Sustainable deliveries – Freight analysis and development of a c/o address solution

Polis Conference – 2018-11-23

Picture: SendSmart

Background - Novelog – quick facts

• EU-financed project in the field of sustainable city logistic solutions within the HORIZON program

• 28 Partners, of which 12 cities/city areas and 8 universities

• 6 Pilot projects and 6 case studies

• The main activity for the city of Gothenburg was to perform a case study regarding a c/o adress for the Nordstan shopping mall. Important elements were gathering of information and analysis of goods flows

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Nordstan – key facts

➢ Second biggest shopping mall in Sweden
➢ Located in the city centre
➢ 200 shops and restaurants sharing 70000 square metres of floor space
➢ Turnover of about 450 MEUR
➢ Allmost all deliveries via an underground loading street
➢ Over 500 trucks delivering daily
➢ Owned by five real estate owners
➢ Close cooperation with the municipality since over 10 years regarding traffic and logistics

Activities - Nordstan

- Information to all companies (approximately 200 tenants)
- Mapping of goods flows
- Measurement of traffic volumes to the underground loading street
- Measurement of traffic volumes – surrounding streets
- Compilation of results and analysis
- Development of solution proposals
- Simulation and improvement of solutions
- Pilot-test

Goals

- Create a well functioning "ready to run" concept for consolidation by a c/o address outside the city core, to enable more efficient and sustainable solutions to businesses in the central parts of Gothenburg
- Development of a commercially sustainable solution
- Increase the knowledge of goods flows in central Gothenburg
- Strenghten the work within the city to encourage future sustainable and efficient solutions for city logistics

- Less heavy transports in the city centre
- Decrease congestion, emissions and noise
- A more pleasant and attractive city environment

Timeline

2015-2016: Pre study, data collection > 2017: Analysis, concept development > 2018: Procurement of service > 2019: Pilot phase – consolidation service

Basics – data collection

Measurement of incoming and outgoing freight traffic to Nordstan
Survey and interviews for the transport companies
Registration of all handled deliveries and shipments for businesses (2 weeks)

Data for analysis

- Shipment volumes (number)

- Shipment size (volume)

- Types of goods

- Carriers and packaging

- Demands and requests on freight services

- Handling time for goods

- Types of businesses (size, branch etc.)

- Vehicles used

- Transport companies

- Time and date of deliveries

Data elaboration

- Average size of shipment volumes related to business types, sizes etc.
- Share of shipment sizes in different size/number ranges (also related to goods types, type of business etc.)
- Goods volumes in relation to number of vehicles
- Common requests and demands on freight services (in relation to goods types and type of business)
- Goods volumes share per transport company
- The distribution pattern connected to specific hours

