



**Ministry of
Transport and
Maritime Affairs**
Ministry of Economy



UNECE

How to achieve Transport- and Trade-related SDGs

Greek Road Safety Statistics – Best Practices

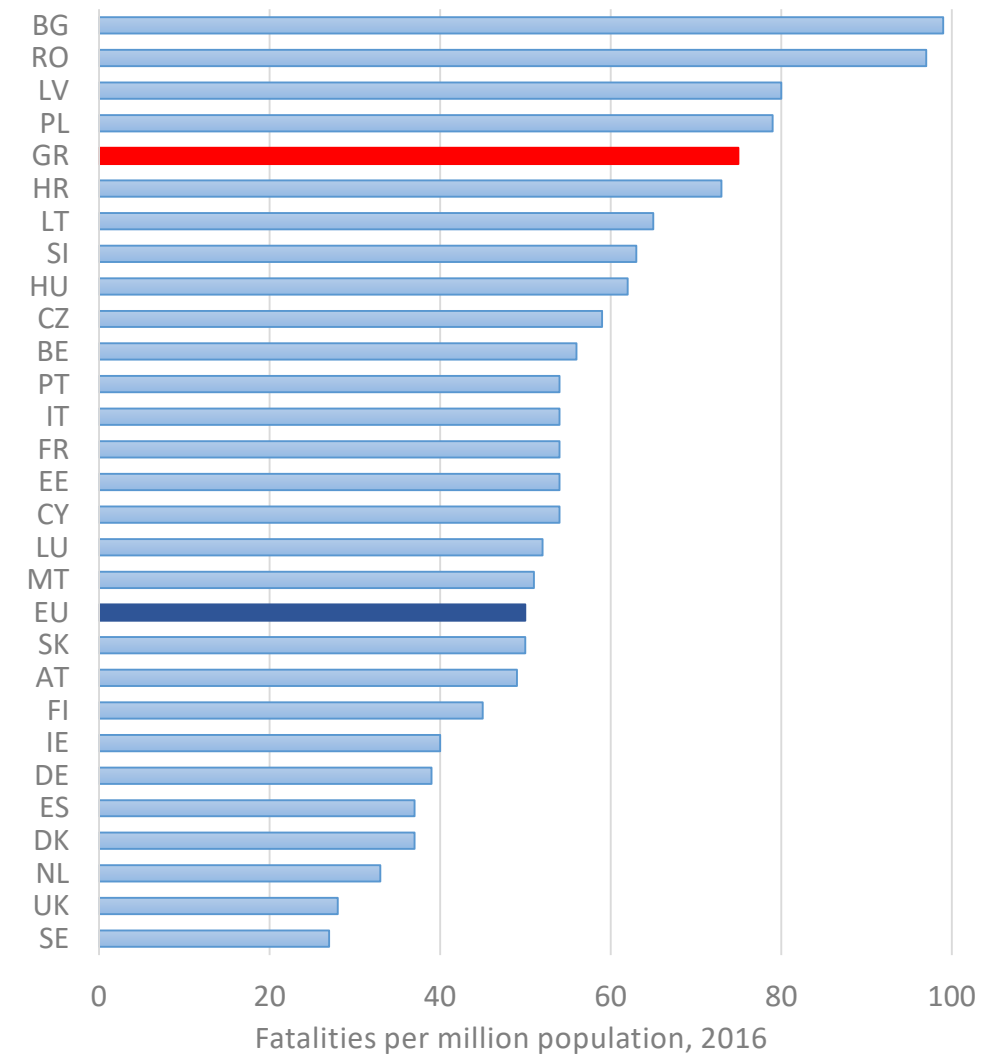


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National Technical University of Athens

Podgorica, October 2017

Road Safety in the EU

- In 2016, about **25.500** people were killed and **135.000** were seriously injured in road accidents in the EU
- In 2016, road accident fatalities were reduced by **2%** after two years of stagnation and by **19%** since 2010
- The mean number of road fatalities per million population was **50** in 2016 and was reduced by **43%** compared to 2007
- Only 10 countries have a better performance than the EU average



