National Technical University of Athens
Road Safety Observatory
www.nrso.ntua.gr

Monday
15
May
at 14:00

Workshop

in the framework of the

FOURTH UNITED NATIONS GLOBAL ROAD SAFETY WEEK
8-14 May 2017

Save Lives
#SlowDown

The future of road safety research

NTUA Zografou Campus, Athens
Railways Amphitheatre of the
Department of Transportation Planning and Engineering

Monitoring behaviour of older road users in Europe

ElderSafe

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The ElderSafe study objectives

- European Commission, DG-MOVE, 2015-2016
- Partners: Hasselt University (BE), NTUA (EL), LAB (FR), ERF (BE)

- **Collect** studies and policy documents in Member States and EEA countries and literature dealing with risk factors and best practices for the safety of elderly people

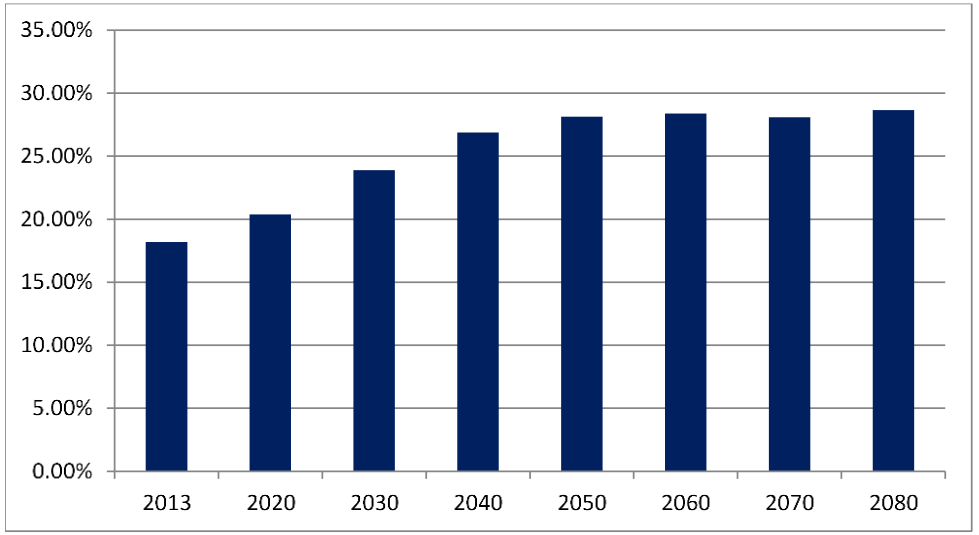
- **Analyse** main risk factors and best road safety measures in Member States, including measures addressed to older drivers
- **Assess** the benefits of ITS and technological countermeasures specifically aimed to reduce the risks identified as main risk factors

- Summarize and present **recommendations** for measures to be taken at EU level

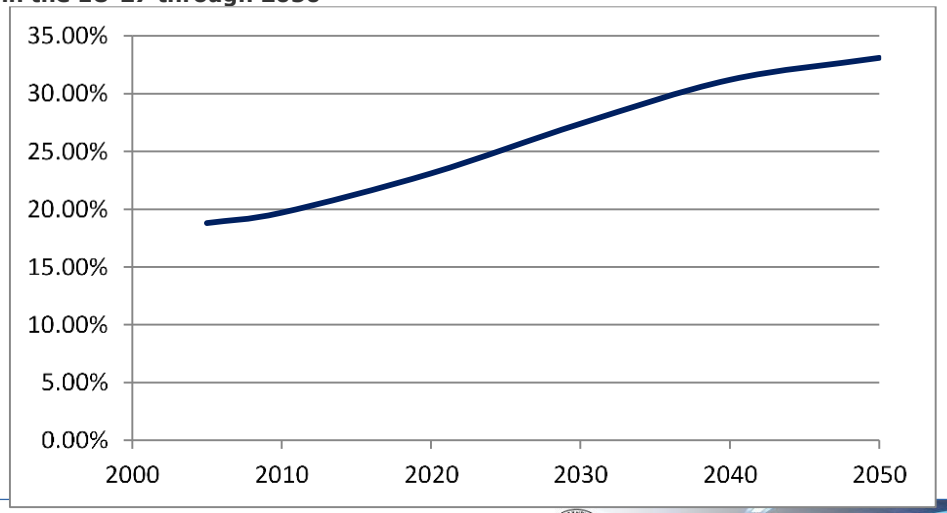
Ageing populations, more road fatalities

- By 2050, approximately **28%** of the European population will be 65 years or older
- **More elderly** will actively participate in traffic
- Notable increase in **licensing rates and car access** in the older population during recent decades
- In 2050 **one road traffic fatality out of three** will be an older person.

