

PRAISE:

Preventing Road Accidents and Injuries for the Safety of Employees

1st Thematic Report: How can In-vehicle Safety Equipment improve road safety at work?

Presented by Ken Shaw, Global Road
Safety Partnership



How can In-vehicle Safety Equipment improve road safety at work?

Health Warning

- Road risk varies from one organisation to another
- In-vehicle technology can be **part of the solution**
- No “one-size” fits all solution
- PRAISE report lists technologies suggested by experts – this is **not** a comprehensive or exclusive list

The image shows the cover of a report titled "PRAISE: Preventing Road Accidents and Injuries for the Safety of Employees". The report is published by ETSC (European Transport Safety Council) and is part of the PRAISE project. The cover features the ETSC logo and the PRAISE logo. The title of the report is "How can In-vehicle Safety Equipment improve road safety at work?". Below the title, there is a list of technologies suggested by experts: Seat Belt Reminders, ISA, ACC, Adaslock, ESC, EDR, Following Distance Warning, Emergency Braking, Route Planning, and Fatigue detector. The cover also includes a photograph of a white truck and a white car. At the bottom, there is a table of contents.

Contents	
ETSC PRAISE project	2
Road Safety in the work context: identifying the problem and introducing in-vehicle technology	2
The Business Case	4
In-Vehicle Technologies: Description, Life saving potential and examples of use	3
Existing Eu level initiatives	10
Recommendations to the EU	10
EU Member State Level Legislation and Policies	14
Recommendations to Member States	16
Initiatives of Employers to introduce In-Vehicle Technology	16
Recommendations for Employers	16
Downsides of technologies, potential barriers and how to overcome them	16
Conclusion	19
References	19

Risk Assessment: The Starting Point

“A planned and systematic process of identifying, assessing, monitoring, and controlling risk which adds value to the business.”

1. Understand nature of the risk

List all causes of road incidents & injury - e.g. excessive speed, alcohol, not using seatbelts, nature of vehicles and operations, driver skills, behaviour and physiological conditions (e.g. fatigue). And, **Why** they happen.

2. Quantify size of the risk

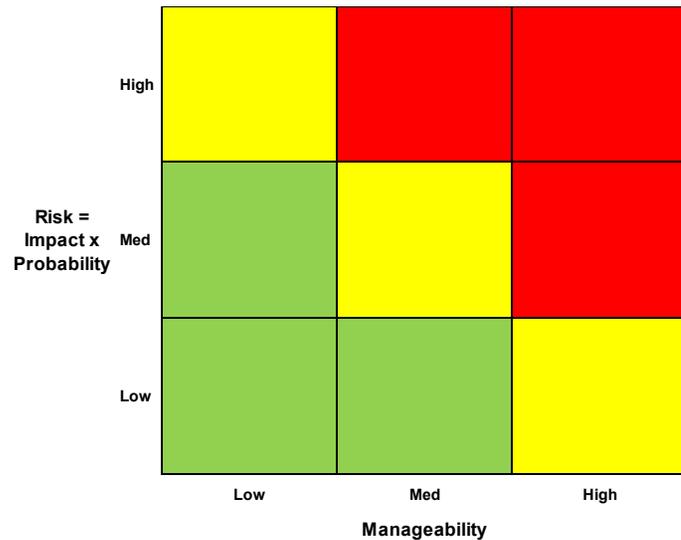
Identify by cause – frequency, number of deaths & injuries, asset damage and resulting costs to the organisation.

“What’s measured gets managed”

Sources of data

MI systems, incident/collision reports, EDRs, insurers, ask employees

Risk Assessment: the starting point

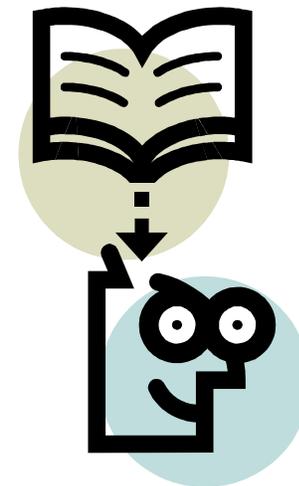


3. Identify & assess priorities

- Rank identified risks
- Focus on high risk and manageability

4. Draft road safety action plan

- Identify potential solutions, including technologies
- Cost/benefit trade-offs
- Employee involvement



Business case

Legal
Economic
Reputation

Item of cost	Sample data
Own damage costs	£1,000 (Eur 1,145)
Third party vehicle damage costs	£1,000 (Eur 1,145)
Third party injury costs (eg Whiplash)	£1,000 (Eur 1,145)
Reported cost of collision	£3,000 (Eur 3,432)
Total cost of collision (including hidden costs at 2 times reported costs)	£6,000 (Eur 6,865)
Revenue required to fund a single collision at 10% return on Sales	£60,000 (Eur 68,649)
Widget sales (at 50p) required to fund fleet safety costs	120,000

2 © and Intellectual Property Dr Will Murray, Interactive Driving Systems, all rights reserved, 2009.

