



Lectern Session 2168:  
Analysis of International Road Safety Data  
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# Road Safety KPIs in Europe: The Baseline and Trendline Projects



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# Introduction

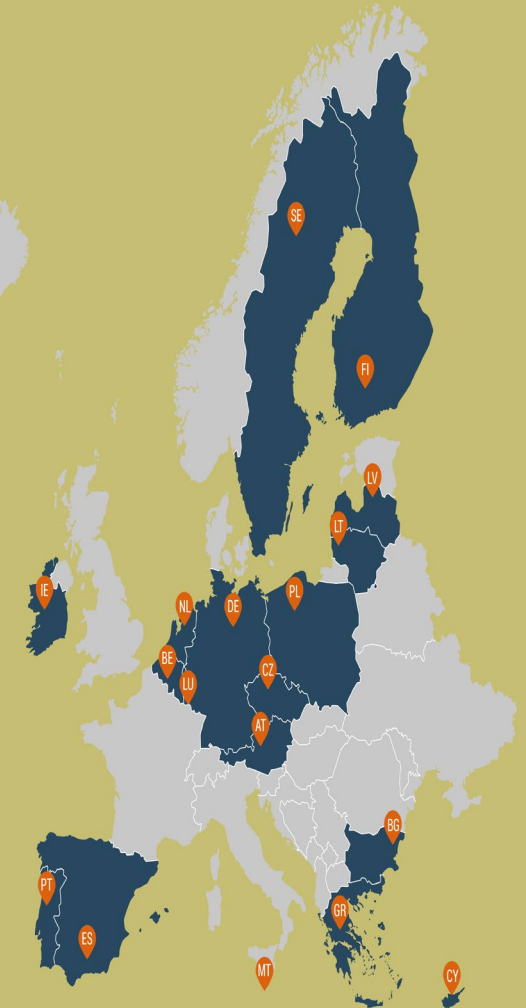
- The EC has put forward a **new approach to EU road safety policy** for the decade 2021-2030, highlighting the need of measuring a range of road safety KPIs at European level.
- Baseline project aims to:
  - assist authorities of EU Member States in the **collection and harmonized reporting of KPIs** for road safety and
  - contribute to **building the capacity** of those MS that have not yet collected the relevant data
- A consortium of 28 partners from **18 EU Member States**
- **Project duration:** 27 months (July 2020 – October 2022)



Baseline  
Partners

18  
EU members

28  
partners



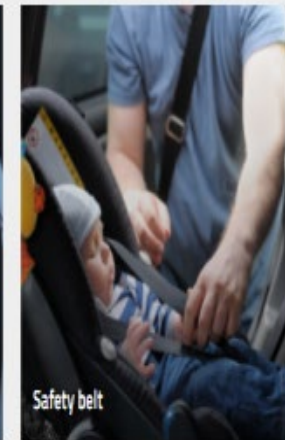
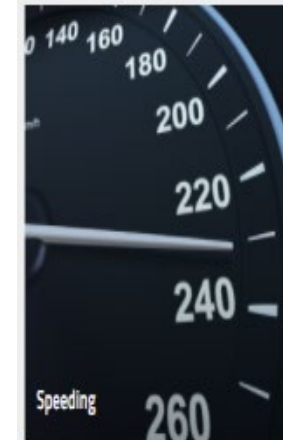
# EU Key Performance Indicators

KPI area	KPI definition (European Commission 2019)
Speed	Percentage of vehicles travelling within the speed limit
Safety belt	Percentage of vehicle occupants using the safety belt or child restraint system correctly
Protective equipment	Percentage of riders of PTWs and bicycles wearing a protective helmet
Alcohol	Percentage of drivers driving within the legal limit for blood alcohol content (BAC)
Distraction	Percentage of drivers not using a handheld mobile device
Vehicle Safety	Percentage of passenger cars with a Euro NCAP safety rating equal or above a threshold
Infrastructure	Percentage of distance driven over roads with a rating above an agreed threshold
Post-crash care	Time elapsed between the emergency call following a collision resulting in personal injury and the arrival at the scene of the collision of the emergency services



# Methodological Framework

- A common methodological framework for collecting data for the estimation of comparable KPIs at EU level was set:
  - **Survey** among the MS on existing data collection and needs for methodological support
  - International guidelines and methodologies available in the **literature** analyzed
  - **Development of the methodological guidelines:** KPI Expert Groups (KEG) and Technical Committee
  - For each KPI methodological guidelines are published:
    - EC SWD specifications were transformed into **operational definitions**
    - **minimum requirements** needed to assure comparability and reliability were defined



# Data Collection

- Measurements for most KPIs took place in **2021 and 2022**
- **2020 data** are also included for some MS
- Final report: end of **January 2023**