Source: European Commission



Road Safety in Greece

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	Change 2006-2016
Fatalities	1.657	1.612	1.553	1.456	1.258	1.141	988	879	795	793	807	-51%
Injured persons	20.675	19.766	19.010	18.641	19.108	17.259	15.640	15.175	14.564	14.096	13.795	-33%
Accidents	16.019	15.499	15.083	14.789	15.032	13.849	12.398	12.109	11.690	11.440	11.439	-29%
Vehicles (x1000)	6.996	7.380	7.729	7.911	8.062	8.087	8.070	8.035	8.048	8.076	8.173	17%
Fatalities/million vehicles	237	218	201	184	156	141	122	109	99	98	99	-58%
Fatalities/million population	149	146	140	131	115	98	89	80	73	73	75	-50%

Source: ELSTAT

- During the past decade, Greece was among the EU countries with the **worst road safety performance**
- However, Greece recorded an **impressive reduction in road fatalities by 46%** during the period 2009-2015
- This impressive reduction in road fatalities during economic crisis **was stopped in 2015**



Road Fatalities by Age, Gender and Road User Type

Greece 2015

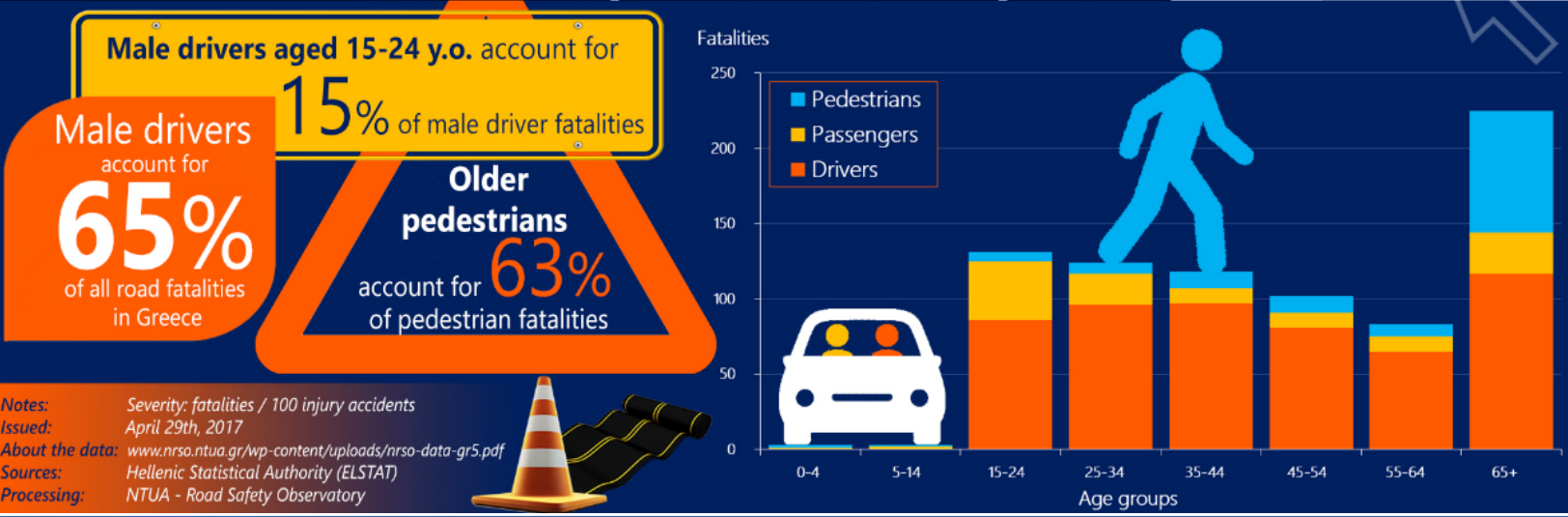
Road fatalities by age, gender, road user type



