Benefits of Intelligent Transport Systems (ITS)

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What is ITS? A communication infrastructure for mobility

Deployment of ITS: from systems to services

**Deployment of Systems**
- 1995: Monitoring systems
- 2006: Communication networks
- 2007: Traffic Control Centres
- 2013: Variable Messages Signs
- 2020: Incident Detection Systems
- 2020: Car navigation systems
- 2020: Traffic Information Centre

**Deployment of Services for European Citizens**

**SAFETY**
*For a safe network*
To decrease traffic fatalities
25% in 10 years
Towards a zero traffic fatality

**MOBILITY**
*For a convenient network*
To decrease traffic congestion
25% in 10 years
Towards a zero stress for drivers

**SUSTAINABILITY**
*For an environmental friendly network*
To help decrease CO₂ emission
10% in 10 years
Towards a zero congestion network

Source: Easyway: http://www.easyway-its.eu/
Role of ERTICO - ITS Europe
What is ERTICO?

ERTICO is a Public-Private partnership gathering ITS stakeholders to bring Intelligence into Mobility for travellers and goods

› Promote deployment of safe, smart and sustainable solutions for road transport through a technology push (ITS)
› Work on standardised solutions for ITS
› Interface with all modes of transport
› Cooperate with all stakeholders
Benefits of ITS:
Report from iMobility Forum IRM WG
iMobility priority systems

Vehicle based systems
- Adaptive headlights
- Blind spot monitoring
- Eco-driving support
- Emergency braking
- Lane keeping support
- Obstacle and collision warning (including ACC)

Infrastructure based systems
- eCall
- Dynamic navigation
- Dynamic traffic management
- Extended environmental information (extended FCD)
- Local danger warning (VMS)
- Real-time traffic and travel information
- Speed alert
- Eco-driving coaching

http://www.imobility-effects-database.org/
Example application – Speed alert

http://www.imobility-effects-database.org/

Name of application

Description of application

Summary of impacts

Summaries of individual studies
<table>
<thead>
<tr>
<th>Studies</th>
<th>Description of research method(s)</th>
<th>Author(s)</th>
<th>Year of publication</th>
<th>Publication details</th>
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<td>The paper analysed two scenarios: a market-driven scenario and authority-driven scenario. In the authority-driven scenario, ISA was predicted to reduce the number of fatal accidents by 30% and 25% serious accidents over the analysis period of 60 years. Voluntary ISA and mandatory ISA were also predicted to reduce CO2 emissions by respectively by 3.4% and 5.9% on 70 mph (112 km/h) roads.</td>
<td>Impacts of ISA on the number of different types of accidents were estimated on the basis of speed profiles measured in a field test and theoretical models which describe the relation between driving speed and accident risk. The speed profiles used in the analysis were obtained from the ISA UK trials which involved 20 identical vehicles and 79 drivers and supplemented with results from the French LAUSA project. Impacts on CO2 emissions were estimated by using an emissions model available from earlier research.</td>
<td>Lai, F., Carsten, O., and Tate, T.</td>
<td>2011</td>
<td>How much benefit does Intelligent Speed Adaptation deliver? Analysis of its potential contribution to safety and environment. Accident Analysis and Prevention, Article in press.</td>
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<td>The study analysed the relative effects of informative and actively supporting ISA system on experienced and inexperienced drivers. The ISA systems seemed to be more effective at reducing speeds for experienced drivers on some road types. No evidence of negative behavioral adaptation or increased subjective workload levels was found in the study.</td>
<td>The results are based on tests carried out in a driving simulator. The study involved 30 test drivers divided into two groups (experienced and inexperienced). The simulated drives consisted of a familiarisation drive, a practice drive and nine test drives divided into three blocks: ISA system not active, informative ISA active and actively supporting ISA active.</td>
<td>Young, K. L., Regan, M. A., Triggs, T. J., Jenoff-Harper, K. and Newstead S.</td>
<td>2010</td>
<td>Intelligent speed adaptation — Effects and acceptance by young inexperienced drivers. Accident Analysis and Prevention, Vol. 42, pp. 915-941, 2010.</td>
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<tr>
<td>Priority systems</td>
<td>Accident type especially affected</td>
<td>Local results in specific conditions for effects on all accidents for vehicles or roads equipped based on research incorporating accident analysis</td>
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<td>Obstacle &amp; collision warning</td>
<td>rear-end crashes</td>
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</tbody>
</table>
| Emergency braking                | rear-end crashes                                                       | all fatalities EU -7%  
all injuries EU -7%               |
| Blind spot monitoring            | side collisions                                                        | -                                                                                                                                   |
| Adaptive head lights             | accidents with pedestrians and cyclists on unlit roads                  | -                                                                                                                                   |
| Lane keeping support             | head-on or run-off-road, side collisions                               | injuries EU -2 to -6%  
all fatalities EU -5 to -10%   |
| RTTI                             | accidents in adverse conditions, pile-ups                               | accidents in slippery conditions -5 to -15%                                                                                         |
| Dynamic traffic mgmt (VMS)       | accidents in adverse conditions, pile-ups                               | all injury crashes -5 to -20%  
all fatal crashes -10 to -25%   |
| Local danger warning             | accidents in adverse conditions, pile-ups                               | all injury crashes -1 to -15%                                                                                                     |
| Extended environmental information| accidents in adverse environmental conditions                           | -                                                                                                                                   |
| eCall                            |                                                                         | all fatalities -2 to -15%; EU -6%  
severe injuries -3 to -15%; EU -6%                                           |
| Speed Alert                      | accidents caused by exceeding speed limits                              | all injuries EU -6%  
all fatalities EU -9% *                                                       |
| Dynamic navigation               | all accidents                                                           | reduced exposure but increased accident rate due to driving on lower category roads                                               |
| Eco-driving                      | accidents caused by exceeding speed limits                              | Similar effects as speed alert if the functionality includes that part                                                            |

* active accelerator pedal version
Other sources of ITS benefits

  › Huge work - Very comprehensive
  › Many reports from real implementations
  › Costs and Benefits


  › EuroFOT - TeleFOT see final results
Thank you

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