**INSURANCE INSTITUTE FOR HIGHWAY SAFETY**

**HIGHWAY LOSS DATA INSTITUTE**

www.iihs.org

# Plenary session: Sustaining Real World Safety through Innovative Technologies

21st Enhanced Safety of Vehicles Conference
Stuttgart, Germany ●|● 15 June 2009

## Consumer Group Perspective

Adrian Lund, Ph.D.

# What is a "consumer group?"

from the internet …

- Wikipedia

  – Consumer organizations are advocacy groups that seek to protect people from corporate abuse

- Longman Dictionary of Contemporary English

  – consumer group: an organization that makes sure that consumers are treated fairly and that products are safe

  We try to represent the interests of consumers – citizens – although the confrontational tone of these definitions has become somewhat less appropriate for the motor vehicle area in recent years.

# Many groups claim to represent consumers

Is IIHS a consumer group?

- IIHS is funded entirely by automobile insurers in the United States

  - We answer to a Board of Directors who represent companies with a profit motive, but

  - That profit motive is consonant with the control and prevention of motor vehicle crashes and injuries

- Our sole product is objective safety information

  - More than anything else, this defines IIHS as a consumer group

  - Our effectiveness relies entirely on the power of our information and the judgment of individuals and policymakers

  - We do not legislate, regulate, or litigate – though our information may be used for those purposes
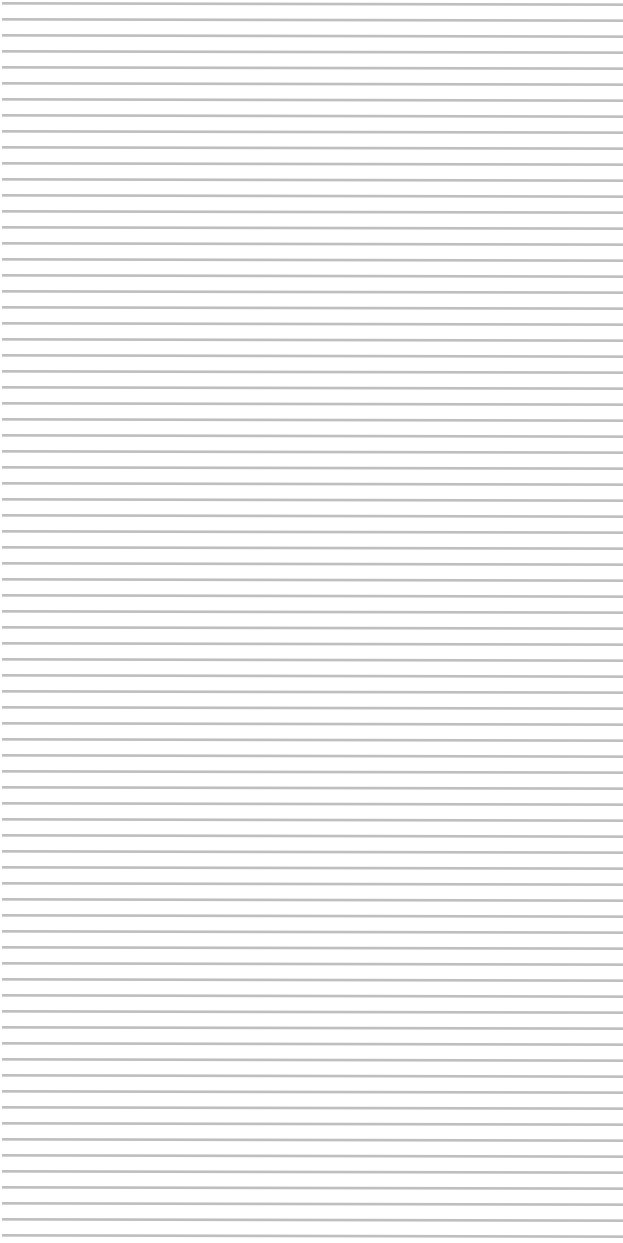
# Role of consumer groups in motor vehicle safety

In context of other panelist roles

- Supplier – develop new technology addressing crashes and injuries

- Automaker – integrate new technology into vehicle package that consumers will buy

- Consumer group (like IIHS)