Prerequisites regarding delivery time for different flows and goods
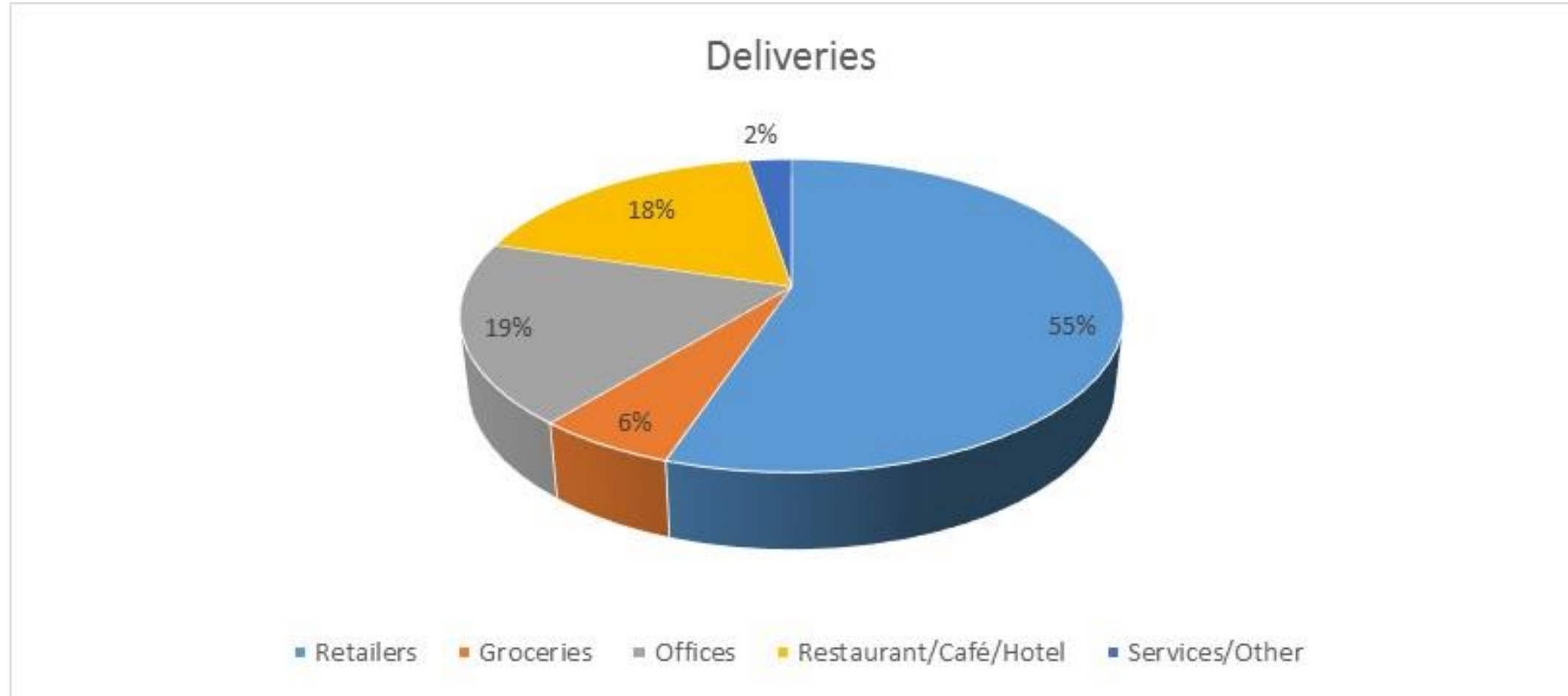
Final results – overall statistics

	Companies by Branch	Number of Responses	Response Rate
Retailers	91	84	92%
Groceries	6	4	67%
Offices	54	39	72%
Restaurant/Café/Hotel	27	22	81%
Services/Other	7	4	57%
Total	**185**	**154**	83%

Total number of deliveries	2632
Total number of parcels	1490
Total number of pallets	760
Total number of cages	574
Total number of other deliveries	342
Total cargo units	3166

Number of Responses by Branch

	Retailers	Groceries	Offices	Restaurant/Café/Hotel	Services/Other	Total
Companies by Branch	91	6	54	27	7	185
Number of Responses	84	4	39	22	4	154

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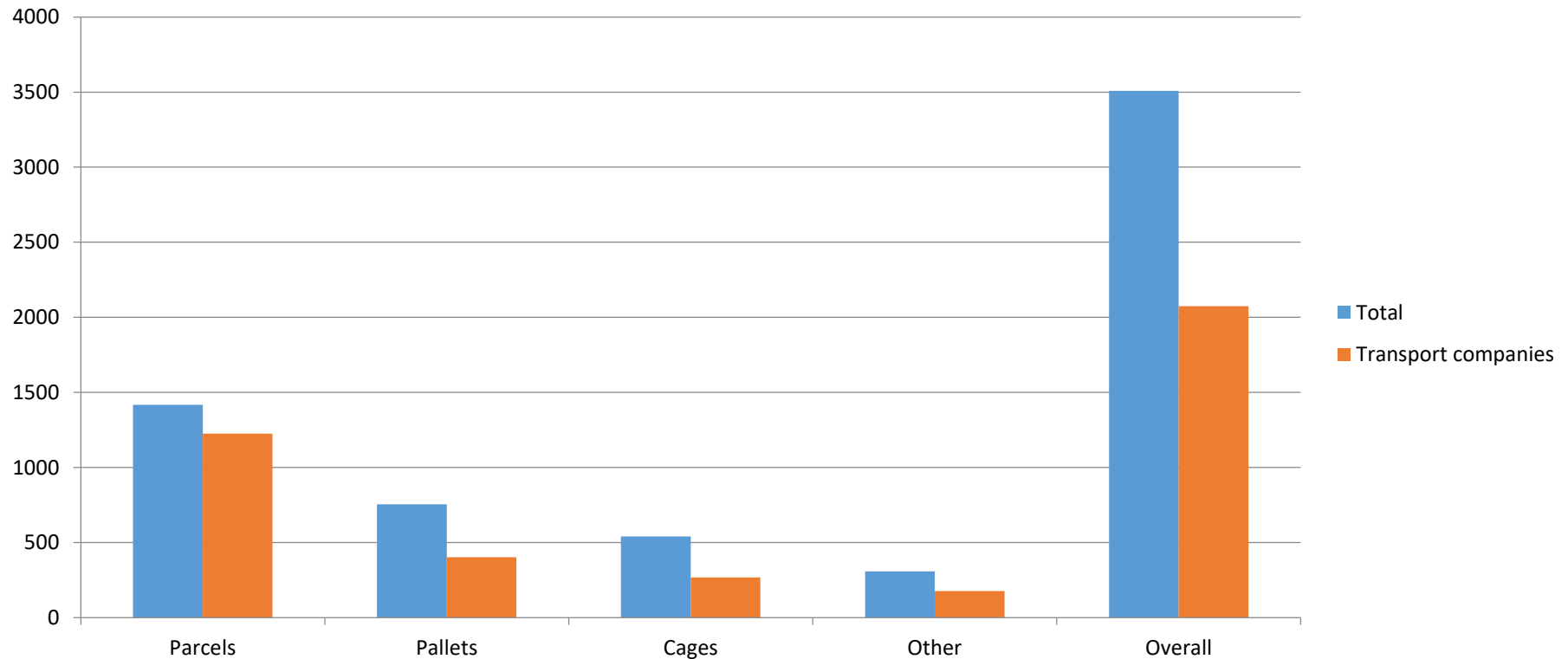City of Gothenburg

