International developments in relation to road safety performance indicators

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Western Balkan Technical Committee in Road Safety

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What is Vias institute?

- **General information**
  - Located in Brussels, Belgium
  - About 130 staff, most of which are involved in road safety
  - Previously called "Belgian Road Safety Institute"
  - Different departments: research, consulting, training, communication, rehabilitation, fitness to drive and communication
  - Active member of international associations such as IRTAD, ETSC, UNSRC, FERSI, HUMANIST, CORTE, TPI, ICTCT, EuroRAP, CARE and CIECA

- **Experience with KPIs**
  - Roadside measurements and generation of KPIs since 20 years (speeding, drunk driving, seatbelt use, child restraints, distraction, fatigue, drugs)
  - Attitude measurements since 20 years, leading to indicators based on self-reported behaviour
  - Initiator and coordinator of the ESRA initiative (involving 60 countries)
  - Expert advice to UN/WHO and European Commission

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Who am I?

- **The past**
  - Two degrees in Engineering from Ghent University (Belgium)
  - Professional career as a researcher, manager, trainer and advisor – nationally and internationally
  - Involved with design and use of performance indicators since over 20 years
  - Author of a book on performance and quality indicators (in Dutch: *'Het Juiste Cijfer'*)

- **The present**
  - Research Director at Vias institute (research team of +/- 25 researchers)
  - Involved in several European projects such as SafetyCube, Skillful, ESRA, ..
  - President of the Humanist research network on human factors in transport
  - Author of the UNRSC Guidelines on global targets in road safety
  - Expert for the European Commission on design of KPIs
  - European proposal coordinator for the Baseline project for the EC
  - Project Director of ESRA

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Terminology

- **Terminology**
  - KPIs = "Key Performance Indicators" (used by EC)
  - Others use the term "safety performance indicators" (SPIs) or just 'indicators'
  - A KPI or an SPI is a number that provides information about a particular process or situation

- **Use in road safety**
  - In principle, KPIs can be designed and monitored **at all levels of the road safety pyramid**

    Share of the cyclist population that is required to wear a helmet (e.g. all children)
    Percentage of cyclists who are legally obliged to wear a helmet
    Number of head injuries that could have been avoided by wearing a cyclist helmet

  - In road safety the terms KPIs or SPIs in general refer to the **contributory factors** of road safety such as the behaviour of road users, vehicle safety and infrastructure

    Percentage of vehicle drivers exceeding the speed limit on rural roads
    Percentage of the vehicle fleet with a 5-star EuroNCAP rating
    Percentage of the primary road network that is above X in the safety rating

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The road safety pyramid

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Concepts and terminology

- **Effective use of KPIs requires**
  - to design relevant 'yardsticks' : in what dimensions will we measure the phenomenon
  - to use appropriate measurement methods
  - to set appropriate targets
  - to monitor the evolution of the KPI values towards the targets

- **Difference between national and international indicators**
  - A **national** indicator measures the performance at national level

    The percentage of car passengers not wearing a seatbelt in Serbia

  - An **international** indicator can be
    - a weighted average of national indicators

      The percentage of car passengers not wearing a seatbelt in the Western Balkans
    - a meta-indicator

      The number of countries in the Western Balkans where over 90% of car passengers is wearing a seatbelt

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Developments at the level of the United Nations

The United Nations Voluntary Global Targets

Need for a global status on the contributory factors to road safety

Push from United Nations, in particular the WHO (World Health Organisation)

