European Transport Safety Council

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Powered Two Wheelers' key challenges in Greece and Europe

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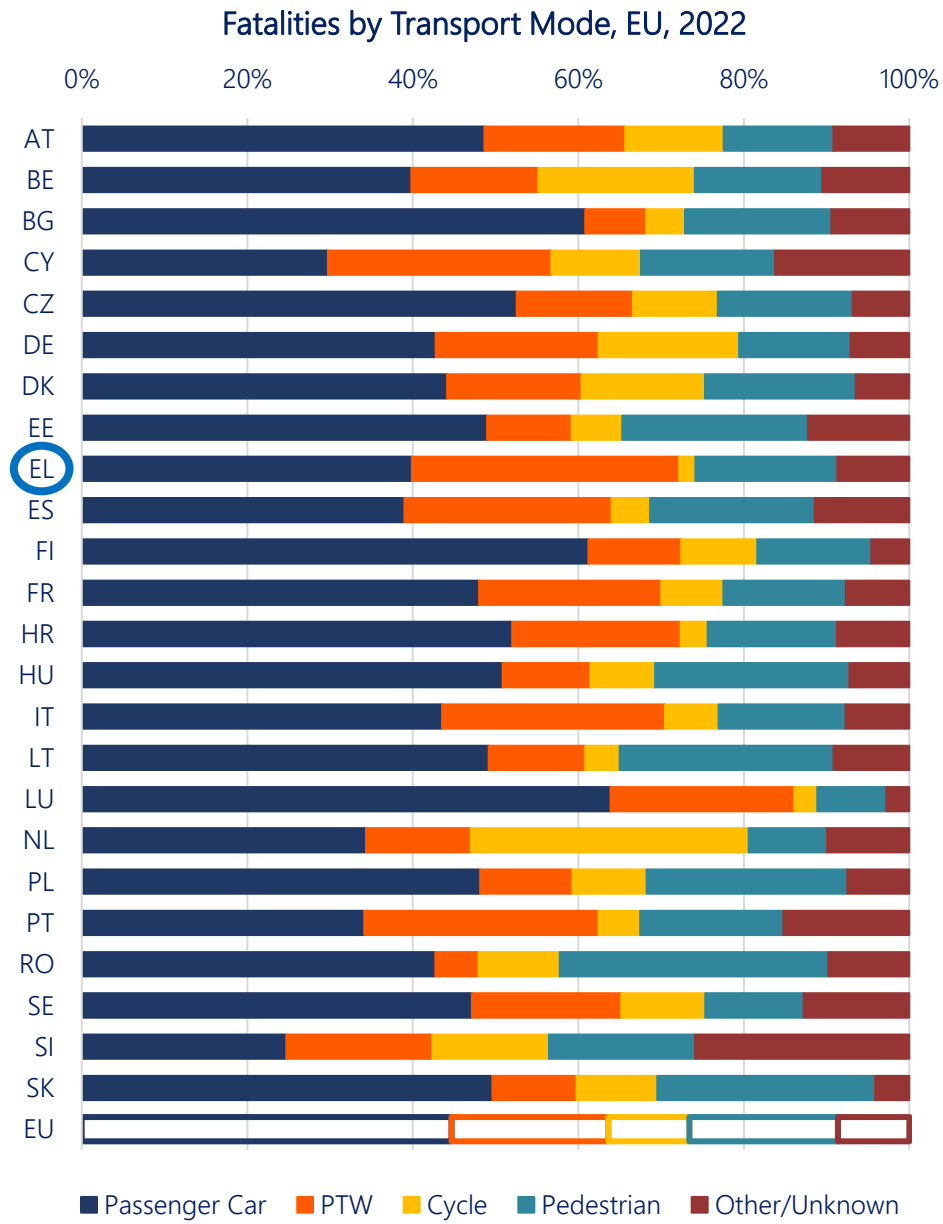
Outline

- Key Aspects of Power-Two Wheelers' Safety
- Power-Two Wheelers' Problems and Measures in Greece
- Conclusions

Key Aspects of Power-Two Wheelers' Safety

Fatalities by Transport Mode

- Most fatalities in the EU concern passenger cars (45%)
- PTW fatalities in the EU account for 19%
- Greece has the highest percentage of PTW fatalities in the EU (32%)



Source: CARE database
Processing: NTUA - Road Safety Observatory

Road Fatalities per Population Ranking

	1	2	3	4	5	6	7	8	9	10	11	12	13	-	14	15	16	17	18	19	20	21	22	23	24	25	26	27
2022 Total Fatalities per million population	22	26	31	33	35	37	37	40	41	41	43	43	46	46	49	50	50	50	50	54	55	56	60	60	63	71	78	86

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	-	20	21	22	23	24	25	26	27
2022 PTWs Fatalities per million population	3.0	3.8	3.8	3.9	4.0	4.3	4.3	4.5	4.7	5.0	5.0	5.7	5.7	5.9	6.6	7.0	7.0	7.1	7.1	8.7	9.2	10.6	11.1	12.4	14.4	14.5	16.9	20.2

