The 2003 European Road Assessment Programme is financially supported by:

European Commission

FIA Foundation for Mobility and Society

Toyota Motor Europe sa/nv

Malcolm Harbour MEP

Dr Fabiola Mascardi

Member of the Cabinet of Loyola de Palacio Vice-President of the Commission responsible for Transport

James Rosenstein

Vice President External Relations Toyota Motor Europe

John Dawson

Chairman EuroRAP

EuroRAP Objectives

- to cut road death and serious injury rapidly through systematic risk assessment and benchmarking
- to identify major safety shortcomings on roads amenable to practical remedy
- to put risk assessment and crash protection at the heart of route improvement and management
- to forge partnerships among those responsible for a safe road system

EuroRAP Driving Forces

- Success of EuroNCAP
- National & EU 50% casualty reduction targets
- 40 000 die in Europe each year
- death & injury driven ("vision zero")

EuroRAP

Zero Vision

- road death is unacceptable
- humans make mistakes (1 in 500 decisions)

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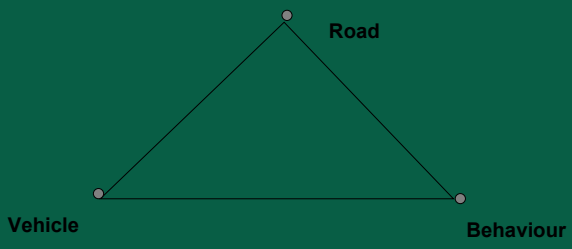
A Safe Road System



a shared responsibility - manufacturer, road authority and driver

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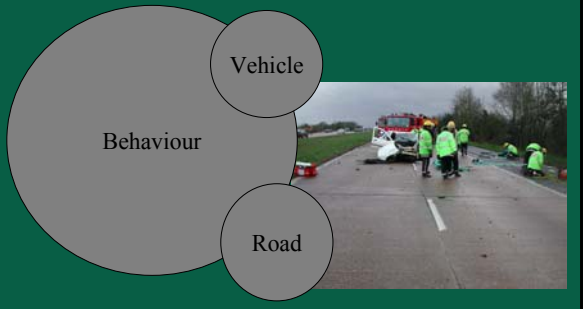
Old "Fix the Driver" Model



Over 90% of accidents result from human error - but to err is human!

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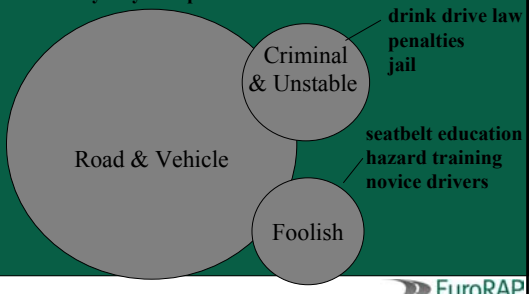
Death Reducing Model

forgiving design
"health & safety" style inspection



drink drive law penalties jail

seatbelt education hazard training novice drivers

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EuroNCAP

The human body cannot survive uncushioned impact of more than 40kph

EuroRAP

EuroNCAP Pole Test

The EuroNCAP pole test simulates a crash between roadside and vehicle

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Surviving More Than 70kph

A 4-star car alone cannot protect above 70kph

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Surviving More Than 70kph

Even reasonable speeds will kill if the car and road don't work together as a system to protect people from severe impacts

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Priorities for Roads

- getting emergency services in quickly
- death & serious injury
- slight injuries
- accidents

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Main Death & Serious Injury Mechanisms

- Head-on crashes
- brutal side impacts at junctions
- crashes with roadside objects
- pedestrians

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Designing Differently eg 1- junctions

A recent Swiss scheme replacing signals

Traffic signals on high speed roads have "death built in". Well designed roundabouts are safe.

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Designing Differently eg 2 - head to head

The risk of a head-on crash grows rapidly with vehicle flow causing "routine, predictable death"

Central safety fences on single carriageways - now the Swedish standard

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Designing Differently eg 3 - roadside objects

Thousands die each year hitting roadside objects for want of safety fencing

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Designing Differently eg 4 - pedestrians

Even where pedestrians are prohibited on motorways, many die on the hard shoulder.

Pedestrians need separating physically - or vehicles must travel at low speed

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The Twin EuroRAP Protocols

- **Road protection score**
  star ratings based on an inspection of the protection from main death mechanisms
- **Risk Mapping**
  maps of death & serious injury rates for drivers with extra mapping for authorities

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Road Protection Score - video inspection

- Enabling high level ratings for crash protection
- raising key research questions

How much safer is safety fencing than hatching or solid lines?

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EuroRAP Risk Mapping

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Indicative Spread of Risk Ratings

Risk Rating	Links
low	12%
low-medium	50%
high-medium	25%
high	10%
very high	3%
	100%

The good news is that most roads seem better than average - that means the bad can be more simply targeted

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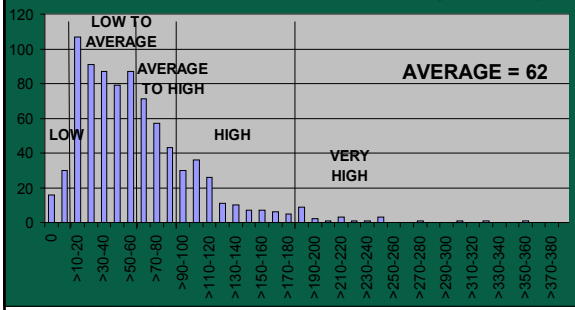
Accident rate frequency distribution

(Indicative Results shown graphically)



Killed & Serious /bVehkm

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Conclusions - 1

- 60% of deaths are <u>not</u> on built-up roads
- best data for safest roads and countries
- paradoxically, Europe's fastest roads are safest roads

motorways have protection systems matching their speed rating

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Conclusions - 2

- targeting death means targeting single carriageway main roads
- death rate of an average single carriageway is 4 times a motorway
- least safe roads have death rate 10 times worse than the best

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Applying the Programme - for the consumer

- popularising issues and raising public consciousness
- helping set and explain sensible speed limits

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Applying the Programme - for authorities

- enabling authorities & engineers to benchmark *at high level*
- helping track implementation of best practice, particularly *mass action*
- identifying priorities for action and investment - *existing and new routes*

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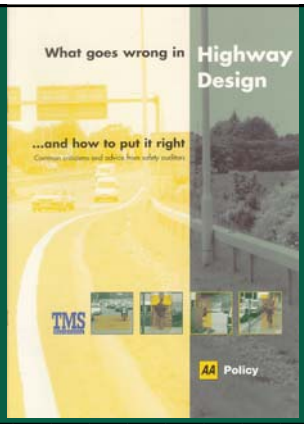

Good engineers and engineering thrive on benchmarking and peer review -

but it must be robust and fair

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Programme

- 2001/2 - development, demo, communication , consultation
- 2003 - extend to 6 countries
- 2004 - extend to 9 countries, focus on villages
- 2005 - extend to 12 countries. Pilot urban areas

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Countries

- 2003 countries
  - consolidation UK, NL, S
  - implementation E, I, F
  - Preparation Irl, ?, ?
- AusRAP now announced

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Publication of EuroRAP

- February - pilot results in 4 countries
- July - AA Atlas
- 2002/3 focus on tools/events for road authorities/operator

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Finally…

- A drive down the road with the highest risk rating in Britain
- engineers will note how far the road departs from modern safety standards

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Claes Tingvall

Director of Traffic Safety
Swedish National Road Administration

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