Introduction and Use Case
COBRA tool v0.31

21 November 2012
Delft, the Netherlands

Kerry Malone, TNO
Today

- Demo of COBRA tool
  - Feedback on
    - Inputs
    - Outputs
  - Ease of use
- Background of project
- Methodology
- Bundles
- Tool
• COoperative Benefits for Road Authorities
• ERA-NET road programme
• Sept 2011 – Feb 2013
• 415K €
• Partners:

  - Project coordinator
  - Project partner
  - Project partner
  - Subcontractor
<table>
<thead>
<tr>
<th>WP1 State of the Art</th>
<th>WP2 Methodology</th>
<th>WP3 Impact Assessment</th>
<th>WP4 Cost Benefit Analysis</th>
<th>WP5 Recommendations &amp; Roadmap</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2011</td>
<td>2012</td>
<td>2013</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>6</td>
<td>7</td>
<td>8</td>
<td>9</td>
<td>10</td>
</tr>
<tr>
<td>11</td>
<td>12</td>
<td>13</td>
<td>14</td>
<td>15</td>
</tr>
<tr>
<td>16</td>
<td>17</td>
<td>18</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
COBRA tool

- Aims to support investment decision by NRA to deploy CS
  - compare cooperative platforms
  - societal cost and benefits, and costs (savings) for NRAs
    - decision to be taken in next 5-10 years
- Flexible, can be expanded in the future
Methodology

• Impact Assessment
  – Safety, traffic efficiency, environment
  – At Bundle level (3 in total)

• CBA: Depends on
  – deployment level
  – Legacy systems
  – Reference scenario

• BM
  – Several choices
Bundles

- Local dynamic events
  - Hazardous location notification
  - Road works warning
  - Traffic jam ahead warning
  - eCall
- In-vehicle speed and signage
  - In-vehicle signage
  - Intelligent speed adaptation
  - Dynamic speed limits
- Information services
  - Traffic info and recommended itinerary
  - Multimodal traffic information
  - Parking information and guidance

November 2012
### Combinations Bundles and Platforms

<table>
<thead>
<tr>
<th>Bundle</th>
<th>Cellular</th>
<th>Wireless Beacons</th>
</tr>
</thead>
<tbody>
<tr>
<td>Local dynamic events</td>
<td></td>
<td></td>
</tr>
<tr>
<td>In-vehicle speed and signage</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Information services</td>
<td></td>
<td>N/A</td>
</tr>
</tbody>
</table>

*November 2012*
Business Models for NRA

- **BM1** - Free RA app (Cellular)
- **BM2a** - commercial app (Cellular)
- **BM2b** - Navigation extended (Cellular)
- **BM3** - Public travel time information (Cellular)
- **BM4** - Private dynamic navigation (Cellular)
- **BM5** - Public road-side (Wireless beacons)
- **BM6a** - PPS (road-side private; app by NRA) (Wireless beacons)
- **BM6b** - PPS (road-side by NRA; app private) (Wireless beacons)
- **BM7** - Private road-side (Wireless beacons)
### Example Business Model:
**Free road authority app**

- **Society**
  - Behavioural change / societal benefits (virtual €)
  - Data comm. bundle
- **Driver**
- **Communication provider**
  - App (0 €)
  - Warning (0 €)
  - FCD (0 €)
- **Traffic control centre**
  - Invest in app, service and helpdesk
- **NRA**
  - Savings current infrastructure

Arrows indicate flow of money, goods or services.
Scenario

- UK
- Local dynamic event warnings
- Cellular
- Business Model 1
- Low penetration level

November 2012
Thank you for your attention

Kerry Malone
Kerry.malone@tno.nl
Tel: 00 31 88 86 68559