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Deliveries per branch

Transport companies and part of deliveries
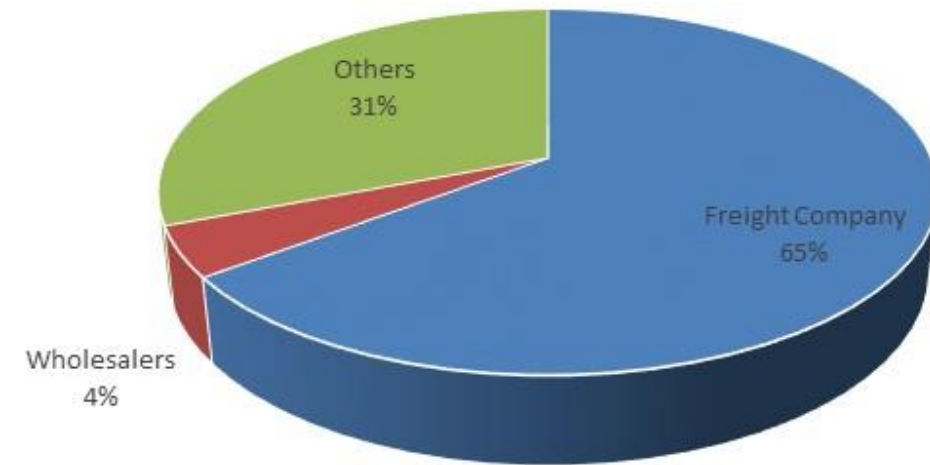
Part of freight volumes delivered by freight companies

Terms and conditions for deliveries

Terms/Conditions for Deliveries				
Branch	Central Controlled	Controlled by Reciever	Not Controlled	Other
Retailers	65	9	11	3
Groceries	2	1	2	1
Offices	6	6	19	5
Restaurant/Café/Hotel	10	6	7	4
Services/Other	2	2		2
Total	85	24	39	15
	52%	15%	24%	9%

Branch	Time Slot	No Time Slot	Partly Time Slot	Do not know
Retailers	22	32	28	1
Groceries	2		3	
Offices		25	6	1
Restaurant/Café/Hotel	5	5	13	
Services/Other		3	1	
Total	29	65	51	2

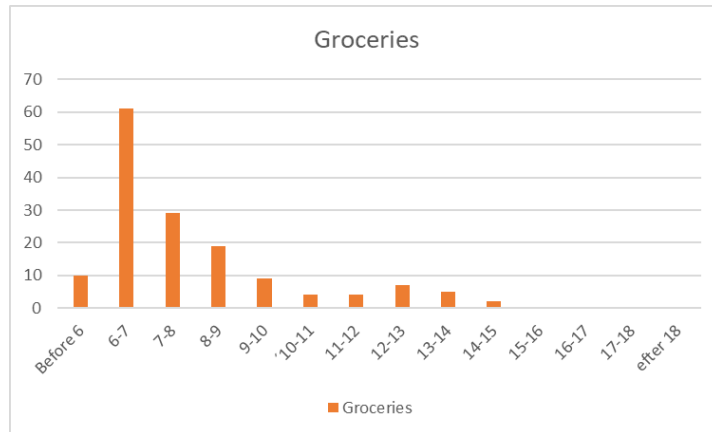| Retailers	Central Controlled	Controlled by Reciever	Not Controlled	Other
Electronics	9			
Home Decoration	3		1	
Fashion and Retail	31	3	6	1
Watches, Jewelry etc	8	3	2	
Others	14	3	2	2
Total	65	9	11	3