Investment-based business case

- What's it going to take to do it?
- How will it help improve safety and business performance?



Example: Seat belt reminders

What are they?

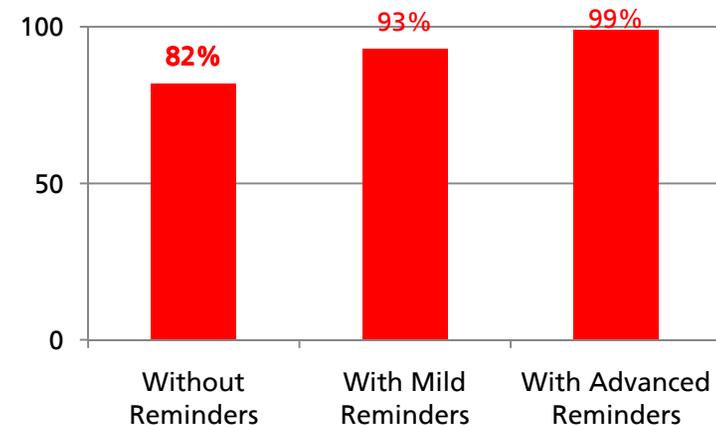
Intelligent, visual and audible devices that detect whether seat belts are in use and give out increasingly urgent warning signals until the belts are used



What road safety problem do they address?

- Risk of death and serious injury in a crash
- In EU countries most people wear seat belts in the fronts of cars, however;
- Significant proportion involved in crashes are unrestrained, even in countries with highest seat belt use

Seat Belt Wearing Rates - Swedish study



Benefit to cost?

- ETSC 2003 analysis
 - Benefit to cost ratio estimated at 6:1

Example: Alcohol Interlocks

What are alcolocks?

Automatic control systems to prevent driving with excess alcohol by requiring the driver to blow into an in-car breathalyser

What road safety problem do they address?

- Excess alcohol contributes to 25% of road deaths in Europe (over 10,000 deaths)
- 'High risk offenders' for whom the crash rate for fatal crashes is 200 times that of sober drivers

How effective are they?

- 40% to 95% more effective in preventing recidivism than traditional measures
- EU study indicated that alcolocks need to be fitted permanently to have an effect
- Swedish companies report that alcolocks prevented excess alcohol amongst fleet drivers

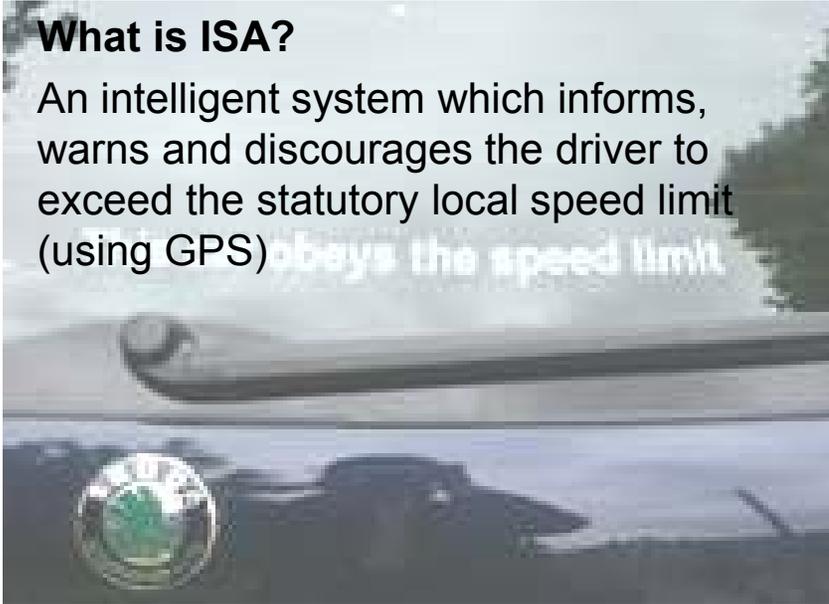
• Benefits to cost of alcolocks in different countries:

Country	Benefit	Lives Saved
Czech Republic	1.6	8
Netherlands	4.1	35
Norway	4.5	5
Spain	0.7	86

Example: Intelligent speed adaptation

What is ISA?

An intelligent system which informs, warns and discourages the driver to exceed the statutory local speed limit (using GPS) *obeys the speed limit*



What road safety problem does it address?