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	-	22	23	24	25	26	27
2022 PTWs Fatalities Inside Built-up Area per million population	0.2	1.1	1.4	1.4	1.4	1.5	1.6	1.7	1.8	1.9	1.9	1.9	2.3	2.3	2.5	2.7	2.8	3.0	3.0	3.1	3.3	3.6	3.7	7.2	7.2	9.9	10.9	13.2

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	-	17	18	19	20	21	22	23	24	25	26	27
2022 PTWs Fatalities Outside Built-up Area per million population	0.8	1.1	1.2	1.6	1.9	2.0	2.4	2.5	2.8	2.8	3.0	3.2	3.3	3.4	3.6	4.6	5.1	5.2	5.2	5.5	5.6	6.0	6.2	6.9	7.0	7.2	7.2	9.3

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	-	18	19	20	21	22	23	24	25	26	27
2022 PTWs Fatalities in Single-Vehicle Crashes per million population	1.2	1.4	1.4	1.4	1.5	1.5	1.7	1.9	2.0	2.0	2.1	2.2	2.3	2.3	2.6	3.1	3.2	3.3	3.5	3.8	3.9	4.2	4.4	4.4	4.5	7.1	7.7	10.0

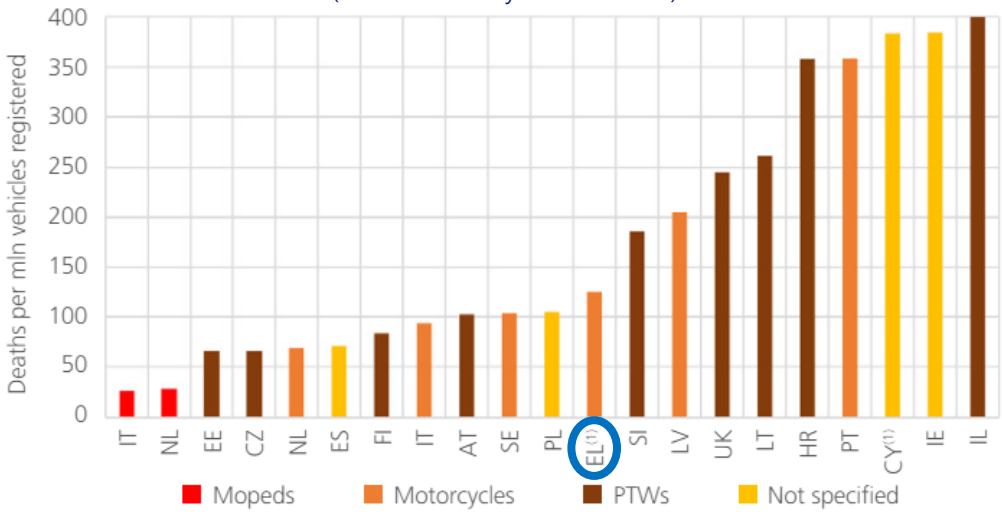
Notes: 2020 PTWs data for Ireland and Latvia, 2021 PTWs data for Malta
Source: CARE database, Processing: NTUA - Road Safety Observatory

- In 2022, Greece had the highest PTW fatality rate in the EU (20.2 fatalities per million population), while the EU average was 8.7

PTW Fatalities per Fleet and Veh-km

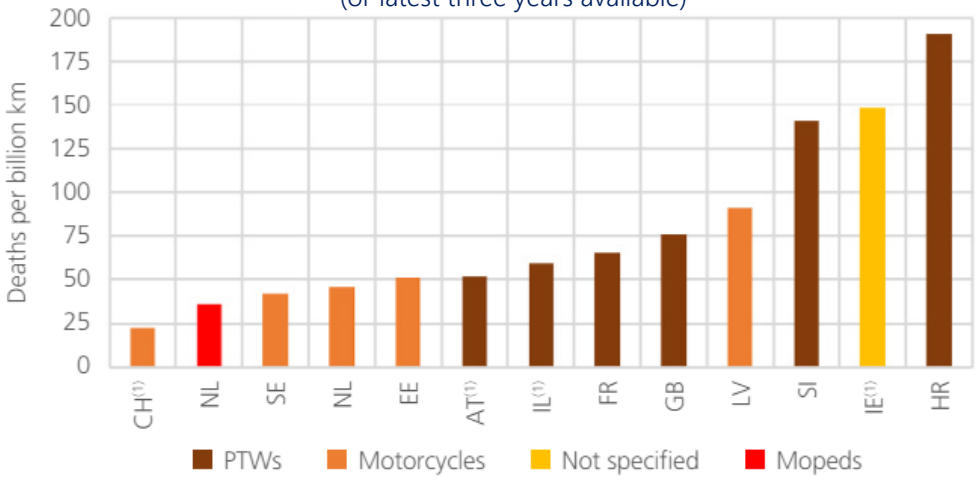
- When examining road fatalities per PTW fleet, the results significantly differ from fatalities per population, highlighting distinct risk factors and exposure levels specific to PTW users compared to the general population
- Motorcycles and mopeds are preferred by a large part of population in Greece, especially during summer months
- The proportion of motorcycles in the total vehicle fleet was 17% in 2023, while mopeds represented another 14%
- For more thorough analyses, exposure data related to the mobility of road users (travelled veh-km by vehicle type, etc.) are needed in order to better explain the road safety outcomes

