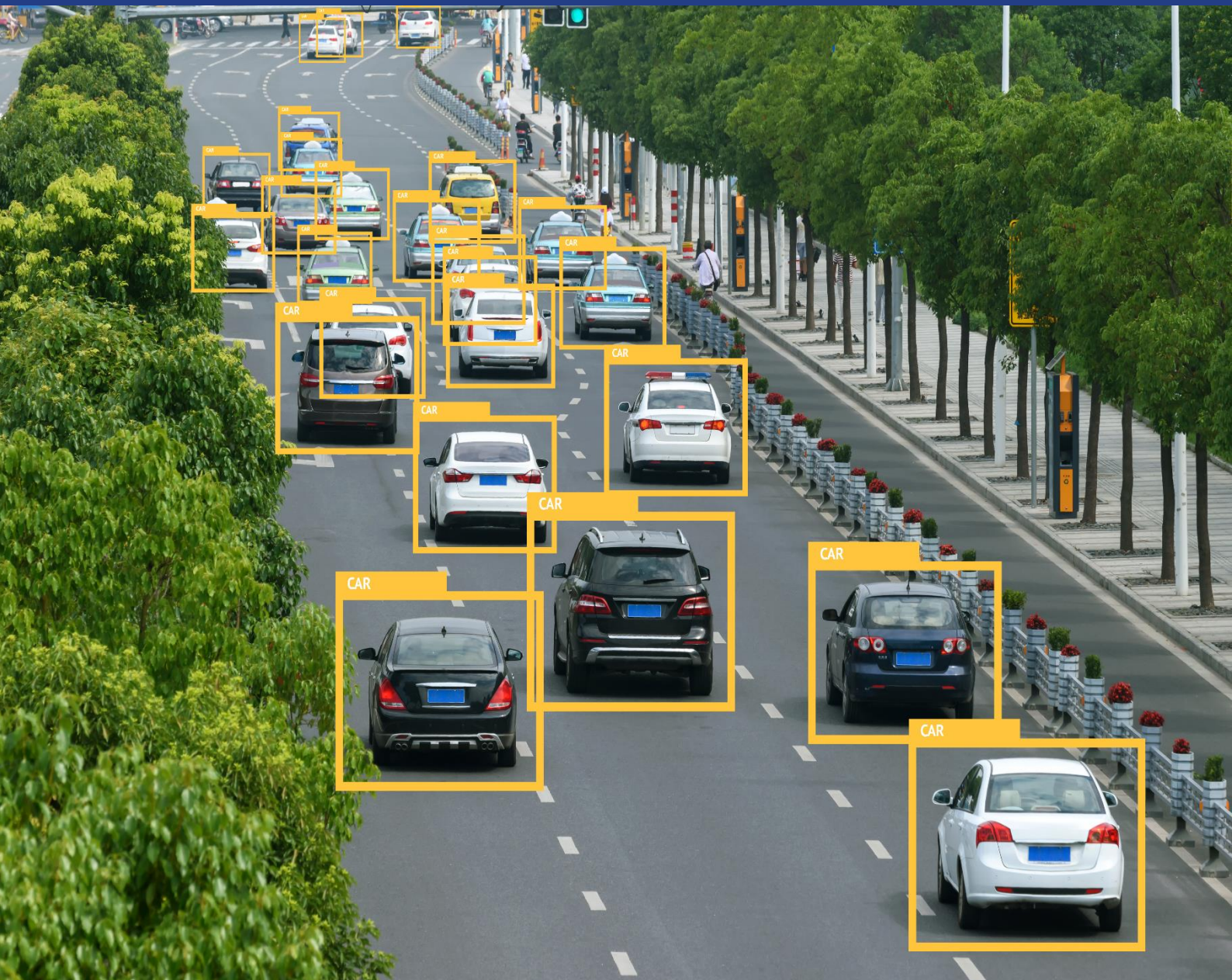


Monitoring Road Safety in the EU: towards a comprehensive set of Safety Performance Indicators Summary

2017



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Is it enough to count crashes and casualties?