www.nrso.ntua.gr

Age	Drivers		Passengers		Pedestrians		Drivers	Passengers	Pedestrians	Male	Female	Total	%	Severity
	Male	Female	Male	Female	Male	Female								
0-4	0	0	1	0	2	0	1	2	3	0	3	0%	2,9	
5-14	0	0	0	2	0	0	2	1	0	3	3	0%	0,7	
15-24	79	7	21	18	3	86	39	6	103	28	131	17%	4,4	
25-34	86	10	10	11	5	96	21	7	101	23	124	16%	2,8	
35-44	94	3	4	6	7	97	10	11	105	13	118	15%	2,7	
45-54	75	6	3	7	6	81	10	11	84	18	102	13%	2,8	
55-64	63	2	6	4	4	65	10	8	73	10	83	10%	3,5	
65+	114	3	11	16	53	117	27	81	178	47	225	28%	7,6	
Unknown	3	0	0	0	1	3	0	1	4	0	4	1%		
Total	514	31	56	64	81	545	120	128	651	142	793	100%		
%	94%	6%	47%	53%	63%	69%	15%	16%	82%	18%				

Severity	3,5	1,0	5,4	3,6	7,8	4,6	3,1	4,4	6,2	4,0	2,4
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Notes: Severity: fatalities / 100 injury accidents
 Issued: April 29th, 2017
 About the data: www.nrso.ntua.gr/wp-content/uploads/nrso-data-gr5.pdf
 Sources: Hellenic Statistical Authority (ELSTAT)
 Processing: NTUA - Road Safety Observatory



Road Fatalities by Area and Road Type

Greece 2015

Road fatalities by area and road type

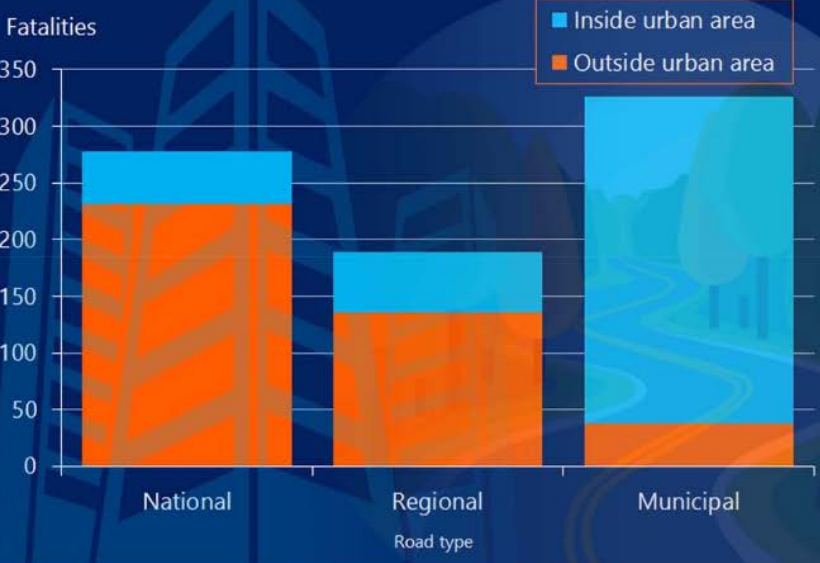


www.nrso.ntua.gr

Road Type	Fatalities				Road accidents				Fatalities per 100 accidents						
	Inside built-up area		Outside built-up area		Total	%	Inside built-up area		Outside built-up area		Total				
National	47	12%	231	57%	278	35%	395	4%	1.106	52%	1.501	13%	11,9	20,9	18,5
Regional	53	14%	136	34%	189	24%	430	5%	786	37%	1.216	11%	12,3	17,3	15,5
Municipal	288	74%	38	9%	326	41%	8.468	91%	255	12%	8.723	76%	3,4	14,9	3,7
Total	388	100%	405	100%	793	100%	9.293	100%	2.147	100%	11.440	100%	4,2	18,9	6,9
%	49%		51%		100%		81%		19%		100%				

57% of road fatalities outside built-up area occurred on national roads.

More than **80%** of road accidents and almost **half of fatalities** occurred inside built-up area. However, accident severity is **5 times higher** outside built-up areas.