PTW rider deaths per million PTWs registered over the period 2019-2021 (or latest three years available)



Source: ETSC 2023, PIN Flash 44

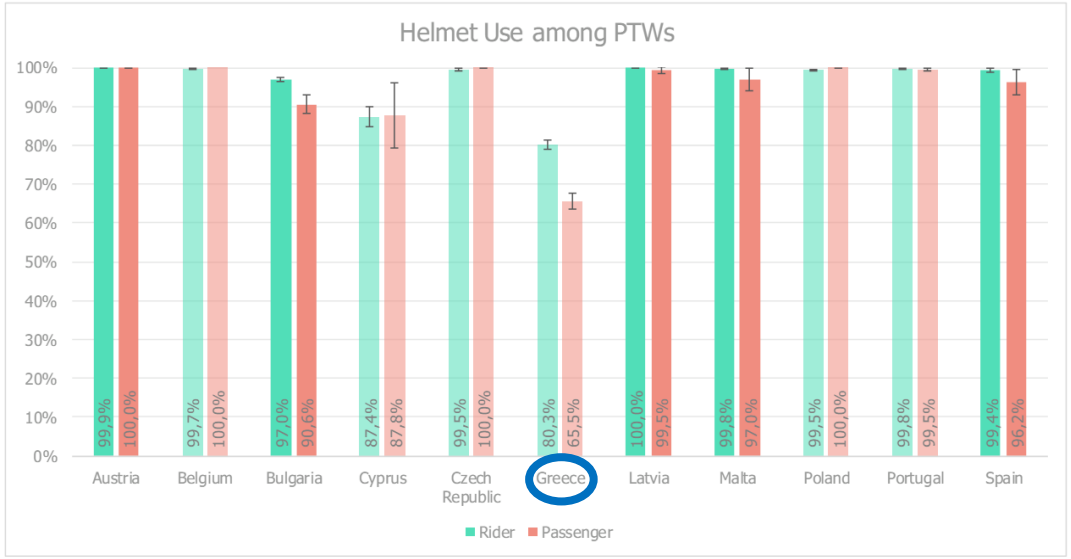
PTW rider deaths per billion km over the period 2019-2021 (or latest three years available)



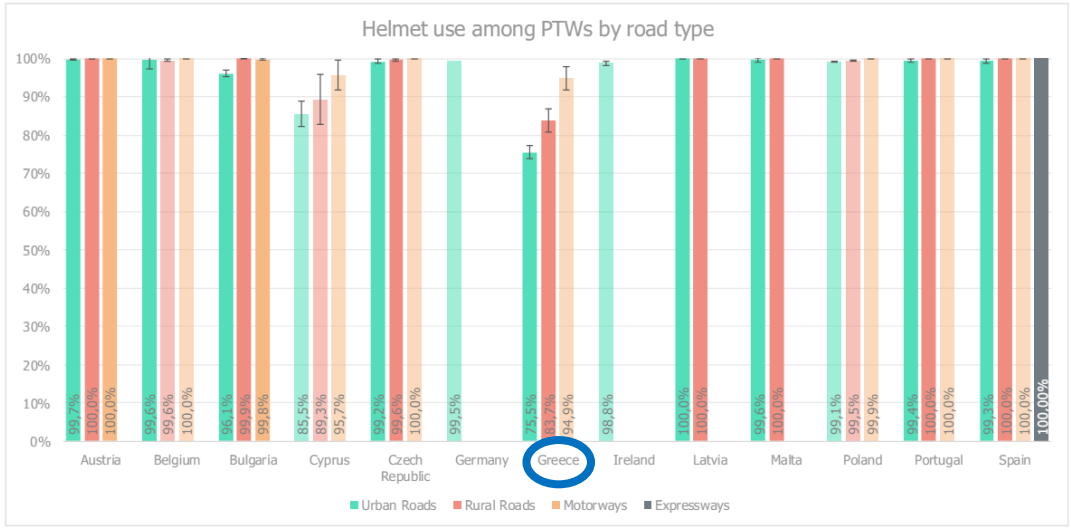
Source: ETSC 2023, PIN Flash 44

Helmet Use among PTWs

- In almost all countries the helmet use is very high (>95%) for both riders and passengers, except Greece, where only 80,1% of riders and 63,5% of passengers use a helmet when riding a PTW, followed by Cyprus
- In most of the countries, the prevalence of helmet use is almost same on motorways and rural roads, except Greece
- In Bulgaria and Greece, KPIs on urban roads are lower than those observed on the other types of roads, with the highest difference being identified in Greece (only a 76% of drivers use helmet when travelling on urban roads)