Strong support from UNRSC, the UN Road Safety Collaboration

End result: 12 global targets, 32 associated indicators

Need for guidance to Member States

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	Short name	Full name of the target
1	National action plan	By 2020, all countries establish a comprehensive multisectoral national road safety action plan with time-bound targets.
2	Global alignment	By 2030, all countries accede to one or more of the core road safety-related UN legal instruments.
3	New roads	By 2030, all new roads achieve technical standards for all road users that take into account road safety, or meet a three star rating or better.
4	Existing roads	By 2030, more than 75% of travel on existing roads is on roads that meet technical standards for all road users that take into account road safety.
5	Vehicle standards	By 2030, 100% of new (defined as produced, sold or imported) and used vehicles meet high quality safety standards, such as the recommended priority UN Regulations, Global Technical Regulations, or equivalent recognized national performance requirements.
6	Speeding	By 2030, halve the proportion of vehicles travelling over the posted speed limit and achieve a reduction in speed-related injuries and fatalities.
7	Motorcycle helmets	By 2030, increase the proportion of motorcycle riders correctly using standard helmets to close to 100%.
8	Vehicle occupant protection	By 2030, increase the proportion of motor vehicle occupants using safety belts or standard child restraint systems to close to 100%.
9	Driving under the influence	By 2030, halve the number of road traffic injuries and fatalities related to drivers using alcohol, and/or achieve a reduction in those related to other psychoactive substances.
10	Distraction by mobile phone	By 2030, all countries have national laws to restrict or prohibit the use of mobile phones while driving.
11	Professional drivers	By 2030, all countries to enact regulation for driving time and rest periods for professional drivers, and/or accede to international/regional regulation in this area.
12	Timely emergency care	By 2030, all countries establish and achieve national targets in order to minimize the time interval between a road traffic crash and the provision of first professional emergency care.

12 targets

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Guidance document for countries

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Underlying concept: 3 stage logic

[ACTIONS]

Implement appropriate measures and interventions

(e.g. set appropriate speed limits; raise awareness about risks of speeding; enforce speed limits; build roads with speed calming measures)

[OUTCOME]

Improved performance of the contributing factors

(e.g. reduction in mean travel speeds)

[IMPACT]

Measurable difference in the final outcome of your actions

(e.g. reduction in speed-related fatal and serious injury crashes)

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Example: DUI and distraction

	Action	Outcome	Impact
Driving under the influence	• Policy and legislation on drink driving management (DUI limits, enforcement, awareness) • Policy and legislation on drug impaired driving management • Enforcement of DUI limits and other alcohol related legislation • Enforcement of drug impaired driving laws • Implementation of data systems on driving under the influence of alcohol and/or other psychoactive substances • Regular public awareness activities on driving under influence of alcohol and psychoactive substances	Drivers comply with DUI alcohol limits Drivers do not use psychoactive substances before driving	Reduction in the number of road injuries and fatalities due to alcohol use by drivers Reduction of road injuries and fatalities due to psychoactive substance use by driver
Distraction by mobile phone	• Policy and legislation on the use of mobile phones while driving (phone mode, awareness, enforcement) • Enforcement of mobile phone legislation • Implementation of data systems on distraction by phone • Regular public awareness activities on the distracting effects of mobile phone use	Drivers are not distracted by mobile phones while driving	Reduction in the number of road injuries and fatalities caused by distraction from mobile phone use

How can this be measured?

	Action	Outcome	Impact
Driving under the influence	Existence of legislation specifying legal maximum blood alcohol concentration (BAC) levels Existence of legislation specifying legal maximum levels of psychoactive substances Existence of legislation specifying enforcement of BAC limits and other DUI legislation Number of drivers checked for compliance with alcohol DUI limits Number of drivers tested for pyschoactive substance use Existence of data systems on driving under the influence of alcohol and/or other psychoactive substances Existence of data systems on road injuries and fatalities caused by impaired driving Budget spent on public awareness activiites related to driving under influence of alcohol and psychoactive substances	% of vehicle drivers complying with alcohol DUI limits % of vehicle drivers declaring to have drunk alcohol over the legal limit before driving (in the last 30 days) % of vehicle drivers declaring to have used psychoactive substances before driving (in the last 30 days)	Number of road injuries and fatalities due to illegal alcohol level of driver Number of road injuries and fatalities due to psychoactive substance level of driver Proportion of alcohol consumption as a contributing factor within the total number of road injuries and fatalities Proportion of driver-psychoactive substance use as a contributing factor within the total number of road injuries and fatalities
Distraction by mobile phone	Existence of legislation on the use of mobile phones while driving Existence of legislation on enforcement of mobile phone use while driving Number of drivers checked for compliance with mobile phone legislation Existence of data systems on distraction by phone Existence of data systems on road injuries and fatalities caused by distraction by mobile phone Budget of public awareness activities on the distracting effects of mobile phone use	% of vehicle drivers that are using their mobile phone (handheld) while driving % of vehicle drivers declaring to have used their mobile phone for phoning while driving in the last 30 days % of vehicle drivers declaring to have used their mobile phone for texting while driving in last 30 days	Number of road injuries and fatalities due to distraction by mobile phone Proportion of distraction by phone as contributing factor within the total number of road injuries and fatalities