Issued: January 23rd, 2017
 About the data: www.nrso.ntua.gr/wp-content/uploads/nrso-data-gr5.pdf
 Sources: Hellenic Statistical Authority (ELSTAT)
 Processing: NTUA - Road Safety Observatory



Why Collect Road Safety Data?

- Road Safety is a typical field with high risk of important investments not bringing results
- Absence of **monitoring and accountability** limits seriously road safety performance



What to Measure?

- Accident Data
- Exposure Data
- Road Safety Performance Indicators



Road Safety Data Collection and Storage

- Importance
- Accident recording
- Data processing and storage



Importance of Road Safety Data Collection and Storage

- Highlight high-risk sites, hierarchize needs and plan necessary improvements
- Investigate the impact of various factors (geometric characteristics, electric lighting, parking, driver training, enforcements, etc.) on accidents reduction
- In the documentation of projects (e.g. signaling, lighting, signage, etc.) and actions (e.g. increased enforcement, parking ban) in order to improve road safety
- In "before and after" studies in order to determine the effect of an intervention at a road section or intersection
- Performing an expert's report on a particular accident

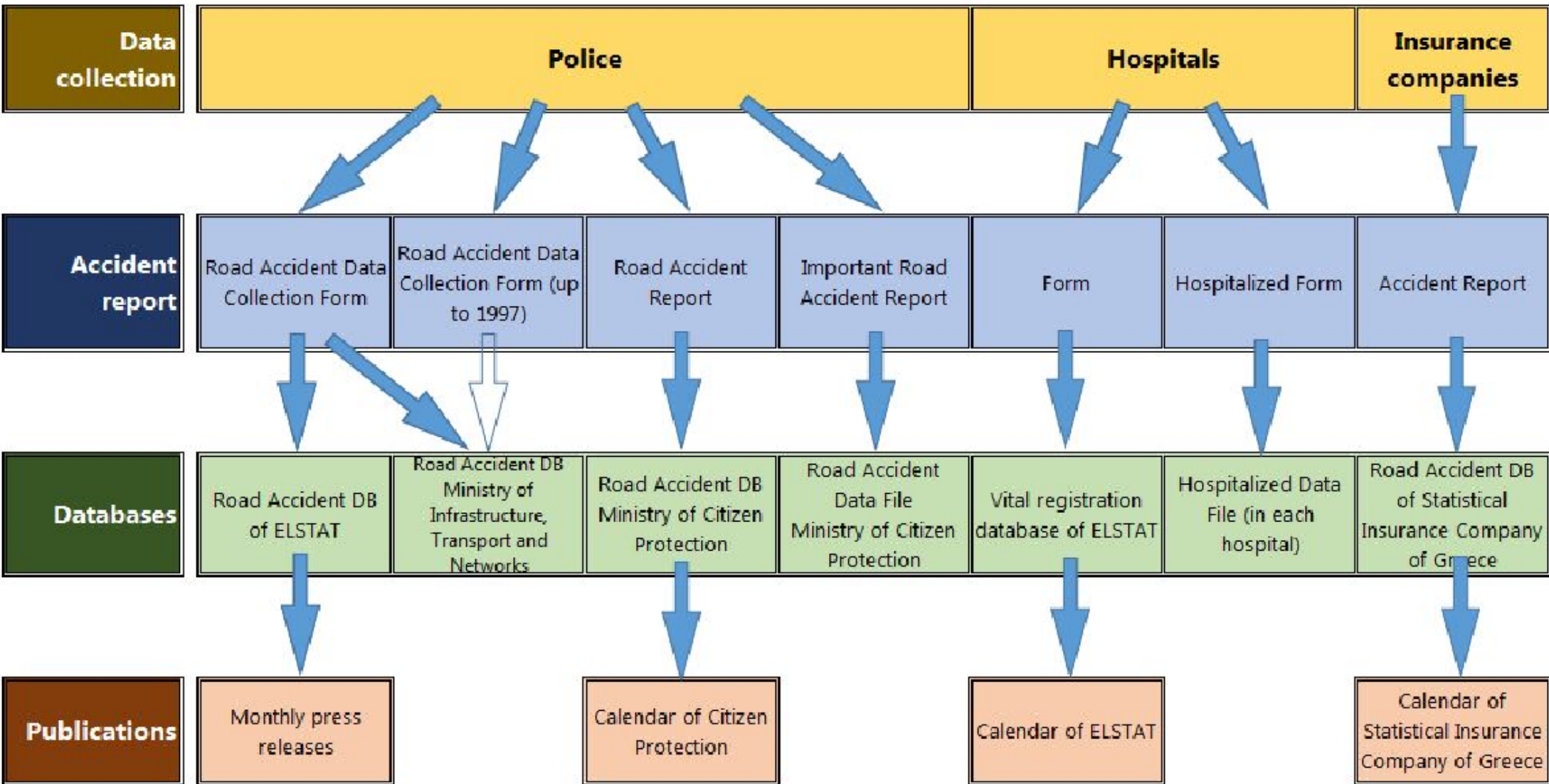


Problems when Recording Road Accidents

- Unclear determination of road accident location
- Insufficient or incorrect recording
- Insufficient accident coverage



Data Processing and Storage



The Role of Police (1/2)

- The Police are the first to arrive at the accident site and the last to update the related data
- Responsible to