  – Research and document the human losses from motor vehicle crashes

  – Monitor effectiveness of automaker innovations and government regulations

  – Communicate objective information to consumers and policy makers

- Government – set minimum standards for vehicles, roads and road users that reflect proven or feasible technology

# Other consumer groups with similar mission

For example

- Various NCAPs
  - Australia
  - Europe
  - Japan
  - Korea
  - USA
- Consumers Union (USA)
- Which? (UK & Europe)
- Other insurer-supported organizations (RCAR centers)

# Past successes
# & future challenges
# in the U.S.

# Motor vehicle crash deaths and deaths per billion vehicle miles traveled

## 1950-2008



deaths per billion vehicle miles traveled

motor vehicle deaths

37,313

12.8 per billion
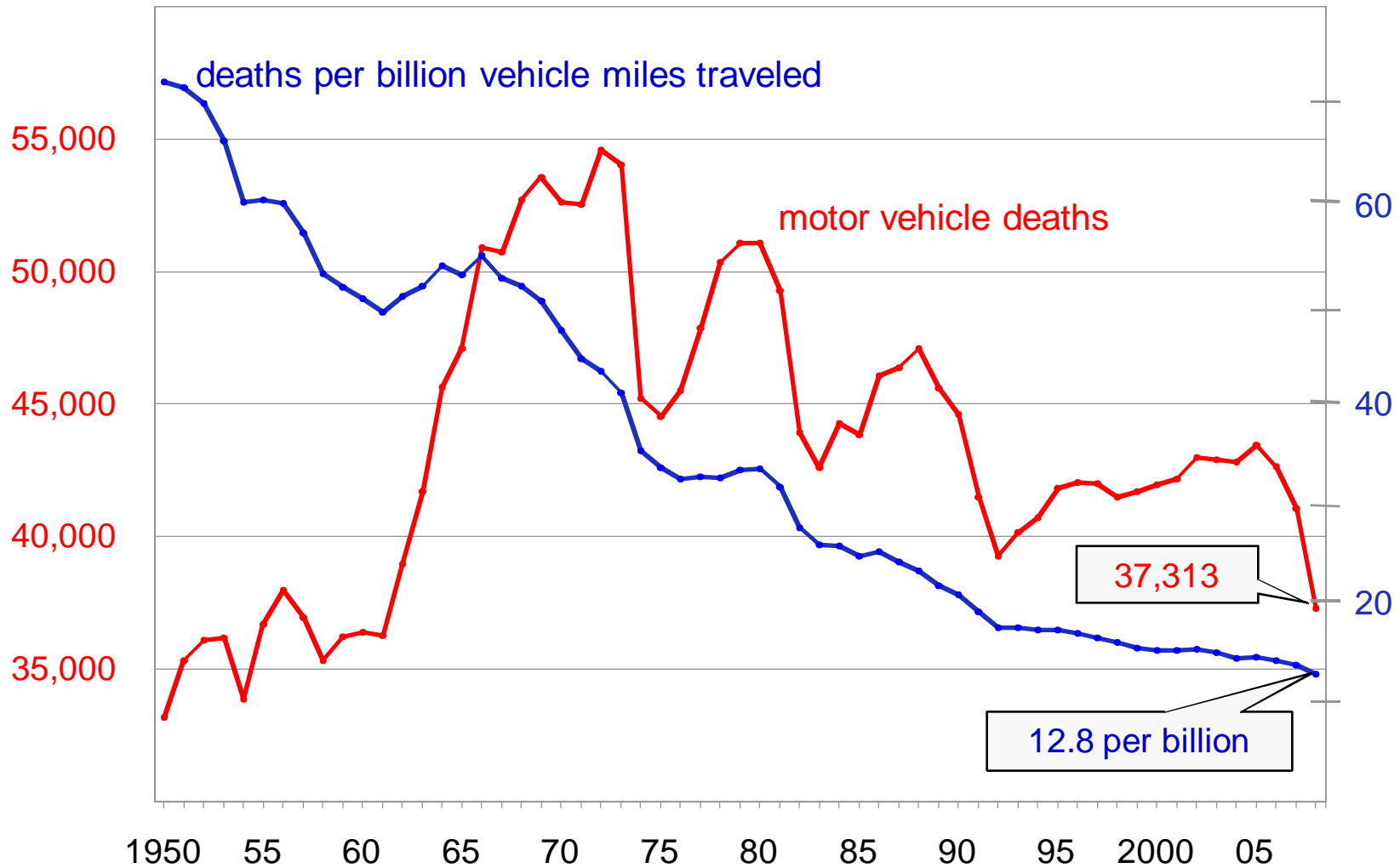
# Maximum posted speed limits in U.S.

