



National Technical University of Athens
Road Safety Observatory

Online
workshop
in the framework of

6TH UN GLOBAL ROAD SAFETY WEEK

17 - 23 May 2021



Streets for Life

Love30



Thursday
20 May
2021

Innovation in Road Safety Research

Safety behaviour assessment of older drivers in real driving conditions

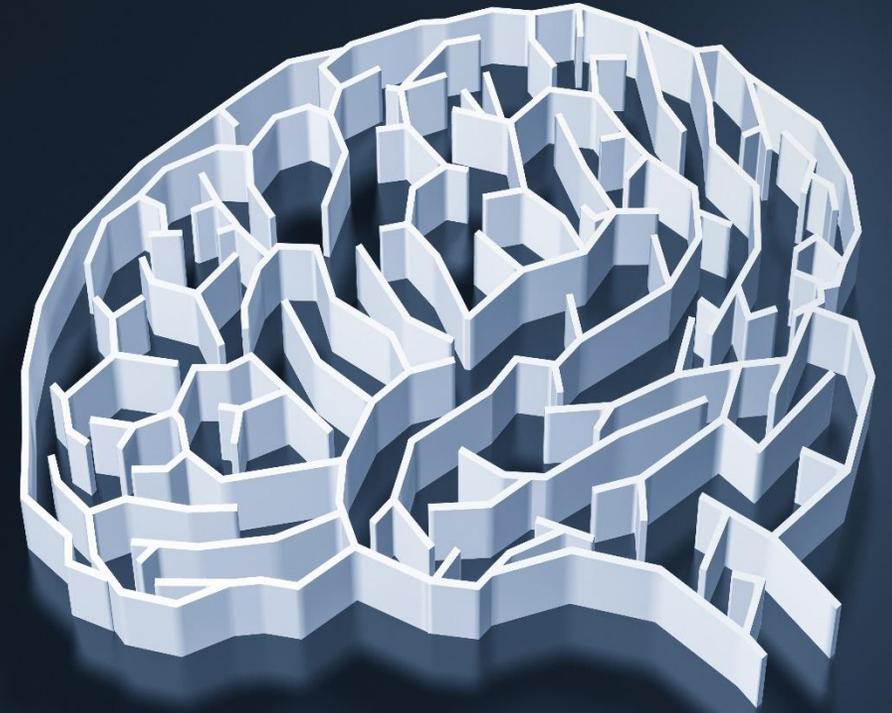
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Together with:
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Background

- **Post-Doc Research**, by State Scholarships Foundation (IKY), Greece (2020-2022)
- **Natural aging** affects mental and physical abilities which are critical for safe driving, resulting in elderly drivers being more prone to get involved in a car accident.
- At the moment **more than 20%** of traffic fatalities is aged >60 in Europe and by 2050, the share of elderly road traffic fatalities **will increase to 43%**.
- The presence of **cognitive dysfunction** due to the ageing process, especially in the case of neurocognitive disorders which are found in more than 20% of the general elderly population, may critically compromise fitness to drive.



Research Framework

- According to the **current legal framework in Greece**, the process of renewing a driver's license for the elderly is rather ambiguous
- It includes very vague guidelines for situations that could affect driving of the elderly.
- There is therefore a significant gap created by:
 - the **legislative ambiguity** and
 - the **lack of the necessary tools** that will be able to assess the safe driving behavior of the elderly.



Objective

- The aim of this research is to develop an innovative tool for assessing the driving ability of older drivers, which will:
 - **classify them according to their ability** (or not) **to drive safely** and
 - **suggest appropriate measures**, facilitating and thus supporting the officials of the Ministry of Transport, but also other involved bodies, in the currently unclear decision-making procedures on the renewal (or not) of the driving licenses for the elderly population.



Methodology

- A system has been developed and implemented to **record and evaluate** the driving behavior of the elderly using real-time driving data, collected through smartphones.
- An on-road driving experiment will be performed using big data that will be collected through the **OSeven smartphone application** (oseven.io)