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Average – Shipments and deliveries

Branch	Deliveries average/week	Shippings average/week
Retailers	8,0	1,3
Groceries	0,8	0,1
Offices	2,7	0,7
Restaurant/Café/Hotel	2,6	0,6
Services/Other	0,4	0,2
Total	**8,4**	**1,7**

Branch	Deliveries per Week /Employee	Shippings per Week /Employee	Deliveries per Week /1000 m^2	Shippings per Week /1000 m^2
Retailers	0,53	0,09	11	1,8
Groceries	0,75	0,08	1,2	2,3
Offices	0,08	0,02	3,6	1,0
Restaurant/Café/Hotel	0,31	0,07	3,7	2,2
Services/Other	0,32	0,37	0,3	32
Total	0,12	0,01	0,2	6,1

Retailers	Deliveries average/week	Shippings average/week
Electronics	6,6	4,6
Home Decoration	4,3	0,4
Fashion and Retail	9,0	1,2
Watches, Jewelry etc	10,0	0,9
Others	5,7	0,6

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Distribution patterns of deliveries over time (average day)
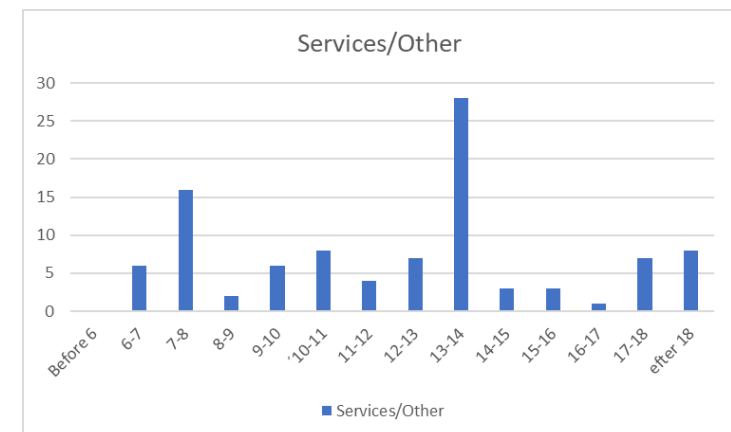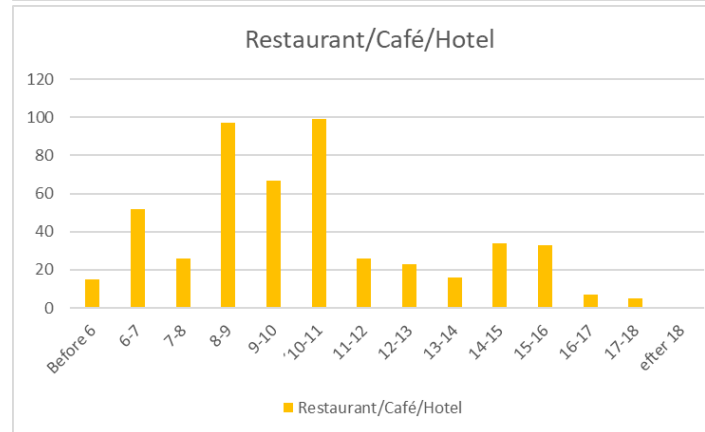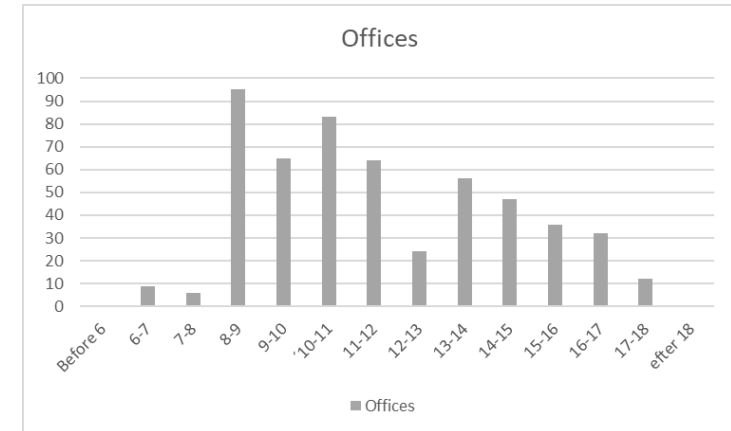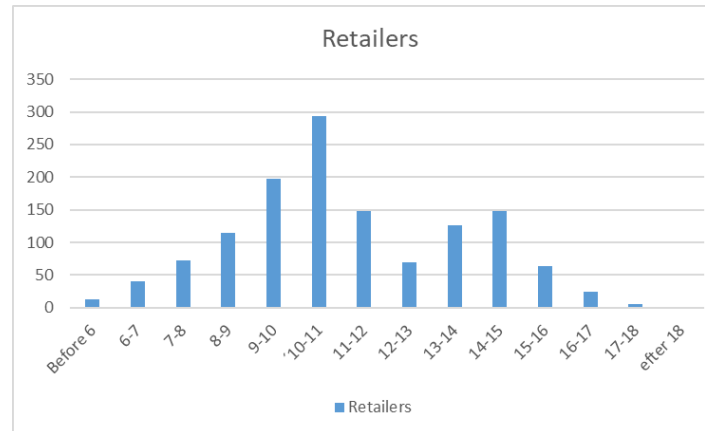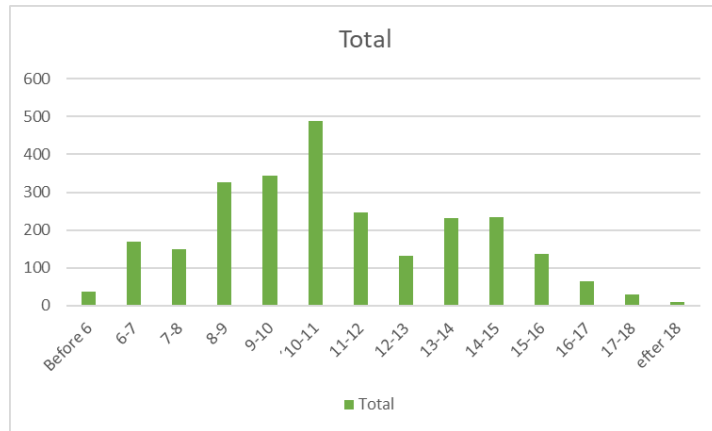
Preferred solution

