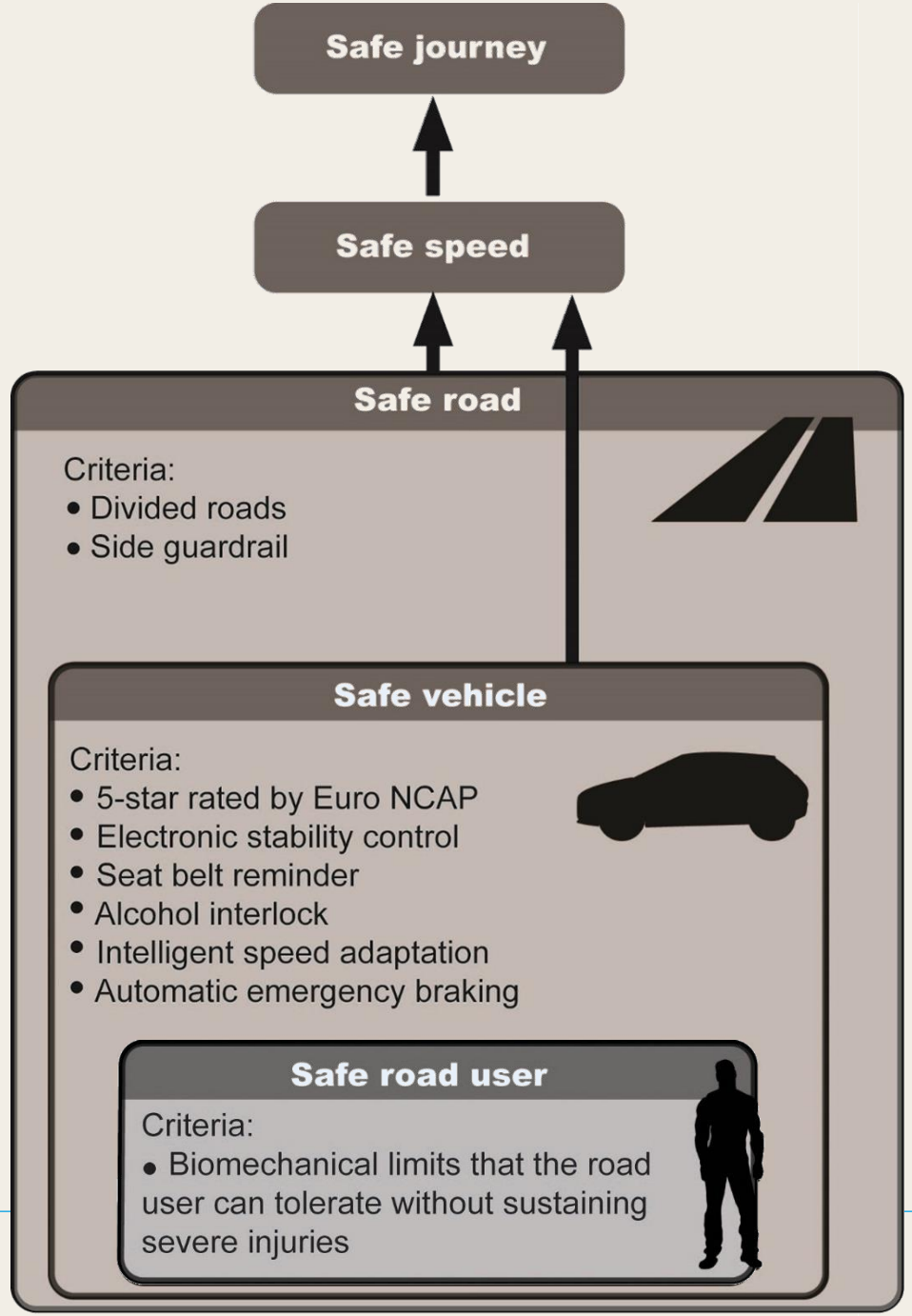
Model for Safe Road Traffic

Helena Stigson
Senior Researcher, Folksam Insurance Group

Folksam


Safe journey
Safe speed
Safe road
Criteria:
• Divided roads
• Side guardrail
Safe vehicle
Criteria:
• 5-star rated by Euro NCAP
• Electronic stability control
• Seat belt reminder
• Alcohol interlock
• Intelligent speed adaptation
• Automatic emergency braking
Safe road user
Criteria:
• Biomechanical limits that the road user can tolerate without sustaining severe injuries