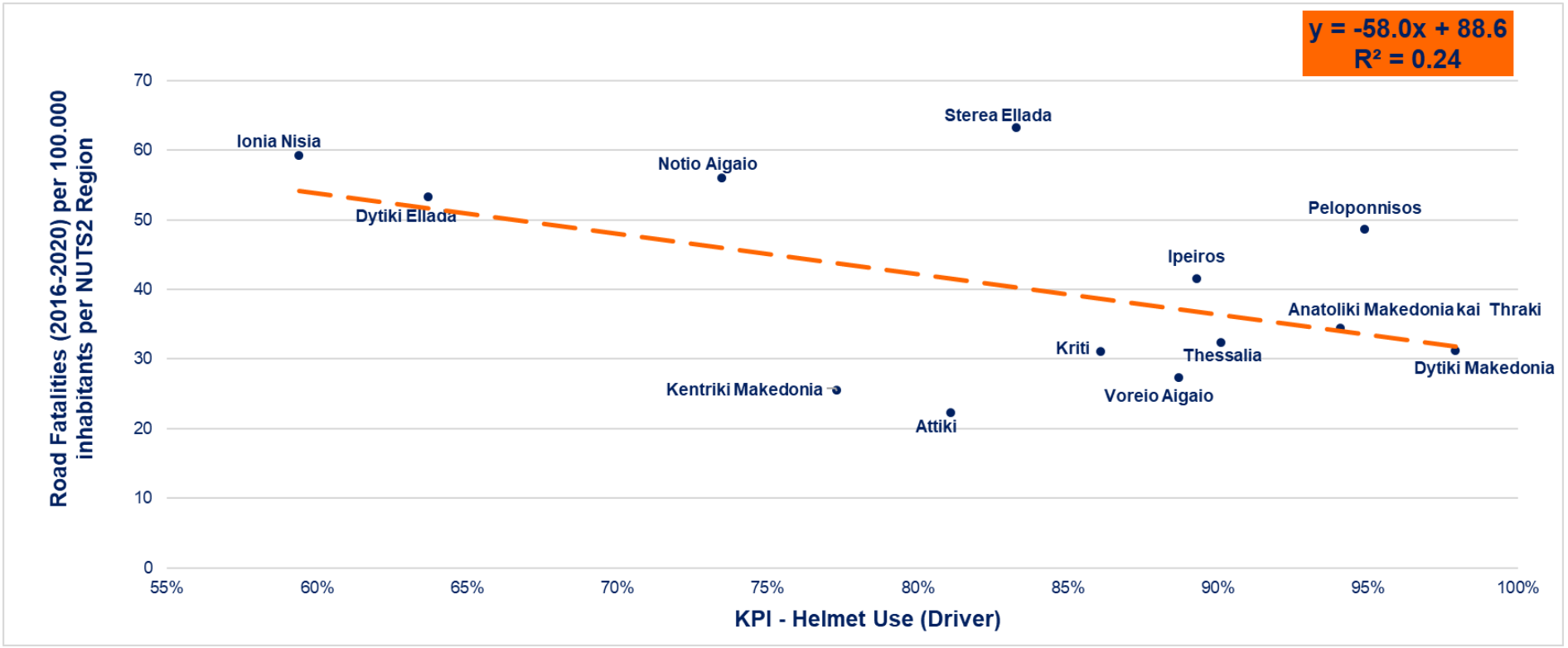
*Note: Countries with deviations in the methodology are shown with light colours (no weighting for Poland / Minimum total sample size not achieved for Belgium and Cyprus / Minimum sample size for motorways not achieved for Czech Republic, Greece and Portugal)



*Note: Countries with deviations in the methodology are shown with light colours (Minimum sample requirements not achieved for motorways of Belgium, Cyprus, Czech Republic, Greece, Portugal / no weighting for Germany, Ireland and Poland)

Source: "Yannis, G., Folla K. (2022). Baseline report on the KPI Helmet use among Cyclists and Powered two wheelers (PTWs). Baseline project, Brussels: Vias institute

Helmet Use and Road Fatalities - Greek Regions (NUTS2)



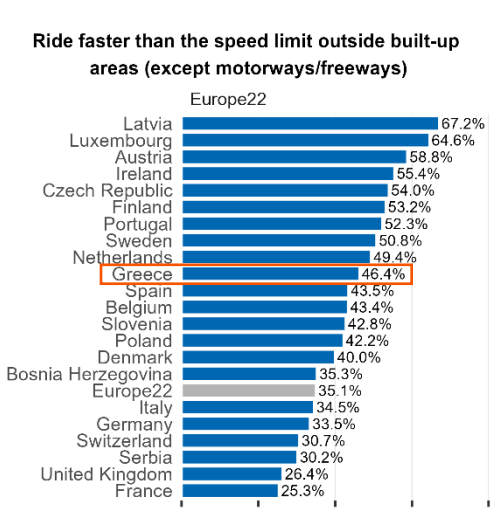
Source: ELSTAT, field measurements
Processing: NTUA - Road Safety Observatory