- C/o-address for consolidation
- Centrally financed by the five real estate owners
- Procurement during the autumn 2018
- Pilot phase* during 2019

Important parts of the service

- Customer service and opening hours
- Drop off and pick up routines (internal logistics)
- Documentaion and notifications
- Reporting, evaluation, follow up
- Return of goods
- Express deliveries
- Packaging
- Perishable goods (future service)

Selection criteria – pilot phase

➢ No perishables, tempered goods, or very high value goods

➢ No narrow time windows or other restrictions

➢ Several involved transport operators

Group 1 - very good prerequisites and potential	Group 2 – moderate prerequisites and potential	Group 3 - Limited potential	Group 4 – Not relevant
70	8	36	51

Key figures and potential

➤ Current situation; approximately 450-500 trucks performs deliveries and service trips to Nordstan each day (1/3 heavy trucks and 2/3 light duty trucks)

➤ Overall estimated potential to reduce the number of trucks by 50% (corresponding to 150-200 tons of CO_2 annually).

➤ The pilot concept will adress about one third of the businesses in Nordstan (70 companies) with the best prerequisites for consolidation. When fully implemented, the concept is expected to reduce the number of trucks with 25-35% (corresponding to 75-140 tons of CO_2 annually)

Lessons learnt

➢ A good cooperation and a continuing dialogue between the city, the property owners (Nordstan), the businesses, the freight companies and all other stakeholders is imperative to success

➢ It takes time and resources to undertake this kind of data collection and analysis as well as to set up the boundaries of the case

➢ A common goal (even if differing motivators) – in this case for example, less congestion, noise, emissions and a more attractive and liveable city centre - is also essential to success. All the stakeholders must see the benefit

➢ A good business model to ensure the success of implementing the pilot is important

➢ Creating a c/o address will certainly reduce the number of deliveries to the shopping mall, thus reducing the number of trucks in the city centre

Thank you for your attention!

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