Developments at EU level

The development of eight European KPIs

KPI = Key Performance Indicator

Equivalent to “Safety Performance indicator”

Definition of eight KPIs

- Long discussions with experts
- No consensus on infrastructure

No target values for the indicators

2020 or 2021 will be baseline value

EU Member States expected to provide data for 2020 or 2021

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List of EU KPIs

	Indicator	Definition
1	**Speed**	Percentage of vehicles travelling within the speed limit
2	**Safety belt**	Percentage of vehicle occupants using the safety belt or child restraint system correctly
3	**Protective equipment**	Percentage of riders of powered two wheelers and bicycles wearing a protective helmet
4	**Alcohol**	Percentage of drivers driving within the legal limit for blood alcohol content (BAC)
5	**Distraction**	Percentage of drivers NOT using a handheld mobile device
6	**Vehicle safety**	Percentage of new passenger cars with a EuroNCAP safety rating equal or above a predefined threshold
7	**Infrastructure**	Percentage of distance driven over roads with a safety rating above an agreed threshold
8	**Post-crash care**	Time elapsed in minutes and seconds between the emergency call following a collision resulting in personal injury and the arrival at the scene of the collision of the emergency services

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Example of specifications for "distraction by mobile phone"

Methodological aspects	
Aspect	**Minimum methodological requirements**
Data collection method	Direct observation by trained observers on roadside or from moving vehicles. Other alternatives could be used if available, e.g. automatic detection. To be decided by Member States.
Road type coverage	The indicator should cover motorways, rural non-motorway roads and urban areas. The results may be presented separately for this three different road types.
Vehicle/user type	Cars, light goods vehicles, buses/coaches as a minimum. Other user types if possible (disaggregated by user type).
Location	Random sample (methodology for Member States to decide).
Time of day	Observations to take place during daylight.

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Call for tender going on

Support for collection of data for the KPIs	• 50% subsidy for the data collection • Maximum 320 000 euro granted per Member State
Very special type of tender	• Only addressed to Member States (public authorities) • Interested Member States have to form a consortium
Belgium is coordinating	• Announcement at meetings of the EU High Level Group • Vias institute will be the coordinator

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Current status

Proposal

- Call published 6th of March
- Deadline for submissions: 10th of July
- About 20 Member States interested
- Member States need to decide on the KPIs to include
- Collection of administrative documents (tedious !)

Project coordination

- Focus on administrative and financial issues
- Methodological advice and analysis
- Expert groups per KPI
  - give methodological advice to Member States
  - interpret/analyse data provided by Member States