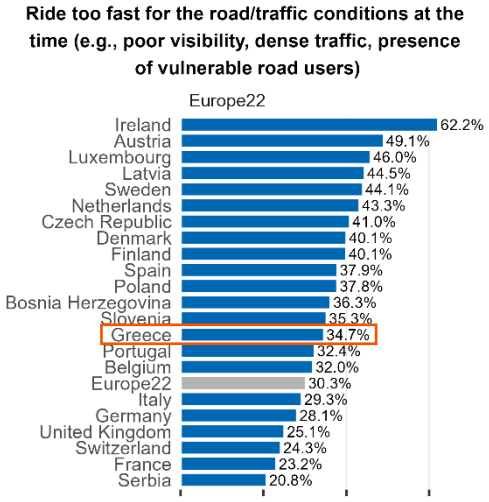
- Negative linear relationship (R-squared=0.24 → moderate correlation) between the KPI for helmet use and road fatalities per population in 13 Regions of Greece, suggesting that lower helmet use is associated with an increase in road fatality rate

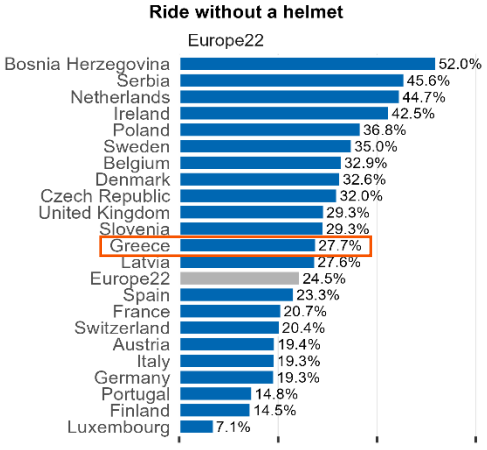
Self-declared Behaviour

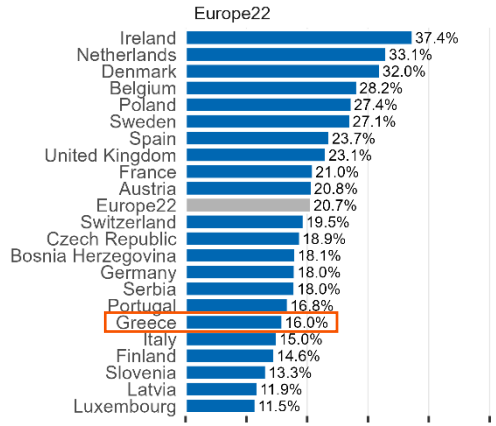
- The most frequent unsafe behaviours reported by PTW riders are:

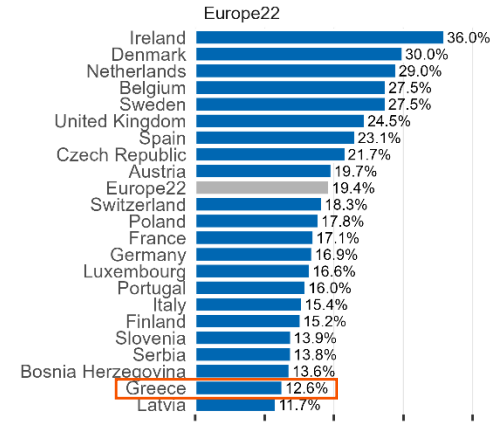
1. speeding outside built-up areas
   Europe: 35.1% < Greece: 46.4%
2. riding too fast for the road/traffic conditions at the time
   Europe: 30.3% < Greece: 34.7%
3. riding without a helmet
   Europe: 24.5% < Greece: 27.7%
4. distraction
   Europe: 20.7% > Greece: 16.0%
5. drink and riding
   Europe: 19.4% > Greece: 12.6%
6. drugs
   Europe: 17.1% > Greece: 5.0%

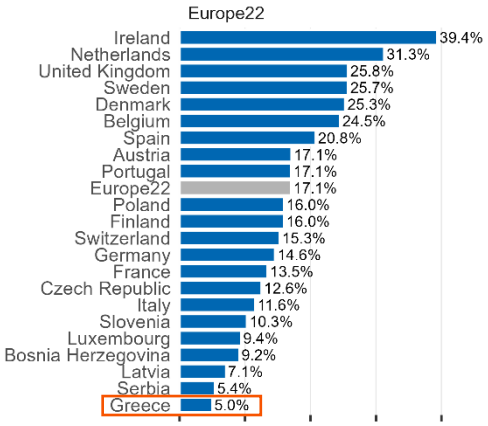












% at least once (last 30 days)
Reference population: motorcyclists and moped riders at least a few days a month

Source: Vias institute. (2024). ESRA3 dashboard. https://www.esranet.eu/en/dashboard

Perceived Safety

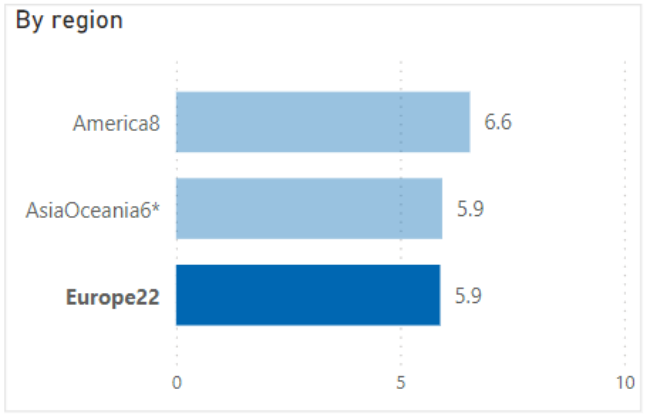
How safe or unsafe do you feel when using the following transport modes?

