

Speed Management as a Key Component of Systems Approach to Road Safety

Road Safety in Romania - Challenges and Opportunities
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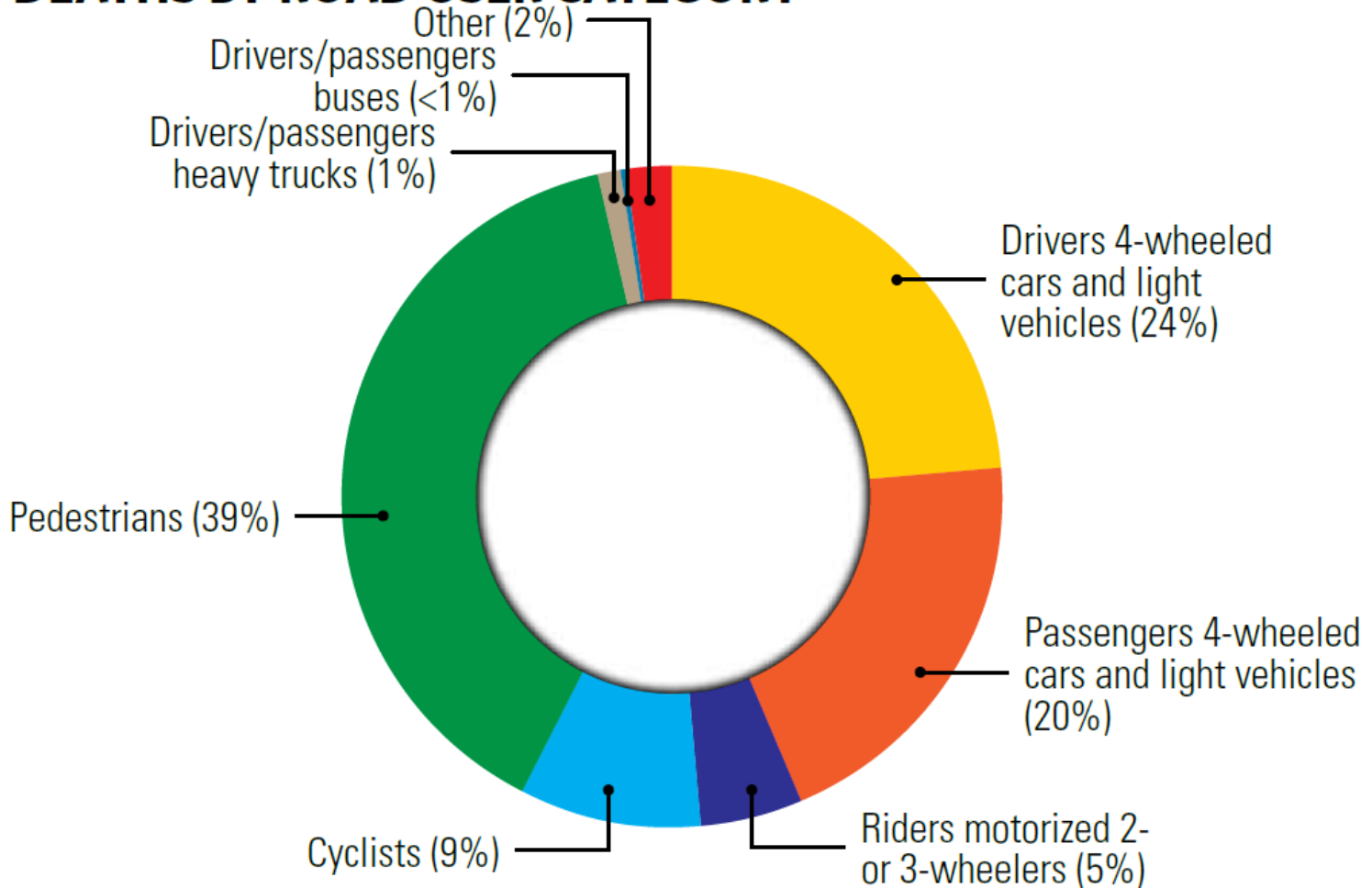
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Overview of talk

- **Road Safety Romania**
- **What is the real extent of the role of speed in fatal/serious crashes ?**
 - Right and Wrong ways to measure it
- **Misunderstanding the consequences of managing speed**
- **Effective ways to manage speed in Romania**

Road Safety Romania: WHO

DEATHS BY ROAD USER CATEGORY



Source: 2013, E.A.C. the Traffic Police Accidents Database.