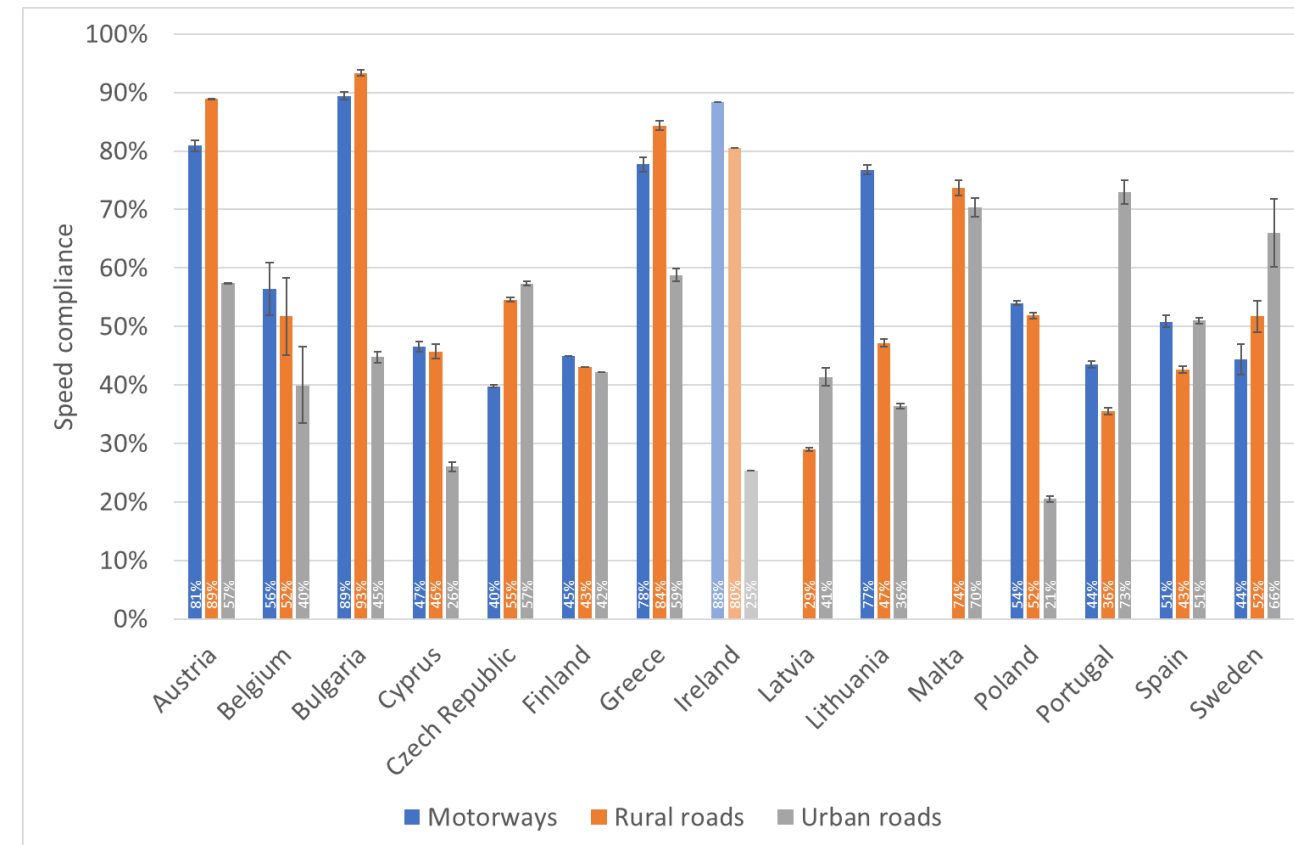
Country	Speed	Safety belt	Helmet	Alcohol	Distraction	Vehicle	Infrastructure	Post-crash Care
Austria	x	x	x	x	x	x		x
Belgium	x	x	x	x	x	x		x
Bulgaria	x	x	x	x	x	x		
Cyprus	x	x	x		x	x		x
Czech Rep.	x	x	x	x	x	x		x
Finland	x			x	x	x	x	x
Germany		x	x	x	x			x
Greece	x	x	x	x	x	x		x
Ireland	x	x	x	x				
Latvia	x	x	x	x	x	x	x	x
Lithuania	x	x			x	x	x	x
Luxembourg				x	x			
Malta	x	x	x		x		x	
Netherlands	x	x		x		x		
Poland	x	x	x	x	x			
Portugal	x	x	x	x	x	x	x	x
Spain	x	x	x	x	x	x		
Sweden	x	x	x	x	x	x	x	x
<b>Total</b>	<b>16</b>	<b>16</b>	<b>14</b>	<b>15</b>	<b>16</b>	<b>13</b>	<b>6</b>	<b>11</b>