- Excess speed contributes to 30% of fatal crashes (12,000 deaths)
- Typically 40% to 60% of the drivers exceed the speed limit
- Studies indicate reducing average speeds by just 1km/h can result in a 5% reduction in fatal crashes.

How effective?

- **PROSPER project:**
 - Market led 19%-28% lives saved
 - Regulation led 26%-50% lives saved
- **Netherlands:** possible 15% reduction in hospital cases, 21% reduction in fatalities
- **Trials in 10 countries:** Austria, Belgium, Denmark, Finland, France, Hungary, The Netherlands, Spain, Sweden and the UK

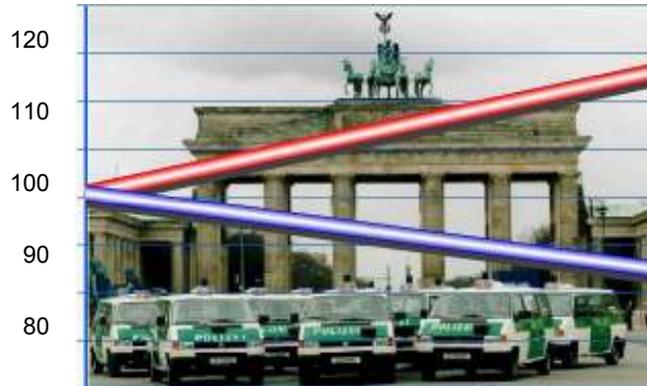
Benefits case:

- **PROSPER:** Benefit to cost ratio
 - Market led benefit 2.0 to 3.5 times
 - Regulation led 3.5 to 4.8 times
- **Other benefits:**
 - Fuel savings
 - CO2 savings
 - potential to reduce journey time

Example: Telemetry (EDRs)

What is an Event Data Recorder?

A “black box” to provide information regarding a crash and can be used for driver monitoring



Berlin Police Fleet: Damage reduction in 381 EDR equipped vehicles, 1997-1998

What road safety problem does it address?

- Poor driver behaviour and skills, which include speed & aggressive driving styles

Case Studies

- Berlin police 1997-1998: 20% drop in accidents
- Rotterdam-Rijnmond Police 1999-2000: 25.1% fall in accident damage costs
- BP Pakistan 2001-2002: 50% drop in accidents

Benefits Case

- Evaluation by EC in 2005, suggests if implemented widely, a probable 10% reduction in road deaths and injuries
- Rotterdam-Rijnmond Police, investment paid for itself within a year

Recommendations to the EU

4th Road Safety Action Programme

- Recognise contribution of in-vehicle technologies by employers to EU target for road death reduction
- Encourage employers with fleets (also EU institutions) to procure vehicles with in-vehicle technologies



- **Public procurement:** adapt EU directive to include in-vehicle safety technologies
- **Seat belt reminders:** adopt legislation to ensure every new vehicle has an enhanced reminder system for all occupants
- **Speed management:** encourage roll out of technologies in government and public fleets. Legislate for fitment to all fleet cars.
- **Alcohol interlocks:** support development of uniform standards to pave way for legislation to mandate for commercial transport
- **Event data recorders:** contribute to development of harmonised standards. Encourage use in fleets.
- **ITS:** monitor developments of safety technologies for standard setting – leading to market penetration or legislation for use
- **Road Safety Charter:** recognise the use of in-vehicle technologies in successful programmes
- **Research:** allocate additional R&D budget

Recommendations at National Level

Risk Assessment required by EU legislation - some governments have gone further

- Sweden: compulsory rules for governmental authorities
- UK: work-related driving included in Health & Safety at Work Act
- France: encourage employers to act by government example
- Germany: DVR campaign on advanced driver assistance systems

Recommendations:

- **Be the market:** safety equipment specified in public procurement, allocate R&D funds
- **Disseminate information:** support employers to carry out risk assessments, highlight the use of safety technologies to improve safety in fleets, promote in-vehicle safety information
- **Deploy financial incentives:** incentivise employers to use in-vehicle safety equipment
- **Use legislation:** classify vehicles used for work as work equipment. Revisit exemptions from seat-belt wearing in “blue-light” fleets, taxis, buses



Recommendations to Employers

Get started:

- Undertake a risk assessment and draw up a road safety action plan
- Include in-vehicle technologies as part of the solution



- **Purchase safe vehicles:** set safety criteria, include 5 star Euro NCAP, include in-vehicle technologies
- **Involve employees:** consult with them, train them and encourage them
- **Work with third parties:** select like-minded contractors, influence vehicle manufacturers
- **EDR's:** engage with employees, reinforce positive as well as sanction negative driving behaviour, review data frequently

THANK YOU!