Safe Road User

- Seat belt
- Not under influence of alcohol or drugs
- Speed limits followed

Folksam

Safe Speed – Prevent Severe Head-on Crashes

Folksam

Safe Speed – Prevent Severe Intersection Crashes

Folksam

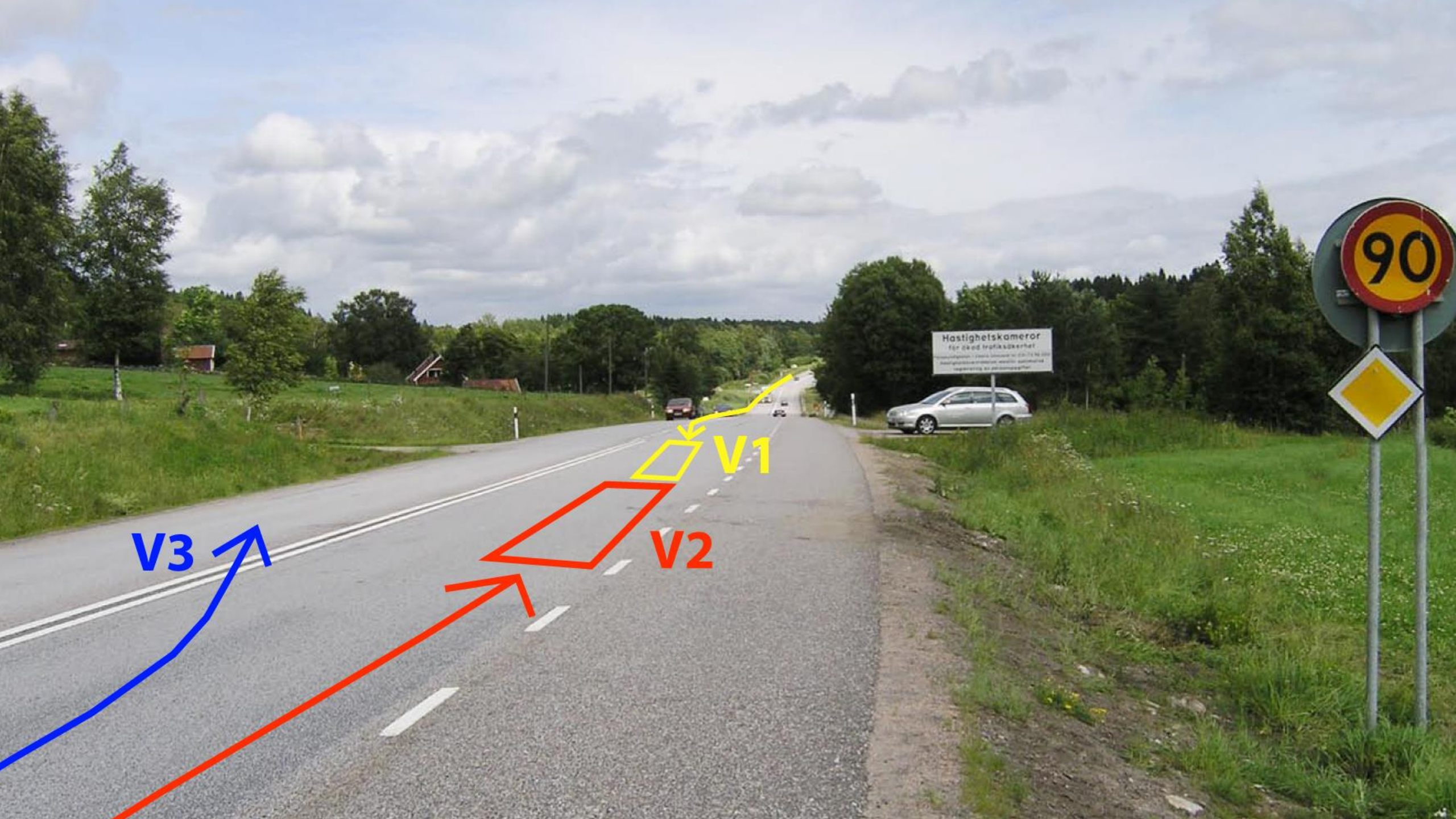
Safe Speed – Prevent Severe run-off-the-road crashes