 - **Forward** the **data** to the **Hellenic Statistical Authority (ELSTAT)**
 - **Maintain** the **National Data File**
- Draw up an accident report by filling-in an accident data collection form



The Role of Police (2/2)

- Task on accident site
 - **Carry out an investigation**
 - **Fill-in autopsy report, and part of the road accident data collection form** (completed later on at the police headquarters)
- The **road accident data collection forms** are **finalised** with the necessary updates within **30 days** from the day of the accident
- The source with the **most detailed data collected at national level**, in terms of variables and values collected



ELSTAT Database

- Detailed Disaggregate Data (1985-2012)
- Accident
- Vehicle
- Injured persons

- Road Accident Data Collection Form (DOTA)
- Updated since 1996

- Fatality Definition: Common European definition (Killed within 30 days from the day of the accident)

- Statistics
- Publication of aggregate statistics
- Provide with data international organizations (CARE, Eurostat, OECD etc.)

ΕΛΛΗΝΙΚΗ ΔΗΜΟΚΡΑΤΙΑ
ΥΠΟΥΡΓΕΙΟ ΟΙΚΟΝΟΜΙΑΣ ΚΑΙ ΟΙΚΟΝΟΜΙΚΩΝ
ΓΕΝΙΚΗ ΓΡΑΜΜΑΤΕΙΑ
ΕΘΝΙΚΩ ΣΤΑΤΙΣΤΙΚΩΣ ΥΠΗΡΕΣΙΑΣ ΤΗΣ ΕΛΛΑΔΟΣ
ΓΕΝΙΚΗ ΔΙΕΥΘΥΝΣΗ ΣΤΑΤΙΣΤΙΚΩΝ ΕΡΕΥΝΩΝ
ΔΙΕΥΘΥΝΣΗ ΚΟΙΝΩΝΙΚΩΝ ΣΤΑΤΙΣΤΙΚΩΝ
ΤΜΗΜΑ ΣΤΑΤΙΣΤΙΚΩΝ ΔΙΚΑΙΟΣΥΝΗΣ
ΚΑΙ ΔΗΜΟΣΙΑΣ ΤΑΞΗΣ
Ταχ. Δ/ση: Πειραιώς 46 και Επονητών
185 10 Πειραιάς
Τηλέφωνο: 210 4852771, 210 4852770
Fax: 210 4852764
E-mail: parasv@statistics.gr

- Το παρεχόμενο του ερωτηματολογίου είναι εμπειρικό και θα χρησιμοποιηθεί αποκλειστικά για στατιστικούς σκοπούς.
- Η παροχή στοιχείων είναι υποχρεωτική (Ν.Δ. 3627/1956, Ν. 2392/1996 και Ν. 3470/2006, άρθρο 14).