Moped rider/motorcyclist

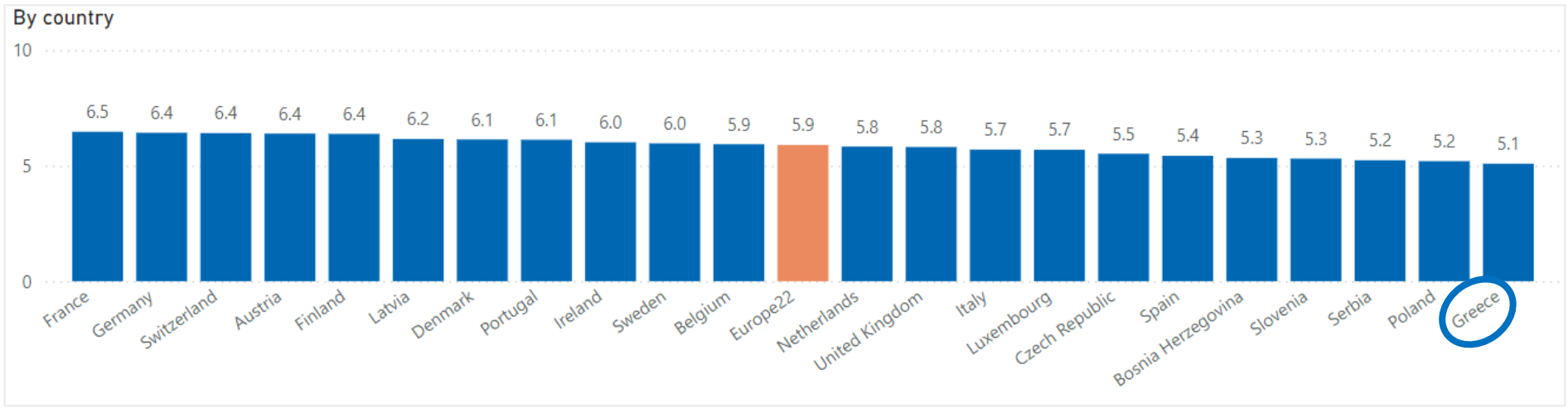
Mean score of a 11-point scale, where 0 = very unsafe & 10 = very safe

Reference population: all road users who used this specific transport mode in the past 12 months

Based on internet access panel survey



* AsiaOceania6 mean does not include Armenia, Kyrgyzstan, and Uzbekistan due to different methodology



Source: Vias institute. (2024). ESRA3 dashboard. https://www.esranet.eu/en/dashboard

- In all the examined countries the safety perception scores for moped riders and motorcyclists do not exceed 6.5 points (10: very safe), indicating that PTW riders do not consider these transport modes to be safe enough

- Among European countries, the lowest safety perception scores for motorcycles correspond to Greece (5.1)

Power-Two Wheelers' Problems and Measures in Greece

Key issues

- Insufficient control of traffic violations on:
  - riders speeding
  - helmet use
  - inappropriate behaviour of drivers
- Lack of proper road infrastructure contributing to PTW safety:
  - inappropriate junction settings (inside urban areas)
  - lack of proper road markings and traffic signs
  - lack of appropriate guardrails
- Lack of targeted road safety measures and programmes for PTW safety

Causes

- The causes of motorcycle crashes could be attributed to:
  - failure to follow speed limits
  - failure to use defensive driving techniques
  - careless/ aggressive behaviour of other drivers
- Low rates of helmet and other protective equipment use
- High number of professional PTWs (couriers, deliveries) with inappropriate behaviour
- A relative high number of young people riding mopeds or motorcycles without driving licence