Percentage of population aged 65 or more for all European Member states, predicted for 2013-2080

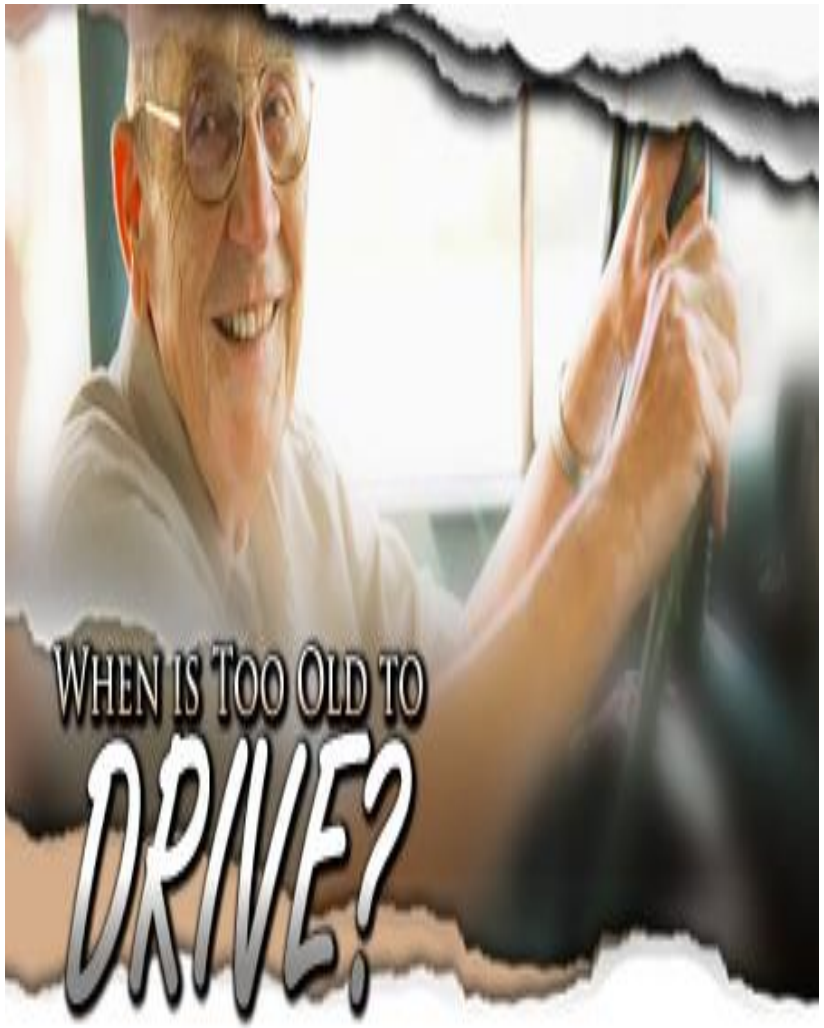


Estimated road traffic fatalities among the elderly (≥ 65 years) as a percentage of all traffic fatalities in the EU-27 through 2050



Need for action and EC policy

- **Mobility** is a fundamental prerequisite for the quality of life of older persons
- The **mobility needs** of the elderly will grow in the future; they will transform from a minority group with special needs and habits to one of the largest road user groups.
- Efforts need to be made proactively to **provide comfortable, safe and lifelong mobility** for the future generations of elderly.
- The challenge lies in making the European **traffic safety policy** and the transportation system 'silver proof'.