Folksam

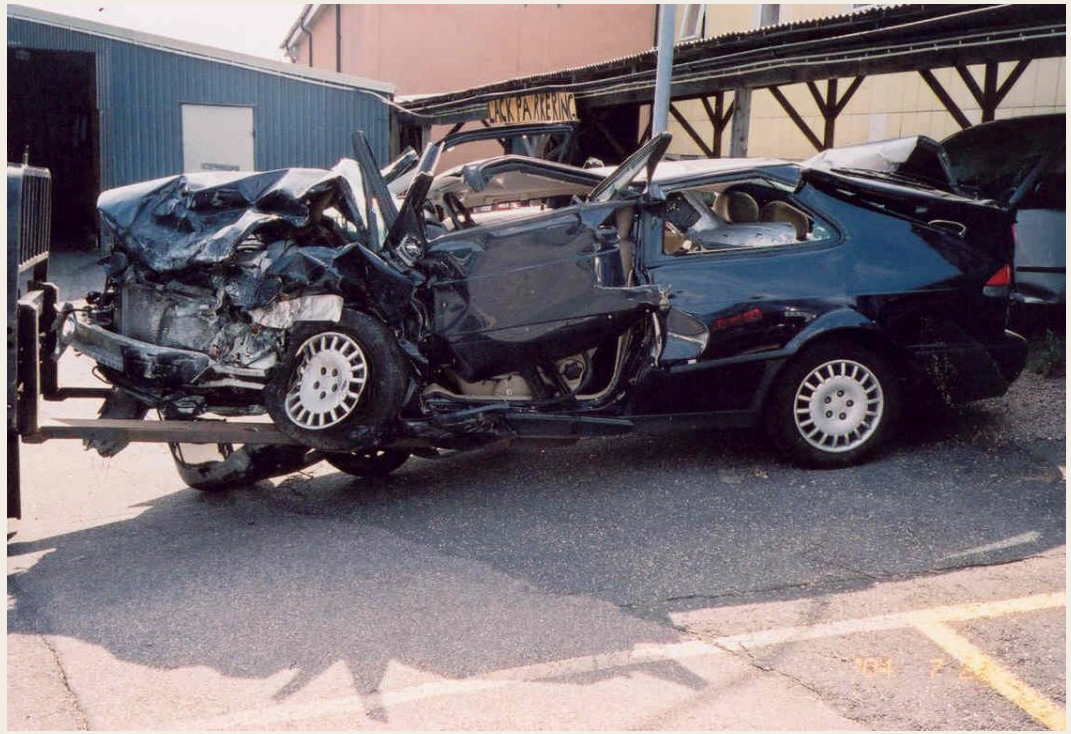
System Weaknesses

- Road – pore road safety standard
- Vehicle – low safety standard
- Road User – breaking rules on purpose

- To identify system weaknesses and components (road user, vehicles, and road) where improvements would yield the highest potential for further reductions of car occupant injuries


