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The Helmond Experience with Automated Driving

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Why C-ITS and Automated driving projects in Helmond?

Helmond’s main mobility challenges:

• Congestion, noise and pollution
  – Major road going through the city center: a physical barrier and a cause for congestion, noise and pollution
  – 30,000 vehicles and 2,000 trucks passing every day

• Improving mobility and accessibility:
  – Providing good quality PT-system in low demand areas
  – Challenge “last mile accessibility” from railway stations

• Create sustainable economic growth & innovation
  – City as a living lab
Optimizing the use of existing infrastructure

Urban traffic solutions technology driven: ITS

Automation for last mile solutions

Active support of smart mobility pilots and showcases
Smart Mobility in Helmond

➢ Contribute to large scale deployment and implementation of C-ITS
  ➢ EU- Projects
  ➢ Pilot and tests in real traffic conditions
  ➢ Implementation of C-ITS like connected traffic light controllers

➢ Prepare for introduction and transition towards automated vehicles
  ➢ EU- Projects
  ➢ Pilots and tests

➢ Smart Mobility tested/implemented in Brainport Smart District, Smart City

➢ Innovative public transport solutions, like Bravo flex

➢ Cooperation in SmartWayz.nl, Brainport Smart Mobility, EU networks, KIC Urban Mobility, NMS

➢ Automotive Campus
EU ITS projects in Helmond

- **FREILOT Energy Efficient Intersection Service Helmond**
  - Priority at intersections – speed & time-to-green advice (14 equipped intersection in urban environment)

- **Compass4D – Services**
  - Energy Efficient Intersection, Road Hazard Warning, Red Light Violation Warning
  - Pilot sites: Bordeaux, Copenhagen, Vigo, Verona, New Castle, Thessaloniki, Helmond

- **C-the Difference**
  - GLOSA, green priority, emergency vehicle warning, road works warning, red light violation warning
  - Focus on city twinning and #vehicles: 103 equipped with ITS G5 OBU (trucks, emergency vehicles)

- **C-Mobile**
  - Focus on large scale C-ITS deployment >100 vehicles in Helmond, > 50 equipped intersections
  - 8 pilot sites, architecture, bundling of services, replication capabilities, deployment process

- **CAPITAL**
  - C-ITS training
14 equipped intersections in urban zone

<table>
<thead>
<tr>
<th>Period</th>
<th>Number of crossings</th>
<th>Number of stops</th>
<th>% of stops</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baseline</td>
<td>408</td>
<td>52</td>
<td>13%</td>
</tr>
<tr>
<td>Pilot</td>
<td>343</td>
<td>20</td>
<td>6%</td>
</tr>
</tbody>
</table>

Number of crossings and stops in both periods

<table>
<thead>
<tr>
<th></th>
<th>Baseline</th>
<th>Pilot</th>
<th>Rate of change</th>
</tr>
</thead>
<tbody>
<tr>
<td>CO₂ emissions (g/km)</td>
<td>644</td>
<td>562</td>
<td>-13%</td>
</tr>
<tr>
<td>NOₓ emissions (g/km)</td>
<td>3.87</td>
<td>3.33</td>
<td>-14%</td>
</tr>
<tr>
<td>Fuel consumption (l/100km)</td>
<td>24</td>
<td>21</td>
<td>-13%</td>
</tr>
<tr>
<td>Speed (km/h)</td>
<td>35</td>
<td>36</td>
<td>+2.6%</td>
</tr>
</tbody>
</table>

Emissions, consumption and speed variations
**C-MObILE: ACCELERATING C-ITS MOBILITY INNOVATION AND DEPLOYMENT IN EUROPE**

**Technical**
- CONVERGE
- NL-RefArch
- MOBINET
- Appl. Bundles
- C-Mobile Architecture

**Organizational**
- Stakeholders
- Pilot Sites
- Users
- Developers
- Business
- Pilot site partnerships

**Validation & Assessment**
- Deployment processes
- Replication Capabilities

**Sustainable large-scale C-ITS deployment**

Map showing pilot sites in various European cities:
- VIGO
- BILBAO
- BORDEAUX
- THESSALONIKI
- NORTH BRABANT
- COPENHAGEN
- NEWCASTLE
- BORDEAUX
- BARCELONA

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**Gemeente Helmond**

[European Commission logo]
Learning by doing, doing by learning …

The CAPITAL online training platform assists public and private stakeholders in developing their knowledge, skills, and abilities to build technical, business and policy making proficiency of ITS deployment while furthering their career paths.

http://capital-project.its-elearning.eu/
Lessons learnt?

• **Learning by doing**
• Commitment of *local stakeholders* is key for success, e.g. Fire Brigade, transport company
• For professional users, there could be a *business case* if sufficient economies of scale
• Use same road side equipment for multiple use cases & groups of stakeholders (investment efficiency)
• **Upscaling** through national programs helps (Talking Traffic)
• **Policy base** and *political support* is important
• ITS should *give answers* to real local problems
• Not “one size fits all “
• **Think global, but act local**
• Seeing is believing
• ............................................
EU Automated driving projects in Helmond

- MAVEN
  - Traffic Management C-Automated Vehicles
- Co-Exist
  - AV-ready transport models and road infrastructure for the coexistence of automated and conventional vehicles
- Autopilot
  - IoT and Automated driving
  - Live demo’s automated driving
- FABULOS
  - Future Automated Bus Urban Level Operation Systems
  - Pre-Commercial Procurement
- Secredas
  - Safety and cybersecurity for automated systems
- 5GMobix
  - 5G for CCAM
- ReVeAL
  - Urban Vehicle Access Regulation by means of CCAM

Gemeente Helmond
Next steps – From pilot to large scale implementation

• Single technical innovation -> network level / whole system
  – Impacts on total TM network
  – Connection between micro and macro network
  – City driven
  – Link with other sectors (not only mobility), like health, city planning

• From technical innovation -> operational deployment
  – Legislation
  – Procurement
  – Data
  – Privacy
  – Business model
  – New roles: Public-private, shared-individual
  – Integrated model
  – Interoperability

• Including Human Factors:
  – User acceptance
  – Citizens’ behavior - Changing behavior
  – Co-creation
partnership
The EIP-SCC Action Clusters

- Sustainable Districts and Built Environment
- Integrated Infrastructures & Processes (including Open Data)
- Sustainable Urban Mobility
- Business Models, Finance and Procurement
- Citizen Focus
- Integrated Planning / Policy & Regulations
Manifesto Intelligent Speed Assistance

The Manifesto is supported by:

Auto Drive Solutions (ES)  Belgian Cyclist's Union (B)  CBR (NL)  City of Helmond (NL)
City of Tilburg (NL)  City of The Hague (NL)  CROW (NL)  Dutch Cyclist's Union (NL)  ETSC (B)
MAPtm (NL)  Polis (B)  Province of Overijssel (NL)  Province of Noord-Brabant (NL)  SWOV (NL)
Tractebel (B)  Transport for London Tfl (UK)  University of Zilina (SK)  Vialis (NL)  V-Tron (NL)

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