Approach

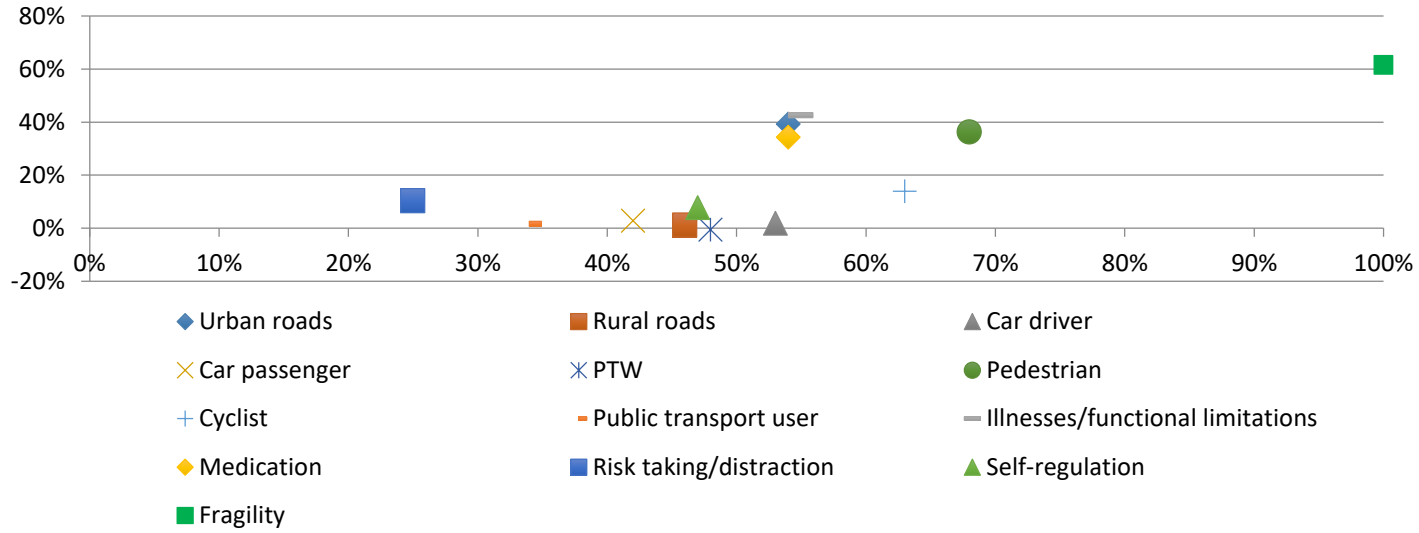
- **Risks identification and ranking**
- Macroscopic level analysis
  - Identification of risks based on CARE data analysis and literature review
  - Specific risks per road user group (drivers, pedestrians etc.) based on literature review
- In-depth analysis
  - Magnitude (estimation of population attributable risk)
  - Public perceptions on the problem (stakeholders' survey)

- **Measures identification and ranking**
- Top-down approach
  - Identification of measures matching the critical risks identified
- Bottom-up approach
  - Review and ranking of impacts of all related measures (effectiveness, public support, cost, importance)

- **Synthesis**
- Most promising measures for addressing most critical risks
- Proposed regulatory and legislative tools

The risks elderly road users run

- **Risk domains with highest impact and public support**:
  - Fragility
  - Illnesses and functional limitations
  - Urban roads
  - Elderly pedestrians
  - Medication



- **In-depth risk factor analysis**
- Car occupants
  - older, used cars,
  - rural environments due to high speeds,
  - urban areas complexity,
  - intersections controlled by stop signs,
  - functionally impaired drivers,
  - driver error.
- Pedestrians
  - urban environments and intersections,
  - pedestrian crossings walk phases,
  - age-related physical declines
  - dark clothes.

- Cyclists
  - urban and rural areas,
  - intersections; turning left, giving right of way,
  - mixing cyclists with motorized traffic,
  - narrow cycle lanes,
  - age-related stability problems,
  - distraction,
  - higher speeds and weight of e-bikes
  - dark clothes.

Measures for the elderly

- **Infrastructure** interventions (25 areas of countermeasures, numerous specific)
- **Education** & Training (6 areas of countermeasures, numerous specific)
- **Licensing** & Enforcement (2 areas of countermeasures, numerous specific)
- **Vehicle** design and technologies (9 areas of countermeasures, 111 specific systems)

- **Example: self-explaining and forgiving roads:**
  - **Description**: Self-explaining roads seek to prevent driving errors, while forgiving roads minimize their consequences
  - **Effectiveness:**
    - Physical dividers along centre lines very effective
    - Rumble strips significantly reduce run-off-road accidents
    - 'Passively safe' or 'forgiving' lighting columns: 8 times lower risk
    - Restraint mechanisms (e.g. wire barriers) extremely effective
  - **Public support**: different stakeholders prefer different mix of measures

Most promising measures

- **Infrastructural interventions**
  - Reducing the speed of other traffic, lower design speeds
  - Use of protected-only operations at signalized intersections
  - Self-explaining roads

- **Education, training & awareness raising**
  - about age-related illnesses and medication, effect of functional limitations
  - self-evaluating and improving skills, focus on speed
  - increased vulnerability and the importance of using protection devices

