oslo and Szczecin.

- To determine the conditions for the implementation and development of energy-efficient urban freight transport in the Polish and Norwegian cities and regions, taking into account the often conflicting expectations of key stakeholders of the transport market.

- The promotion of a platform for the exchange of knowledge and mutual cooperation in a partnership (Freight Quality Partnership). In this experiment different stakeholders (representing different groups of interest) will be invited to participate in partnerships.
Planned public meetings

- Kick-off meeting – 12 June 2013.
- Two editions of International Conference „Green Logistics for Greener Cities” – May 2014, May 2016.
Thank you for the attention

Stanisław Iwan: s.iwan@am.szczecin.pl