



Introduction, Examples and Beneficial Impacts of Growing Consolidation and Electric Vehicle Solutions in Urban Logistics

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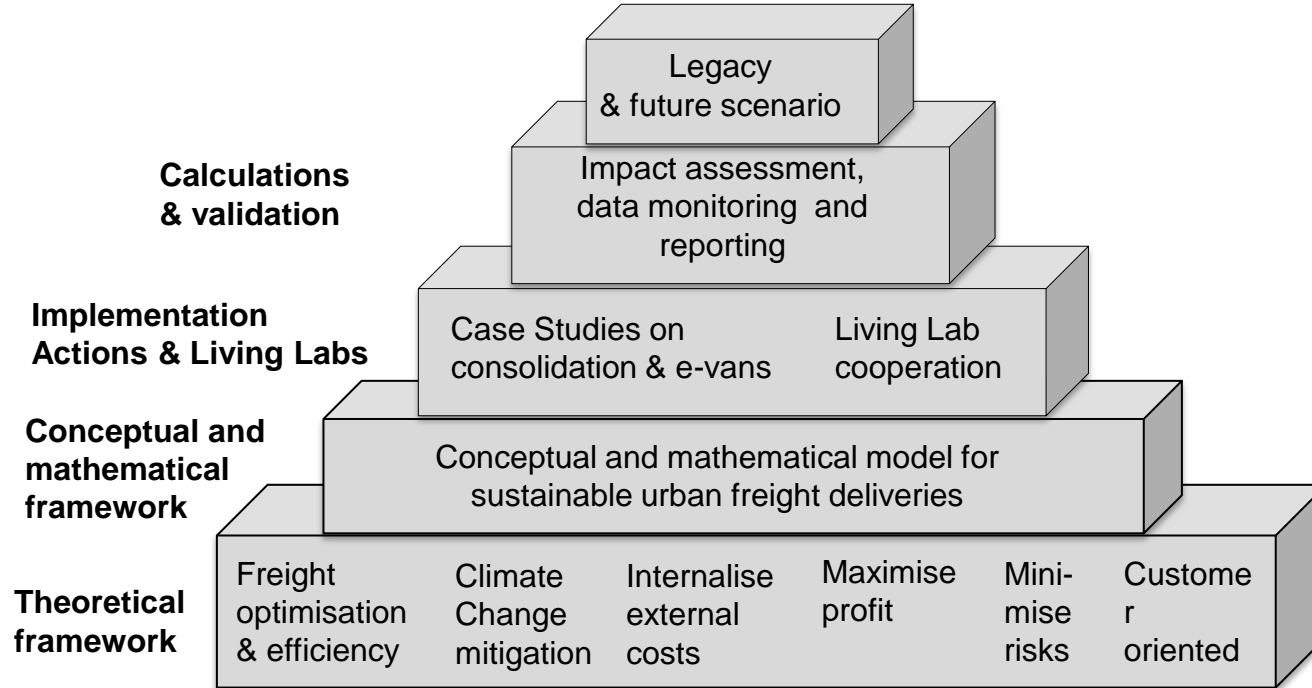
CITYLAB Workshop in London
Growth of Electric Freight and Consolidation in Urban Logistics

12 May 2017

Objectives of London CITYLAB trials

- To grow the business of electric freight, and to monitor it thoroughly, in order to better understand the business case.
- To evaluate the impacts on:
 - Total distance driven in London and in delivery area
 - Road space occupancy during parking while making deliveries
 - Energy use, air pollutants and greenhouse gas emissions
 - Costs
- To coordinate the trial with the London Freight policies and networks, within the London Living Lab
- Learning from good examples → Transferability → Upscaling