Wrong Way: Police data

- Not an attack on police: its an almost impossible job in many cases
- Consider:
 - Fatal or SI pedestrian crash
 - Single vehicle off road fatal crash, no witnesses
- The job is to consider the Law, not make estimates for research
- New South Wales, Australia:
 - Police data: speed estimated as a factor in 40% of fatal crashes
 - First 28 speed cameras: 89% reduction in fatalities at these locations

Wrong/Right Way: Personal experience of risk

- “I have been driving for 6 months/5 years/25 years/50 years, and speed regularly. I have not had a fatal crash. So, either:
- Speeding is not as risky as road safety people claim
 - OR
 - It is risky for others but not for me.

Right or Wrong depends on: What amount of time gives enough evidence?

Optimism Bias

Better than average
(over-confidence)

Most
drivers

About average

Worse than average
(cautious)

● Only 2.1%

Allows people to believe the statistics but not apply it to themselves⁶

Wrong Way: Personal experience of risk

- Romania:

8.7 deaths/100,000 people/year

= probability per person per year of 0.000087 = 11,479 years for each death

* say 70 years of driving/road use in a typical lifetime

= 164 lifetimes per 1 fatality

If you speed all the time (by say 5km/h over the urban speed limit) you double your risk of a serious crash, then this comes down to 82 lifetimes

So, to make the comparison takes (164 plus 82 =) 246 lifetimes

- So: Personal experience cannot not reveal the problem (even though it's a huge public health and economic issue)

Right Way:

What happens when the issue is removed?

- By analogy:
 - How many deaths are caused by disease xxxx
 - Autopsy can miss the signs (= Crash assessments)
- OR
- Remove the disease and see how many less deaths occur. This is a best scientific way to assess causality.
- Speed cameras (largely) remove speeding:
 - In NSW, Australia: 89% reduction in deaths
 - In studies of P2P: vast majority of deaths and SI disappear.
- We are under-estimating the role of speed in deaths

Right Way:


What happens when the issue is changed?

Changing speed limits:

Sliogeris (1992): 100km/h up 110km/h 25%  injury crashes

Sliogeris (1992): 110km/h to 100km/h 19%  injury crashes

Nilsson (1990): 110km/h to 90km/h 21%  fatal crashes

Scharping (1994): 60km/h to 50km/h 20%  all crashes

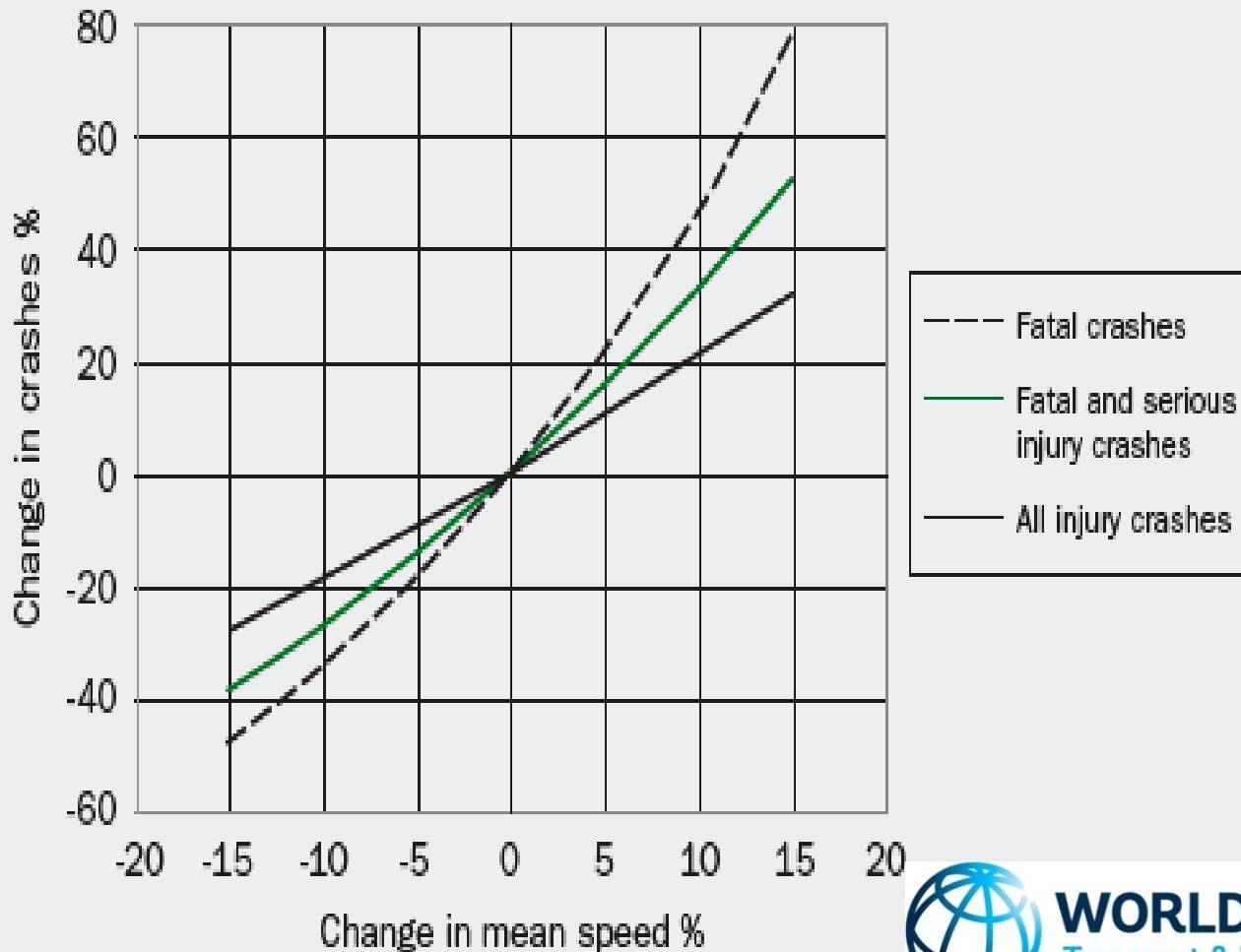
NHTSA (1989): 89km/h up 105km/h 21%  fatal crashes

Bhatnagar (2010): 110km/h to 100km/h 26%  casualty crashes

- Note this is not assuming that everyone obeys the limits. If they did benefits would be greater.
- Germany ?????