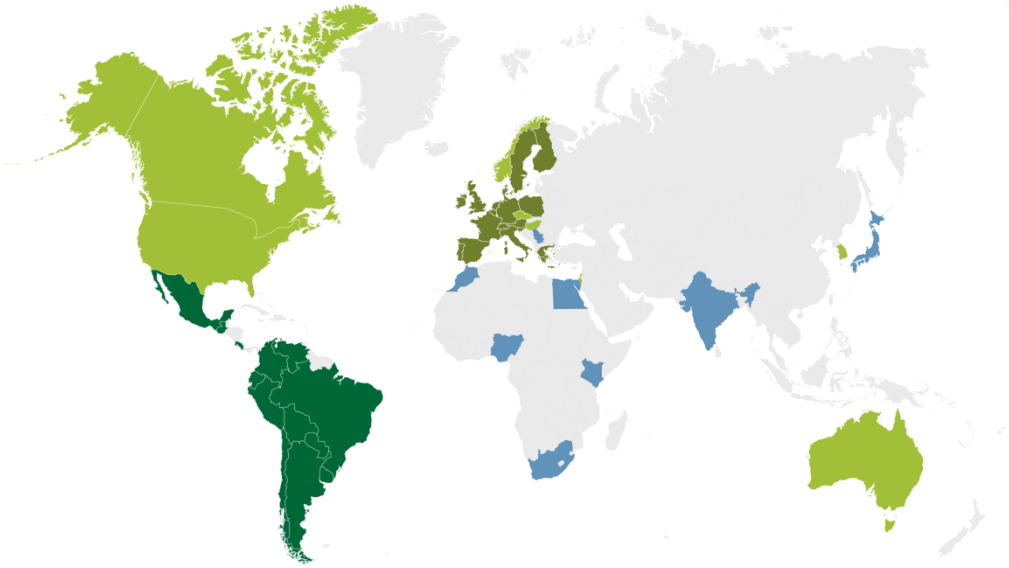
ESRA

ESRA initiative

ESRA
E-Survey of Road users' Attitudes

International network

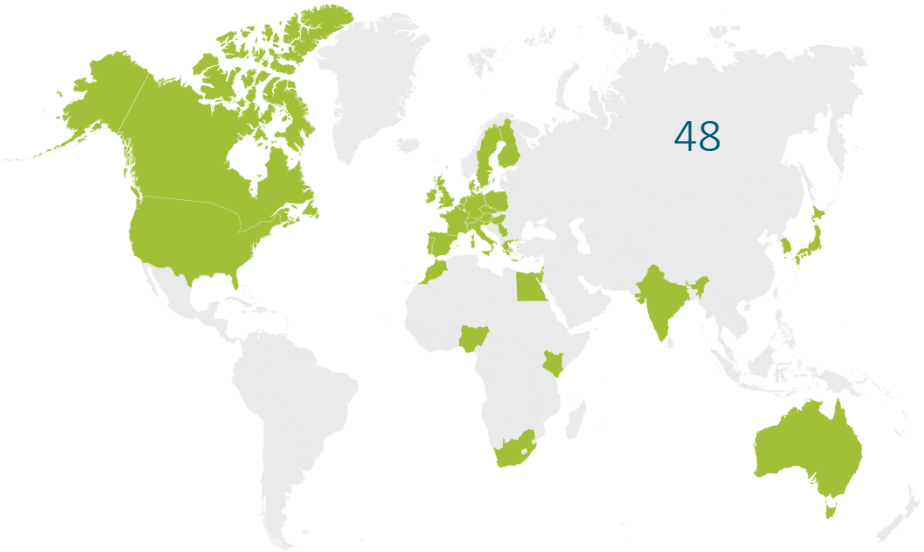
- Coordinator: Vias institute
- 60 countries – 6 continents
- Website: www.esranet.eu



Aim & objectives

- Provide **scientific support** for road safety policy at national and international levels
- Make internationally **comparable** data available on the current road safety situation in countries all over the world
- Develop a series of reliable, cost-effective and comparable **road safety performance indicators**
- Develop **time series** on road safety performance

ESRA2 methodology



Online panel survey – identical method & questionnaire

Coordinator: Vias institute

ESRA2: 48 countries

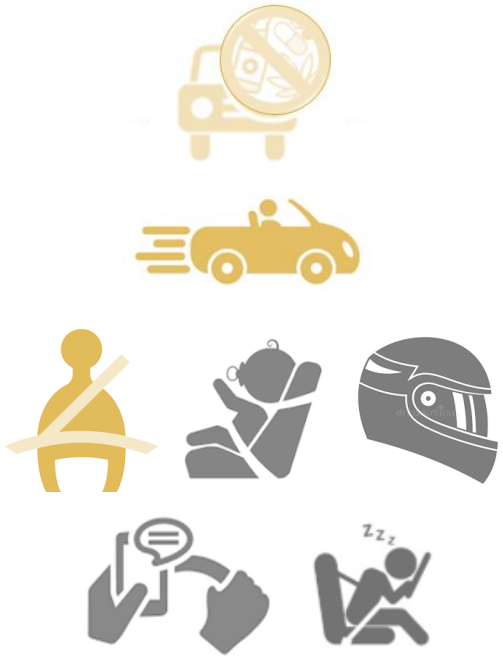
- Total sample N > 45 000
- ≥1000 road users per country
- Representative sample of the national adult population (18+)
  Quota for gender*age (18-24, 25-34, 35-44, 45-54, 55-64, 65+), regional spread monitored (UN, 2019)
- 62 national language versions
- 28 questions (>300 variables)
- LOI = 20 min

Funding: partners' own resources (or sponsors)

Calculation of weighted regional and national means

ESRA2 main topics & themes

(over 300 variables collected)



support for road safety policy measures	self-reported behaviour in traffic	acceptability of safe and unsafe traffic behaviour
attitudes, towards safe and unsafe traffic behaviour	subjective safety and risk perception	involvement in road crashes
enforcement of traffic laws	vehicle automation (new)	2 bonus questions (new)

NEW

Contextual data from

- external databases
- expert survey

Thank you for your attention!

For more information:

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