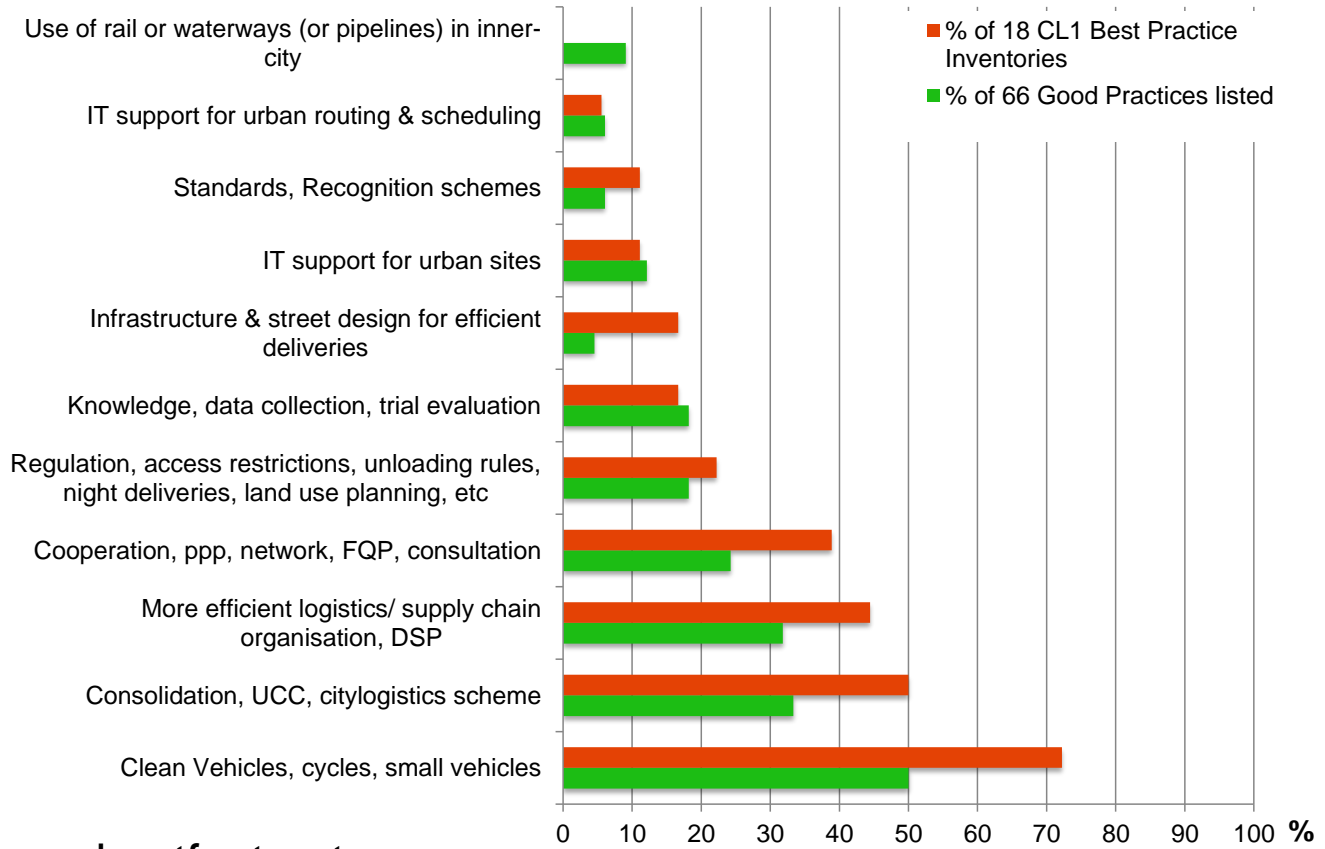
Building blocks of developing, testing & evaluating solutions in urban logistics



Criteria for selection of initiatives and 'good examples'

- Recognition in the expert community: high
- Replication in different cities: more than 2 cities
- Applicability and feasibility: easy to difficult
- High impact on km driven: total trucks-km, vans-km
- Lowering emissions: PM, NO_x, total CO₂, CO₂ intensity per delivery unit
- Relatively low costs per km avoided
- Lowering noise: dB(A) reduction
- Existing quantified evaluation: yes-no
- Before-after data: yes-no
- Transferability to other cities: easy to implement?