# KPI Speed

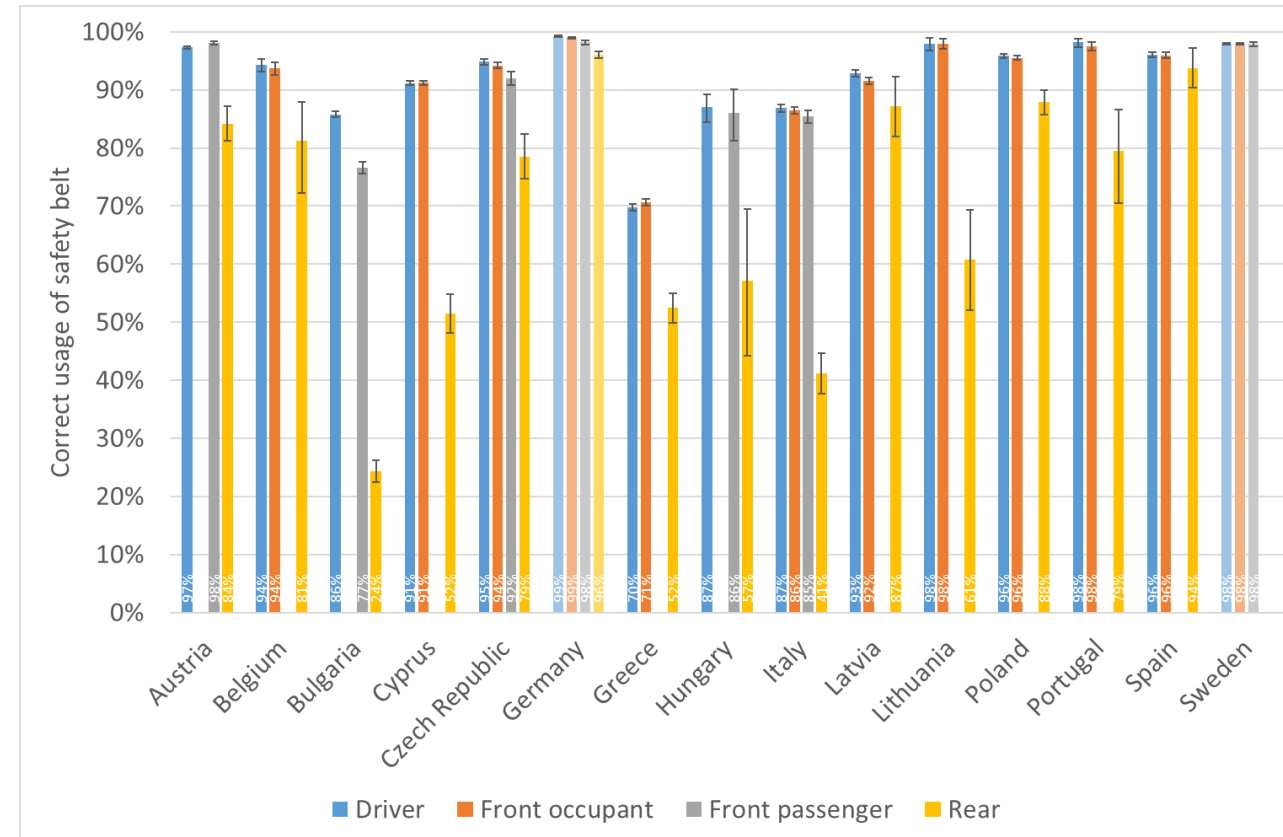
- 17 Member States provided data on speed
- Average speed and 85<sup>th</sup> percentile of speed have also been provided
- The KPI on **motorways** is lowest in the Czech Republic (40%), closely followed by Cyprus and highest in Bulgaria (89%).
- The KPI on **rural roads** is lowest in Latvia (29%) and highest in Bulgaria (93%).
- The KPI on **urban roads** is lowest in Poland (21%) and highest in Portugal (73%), Malta (70%) and Sweden (66%).
- **Higher speed limit** on the same road type usually means a **higher share of drivers** driving within the speed limit