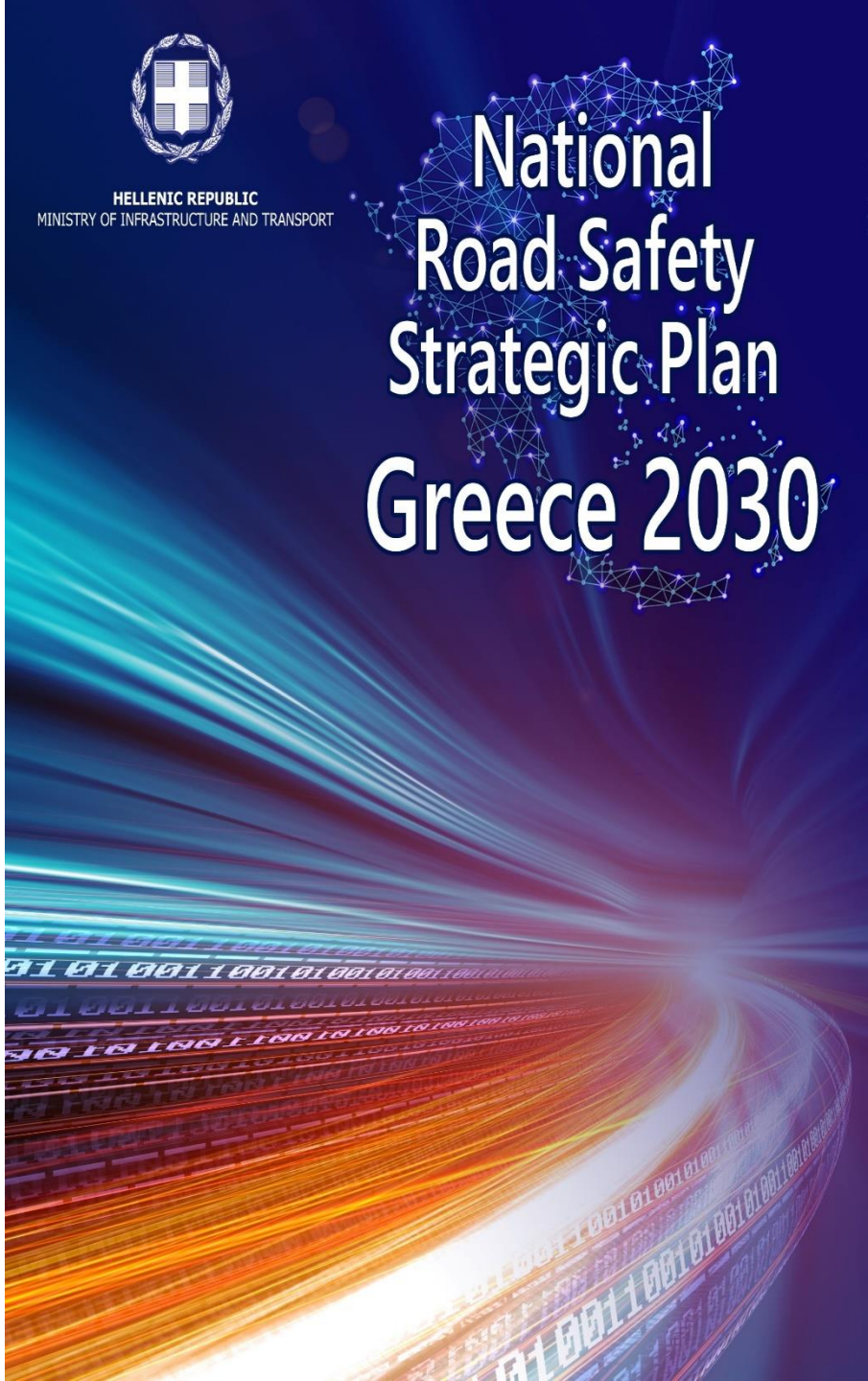
PTW at the National Strategy

Target for the Reduction of Road Crash Casualties

	Target			Target (% reduction)			Lives to be saved (annually)	
	Baseline year 2019	2025	2030	Baseline year 2019	2025	2030	2025	2030
Killed Motorcyclists	247	148	84	-	40%	66%	99	163

Target for Improving Road Safety Performance Indicators

Key Performance Indicators	Baseline year 2022	Target 2025	Target 2030
Helmet use	79%	>90%	>95%



Necessary actions for PTW safety (1/2)