...στα τροχαία
ατυχήματα

ΔΕΛΤΙΟ

ΟΔΙΚΟΥ ΤΡΟΧΑΙΟΥ ΑΤΥΧΗΜΑΤΟΣ

(για τη συμπλήρωσή του, διαβάστε προσεκτικά τις οδηγίες στο τέλος)

ΝΟΜΟΣ
Α/Α ΔΕΛΤΙΩΝ ΔΕΣΜΙΑΔΑΣ
ΑΣΤΥΝΟΜΙΚΗ/ΔΙΜΕΝΙΚΗ ΑΡΧΗ:
(που συμπληρώνει το Δελτίο)
Όνομ/νυμιο συντάξαντος
Βαθμός Τηλέφωνο
Ημερομηνία συντάξεως Δελτίου
α/α Δελτίου στο Νομό
(συμπληρώνεται από την ΕΣΥΕ)

ΠΕΙΡΑΙΑΣ, 2010



Road Accident Data Collection Form (1/3)

- Type of accident
- Type of area (inside/ outside built-up area)
- Type of road
- Time of accident (week/ time/ day/ month/ year)
- Injured persons (fatally, seriously, slightly)
- Number of vehicles involved
- Type of road surface
- Weather conditions
- Road surface conditions
- Night-lighting
- Specific characteristics of vehicles (type of vehicle, nationality, brand, cc, technical inspection, number of drivers and passengers)

1. ΤΟΠΟΣ ΑΤΥΧΗΜΑΤΟΣ (συμπληρώνεται από την ΕΛΣΤΑΤ)

Νομός Δήμος ή Κοινότητα Οικισμός

ΕΙΔΟΣ ΠΕΡΙΟΧΗΣ:

ΚΑΤΟΙΚΗΜΕΝΗ ΠΕΡΙΟΧΗ 1

Οδός ή πλατεία αριθ.

ΜΗ ΚΑΤΟΙΚΗΜΕΝΗ ΠΕΡΙΟΧΗ 2

Αν η οδός είναι Εθνική / Επαρχιακή:

Όνομασία Εθνικής/Επαρχ. οδού

Χιλιμετρική θέση οδού

από προς

Φορά αύξησης (+) Φορά μείωσης (-)

χιλιόμετροις 1 χιλιόμετροις 2

(συμπληρώστε με X)

2. ΕΙΔΟΣ ΟΔΟΥ

A. ΝΕΑ ΕΘΝΙΚΗ 1

(Κωδ. οδού)

α) το τμήμα αυτό είναι αυτοκινητόδρομος:

ναι 1 όχι 2

B. ΠΑΛ. ΕΘΝΙΚΗ 2

Γ. ΕΠΑΡΧΙΑΚΗ 3

(Κωδ. οδού)

Δ. ΔΗΜΟΤΙΚΗ 4

Ε. ΚΟΙΝΟΤΙΚΗ 5

ΣΤ. ΆΛΛΟ, να περιγραφεί 6

3. ΧΡΟΝΟΣ ΑΤΥΧΗΜΑΤΟΣ εβδομάδα ώρα / λεπτά (00-23) / (00-55) ημέρα μήνας έτος

(η εβδομάδα συμπληρώνεται από την ΕΛΣΤΑΤ)

11. ΕΙΔΙΚΑ ΣΤΟΙΧΕΙΑ

Όχημα	Είδος ⁽¹⁾ και χρήση οχήματος	Κωδικός αριθμός	Εθνικότητα πινακίδων ⁽²⁾	Κωδικός αριθμός	Με ρυμολκούμενο ⁽³⁾	Μάρκα οχήματος ⁽⁴⁾
A	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	Ναι 1 <input type="checkbox"/> Όχι 2 <input type="checkbox"/> Άγνωστο 9 <input type="checkbox"/>	<input type="text"/>
B	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	Ναι 1 <input type="checkbox"/> Όχι 2 <input type="checkbox"/> Άγνωστο 9 <input type="checkbox"/>	<input type="text"/>
Γ	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	Ναι 1 <input type="checkbox"/> Όχι 2 <input type="checkbox"/> Άγνωστο 9 <input type="checkbox"/>	<input type="text"/>