Speed compliance by passenger cars during weekday/daytime



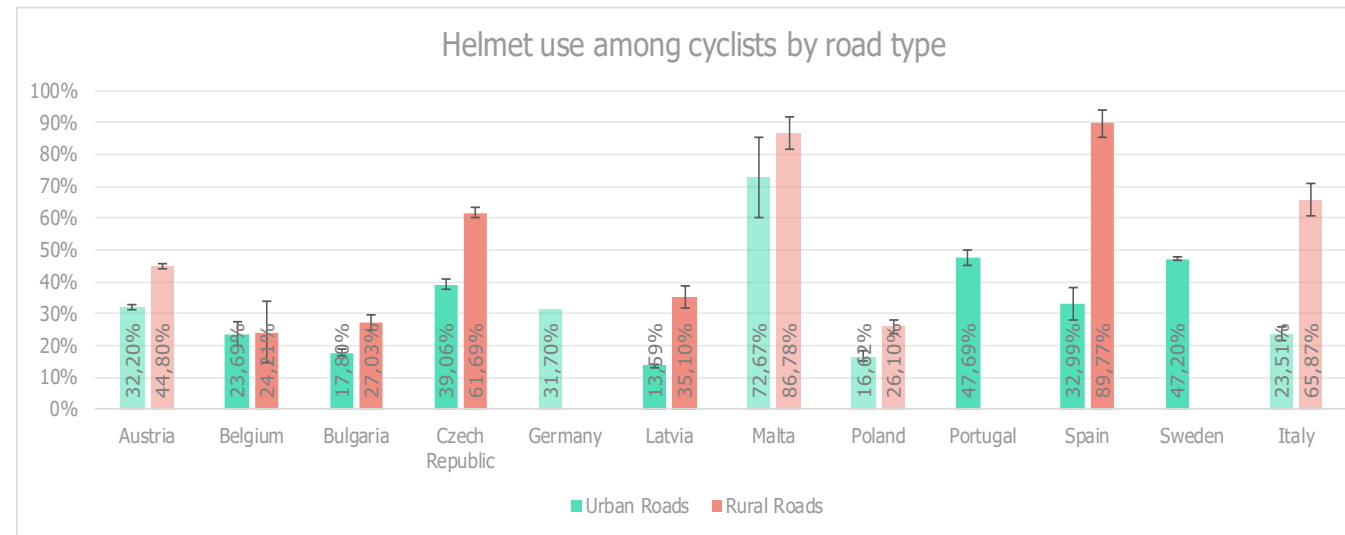
# KPI Safety Belt

- 16 MS provided data on this KPI.
- The **share of drivers** correctly using a safety belt ranges from 70% in Greece to 99.2% in Germany.
- For **front passengers**, KPI ranges from 77% in Bulgaria to 98% in Austria, Germany and Sweden.
- KPI for **rear occupants** is lower than that of any front occupants.
- KPIs for drivers and rear occupants in passenger cars are highest on motorways and least on urban roads.
- The share of children correctly using **CRS** starts at just above 35%.