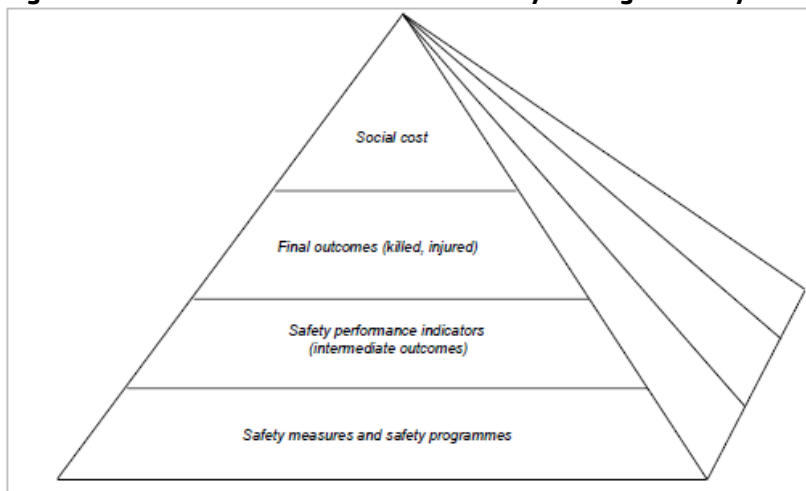
The analysis of road safety performance in the EU and its Member States is so far focused on rankings of mortality rates and counts of fatalities and (serious) injuries. Although such macroscopic view can be valuable in identifying trends – such as the ever-growing fatality share of vulnerable road users – however we have limited knowledge about the underlying unsafe operational conditions of our road transport system. Only when the available crash and casualty counts (“final outcomes”) are supplemented by a set of so called Safety Performance Indicators (SPI, e.g. on seatbelt and helmet use, drink driving, and speeding), will it be possible to better explain systematic developments in safety performance over time and evaluate the systemic impacts of countermeasures.

This report therefore aims to prepare the scope for introducing an enlarged set of SPIs to be assessed at regular intervals, preferably which comparable methods and assigned with tangible targets, to provide an improved and objectivised basis for road safety policy and management at EU and national levels for the decade 2020-30.

The concept of Safety Performance Indicators

In the early 2000s, SPIs (“Intermediate Outcome Indicators”) were defined as “any measurement that is causally related to crashes or injuries [...] to indicate safety performance or understand the process that leads to accidents” (ETSC 2001).

Figure 1: The essential elements of a safety management System (ETSC 2001)



Source: ETSC, 2011

In practice, the process of defining adequate SPIs can be complex. Only for some domains can direct indicators be identified and collected which directly measure an unsafe operational condition (e.g. seatbelt non-use). For others, such direct measurement is not feasible, e. g. for technical, economical or ethical reasons. In these cases, either indirect indicators can be identified as a proxy for the problem (e.g. number of alcohol-related fatalities, from police records), or one which is related to an intervention (e.g. number of alcohol roadside checks), see also Hakkert et al., 2007).

What to collect, how to collect and analyse?

Currently, no two countries in the EU collect the same set of indicators, let alone with the same methodology. This report gives an overview of the state of play in the EU with respect to:

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- scientific motivation to collect indicators in different problem areas,
- the size of the respective problem and reduction potential,
- data collection and analysis requirements, and
- current data availability.

For each of these areas, potential indicators for joint collection by the Member States are identified, with a view to future shared analysis, target setting and benchmarking at European level. In addition, good practices are identified in terms of uptake of SPIs (assigned with targets) in national road safety strategies, data collection and analysis, and reporting and communication.

For the following domains, SPI data collection by Member States is suggested:

Domain	Indicator	Priority I	Priority II	Priority III
Seatbelts and child restraints	Daytime wearing rate of seatbelts (passenger cars) on front seats	x		
	Daytime wearing rate of seatbelts (passenger cars) on rear seats	x		
	Daytime use of child restraint systems (<14y) in passenger cars	x		
Helmets for PTW riders and cyclists	Daytime use rates of motorcycle helmets	x		
	Daytime use rates of moped helmets	x		
	Daytime use rates of cycle helmets		x	
Driving speeds	Motorways with dual carriageway and median separation		x	
	Single carriageway rural roads		x	
	Single carriageway urban distributor roads		x	
Driving under the influence: alcohol and drugs	Fatalities resulting from crashes involving (at least) one driver or rider under the influence of alcohol (above the legal limit)	x		
	Fatalities resulting from crashes involving (at least) one driver or rider impaired by psychoactive substances other than alcohol (national offence impairment level)		x	
	Number of alcohol roadside checks by police per population	x		
Use of handheld cell phone	Proportion of passenger car drivers using a handheld cell phone (roadside survey)	x		
Infrastructure	The proportion of travel on new rural roads (non-motorways) that have a star-rating (Road Protection Score) of 3 or better		x	
	The proportion of travel on existing rural roads (non-motorways) that have a star-rating (Road Protection Score) of 3 or better			x
Vehicle	Average EuroNCAP occupant protection score of new passenger cars (cars sold in respective year)		x	
Post-Impact Care	Composite indicator of 14 indicators in the field of a) Speed and quality of initial treatment by emergency medical services, and b) Quality of further medical treatment			x

