Defining the Required Infrastructure for Co-Operative Systems

Kerry Malone
Project Structure

Existing CoSy → Selection and Ranking CoSy → Identification Required Infra

Socio-economic Impact Assessment

Road Map and Roll Out

Recommendations EC
Cooperative Systems and Intelligent Infrastructure
**Day-1 Systems**

**EU wide implementation (plans)**

**Technical Maturity Impacts**

<table>
<thead>
<tr>
<th>Name of Service</th>
<th>Easyway Priority</th>
<th>DRIVE C2X</th>
<th>ITS Directive</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hazardous location notification</td>
<td>X</td>
<td>X**</td>
<td></td>
</tr>
<tr>
<td>Traffic jam ahead warning</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Post crash warning</td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Car breakdown warning</td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Obstacle on driving surface warning</td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Decentralized floating car data</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>eCall</td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>In-vehicle signage</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Enhanced route guidance</td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Insurance and financial services</td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Road works warning</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Vulnerable road user warning</td>
<td></td>
<td></td>
<td>X*** X****</td>
</tr>
<tr>
<td>Wrong way driving warning</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Traffic information and recommended itinerary</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Automatic access control / parking management incl. ITP</td>
<td></td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>
Grouping of applications based on requirements for ICT infra

- Need at least 2 forms of communication for pan-European rollout
- 4 groups
  - Group 1: based on IEEE802.11p V2V communication
  - Group 2: based on mobile networks such as GSM and UMTS; in-vehicle unit communicates with back-office systems via mobile network.
  - Group 3: based on IEEE802.11p V2I and roadside ICT infra
  - Group 4: based on IEEE802.11p and / or GSM and UMTS and V2I. Both ICT infra in back-office and roadside necessary
Existing CoSy → Selection and Ranking CoSy → Identification Required Infra → Socio-economic Impact Assessment → Recommendations EC → Road Map and Roll Out
Grouping of countries

- Factors influencing the decision-making and deployment of CoSy in Member States
  - Public-Private relationship
  - Presence of required infrastructure
  - Level of activity of road operators in traffic management provision

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Existing CoSy

Selection and Ranking CoSy

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Recommendations EC
Role of members in the value chain

Cooperative Systems

Level One
- Telecom Industry
- Infrastructure Supplier
- Public Authorities
- Content Provider
- Service Provider
- Automobile Club
- Research Institutions
- Car Manufacturer
- Automotive Supplier
- User
- Road Operator

Level Two
- Insurance Company

Level Three
- Auto Manufacturer
- Automobile Club
- User
- Public Authorities
- Infrastructure Supplier
- Telecom Industry
- Content Provider
- Service Provider
- Research Institutions
- Car Manufacturer
- Automotive Supplier
- User
## Level 1 Stakeholders’ Agenda for Deployment (1/2)

<table>
<thead>
<tr>
<th>Topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Define cooperation Agreement within Group</td>
</tr>
<tr>
<td>2 Agree on roles and responsibilities</td>
</tr>
<tr>
<td>3 Agree on Business Model and Cost-Benefit Ratio</td>
</tr>
<tr>
<td>4 Agree on Day-1 Apps</td>
</tr>
<tr>
<td>5 Agree on standards and communication</td>
</tr>
<tr>
<td>6 Agree on legal terms</td>
</tr>
</tbody>
</table>
Level 1 Stakeholders’ Agenda for Deployment (2/2)

<table>
<thead>
<tr>
<th>Topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>7</td>
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<tr>
<td>8</td>
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<tr>
<td>9</td>
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<tr>
<td>10</td>
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<tr>
<td>11</td>
</tr>
<tr>
<td>12</td>
</tr>
</tbody>
</table>

coordination required
"Facilitate and Monitor" scenario

1. Support the solving of R&D questions via respective funding programmes
2. Co-fund early implementations defined by an ITS directive on CoSy
3. Support Cross-national Pre-implementation projects (e.g. CIP)

Follow and facilitate the Solving of Challenges

Start of Day 1 service provisioning on hot spots

Extend number of hot spots

Start implementations of Day 2 applications

Key Stakeholders


EC
Existing CoSy

Selection and Ranking CoSy

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Recommendations EC
Recommendations for the EC (1/2)

1. Appoint clear responsible for the process: “Mr. / Ms. Cooperative Systems”;
2. Facilitate and monitor an agreement among key stakeholders in the deployment of Cooperative Systems in Europe;
3. Continue supporting standardization activities;
4. Brand Cooperative Systems globally, in particular together with USA and Japan under the current cooperation agreements;
5. Expedite conformance testing in the value chain;
6. Coordinate the stakeholders to develop the common specifications for the priority cooperative systems within the framework of the ITS Directive;
Recommendations for the EC (2/2)

7. Adopt the common specifications needed for priority cooperative services within the framework of the ITS Directive;
8. When appropriate, propose deployment Directives on cooperative systems within the framework of the ITS Directive;
9. Determine which other cooperative systems can be offered using the proposed ICT infrastructure;
10. Ensure cooperation through the different DGs involved to achieve these goals.