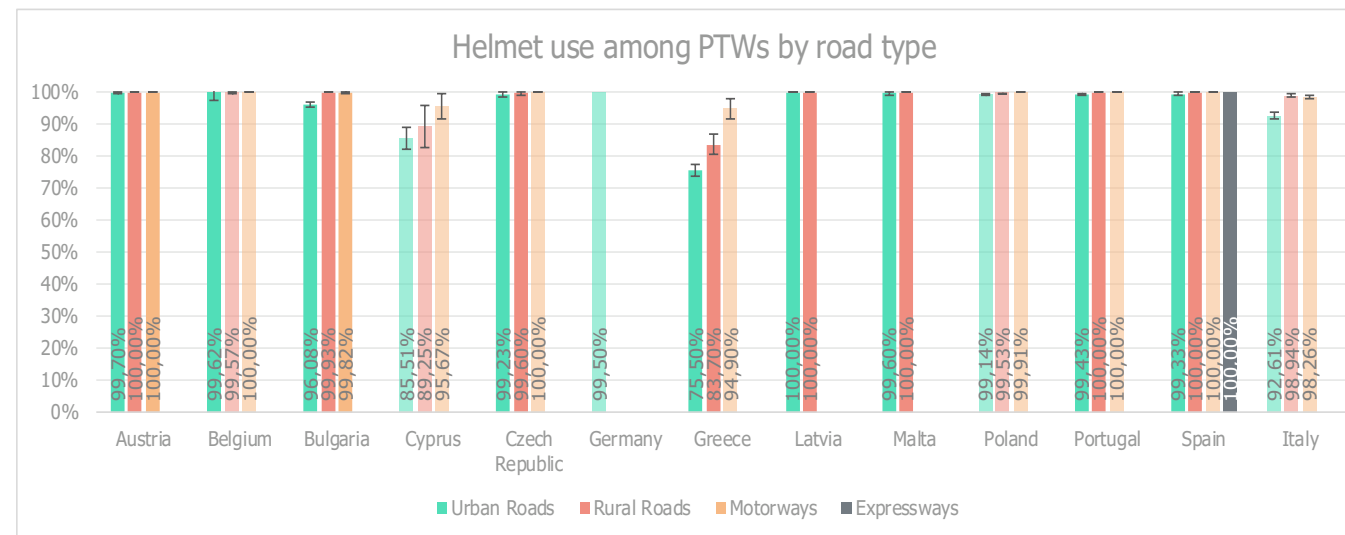


# KPI Helmet

- 12 countries provided KPI data on helmet use; data collected through observations on the roadside
- KPIs for **PTW riders** are above 90% for almost all countries
- KPIs for **cyclists** are significantly lower (17,9% - 52,6%).
- For cyclists, KPI is **higher on rural roads** compared to urban roads.
- For PTWs, KPI on **urban roads** is lower compared to the other road types in a few countries.
- Helmet use for **PTWs** is **mandatory** in all MS.
- Helmet use for **cyclists** is **not mandatory**, except specific cases (e.g. children, on rural roads, e-bikes).



Note: Countries with deviations in the methodology are shown with light colours (sampling framework for Austria / min. sample not achieved for Malta / no weighting for Poland and Italy)



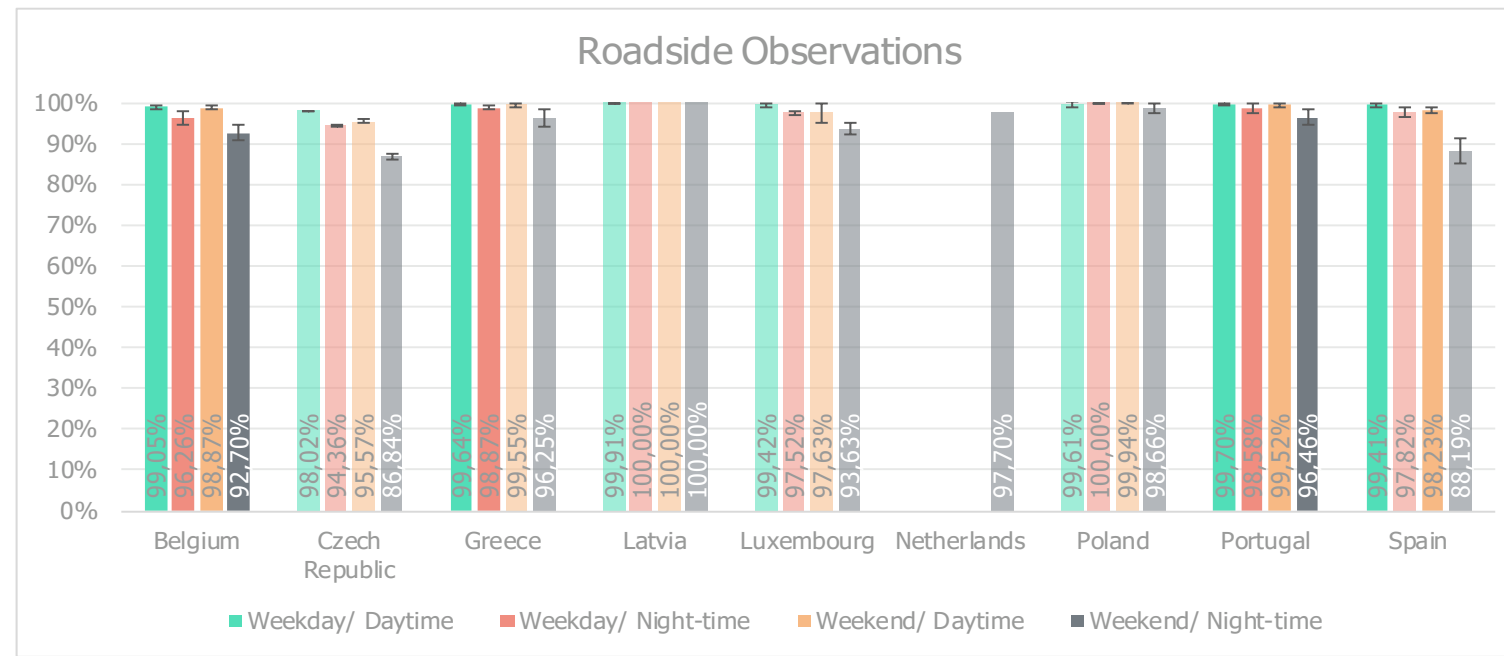
Note: Countries with deviations in the methodology are shown with light colours (no weighting for Poland and Italy / Min. total sample size not achieved for Belgium and Cyprus / Min. sample size for motorways not achieved for Czech Republic, Greece and Portugal)





# KPI Alcohol

- KPIs on DUI under of alcohol were delivered by **15 MS**
  - 8 MS: roadside observations/ measurements by the Police (random breath testing)
  - 6 MS: self-reported behaviour via anonymous surveys
  - 1 MS: alcohol testing results from enforcement actions (not random)
- The different data collection methodologies do not allow **direct comparisons** among all countries.
- Concerning the KPIs based on roadside observations, **more than 97%** of drivers drive within the legal limit for blood alcohol concentration.



