

# **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?**

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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



# 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

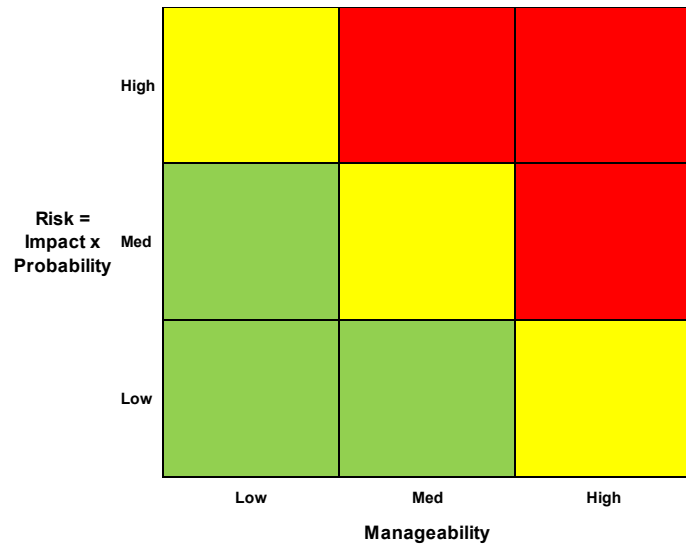
Identify by cause – frequency, number of deaths & injuries, asset damage and resulting costs to the organisation.

*“What’s measured gets managed”*

## Sources of data

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

# Risk Assessment: the starting point

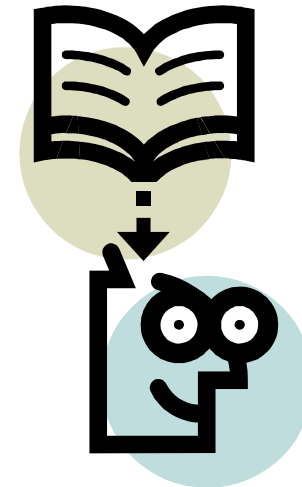


## 3. Identify & assess priorities

- 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?

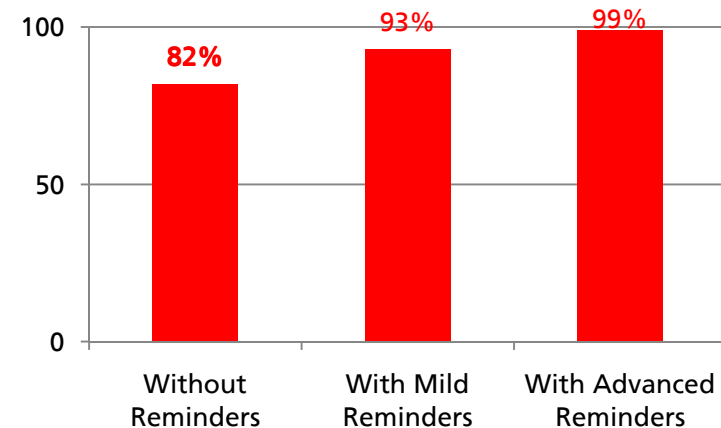
Intelligent, visual and audible devices that detect whether seat belts are in use and give out increasingly urgent warning signals until the belts are used



## 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

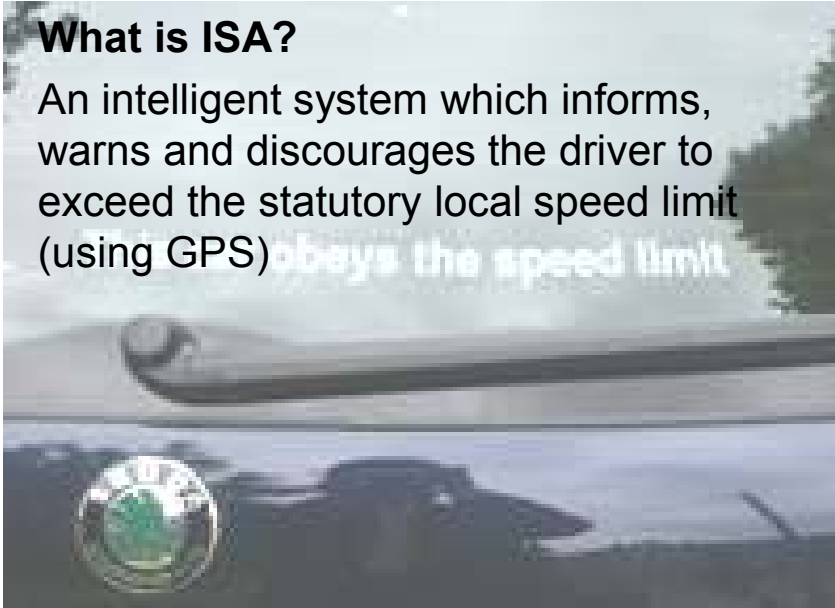
## • Benefits to cost of alcolocks in different countries:

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:

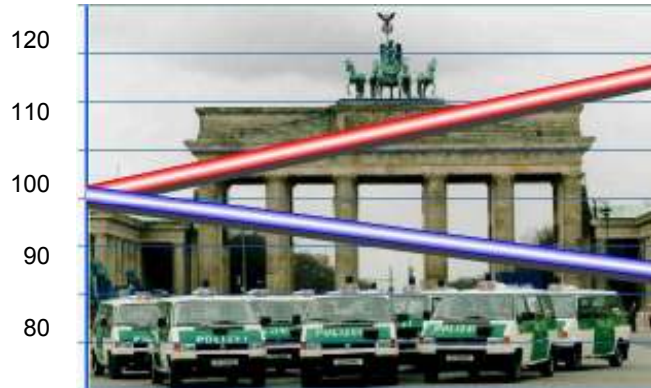
- **PROSPER:** Benefit to cost ratio
  - Market led benefit 2.0 to 3.5 times
  - Regulation led 3.5 to 4.8 times
- **Other benefits:**
  - Fuel savings
  - CO2 savings
  - potential to reduce journey time



# 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

## 4<sup>th</sup> 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!