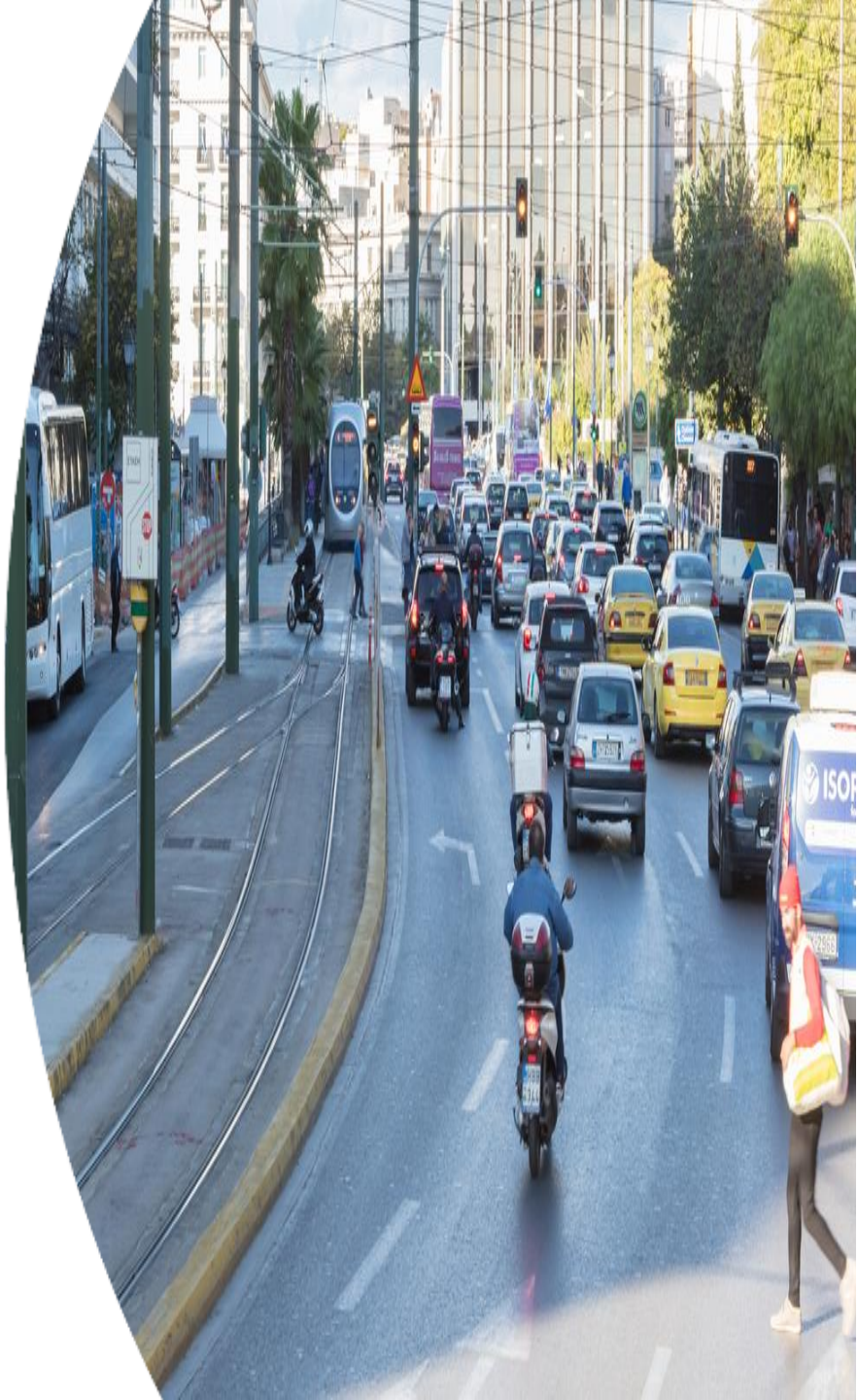
- City-wide 30km/h speed limits
  - Power two wheelers are slower and avoid crashes
  - All vehicles are slower and PTWs are safer
  - Other VRUs are also safer
- Increase helmet use
  - Increase of traffic controls on helmet use
  - Awareness campaigns
  - Target professional and tourists riders
- Development of an integrated system for the management of traffic violations
- Road infrastructure interventions for PTWs (use of bus lanes, PTW advance stop lines, intersections, etc.)

Necessary actions for PTW safety (2/2)

- Improvement of PTWs' behaviour
  - Improvement of education and driving licence exams
  - Stricter exams for motorcycle driving licences
  - Lifelong training / awareness of PTWs
  - Increase of controls on speeding and driving without licence
- Lifelong training / awareness of other drivers on their behaviour towards PTWs
- Improvement of professional PTWs' safety (couriers, deliveries)
- Implementation of an integrated road safety policy for PTWs
  - Target setting and selection of specific measures
  - Systematic monitoring of the measures implementation and of the targets
  - Strengthening road safety management within the local Authorities

PTW Filtering
(under examination)

- With the new Road Traffic Code, the filtering of PTWs will be legalized
- Filtering is allowed in road axes with maximum speed limit of 50 km/h
- When the PTW is filtering, its speed must not exceed the speed of the cars by 20 km/h or more



Conclusions

Conclusions - Europe

More than 3.800 PTW riders were killed on European roads in 2022, representing 19% of all road fatalities; targeted action is needed:

- Introduction of city-wide 30kmh speed limits
- Roads should be forgiving, and attention should be given to roadside safety design and road surface markings to limit the severity of trauma for PTWs
- Advanced Rider Assist Systems (e.g. Electronic Stability Control, Forward Collision Warning) could help reduce PTW crashes
- The conspicuousness of PTWs can be improved by the use of add-on driving lights, Daytime Running Lights and reflectors, reflective colours etc.
- Pre-licence training of car drivers to detect & identify PTWs
- Promotional campaigns on: wearing helmets, use of protective clothing, risky behaviour, paying attention to PTWs presence

Conclusions - Greece

- The rate of PTWs' fatalities in road crashes is especially high in Greece, leading to the high need for further measures to be taken.
- The integrated action plan should focus on the reduction of PTW crashes comprising:
  - Introduction of city-wide 30kmh speed limits
  - Systematic traffic law enforcement
  - Adjustment of road infrastructure
  - Improvement of driving licence system
  - Incentives for acquiring protective equipment
- Development of road safety culture not only for drivers and riders, but also for the Authorities involved in the design, implementation and monitoring of PTW safety policies.

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