V1
V2
V3
Hastighetskameror
90

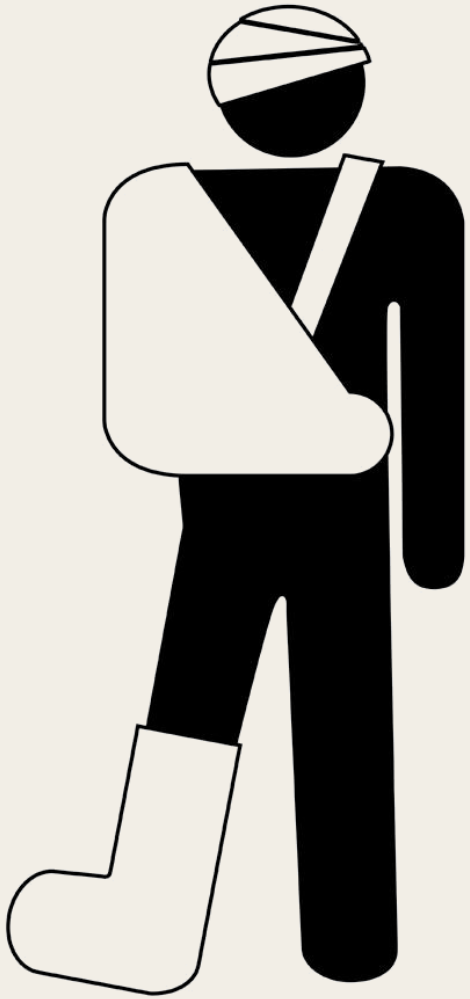
★★★★ Rated Car When Crash Occurred



Folksam

Safe Road User

- Seat belt was used
- Not under influence of alcohol or drugs
- Speed limits followed