Regarding future activity of data collection, analysis, publication, benchmarking and target setting for SPIs, the following recommendations are given at EU and national levels:

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Advisable action at EU level

- Seek for a common understanding with MS on the potential and benefits of working with SPIs and which areas should be tackled with highest priority (at the level of the High-Level Group on Road Safety)
- Inform Member States about current good practices in the EU with regard to SPI data collection and target setting, e.g.
 - observational campaigns with professional staff and according to statistically sound data collection protocols;
 - national statistics and registries with harmonised (or transformable) variables and values;
 - road safety strategies with reduction targets on final outcomes (fatalities and serious injuries) and additional targets on intermediate outcomes (SPIs): Management by Objectives.
- Discuss with MS options for regular data collection and analysis, possibly in an expert level group similar to the CARE Expert Group, convening representatives of all EU and EFTA countries.
 - Current SPI practices in member countries
 - Comparison of definitions and statistical methods for sampling and analysis
 - Assessment of the current comparability of indicators between countries
 - Identification of – and agreement on – minimal standards for indicator collection and collection frequency; The spirit however should be to leave to Member States a certain degree of freedom in terms of collection methodology and assessment frequency to keep as many Member States as possible in the loop from the start
 - Options for step-wise harmonisation towards such minimal standards
 - Set up a regular reporting channel from Member States to EC (and back)
 - Develop statistical methodology to arrive at gross-EU values for selected indicators
- Agree with Member States on the setting voluntary targets for selected indicators. It may be advisable to start with widely available indicators such as use rates of seatbelts and child restraints, and gradually widen the scope once data availability improves.
- Arrange for regular communication of recent results on SPI, possibly back to back with the annual publication of the country rankings of road mortality in the EU.
- Make country results available and easily comparable on ERSO (in addition to the existing ERSO Country Profiles which are always dedicated on one specific country).
- Seek to cooperate with WHO on the further development of voluntary targets on SPI.
- Support research towards further development of good practices (collection and analysis).
- Consider further research towards the country-wise development of composite indices, i.e. statistical models that help explaining the overall road safety performance of a country.

Advisable action at national level

- Consider the regular collection of SPI as integral part of a country's road safety management strategy.
- Assess the national reduction potential (fatalities and serious injuries) in the different areas covered by the SPIs considered in this report.
- Set targets on indicators where this potential is high and indicator data collection is already existing or being developed.

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- Introduce Management by Objectives regarding SPIs: Review the trend towards the target for every indicator and introduce/adjust related measures where necessary (where possible: annually).
- Cooperate with the European Commission and other Member States in the joint development of improved methodology on collection and analysis of SPIs.

Notes

1. Country abbreviations

	Belgium	BE		Italy	IT		Romania	RO
	Bulgaria	BG		Cyprus	CY		Slovenia	SI
	Czech Republic	CZ		Latvia	LV		Slovakia	SK
	Denmark	DK		Lithuania	LT		Finland	FI
	Germany	DE		Luxembourg	LU		Sweden	SE
	Estonia	EE		Hungary	HU		United Kingdom	UK
	Ireland	IE		Malta	MT			
	Greece	EL		Netherlands	NL		Iceland	IS
	Spain	ES		Austria	AT		Liechtenstein	LI
	France	FR		Poland	PL		Norway	NO
	Croatia	HR		Portugal	PT		Switzerland	CH

2. This 2017 edition of Traffic Safety Synthesis on Monitoring Road Safety in the EU: towards a comprehensive set of Safety Performance Indicators was written by Klaus Machata, Austrian Road Safety Board ([KFV](#)).

3. All Traffic Safety Syntheses of the European Road Safety Observatory have been peer reviewed by the Scientific Editorial Board composed by: George Yannis, NTUA (chair), Robert Bauer, KFV, Christophe Nicodème, ERF, Klaus Machata, KFV, Eleonora Papadimitriou, NTUA, Pete Thomas, Un.Loughborough.

4. Disclaimer

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5. Please refer to this Report as follows:

European Commission, Monitoring Road Safety in the EU: towards a comprehensive set of Safety Performance Indicators, European Commission, Directorate General for Transport, November 2017.