2009

| maximum posted | limited access (number of states) | other roads (number of states) |
|---|---|---|
| 80 mph | 2 | 0 |
| 75 mph | 11 | 0 |
| 70 mph | 19 | 4 |
| 65 mph | 17 | 14 |
| 60 mph | 1 | 4 |
| 55 mph or less | 0 | 28 |

# Average horsepower

All cars, by model year
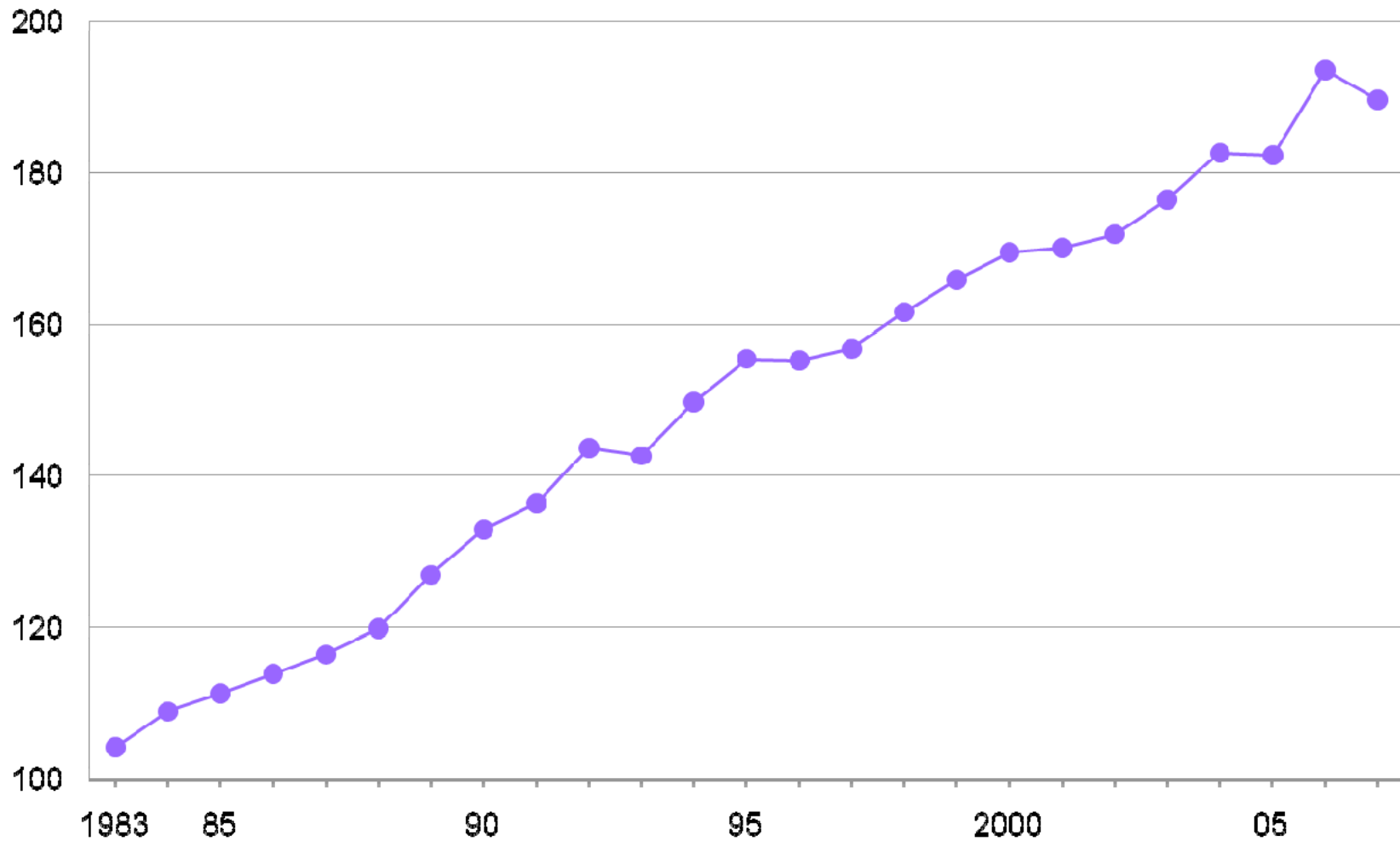
# Lincoln Town Car and Smart ForTwo