Typology of Urban Logistics case studies: BESTFACT cases

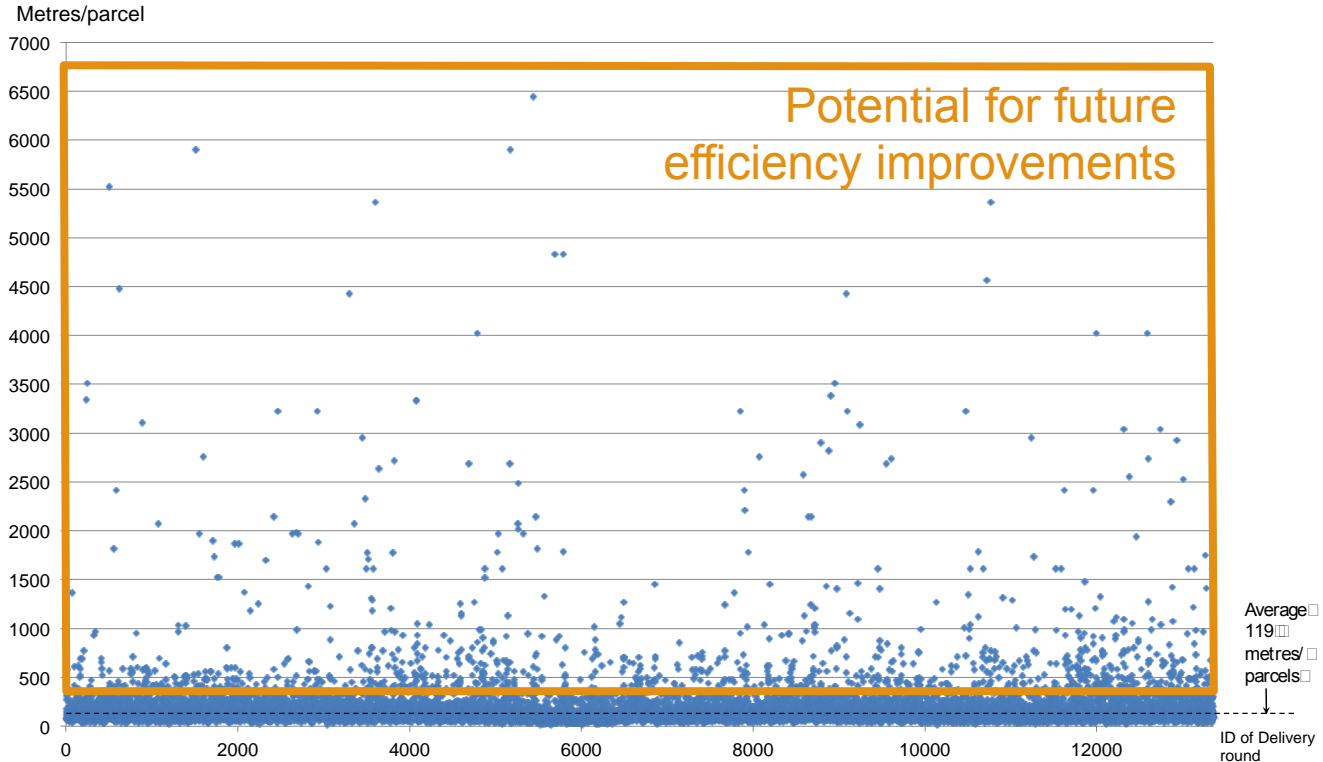


Source: www.bestfact.net

Metres per parcel delivered

Gnewt Cargo trials, London, 1st July 2015 – 30 June 2016 (n = 13,358)

one point = average distance in metres per parcel for one delivery route, one driver, one day



Key facts on CITYPORTO PADOVA

- 100,000 deliveries in 2012 for 60 clients
- 4 parcels per delivery
- 11 CNG vehicles
- Favourable access rules to city centre
- 1000 m² UDC located within the main logistics area of Padova



Barriers, success factors and transferability

- Market barriers removed: key success factor was to allow a special regime for Cityporto CNG vehicles with no time windows for loading/unloading in the ZTL (Limited Traffic Zone).
- Also key was the independent manager enabling trustful cooperation with new customers, and excellent stakeholder involvement/participation at city level
- Transferability: Como, Bergamo, Aosta and Modena have started a similar Cityporto schemes.

