# Injury Mitigation to Promote Vision-Zero Achievement - IMPROVA

#### **Armira Kontaxi**

Transportation Engineer, PhD

Together with: George Yannis, Dimitrios Nikolaou, Evi Koliou



Department of Transportation Planning and Engineering National Technical University of Athens

Artificial Intelligence for Road Safety and Mobility Workshop

8<sup>th</sup> UN Global Road Safety Week

Athens, 15 May 2025



#### The IMPROVA project

IMPROVA:



"Injury Mitigation to Promote Vision-Zero Achievement" improva-roadsafety.eu

Project partners:13 partners across 7 EU

13 partners across 7 EU countries, involving: National Technical University of Athens

Duration of the project:

48 months (June 2024 – May 2028)

Framework Program:

This project has received funding from the Horizon Europe programme under grant agreement No GAP-101146652



























VOLKSWAGEN GROUP





the European Union

#### Background

- ➤ Every year, 20 to 50 million people around the world suffer life-altering injuries due to road traffic crashes (WHO)
- These are more than just numbers they represent lives forever changed, families disrupted, and communities impacted
- ➤ It's time we shift our focus beyond survival to address the lasting consequences that diminish quality of life
- We must tackle the long-term consequences (LTC) of road traffic injuries to truly protect and support all road users



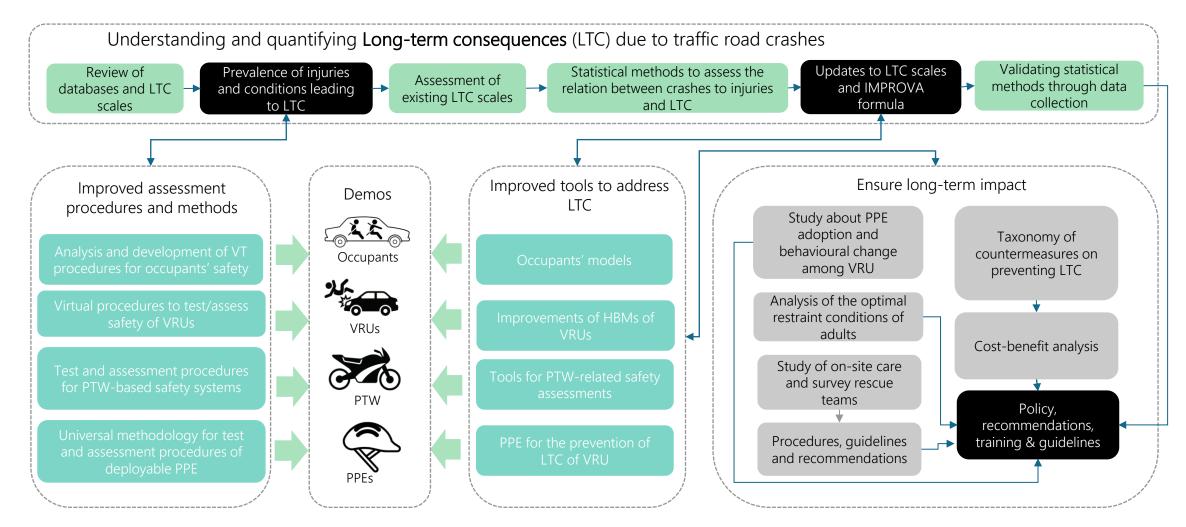
### Objectives

- Assess the impact of serious injuries and longterm consequences (LTCs) from road traffic crashes
- ➤ Develop and refine methods and tools for virtual testing using Human Body Models (HBMs)
- ➤ Improve risk assessment and prediction of LTC-related injuries through physical, virtual, and field data
- Support evidence-based policy and behaviorchange strategies to reduce serious road traffic injuries



## Methodological Approach









### **Expected Results**

- Adapted LTC scales and predictive IMPROVA formula for assessing LTC likelihood
- Structured codebook for collecting LTC-related crash data
- Classification of injury mechanisms linked to long-term consequences
- ➤ Enhanced HBM tools and virtual testing procedures for regulatory applications
- Guidelines and recommendations addressing psychological LTCs and supporting consumer safety policies



#### Streets for Life

- ➤ Prevention of life-altering injuries beyond the goal of zero fatalities
- ➤ Protection of all road users, including vulnerable groups like VRUs and PTW riders
- ➤ Inclusion of physical and psychological impacts in road safety strategies
- ➤ Safer mobility environments enabled by virtual testing and improved assessment tools
- Human-centered approach to long-term road safety and well-being



#### Scientific and Social Impact

- Enriched scientific understanding of injury mechanisms and long-term effects
- Validated tools and models for predicting LTCrelated injuries
- Comprehensive policy support addressing both physical and psychological LTCs
- Cross-disciplinary collaboration via an openaccess knowledgebase forum
- Social reintegration and mental health focus for crash survivors



### **Future Challenges**

- Standardization of LTC definitions and scales across data sources and countries
- ➤ Integration of psychological consequences into traffic safety frameworks
- Uptake of protective technologies and PPE among vulnerable road users
- ➤ Alignment of virtual testing methods with regulatory and consumer programs
- Sustainability of long-term impact through training, dissemination, and policy uptake



# Injury Mitigation to Promote Vision-Zero Achievement - IMPROVA

#### **Armira Kontaxi**

Transportation Engineer, PhD

Together with: George Yannis, Dimitrios Nikolaou, Evi Koliou



Department of Transportation Planning and Engineering National Technical University of Athens

Artificial Intelligence for Road Safety and Mobility Workshop

8<sup>th</sup> UN Global Road Safety Week

Athens, 15 May 2025

