Effective City Logistics – Challenges and Opportunities

Presentation to IRU Goods Transport Council

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Outline

• Urban Freight and City Logistics: a brief review
• Major challenges
• Future directions

Note: Sources, acknowledgements and additional references are on slides 37 and 38
Contrasting views of the city

Visions of the city: new and old
Importance and scale of urban freight activity

- In urban areas freight generates up to
  - 20% of traffic / 30% of street occupation and 50% of greenhouse-gas emissions (from transport)
- In London
  - Freight activity = 17% of traffic (25% in central London)
  - On a typical weekday over 265,000 freight vehicles travel 13 million kilometres
  - 80% of inbound freight movements take place between 6am and 6pm.
  - 20% of London’s ground-based CO2 transport emissions are produced by freight movements.
City Logistics: Developments over Time

1970s: Safety issues, Transhipment Centres, Vehicle Restrictions and Regulations…

1980s to early 1990s: Terminals, City Logistiks, National interest…

1990s: More research (models, surveys, data), Policy initiatives…

2000s: Best practice, Transferability, Company engagement, Intelligent Transport, Targets, Global Interest…

City Logistics: Policy context

- Research programmes
- Action Plans and White Papers (esp. within the EU)
- City and local authority transport plans increasingly include freight policies
- Sustainable logistics concepts growing despite economic challenges
- Changing city demographics
- The rise of mega cities
- Power of city authorities
City Logistics: Supply Chain Context

- Supply chains constantly changing: velocity and design
- Supply chain boundaries moving (e.g. delivery direct to consumer)
- Growth in outsourcing (freight and services)
- Competition for space (and time)
- Environmental impacts: local and global

Some problems (not new)

- Increasing road congestion
- Energy use
- Environment (air quality)
- Safety
- Disturbance – noise, visual intrusion
- Access restrictions and narrow roads
- Lack of loading and unloading space
New demands on kerbspace

Participants/stakeholders

A very wide range of participants…

- Senders and receivers
- Logistics service providers
- Residents/consumers
- Government/Administration...

…leads to significant complexity
The Urban Environment and Freight

**Intensification & Mixed Uses**
- Higher residential densities
- Retail, residential, commercial, industrial, leisure, logistics

**Social Impacts**
- Safety
- Health
- Severance
- Community
- ‘Quality of life’

**Promotion of Active Travel**
- Pedestrians
- Cyclists

**Physical Constraints**
- Limited space
- Access constraints
- Open Space
- City of ‘villages’
- Land availability

**Economic Factors**
- Land values
- Employment
- Workforce availability
- Wealth Creation
- Tourism

**Events**
- Marches/Demos
- Sports/Concerts/2012 Games

**Restrictions and Licensing**
- Parking and loading controls
- Noise Abatement Notices
- Voluntary restrictions
- being a ‘good neighbour’
- Security issues
- Operator licensing

**Transport modes**
- Conflicting demands
- Interchanges

**Control Schemes**
- Overnight Lorry Control
- Low Emission Zone
- Congestion Charging

**Regulations**
- EU legislation
- National legislation
- Mayor of London
- 34 highway authorities
- Planning conditions

**Environmental**
- Carbon Emissions
- Air quality (PM/NOx)
- Noise

**Management of change**

- **Governance & Networks**
- **Energy & Environment**
- **Time & Space**
Some categories for solutions

- Change the flow of goods
- Change the flow and type of vehicles
- Change the time
- Change the space
Bristol Freight Consolidation Centre

DHL initiative
Now extended to Bath

- Located on edge of Bristol close to strategic road network;
- Approx. 500 sq m warehousing space;
- 17 kms from city centre target area;
- Approx. 25mins journey time to target area;
- Using electric vehicle for final delivery.

Urban consolidation centre
(Motomachi, Yokohama Japan, 2004-)

<table>
<thead>
<tr>
<th>Type</th>
<th>Before</th>
<th>After</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of centers</td>
<td>17 (participating carriers)</td>
<td>1 (jointly-owned carrier)</td>
</tr>
<tr>
<td>Total number of vehicle-days</td>
<td>40 vehicles 30 days</td>
<td>30 vehicles 30 days</td>
</tr>
<tr>
<td>Type of vehicle</td>
<td>Diesel truck</td>
<td>CNG truck</td>
</tr>
<tr>
<td>Number of participating stores</td>
<td>-</td>
<td>Almost all stores</td>
</tr>
<tr>
<td>Goods of exclusion</td>
<td>-</td>
<td>Directly delivered goods from manufacturers, high-value items</td>
</tr>
</tbody>
</table>
Parking area for cooperative freight transport

Delivery and Service Plans (DSPs)

- A framework to manage freight and service trips
- Movement to and from individual buildings (including retail shops, offices etc)
- Focus on the receivers in the supply chain
- DSPs developed in London and used in planning for the 2012 Olympic Games
Monoprix: Paris delivery initiative

