Data-driven assessment of the economic & mobility impact of retail development

Masterclass Smart Cities
Store centricity vs. Customer centricity

- New Location
- 5km circle
- 20min isochrone
- Real catchment area
What if we are able to predict purchasing behavior from the customer’s perspective?

- Total market potential
- Willingness to travel
- Competitive forces
- Clustering effects
- Location features
- ...
Step by step

macro- vs micro-approach

**Macro-economic**
Global perspective on market segment dynamics

**Micro-economic**
Includes niche positions, precise location, local context and intra-network cannibalization
Macro-economic perspective

RetailCompass

Macro-economic simulations

• RetailCompass allows impact analysis of **macro-economic changes** in the retail landscape

• For **5 main retail segments**
RetailCompass
Average trip propensity per main segment

- Daily goods
- Periodic goods
- Electronics
- Home furniture and equipment
- Do-It-Yourself
Macro-economic perspective

Case: Beveren-Waas
Macro-économische resultaten

RetailCompass
Case Beveren

Pareinpark
Cluster of mixed activity (including high frequency retail)

9.000 m² dispersed retail
Step by step

macro- vs micro-approach

Macro-economic
Global perspective on market segment dynamics

Micro-economic
Includes niche positions, precise location, local context and intra-network cannibalization
Micro-economic perspective

Case Beveren - Pareinpark
Daily goods – Relocation of Lidl
Micro-economic approach

Case Beveren - Pareinpark

Relocation of Lidl

• Conclusion
  - Improved store turnover after relocation
  - Moderate increase in intra-network cannibalization for Lidl

### Relocation Lidl Beveren

<table>
<thead>
<tr>
<th></th>
<th>Δ results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Annual store turnover</td>
<td>+12%</td>
</tr>
<tr>
<td>Intra-network cannibalization</td>
<td>+3%</td>
</tr>
</tbody>
</table>

### Shop Impact

#### Own Stores

<table>
<thead>
<tr>
<th>Shopname</th>
<th>Impact (%)</th>
<th>Impact (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lidl Beveren Station Noord</td>
<td></td>
<td>-100,00%</td>
</tr>
<tr>
<td>Lidl Zwijndrecht</td>
<td>5,90%</td>
<td>-4,71%</td>
</tr>
<tr>
<td>Lidl Antwerpen</td>
<td>1,20%</td>
<td>-0,56%</td>
</tr>
<tr>
<td>Lidl Stabroek</td>
<td>0,40%</td>
<td>0,43%</td>
</tr>
<tr>
<td>Lidl Ekeren</td>
<td>0,01%</td>
<td>-0,49%</td>
</tr>
</tbody>
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### Shop Impact

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Sustainable retail developments
From a mobility perspective

- People: relation to road safety
- Planet: Relation to greenhouse gas emission
- Prosperity: Relation to road congestion
- System performance: Relation to availability and interoperability of public transportation

WBCSD
14/7/2017
06:00-07:00
First results

14/7/2017
07:00-08:00
First results

14/7/2017
08:00-09:00
First results

14/7/2017
11:00-12:00
First results

14/7/2017
12:00-13:00
First results

14/7/2017
14:00-15:00
First results

14/7/2017
15:00-16:00
14/7/2017
17:00-18:00
14/7/2017
18:00-19:00
14/7/2017
19:00-20:00
First results

14/7/2017
20:00-21:00
First results

14/7/2017
23:00-00:00
First results

14/7/2017

Full Day
Footprint
Wijnegem
shopping
Impact on local mobility

Lidl Beveren

high frequency retailing = high impact

120,000 customer visits per year

Mostly by car

Nr of customers

Main route to store
Impact on local mobility

Mapping on existing mobility issues

Delay and dangerous points

120,000 customer visits per year

Mostly by car

1% traverses classified dangerous point

Totaling 490,000 car km per year

and 4,750 hours delayed in traffic
Impact on local mobility

Relocation = more sustainable development?
From mobility perspective

+12% turnover
Impact on local mobility

Difference in car kilometers, delay and road safety
For Beveren residents for their grocery shopping

Impact on Beveren residents’ grocery shopping:

• 0,5% less car usage
  (-9% for Lidl customers)
• 11,000 car trips less per year
• 76,200 car kilometers per year
  (-0,3% of total for grocery shopping)
• 520 hours less delay in traffic per year
  (-0,4% for groceries, -6,2% for Lidl customers)
• Status quo for passing dangerous points: 5%

- More cars
- Less cars
- More or less unchanged

RetailSonar
Impact on local mobility

Social return
From a mobility perspective

- People: relation to road safety
  +/- 0%
- Planet: relation to greenhouse gas emission
  -76.200 km/yr
  Or -1,14 ton CO₂/yr
- Prosperity: relation to road congestion
  -520 hrs/yr
- System performance: relation to availability and interoperability of public transportation
  Na.
Matthias De Beule
Project leader & partner
matthias.debeule@retailsonar.com
+32 499 34 62 85

www.retailsonar.com
www.linkedin.com/company/retailsonar/
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How do we know this?
Customer approach routes & customer modal split

![Car usage diagram](image-url)