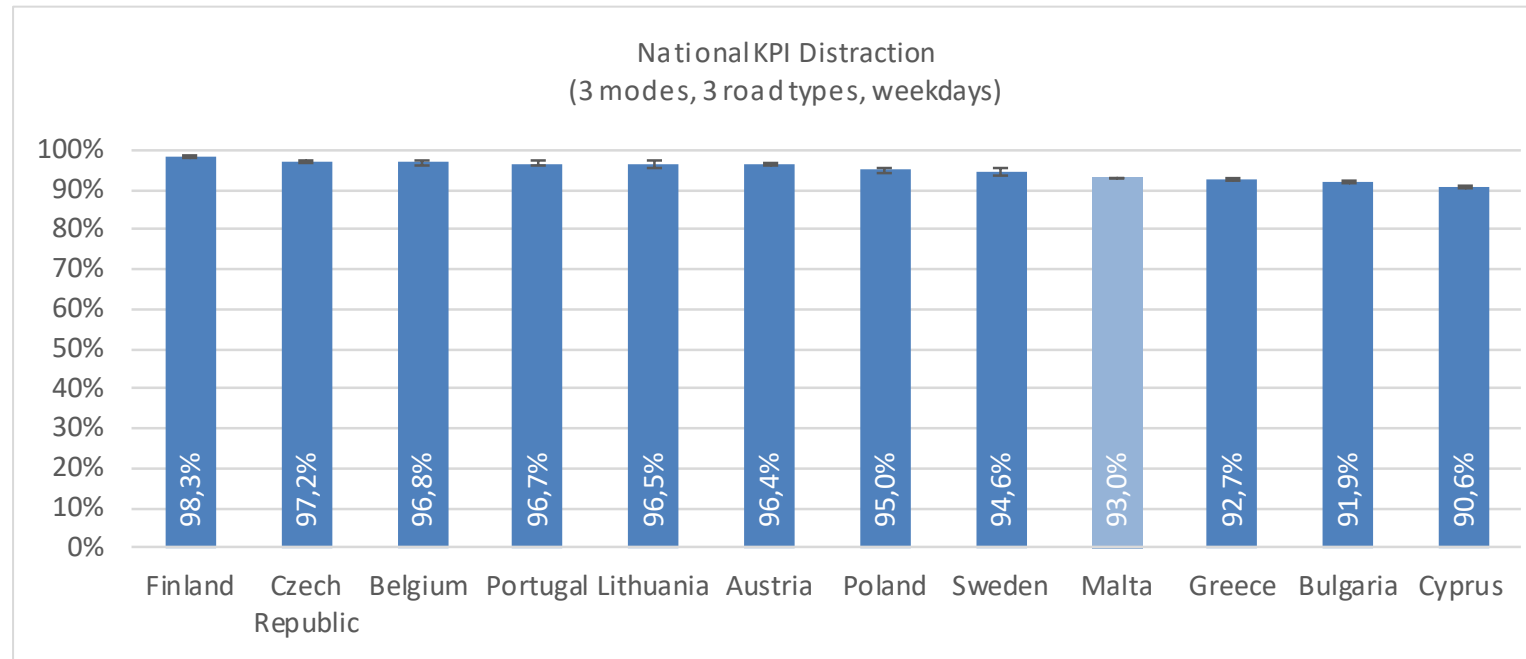
*\*Note: Countries with deviations in the methodology are shown with light colours (LU, LV: min. requirements not achieved; LU: no weighting; EL, ES: min. sample not achieved for all time periods; LV, PL: motorways not included; NL: 2019 data; CZ: results from enforcement actions)*

- The KPI values are **lower during night-time** for all countries, with the lowest KPIs being observed at weekends compared to weekdays for all countries.
- During daytime, **fewer drivers** are driving within the legal BAC limits **at weekends** compared to weekdays in some countries.



# KPI Distraction

- KPIs on driver distraction were provided by 15 MS, based on fieldwork between 2019 and 2022.
- 13 MS used observers along the road, and 2 MS used camera images.
- The national aggregate KPI concerns:
  - **3 vehicle types** together (cars, light goods vehicles and busses/coaches),
  - **3 road types** together (urban, rural, motorway)
  - **weekdays.**



