Consolidation of deliveries to the Nordstan shopping center

VREF – 2018-10-17
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
Nordstan – key facts

➢ Second biggest shopping mall in Sweden

➢ 200 shops and restaurants sharing 70000 square metres of floor space

➢ Turnover of about 450 MEUR

➢ Almost all deliveries via an underground loading street

➢ 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 adress 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
- Strengthen the work within the city to encourage future sustainable and efficient solutions for city logistics

- Less heavy transports in the city center
- 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 goods traffic to Nordstan
- Survey and interviews for 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

<table>
<thead>
<tr>
<th>Branch</th>
<th>Companies by Branch</th>
<th>Number of Responses</th>
<th>Response Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Retailers</td>
<td>91</td>
<td>84</td>
<td>92%</td>
</tr>
<tr>
<td>Groceries</td>
<td>6</td>
<td>4</td>
<td>67%</td>
</tr>
<tr>
<td>Offices</td>
<td>54</td>
<td>39</td>
<td>72%</td>
</tr>
<tr>
<td>Restaurant/Café/Hotel</td>
<td>27</td>
<td>22</td>
<td>81%</td>
</tr>
<tr>
<td>Services/Other</td>
<td>7</td>
<td>4</td>
<td>57%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>185</strong></td>
<td><strong>154</strong></td>
<td><strong>83%</strong></td>
</tr>
</tbody>
</table>

- 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
Deliveries per branch

- Retailers: 55%
- Groceries: 19%
- Offices: 18%
- Restaurant/Café/Hotel: 6%
- Services/Other: 2%
Transport companies and part of deliveries

Companies that Delivers Goods:
- Others: 173 (89%)
- Wholesalers: 6 (3%)
- Freight Company: 16 (8%)

Part of Deliveries:
- Freight Company: 65%
- Others: 31%
- Wholesalers: 4%
Part of freight volumes delivered by freight companies
## Terms and conditions for deliveries

### Terms/Conditions for Deliveries

<table>
<thead>
<tr>
<th>Branch</th>
<th>Central Controlled</th>
<th>Controlled by Receiver</th>
<th>Not Controlled</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>Retailers</td>
<td>65</td>
<td>9</td>
<td>11</td>
<td>3</td>
</tr>
<tr>
<td>Groceries</td>
<td>2</td>
<td>1</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Offices</td>
<td>6</td>
<td>6</td>
<td>19</td>
<td>5</td>
</tr>
<tr>
<td>Restaurant/Café/Hotel</td>
<td>10</td>
<td>6</td>
<td>7</td>
<td>4</td>
</tr>
<tr>
<td>Services/Other</td>
<td>2</td>
<td>2</td>
<td></td>
<td>2</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>85</strong></td>
<td><strong>24</strong></td>
<td><strong>39</strong></td>
<td><strong>15</strong></td>
</tr>
<tr>
<td><strong>Retailers</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Electronic</td>
<td>9</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Home Decoration</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fashion and Retail</td>
<td>31</td>
<td>3</td>
<td>6</td>
<td>1</td>
</tr>
<tr>
<td>Watches, Jewelry etc</td>
<td>8</td>
<td>3</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Others</td>
<td>14</td>
<td>3</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>65</strong></td>
<td><strong>9</strong></td>
<td><strong>11</strong></td>
<td><strong>3</strong></td>
</tr>
</tbody>
</table>

### Branch

<table>
<thead>
<tr>
<th>Branch</th>
<th>Time Slot</th>
<th>No Time Slot</th>
<th>Partly Time Slot</th>
<th>Do not know</th>
</tr>
</thead>
<tbody>
<tr>
<td>Retailers</td>
<td>22</td>
<td>32</td>
<td>28</td>
<td>1</td>
</tr>
<tr>
<td>Groceries</td>
<td>2</td>
<td></td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Offices</td>
<td>25</td>
<td></td>
<td>6</td>
<td>1</td>
</tr>
<tr>
<td>Restaurant/Café/Hotel</td>
<td>5</td>
<td>5</td>
<td>13</td>
<td></td>
</tr>
<tr>
<td>Services/Other</td>
<td>3</td>
<td></td>
<td>1</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>29</strong></td>
<td><strong>65</strong></td>
<td><strong>51</strong></td>
<td><strong>2</strong></td>
</tr>
</tbody>
</table>
# Average – Shipments and deliveries

<table>
<thead>
<tr>
<th>Branch</th>
<th>Deliveries average/week</th>
<th>Shipplings average/week</th>
<th>Part of Total Deliveries</th>
<th>Part of Total Shipings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Retailers</td>
<td>8,0</td>
<td>1,3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Groceries</td>
<td>0,8</td>
<td>0,1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Offices</td>
<td>2,7</td>
<td>0,7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Restaurant/Café/Hotel</td>
<td>2,6</td>
<td>0,6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Services/Other</td>
<td>0,4</td>
<td>0,2</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>8,4</strong></td>
<td><strong>1,7</strong></td>
<td><strong>100%</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Branch</th>
<th>Deliveries per Week /Employee</th>
<th>Shippings per Week /Employee</th>
<th>Deliveries per Week /1000 m²</th>
<th>Shippings per Week /1000 m²</th>
</tr>
</thead>
<tbody>
<tr>
<td>Retailers</td>
<td>0,53</td>
<td>0,09</td>
<td>11</td>
<td>1,8</td>
</tr>
<tr>
<td>Groceries</td>
<td>0,79</td>
<td>0,08</td>
<td>1,2</td>
<td>2,3</td>
</tr>
<tr>
<td>Offices</td>
<td>0,08</td>
<td>0,02</td>
<td>3,6</td>
<td>1,0</td>
</tr>
<tr>
<td>Restaurant/Café/Hotel</td>
<td>0,31</td>
<td>0,07</td>
<td>3,7</td>
<td>2,2</td>
</tr>
<tr>
<td>Services/Other</td>
<td>0,22</td>
<td>0,37</td>
<td>0,3</td>
<td>32</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>0,12</strong></td>
<td><strong>0,01</strong></td>
<td><strong>0,2</strong></td>
<td><strong>6,1</strong></td>
</tr>
</tbody>
</table>

**Retailers**
- 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
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 criterias – pilot phase

➢ No perishables, tempered goods, och very high value goods
➢ No narrow time windows or other restrictions
➢ Several involved transport operators

<table>
<thead>
<tr>
<th>Group 1 - very good prerequisites and potential</th>
<th>Group 2 – moderate prerequisites and potential</th>
<th>Group 3 - Limited potential</th>
<th>Group 4 – Not relevant</th>
</tr>
</thead>
<tbody>
<tr>
<td>70</td>
<td>8</td>
<td>36</td>
<td>51</td>
</tr>
</tbody>
</table>
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 CO2 annually).

➢ The pilot concept will address 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 CO2 annually)
Thank you for your attention!

Christoffer Widegren

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