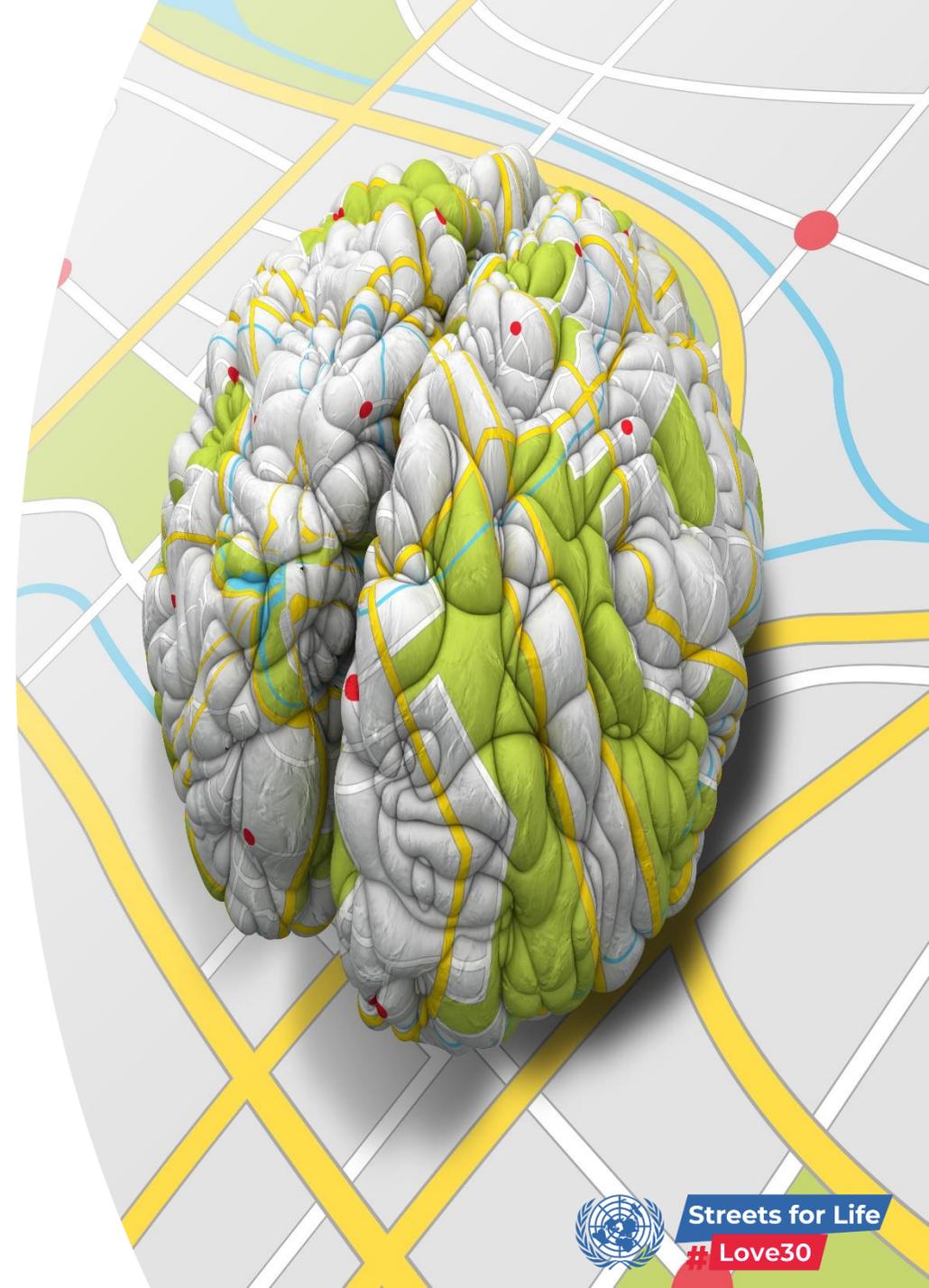
The procedure

- **100 elderly active drivers** (over 60 years old) will take part in an **on-road driving experiment**, on a specific route (duration 45 minutes), which will include road sections inside and outside urban area, in the region of Attica.
- The data that will be collected are:
 - **objective driving data** continuously recorded while driving through the OSeven app, collecting a variety of driving behavior parameters
 - **driving behavior assessment** through a safe driving behavior checklist
- Next, a series of several statistical analyses will take place which aim:
 - **to analyze the impact of advanced age** and other factors on driving behavior parameters



Impact and future challenges

- The benefits will be both scientific and socio-economic. They concern a **toolbox for the evaluation and possible improvement** of the driving ability and safety of older drivers:
 - A protocol for assessing the driving ability and safety of older drivers, and specific driving behavior and safety indicators by using:
 - Big data analysis tools
 - Dangerous driving detection tools
- **Future steps:** develop a methodology for the prediction of safe driving behaviour in the elderly drivers, by **applying pass/fail scores in specific neurological and neuropsychological measures**





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