To scale comparison

# Two-seater targeting city driving to hit 35 mph

GM/Segway P.U.M.A.



## GM to roll out two-seat, urban electric prototype

### Two-seater targeting city driving to hit 35 miles per hour

**David Shepardson and Alisa Priddle / The Detroit News**

General Motors Corp. will announce today that it is building a prototype two-seat electric vehicle with Segway Inc.

An early prototype of the Personal Urban Mobility and Accessibility vehicle -- dubbed Project P.U.M.A. -- will be shown off in New York this morning, a day ahead of the press previews for the New York International Auto Show.

The small electric vehicle is likely to garner quite a bit of attention at the show -- along with some new luxury vehicles, which usually are highlights of the New York show and will be again this year despite plummeting auto sales, a 17-month recession and fewer big Wall Street bonuses.

The P.U.M.A. is an upright two-wheeler, much like today's Segway Personal Transporters, but it seats two people and has a windshield for protection from the elements.

The Detroit News, 4-7-09

# STATUS REPORT

**INSURANCE INSTITUTE FOR HIGHWAY SAFETY**

## THESE MACHINES ARE DESIGNED FOR THE

# RACETRACK

but you'll only find one of them on the highway. Supersport motorcycles have engines that deliver more horsepower per pound than a typical NASCAR vehicle, reaching speeds of nearly 190 miles per hour, and some of their riders treat public roads like private racecourses. The result is that motorcyclists who ride supersports have driver death rates per 10,000 registered motorcycles nearly 4 times higher than rates for motorcyclists who ride all other types of
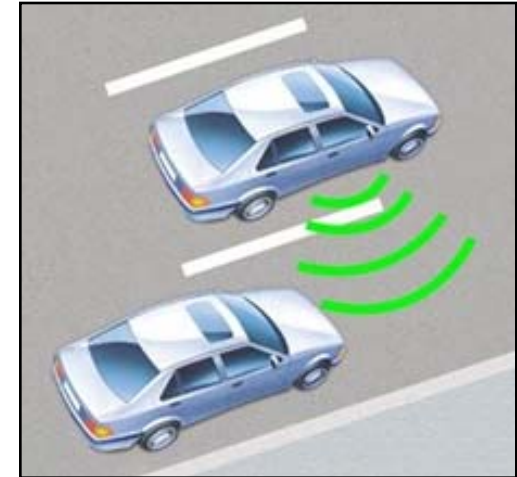
**September, 2007**

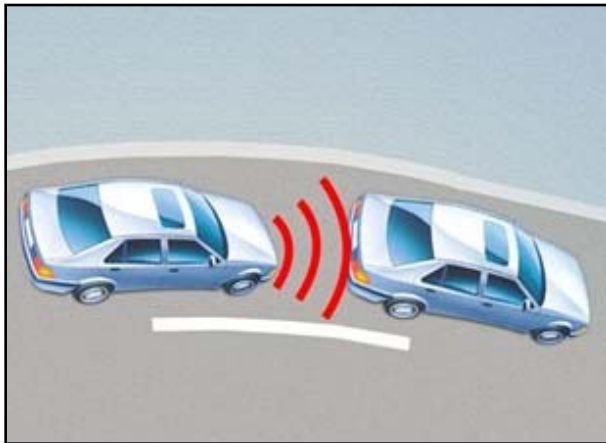# Advanced information technologies for safety
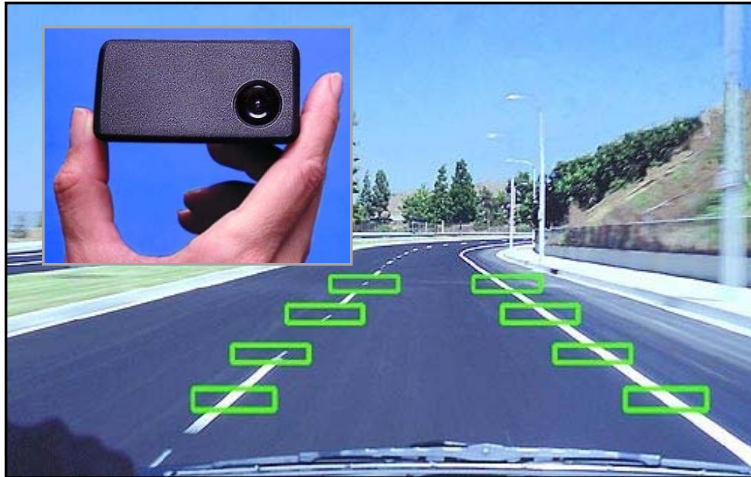