- **Licensing & enforcement**
  - License restrictions and renewal policies: in-person renewal, vision test
  - Licensing screening and testing
  - Law enforcement roles

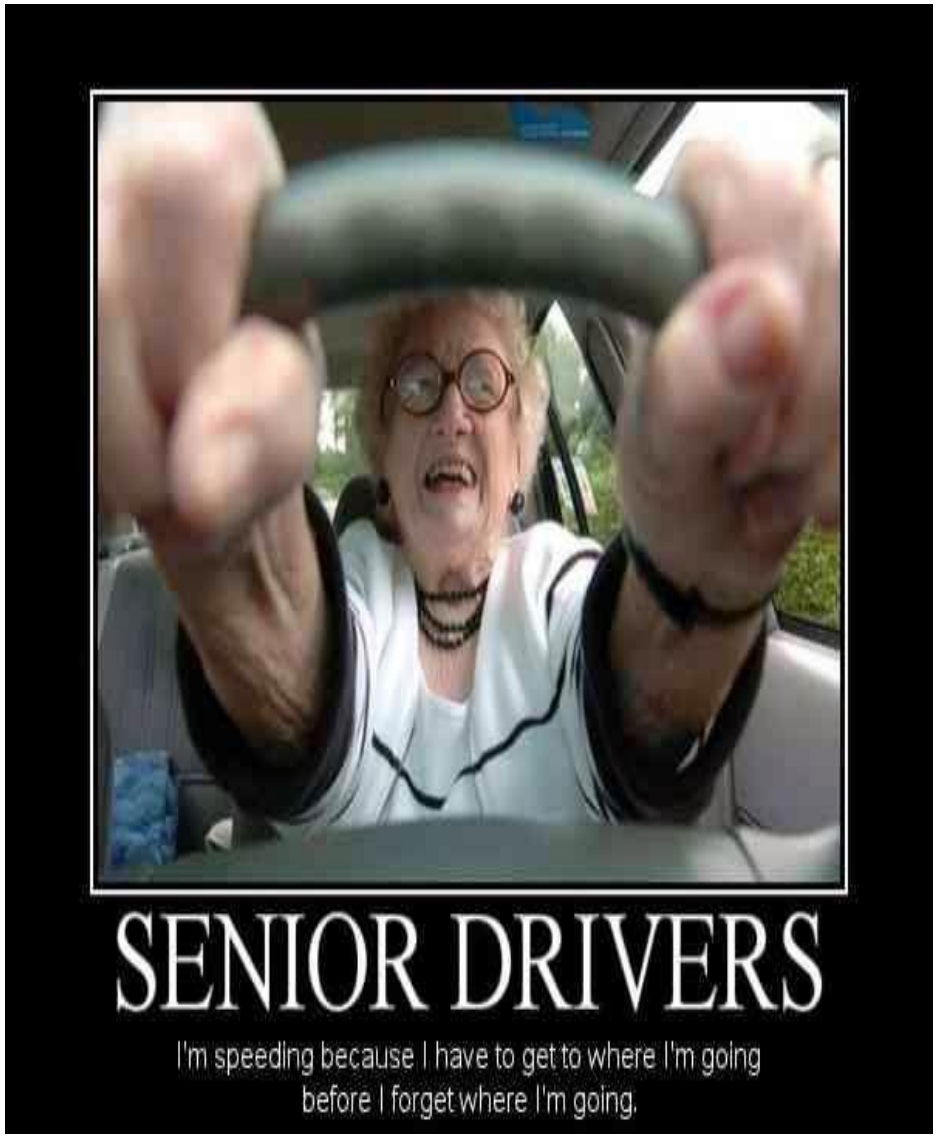
- **Intelligent Transportation Systems**
  - Active safety: Intelligent Speed Assistance, Active pedestrian protection system, Lane change assistant, Intersection control system
  - Passive safety: Safety belt & force limiter, Helmet, Frontal airbag, Seat belt reminder

Future challenges

- The **European and national policies** have a key role in guiding and regulating road design and vehicle standards, training and licensing for better protection of the elderly.

- **Future research challenges**
- Stimulate the development and deployment of elderly-adapted Advanced Driver Assistance Systems (ADAS)
  - Are the elderly ready for using new vehicle technologies?
  - Are automated vehicles ("the ultimate ADAS") the answer for safe mobility of the elderly?

- **Until then … many current challenges remain**
  - Lack of data on elderly exposure and behaviour
  - Increase self-awareness and promote safe mobility
  - Promote modern concepts of forgiving roads, shared space
  - And of course, slow down traffic



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