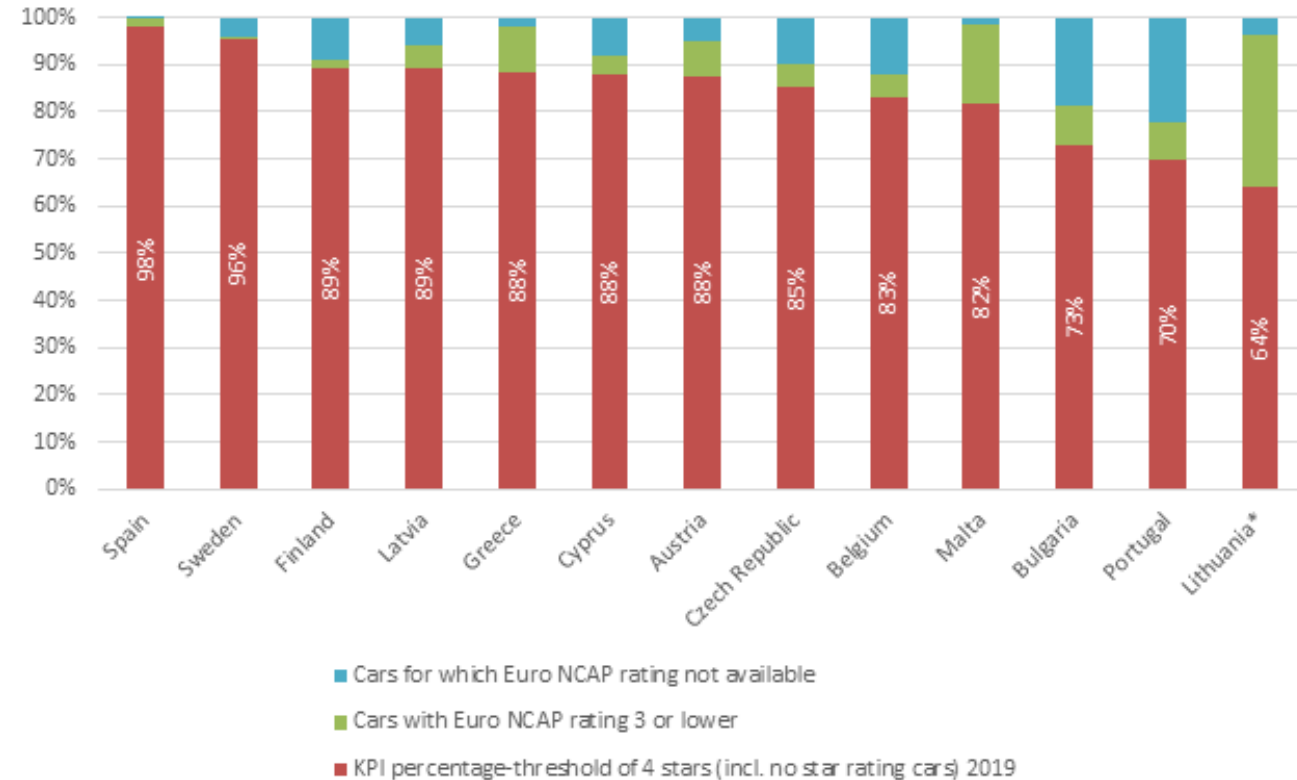
Malta: no motorways in road network

- **More than 90%** of the drivers in the participating MS do not use a handheld device while driving
- KPIs range between **90,6% in Cyprus to 98,3% in Finland.**
- Drivers of **light goods vehicles** more often use a handheld mobile device than car and bus drivers



# KPI Vehicle Safety

- The main KPI is the percentage of newly registered passenger cars with a Euro NCAP rating equal or above 4 stars in 2019.
- KPI ranges between **98%** in Spain to **64%** in Lithuania.
- For all countries except three, this percentage is **above 80%**.



\* The KPI of Lithuania is the lowest of all countries, as car manufacturers use Lithuania's lower taxes to register vehicles that never drive on Lithuanian roads as they are immediately re-exported to other markets in the European Union as used models with 0 km. For Lithuania, for instance Fiat does this on a large scale, and as the Fiat 500 has a 3-star rating, the KPI is influenced to a large extent. Car manufacturers registering cars in one country and exporting immediately to another for tax reasons is also present in other countries. It is unclear to which extent it influences the KPI in other countries.



# KPI Infrastructure

- 6 EU MS provided data for the KPI on infrastructure safety.
- All countries provided data on **rural roads**.
- Sweden, Finland, Portugal and Lithuania also provided data for **motorways**.
- Finland was the only country to provide data for **urban areas**.
- KPIs based on **distance travelled have higher values** than those based on the length of the road network.
- All KPIs in relation to motorways had a value of **100%**.