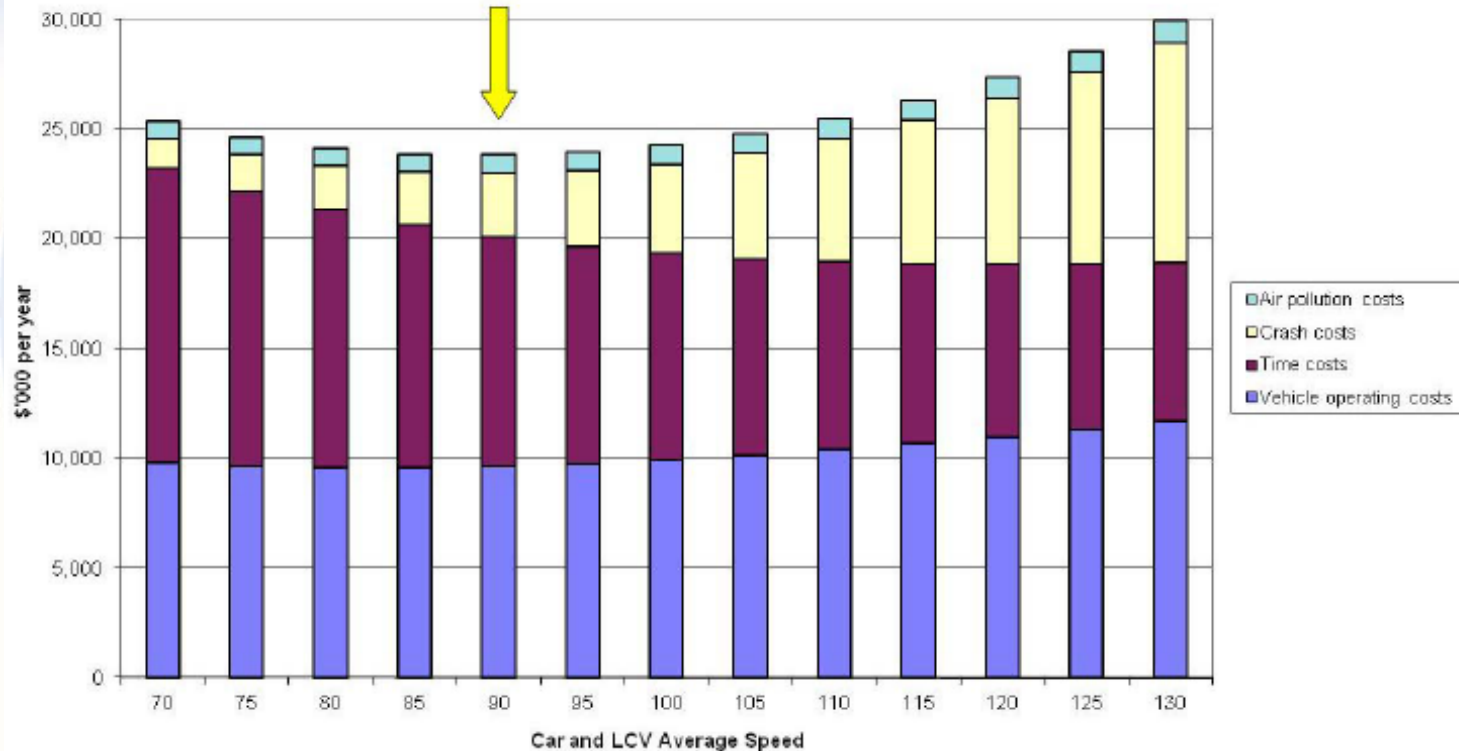
Right Way: What happens when the issue is changed?

- Collate many studies of these effects



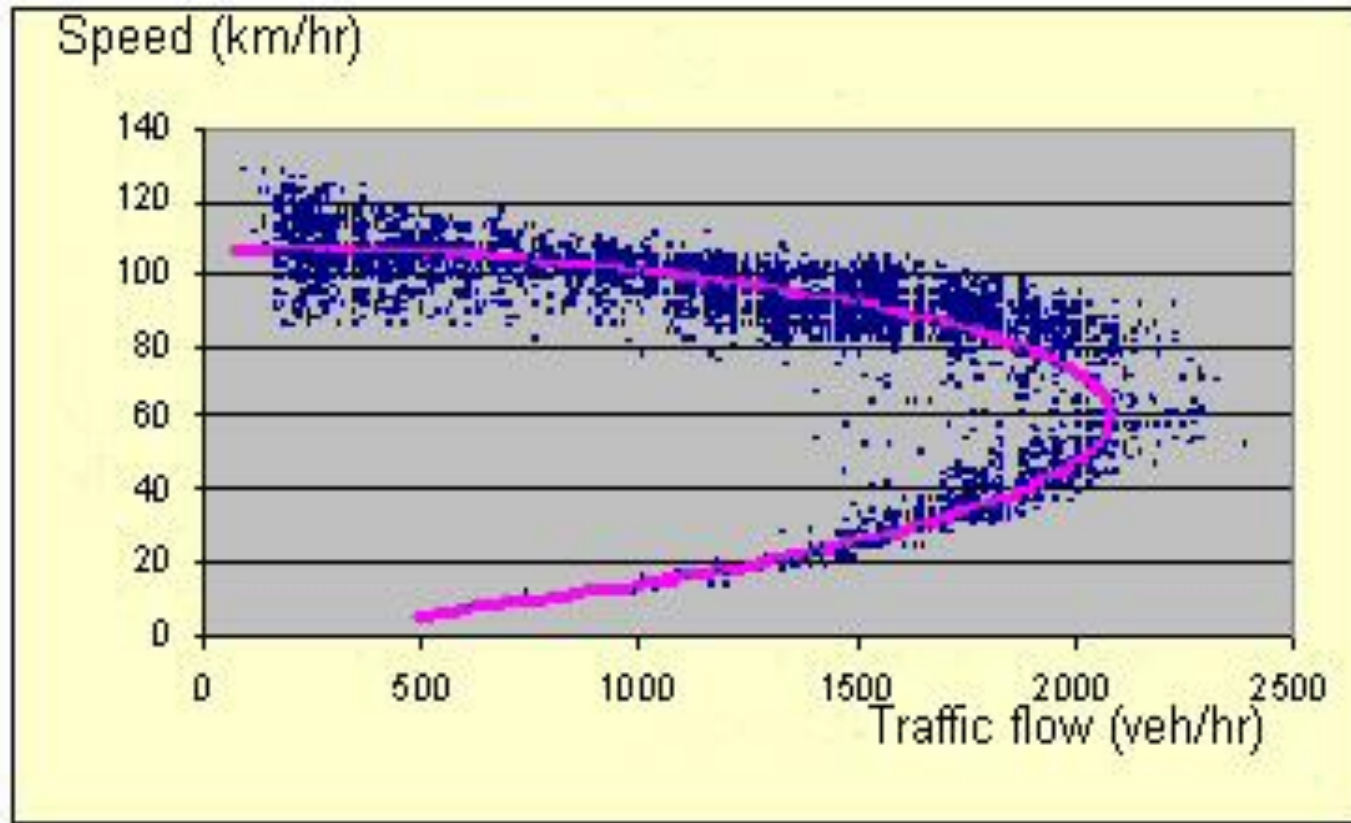
The costs and benefits of reducing speeds are misunderstood