- Main approach by rail (30km) from warehouse outside Paris to transit facility

- Emphasis on visual and environmental benefits

- Final delivery to 94 stores with 26 CNG vehicles
London Low Emission Zone (Feb 2008)

The Off-Hour Deliveries NYC Project (Jose Holguin-Veras)
NYC adopted off-hour deliveries as part of its sustainability strategy.
London 2012: Quieter out of hours delivery trials

- Fortnum & Mason
- Marks & Spencer
  Kensington and Chelsea
- Tradeteam deliveries:
  pubs in Southwark
- Co-op:
  Redbridge
- Veolia – municipal
  Waste: Southwark and
  Lewisham
- Coca-Cola
  (Westminster)
- Dorchester Hotel
  (Westminster)

ELP: Bordeaux

An innovative facilitating system for incoming goods

For city centre deliveries

Source: D. Patier (LET, France)
Paris - improve the use of delivery space/capacity

- **Control disk**
  - Involvement of trade associations
  - In force from 1 January 2007

- **Charter of good practice**
  - Public-Private Initiative

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Public-private cooperative organisation activity (East Osaka, Japan)

1. **Eliminating trucks’ on-street parking**
   - Development of logistics parking
   - Informing the location of parking space

2. **Eliminating private cars’ on-street parking**
   - Instructing and raising awareness about illegal street-parking
   - Tightening of regulations

3. **Managing traffic flow**
   - Traffic restriction into the residential roads
   - Access route map of the subject area

4. **Improving the local environment**
   - Planting trees and trash picking activities
   - Idling stop practice
In 2013 VREF supported two Centres of Excellence in Urban Freight

- METROFREIGHT
- Sustainable Urban Freight Systems (COESUFS)
Partners in the VREF Centres of Excellence

- **Academic partners:** Rensselaer Polytechnic Institute, Westminster, Kyoto, Delft, Monash, USC, IFFSTAR, New York, Toronto, Seoul, Sao Paolo, Cantabria, Gothenburg, Bologna, Madras, Dalian, UAE, Columbia…

- **Cities:** NYC, London, LA, Seoul, Rotterdam, Paris, Copenhagen, Osaka, Melbourne…

- **Businesses and organizations:** Freight Transport Association, National Confederation of Transport (Brazil), DHL, TNT, UPS, American Trucking Association…

Challenges: a summary

- Constraints and system complexity will grow
- Scale is difficult to achieve
- Behaviour change is key – but very hard
- Find ways to evaluate and share the good practices
- Evidence base needs to become more visible
Actions

• Complexity: Use it – combine solutions, improve understanding and engage stakeholders
• Scale: Build and reinforce networks – not one ‘big thing’ but many – use the many existing examples
• Behaviour change: Do not give up – look for events and tipping points
• Good practice: Improve data and modelling
• Inspire change – support links:
  – public – private
  – research – practice

With acknowledgements to: (1) Steve Steele from Transport for London for the information and slides on the London Freight Plan and DSPs. (2) Prof. Jose Holguin-Veras (Rensselaer Polytechnic Institute) for slides on the New York OHD scheme. (3) Dr. Danièle Patier (LET) for slides on the ELP. (4) Prof. Eiichi Taniguchi (Kyoto University) for slides about Japan.

However, any views and comments expressed in the presentation are those of the presenter (Michael Browne).

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References links and further reading:

(1) VREF Centres of Excellence Urban Freight:

Center of Excellence: Sustainable Urban Freight Systems
(Webinars and other information available)
https://www.coe-sufs.org/

METROFREIGHT
http://priceschool.usc.edu/metrofreight-the-localglobal-challenge-of-urban-transportation-planning/

(2) Websites
BESTUFS, http://www.bestufs.net
SUGAR, http://www.sugarlogistics.eu/
TURBLOG, http://www.turblog.eu/

(3) Book chapter
For a good general guide to the issues covered see the following book chapter:

Sources:

Slide 3

Slide 4

(2) For the green mega city image and some discussions see: http://business.highbeam.com/409211/article-1G1-2099626/2/green-megalopolis-ecosavvy-blueprint-tomorrow-megacity

(3) iPad image (i.e. the ones with Siemens showing in the top left) is available from: http://www.topappreviews101.com/virtual-siemens-city-en-global-ipad-app-12507.html

(4) http://science.howstuffworks.com/environmental/green-science/S-green-future-cities.html?page=0

Slide 5
(1) The Future of Supply Chain is from a Capgemini report ’2016 Future Supply Chain’ Global Commerce Initiative, Capgemini.

(2) The DHL image is from: http://www.urbantec.de/media/urbantec/downloads_6/pdf_6/vortraege_1109_Hanser_Joerg.pdf

(3) Image of a Logistics Hotel is from a presentation by Christophe Riper (SOGARIS) http://www.bestfact.net/wp-content/uploads/2013/10/BESTFACT_Amsterdam_Cluster1_12_06_22_SOGARIS.pdf