Binnenstadservice Consolidation in Netherlands

- Binnenstadservice operates a warehouse and distribution service on behalf of the joint retailers and other organizations located in the (inner) city.
- It started in Nijmegen and now covers many cities in Netherlands.
- Goods are delivered at a distribution centre just outside the city.
- From there the goods are bundled and brought to shops in the city centre.
- Simultaneously empty handling equipment, packaging or paper are taken back
- Binnenstadservice does not operate their own vehicles, transport is subcontracted to one logistics service provider per city.



Benefits = Business Case



Financial benefits:

- Shop keeper:
 - reduced stock at expensive shop floor,
 - reduced time needed to receive/ship goods
- Transport company/shipper:
 - reduced time loss for last mile delivery,
 - thus cost reduction

Benefits in the field of services:

- Shop keeper: pays a little fee for time consuming activities such as packaging

Benefits for society:

- Less congestion, more liveable city centre.

Environmental benefits:

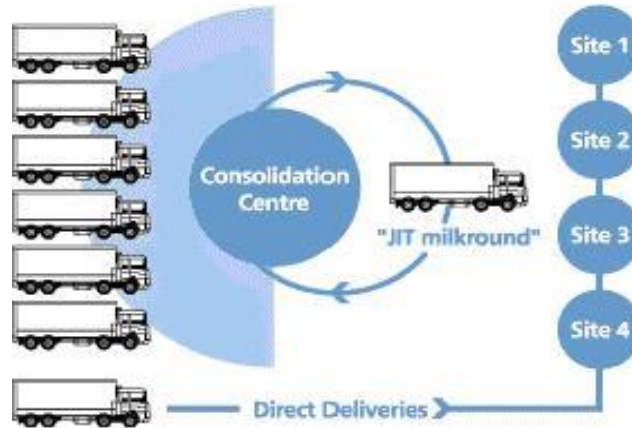
- Reduced CO₂ and air pollutant emissions due to bundling of freight and cleaner vehicles.

London Construction Consolidation Centre

The LCCC was financed in 2006 by Transport for London (£1.85m), Stanhope and Bovis Lend Lease (£1.35m) and was managed by logistician Wilson James

Main impacts (May 2007 report)

- Reduction of 68% in the number of construction vehicles
- Reduction of CO₂ emissions of about 75%



Distripolis in French Cities

GEODIS as major logistics provider. Fleet of >5,000 vehicles

83 electric vans and cycles are used in 5 French cities at about 10 depots. Operations started 2012.

About 1000 tonnes CO2 reduction per year in 2016.

More than 20 different business cases trialled with the new vehicles.

About 12% more costs per item
120,000 EUR/van purchase
Technical difficulties
BUT No client lost, good image.



Electric Vans Used for Parcel Deliveries in Stuttgart

- 50 Mercedes-Benz Vito E-CELL transporters powered by electricity are used by DPD partners in the Stuttgart region.
- Vehicles and charging
- Maximum speed: 80 km/h
- Driving range: 130 km
- Admissible total weight: 3,050 kg
- Maximum permitted load: 900 kg
- Motor power: 60 kW
- 400 V - charger connections installed by EnBW allow a maximum recharging time of 5 hours by night (0 – 100%)
- Electricity consumption ca. 43 kWh per 100 km



Consolidation and cooperation of 4 major retailers in Lithuania

- Oligopoly of several retail chains lead to highly optimised urban logistics solutions.
- Supermarkets and stores are located in all towns and cities across the country.
- All shops are now served from several mutualised logistic centres, where requested goods are loaded in consolidated shipments to large vehicles
- High impact reduction of the number of trips
- High impact on fuel use, fuel costs and emissions reduction.