Cars on an undivided rural highway/road



Optimal speeds are MUCH MUCH lower in urban settings

The costs and benefits of reducing speeds are misunderstood



Congestion can be improved by reducing speeds

Speed management across arenas: Management and Leadership

- Greater appreciation of the need for measurement and monitoring is needed.
- Measurement and Targets on intermediate indicators are needed

Speed management across arenas: Roads

GREAT OPPORTUNITY

Many available (and often cheap) solutions:

- ✓ Lower speed limits
- ✓ Speed humps (cheap, effective, accepted)
- ✓ Raised platform crossings
- ✓ Lane narrowing lines
- ✓ Chicanes
- ✓ Roundabouts (well designed)
- ✓ Gateway treatments



Speed management across arenas: Vehicles

- Major opportunities for HICs with control of vehicle manufacture, are still poorly used. Autonomous driving is hijacking earlier opportunities. Autonomous vehicles are a long way off for LMICs, yet we have not tackled large gain basics such as speed limiting

Speed management across arenas: behavior change

- The obvious, and overly and often poorly used option
- Driver training is still seen as a sound option: more speed just needs more skill (supported by personal experience)
- Education and promotion alone are weak options
- **Enforcement, Promotion OF AND WITH enforcement CHANGES work best**

CONCLUSIONS

- The wrong ways to measure the effects of speed are in common use
- The scientifically right ways give the real answer: Speed is a critical death factor
- Speed management will help with climate change, fuel efficiency, air pollution, noise pollution
- Speed management is possible, feasible, extensively valuable, and can be popular and inexpensive

Thank you for your attention

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Main references

- Job, RFS & Sakashita, S. (2016). Management of speed: The low-cost, rapidly implementable effective road safety action to deliver the 2020 road safety targets. *Journal of the Australasian College of Road Safety*, May 2016, 65-70.
- Nilsson, G. (2004). Traffic Safety Dimension and the Power Model to describe the Effect of Speed on Safety, Lund Institute of Technology, Sweden.
- OECD (2006) Speed management.
- Sakashita C. and Job R.F.S. (2016). Addressing key global agendas of road safety and climate change: synergies and conflicts. *Journal of the Australasian College of Road Safety* 27(3):62-68. [<http://acrs.org.au/wp-content/uploads/Journal-of-ACRS-27-3-final-for-web.pdf>]

Social disapproval advertising: allows for stronger action that does change behavior



Synergies of Speed enforcement and advertising: low fear advertising works



Core principles of Safe System:



Safety in working at heights: the risk of excessive physical force is removed. Safe system principles are more radical than is often appreciated.



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- Job, RFS & Sakashita, S. (2016). Management of speed: The low-cost, rapidly implementable effective road safety action to deliver the 2020 road safety targets. *Journal of the Australasian College of Road Safety*, May 2016, 65-70.
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