## KPIs for rural roads

	Finland	Latvia	Lithuania	Malta	Portugal	Sweden
KPI(1)	70,4%					
KPI(2)	48,7%					
KPI(3)*	31,3%					64,3%
KPI(4)*	19,0%	4,4%	53,77%	39,2%	27,8%	

\* Speed limit threshold for KPI(3) and KPI(4) was 70 km/h

*KPI(1): Percentage of the distance driven over roads with a safety rating above an agreed threshold*

*KPI(2): Percentage of the road network length of roads with a safety rating above an agreed threshold*

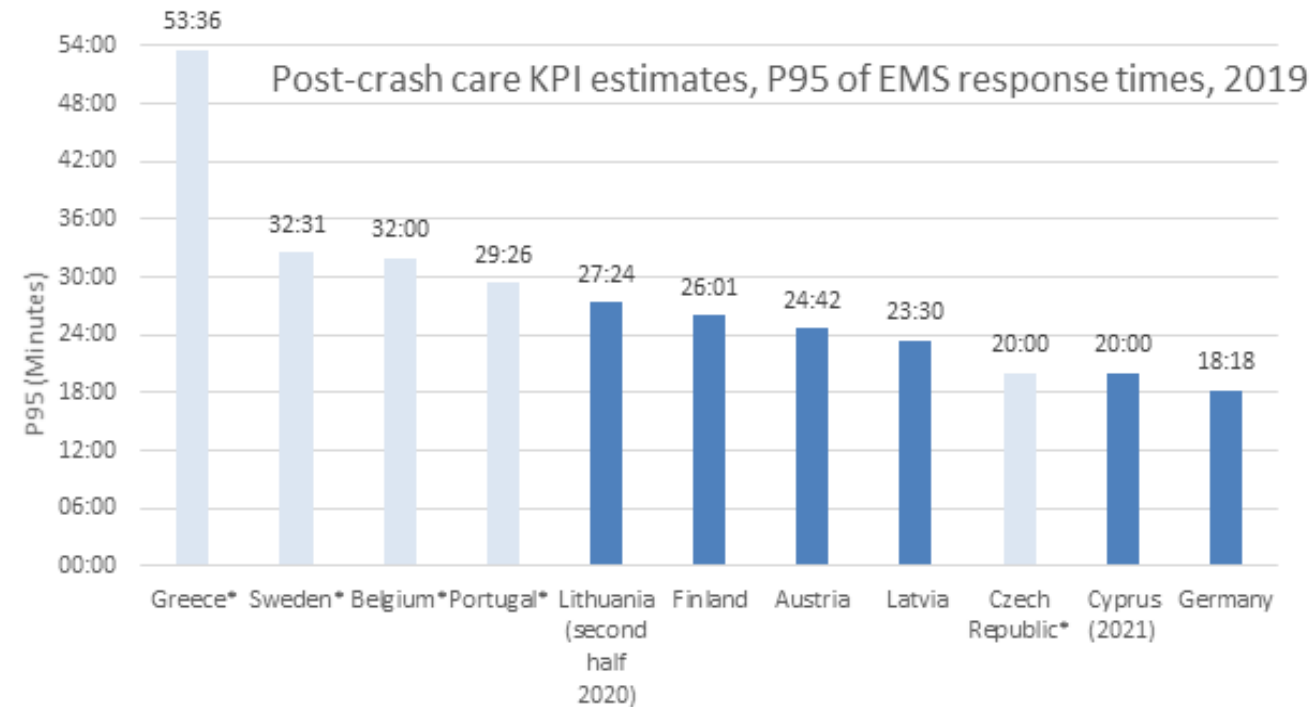
*KPI(3): Percentage of the distance driven over roads either with opposite traffic separation (by barrier or area) or with a speed limit equal to or lower than xx km/h in relation to total distance travelled [on all roads]*

*KPI(4): Percentage of the road network length of roads either with opposite traffic separation (by barrier or area) or with a speed limit equal to or lower than xx km/h in relation to the total road network length.*



# KPI Post-crash Care

- 11 countries provided KPI estimates.
- Germany appears to have the **shortest 95<sup>th</sup> percentile** of response times.
- In terms of road type, the response times are **longest on rural roads** compared to urban roads and motorways.
- In terms of period of the week, the response times are **shortest at daytime during weekdays**.
- The **ranking of the countries** is not very different when based on the 50<sup>th</sup> percentile compared to the 95<sup>th</sup> percentile.



\* Representativeness of data and/or comparability with other countries not guaranteed



# Next Steps

- **Trendline** is the follow-up project of the Baseline project (October 2022 – December 2025).
- **Participating countries:**
  - 25 EU Member States (out of 27)
  - 4 Observers: Estonia, Malta, Norway & Switzerland
- Trendline also focusses on **8 KPIs** defined by the EC.
- Existing methodologies will be **reviewed and refined**.
- **New experimental indicators** and complementary methods will be selected.
- In Trendline, there will be more emphasis on the use of the KPIs in **policy monitoring activities**.

Key →

Performance →

Indicator →





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