lane departure prevention



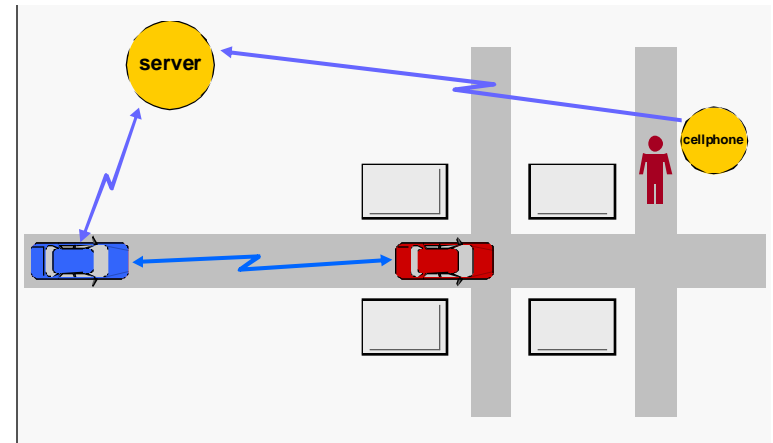crash notification



blind spot detection



forward collision warning
& auto braking



adaptive headlights



vehicle-to-vehicle & vehicle-to-
Infrastructure communication

# How do these technologies address the challenges?

- The most prevalent technologies appear to do little for many serious vehicle to vehicle crashes

  - Head-on frontals, side impacts

  - Motorcycles

- The promise of vehicle to vehicle and vehicle to infrastructure communication is yet to be realized

- Crash avoidance is particularly important as vehicles become smaller and travel faster with more distracted drivers

  - These technologies do offer hope in that regard, but we don't know how well they will work, whether people will accept them and whether there will be unintended changes in driver behavior to offset benefits

# Activities at IIHS

Applicability, acceptability, effectiveness, & offsetting behavior

- We estimated maximum benefits of several technologies in 2008
  - Revising to be more consistent with actual realization of technology

- In cooperation with two automakers, we are conducting surveys of owners to assess their acceptance of the new technologies

- Using insurance data to track effects of technology on collision and injury claims experience
  - This will give overall picture of crashes but will be dominated by minor crashes so reductions in serious injuries could be masked
  - Will take longer to evaluate serious injuries or deaths

- Offsetting behavior will be long-term and potentially hard to identify
  - Main implication would be low effectiveness, declining over time

# Activities at IIHS, continued

- Assuming effectiveness is established,
  - Develop rating scheme
  - Dynamic test if appropriate
  - Possibly added to vehicle ratings in mid-2010
- As a consumer group, we must also continue to look at other technologies and strategies for reducing motor vehicle crashes
  - Many injuries not addressed
  - Important to look at where the technologies are having effect and what other technologies might be useful

# Where can advanced information technologies help prevent the injurious exchange of energy?

| changes in… | crash phase | | |
|---|---|---|---|
| | before | during | after |
| people | | | |
| vehicles | | | |
| environment | | | |

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| environment | •v2v and v2i communication: warnings of pedestrians, cross traffic, merging or stopped traffic, road conditions | | •emergency medical services telemetry |

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# Roof strength in rollovers

**50 years**
years
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