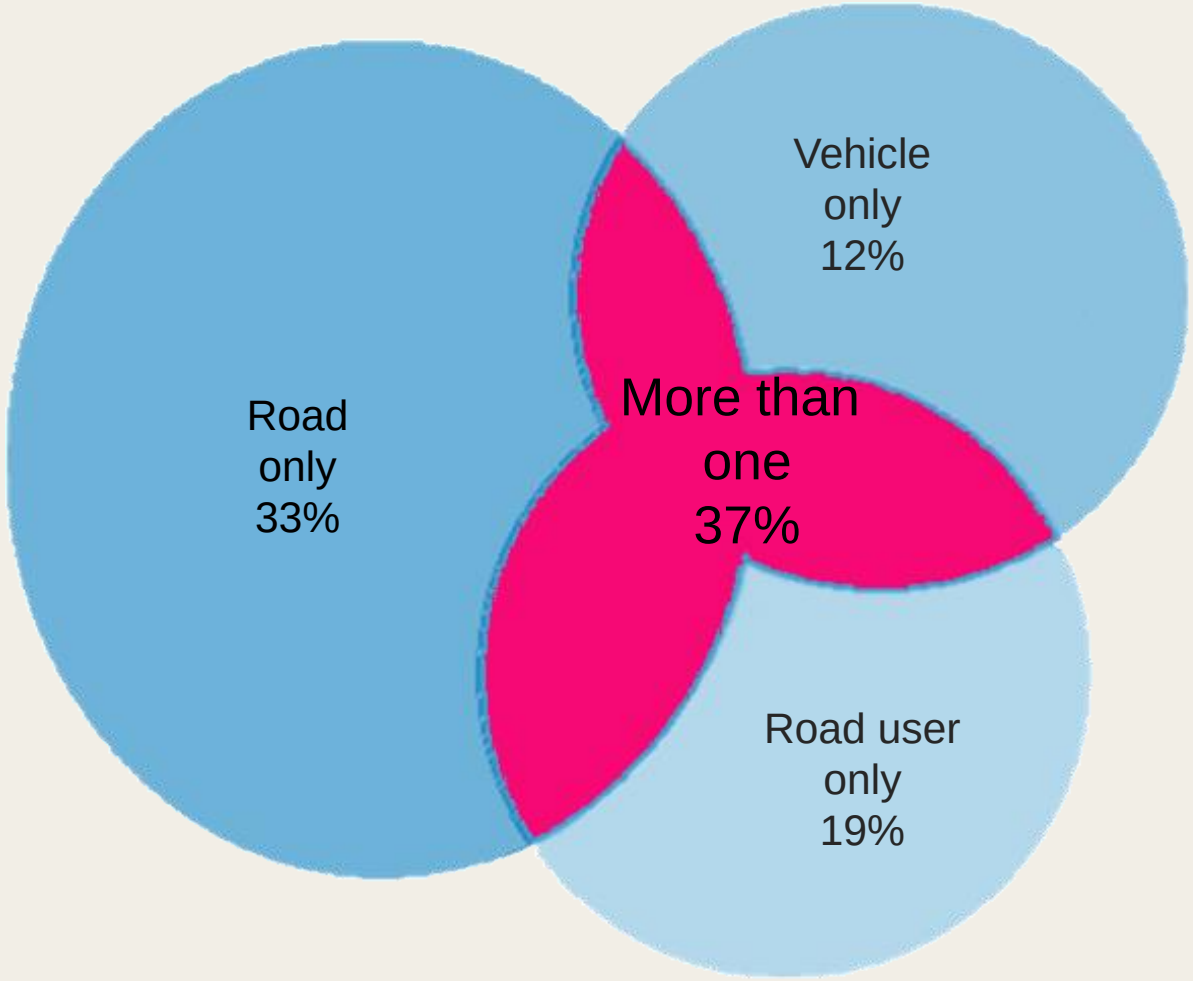
Folksam

A ★★ Rated Road

- Speed limit = 90km/h
- No separated lanes

Folksam

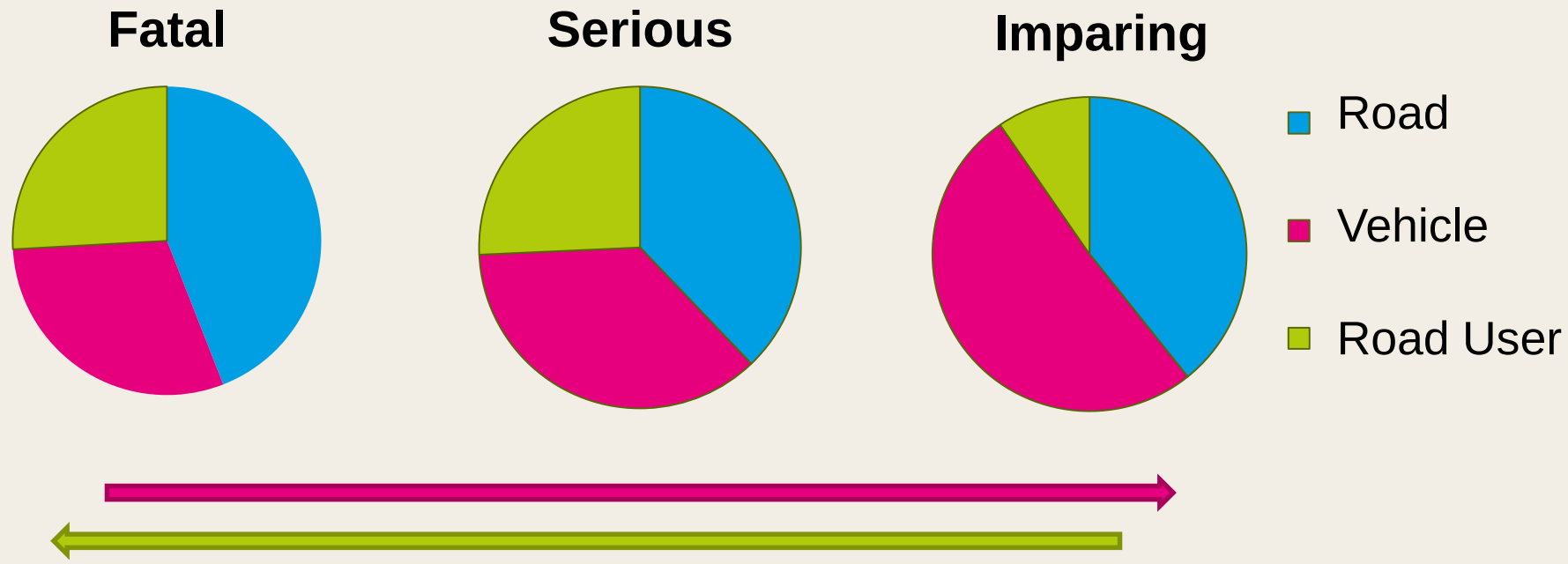
Most Crashes Occured When Two or All Three Components Interacted



Stigson, Krafft et al 2008

Folksam

Contributing to the Crash Outcome



Stigson et al 2011

Effects of 100% Fulfilment of a Set of SPIs

- operational conditions vs road casualties

Tingvall, Stigson et al 2009

Folksam

SPI

- Measure and make improvements of relevant SPI:s
  - Increased rate of seat-belt wearing will lead to fewer casualties
  - Collect SPI:s – both in general traffic and real-life crashes (not only fatal crashes)

- Could act as controller to maintain or even increase safety in the system

- Interaction between the three components – road, vehicle and road user

Folksam

Thank You!

Helena Stigson, PhD
helena.stigson@folksam.se

Folksam

Shortcomings

Folksam