San Sebastian Donostia UCC + Clean vehicle trial Costs data 2010 to mid-2012

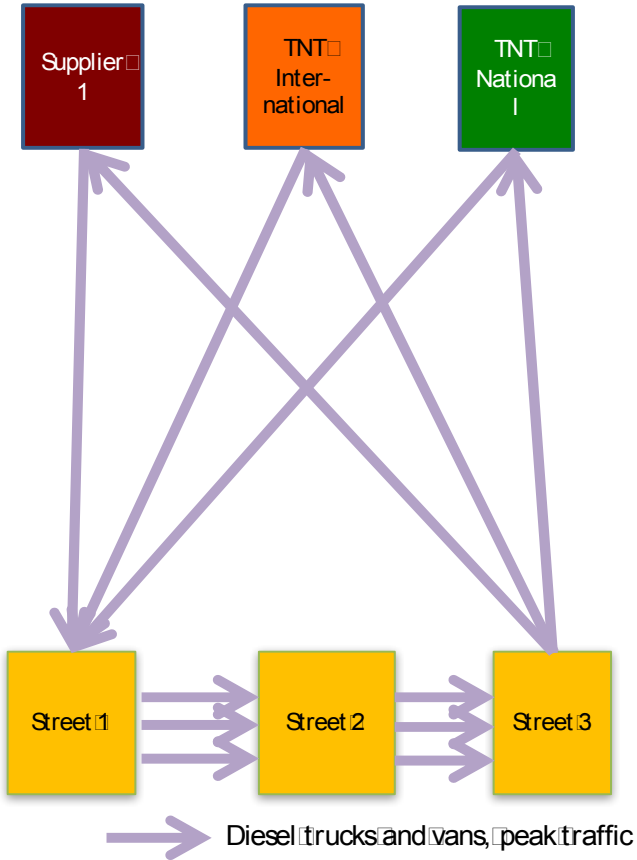
Concept	2010	2011	2012
Expenses	-69,920.05	-164,553.08	-55,851.06
Suppliers	-33,759.83	-53,486.40	-15,719.71
Staff	-36,160.22	-111,066.68	-40,131.35
Incomes	67,294.85	108,643.88	34,581.22
Invoices	23,294.85	71,781.38	34,581.22
Subsidy CIVITAS	40,000.00	30,000.00	-
Subsidy EVE	4,000.00	5,690.00	-
Subsidy Webpage	-	1,172.50	-
Partial result	-2,625.20	-55,909.20	-21,269.84
Other incomes	41,432.70	121,463.59	7,655.84
Result**	38,807.50	65,554.39	-13,614.00
TOTAL*			90,747.89

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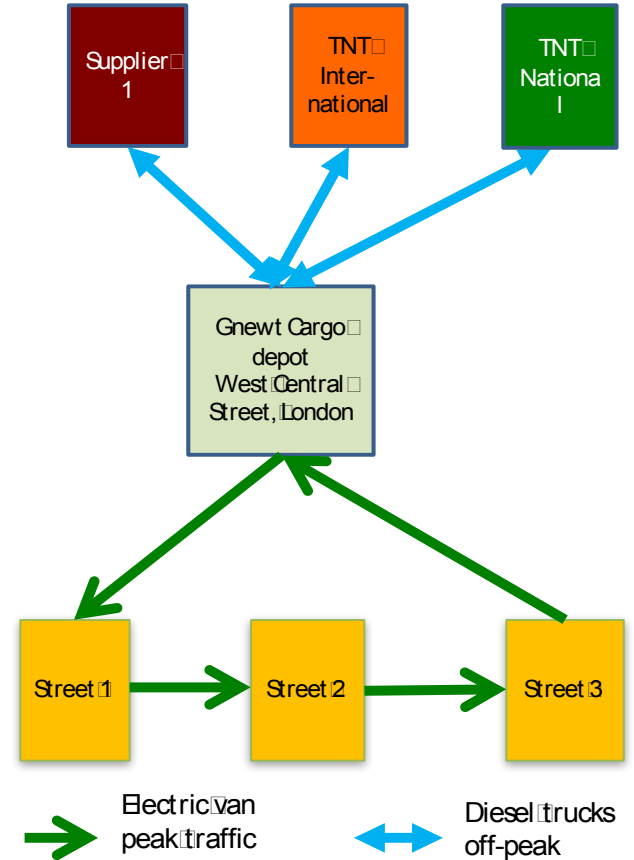
Logistics Model of Gnewt Cargo: multi-carrier multi-depots consolidation of deliveries

