eCall implementation in Finland
Finland is at forefront of eCall deployment

- 1st EU member state to sign eCall-MoU
- Public eCall test service started in June 2005
  - validating the functionality of eCall unit communications
- 1st detailed accident study ready in November 2005
- All PSAPs equipped with eCall receival systems by end of 2008 (Government Decision 2006)
- Recommendations of the eCall Driving Group have been followed
eCall - how?

**Accident**
- Sensor data: Powerful deceleration, rapid rise in temperature, roll-over

**Vehicle position**
- Vehicle position and direction information at time of accident using satellite positioning (GPS)

**Minimum set of data (MSD)**
- Place, time and type of accident…
- Transmitted during call

**Full set of data (FDS)**
- Broader data about vehicle, can be complemented with data base information
- Short message, GPRS or similar information transmission
- Technology independent transmission to emergency exchange

Data connection + FDS

Voice connection + MSD

Service provider

PSAP
### Impacts of eCall – study results

<table>
<thead>
<tr>
<th>Emergency call delays</th>
<th>Case Study</th>
<th>Case Study + Phone Log</th>
<th>Questionnaire</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>accidents with eCall possibility (n=758)</td>
<td>accidents with eCall possibility (n=759)</td>
<td>accidents without eCall possibility (n=38)</td>
</tr>
<tr>
<td></td>
<td>%</td>
<td>%</td>
<td>%</td>
</tr>
<tr>
<td>Less than 5 min</td>
<td>87.5</td>
<td>56.9</td>
<td>86.1</td>
</tr>
<tr>
<td>5-30 min</td>
<td>8.6</td>
<td>26.9</td>
<td>9.5</td>
</tr>
<tr>
<td>More than 30 min</td>
<td>3.8</td>
<td>16.2</td>
<td>4.4</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
</tbody>
</table>

- 5-10% of all motor vehicle occupant fatalities could be saved
- 4-8% of all road fatalities could be saved
Finnish national eCall framework

Vehicle
- eCall trigger, 112 and MSD message including satellite positioning
- Speech connection

PSAP - Emergency Center
- Decoding the MSD message
- Risk assessment and needed alerts
- Fetching network information

Network operator
- Location information and Caller line identification

Police
- Needed operations

Rescue service
- Needed operations

Ambulance service
- Needed operations

Vehicle registration authority
- Vehicle data
- Finnra's Traffic Information Centre
- Information
## Finnish eCall “Road Map” - 1

<table>
<thead>
<tr>
<th>Recommendations</th>
<th>Organisation responsible</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Sufficient resources allocated to eCall implementation and development</td>
<td>MinTC; MinIA</td>
</tr>
<tr>
<td>2. Consideration of specified authority needs and legal issues</td>
<td>MinIA, EmergCentres</td>
</tr>
<tr>
<td>3. Interoperability requirements of interfaces.</td>
<td>EmergCentres, Police, Rescue, Medical rescue, Vehicle Administration, Finnra</td>
</tr>
<tr>
<td>4. Inclusion of speed and mass information to eCall MDS message to assess crash energy</td>
<td>EmergCentres, MinTC, MinIA, Ficora</td>
</tr>
<tr>
<td>5. Inclusion of vehicle type and weight in freeXML field of MDS message to ensure eCall in MS where PSAPs have no or difficult access to national or international VIN databases</td>
<td>EmergCentres, MinTC, MinIA, Ficora</td>
</tr>
</tbody>
</table>
### Finnish eCall “Road Map” - 2

<table>
<thead>
<tr>
<th>Recommendations</th>
<th>Organisation responsible</th>
</tr>
</thead>
<tbody>
<tr>
<td>6. After 4 and 5, study prioritisation of alerts based on crash energy in situations of multiple alerts</td>
<td>EmergCentres</td>
</tr>
<tr>
<td>7. PSAP information system interprets and illustrates the contents of MDS message and eCall location based on mobile phone network</td>
<td>EmergCentres</td>
</tr>
<tr>
<td>8. PSAP information system can manage situations of multiple alerts concerning the same emergency</td>
<td>EmergCentres</td>
</tr>
<tr>
<td>9. Consideration of specific vehicle type related eCall (e.g. hazardous goods transport vehicles)</td>
<td>MinTC</td>
</tr>
<tr>
<td>10. Promotion of national interests in European standardisation and architecture work</td>
<td>MinTC, MinIA, Ficora</td>
</tr>
</tbody>
</table>
### Finnish eCall “Road Map” - 3

<table>
<thead>
<tr>
<th>Recommendations</th>
<th>Organisation responsible</th>
</tr>
</thead>
<tbody>
<tr>
<td>11. Study updating of information of in-vehicle devices and eCall related data bases</td>
<td>MinTC, MinIA, MinJ, Ficora, Vehicle Administration, Data privacy authority</td>
</tr>
<tr>
<td>12. Solving any data privacy issues</td>
<td>MinTC, MinIA, MinJ, Data privacy authority</td>
</tr>
<tr>
<td>13. Set up national eCall Forum to facilitate required cooperation related to eCall</td>
<td>MinTC, MinIA</td>
</tr>
<tr>
<td>14. General PR and information dissemination on eCall</td>
<td>MinTC, MinIA</td>
</tr>
</tbody>
</table>

eCall implementation in Finland (April 2007)
eCall communications Test Bench

- Test bench in use since June 2005, updated February 2007
  - the data content and format of eCall messages (MSD) is based on eSafety forum eCall DG recommendations April 2006
- 70 registered users from 21 countries so far (April 2007), including among others:
  - car manufacturers
  - eCall-terminal developers
- Simulated Emergency Centre
- Simulated Service Centre
- Simulated eCall vehicle terminal
- Communications in real network Trials with an eCall terminal prototype
eCall implementation in Finland (April 2007)
eCall comms Test Bench

In-vehicle terminal

MSD

DTMF

FDS

XML

Service Centre

PSAP
eCall In-Vehicle Terminal

• Testing of service centre and PSAP operation
• Creating and sending eCall messages
• Creating and editing accident data for testing different cases
• Operation in error cases:
  – connection failed to service
  – response delays
  – server returns error code
• Configurable
  – delays, retries, accident data, terminal preferences
• Logging sent messages
Service centre

- Testing of in-vehicle terminal and PSAP operation
- Validating FDS messages
  - structure and content
- Forwarding and completing FDS messages to the PSAP
  - creating additional information messages
- Generation of error cases:
  - delayed response
  - returning error codes
- Logging received and sent messages
PSAP

- Receiving messages from In-Vehicle Terminal and Service Centre
- Validating and encoding of incoming messages
- Testing of terminal and service centre operation
- Logging received messages and errors
eCall Testing activity

- The test system can be contacted through eCall web pages for communications testing under the customer's own control.
- The service is targeted for everyone wanting to test the functionality of eCall terminals.
- Currently free of charge (since June 2005).
Further information - www.ecall.fi

The Finnish eCall website

- The eCall test bench updated (February 2007, structure and content of eCall message). The test bench has 68 registered users from 20 countries (February 2007)
- National eCall-framework for Finnish authorities Abstract (December 2005)
- eSafety communication 23.11.2006
- Recommendations of the DG eCall for the introduction of the pan European eCall (April 2006)
- Impacts of an automatic emergency call system on accident consequences (english summary)
- Finnish eCall discussion paper (June 2005)
- eCall Implementation in Finland (June 2005)
- The 2nd eSafety Communication - BRINGING ECALL TO CITIZENS
Further information - contacts

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  - Timo Laakko, timo.laakko@vtt.fi