Limits of the system of data collection

BEFORE starting using Gnewt cargo



AFTER starting using Gnewt cargo



**BEFORE: Standard 3.5t diesel van:
Capacity of 1270 kg and 15 m³**



AFTER: new vehicles



Provisional impacts data of Citylab London implementation

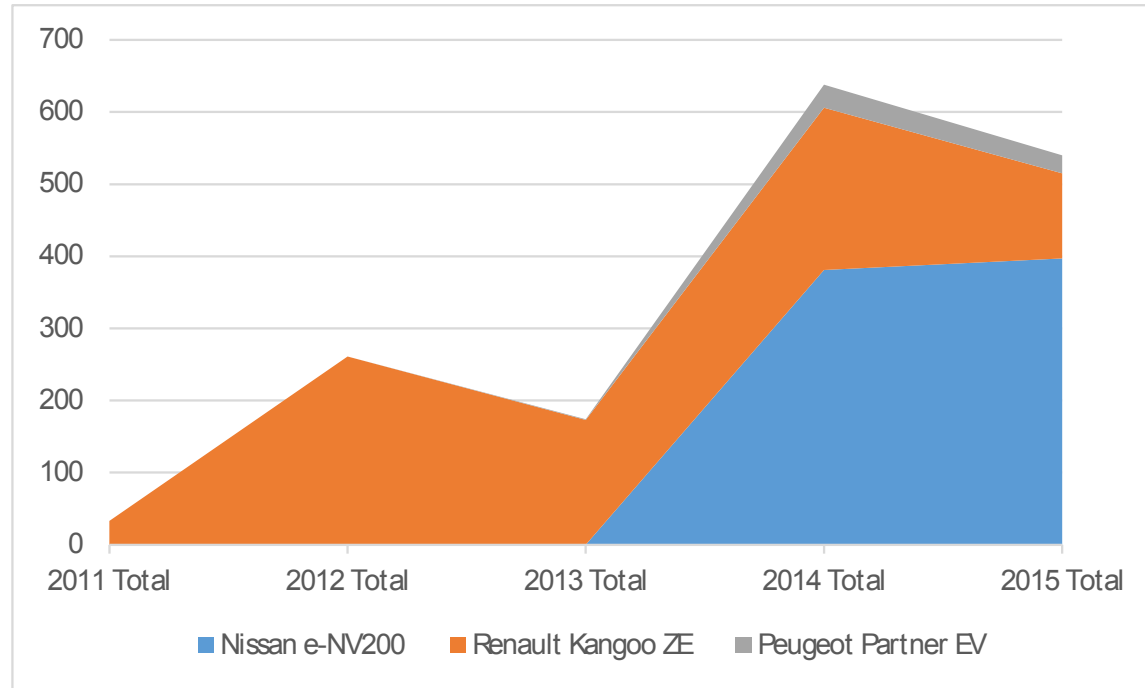
% change BEFORE-AFTER
September 2015 to September 2016

- 0% in total number of trips
- - 67% in miles/parcel delivered
- - 100% in CO₂/parcel
- - 100% in NOx/parcel at the tailpipe
- - 100% in tailpipe emission reduction for particles/parcel
- - 100% in oil equivalent per parcel
- - 93% of the last mile empty distance driven by all vehicles

Are these good examples going to be growing?

- Transfer, replicate, growth?
 - Electric van market is slow

**New registrations of
Battery Electric
Light Commercial
Vehicles
2011-2015
in UK**



Specific problems/barriers → potential solutions

- *We don't know* the best business model to grow and scale up sustainable urban logistics solutions
→ **CITYLAB started working on scaling up**
- Biggest problem is that none of the Gnewt Cargo *depots* in Central London are accessible by a big truck
→ **Setting up of a new depot, suitable for growth**
→ **Help from TfL, London Boroughs, CRP**
- Growth implies a shift in business from one subcontractor to another → **contractual change?**
- *Shared use* of depots and vehicle and customer data
→ **businesses accept the idea that subcontractors could share depots, vehicles & data?**