4. ΠΑΘΟΝΤΕΣ (κατά το ατύχημα και μέχρι και 30 ημέρες από αυτό)

Νεκροί

Βαριά τραυματίες

Ελαφρά τραυματίες

5. ΑΡΙΘΜΟΣ ΟΧΗΜΑΤΩΝ που έλαβαν μέρος στο ατύχημα

6. ΕΙΔΟΣ ΟΔΟΣΤΡΩΜΑΤΟΣ

Άσφαλτος 1

Μπετόν 2

Χαλίκι 3

Πλάκες, λιθόστρωτο 4

Χώρα 5

Άλλο είδος, να περιγραφεί 6

7. ΑΤΜΟΣΦΑΙΡΙΚΕΣ ΣΥΝΘΗΚΕΣ

Καλοκαιρία 1

Ισχυροί άνεμοι 2

Χαλίκι 3

Ομίχλη 4

Ψιλή βροχή (ψιχάλα) 5

Βροχή 6

Θύελλα (δυνατός άνεμος με βροχή) 7

Καταιγίδα (ραγδαία βροχή με δυνατό άνεμο, αστραπές και κεραυνούς) 8

Χαλάζι 9

Χιόνι 10

Καπνός 11

Σκόνη 12

Άλλες, να περιγραφούν 13

8. ΣΥΝΘΗΚΕΣ ΟΔΟΣΤΡΩΜΑΤΟΣ

Κανονικές (στεγνή σε καλή κατάσταση) 1

Υγρό - βρεγμένο 2

Γλίτσα, λάδια κλπ. 3

Παγωμένο 4

Χιονισμένο 5

Άλλες, να περιγραφούν 6

9. ΚΑΤΑΣΤΑΣΗ ΟΔΟΣΤΡΩΜΑΤΟΣ

Με ακορπισμένη άμμο, χαλίκι, χιόνια, πέτρες 1

Ανώμαλη επιφάνεια (ρωγμές, λακκοβέδες, εξογκώματα κλπ.) 2

Έργα επί της οδού 3

Άλλη, να περιγραφεί 4

Κανονική 5

10. ΦΩΤΙΣΜΟΣ ΚΑΤΑ ΤΗ ΝΥΧΤΑ (μόνο για ατυχήματα νύχτας)

Τεχνητός φωτισμός επαρκής 1

Τεχνητός φωτισμός ανεπαρκής ή αμυδρός 2

Τεχνητός φωτισμός εσθρατός 3

Χωρίς εγκατάσταση φωτισμού ... 4

ΟΧΗΜΑΤΟΣ

Κωδικός αριθμός	Κυβικά οχήματος ⁽²⁾	Έτος πρώτης κυκλοφορίας ⁽²⁾	Τακτικός μηχανολογικός έλεγχος ΚΤΕΟ (μόνο για οχήματα ελληνικών πινακίδων) ⁽⁴⁾	Αριθμός οδηγών και επιβατών (παθόντων και μη) ⁽⁵⁾
<input type="text"/>	<input type="text"/>	<input type="text"/>	Έγινε έλεγχος Ναι 1 <input type="checkbox"/> Αν δεν έγινε: Όφειλε να γίνει Ναι 2 <input type="checkbox"/> Όχι 3 <input type="checkbox"/> Άγνωστο αν έγινε έλεγχος 9 <input type="checkbox"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>	Έγινε έλεγχος Ναι 1 <input type="checkbox"/> Αν δεν έγινε: Όφειλε να γίνει Ναι 2 <input type="checkbox"/> Όχι 3 <input type="checkbox"/> Άγνωστο αν έγινε έλεγχος 9 <input type="checkbox"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>	Έγινε έλεγχος Ναι 1 <input type="checkbox"/> Αν δεν έγινε: Όφειλε να γίνει Ναι 2 <input type="checkbox"/> Όχι 3 <input type="checkbox"/> Άγνωστο αν έγινε έλεγχος 9 <input type="checkbox"/>	<input type="text"/>



Road Accident Data Collection Form (3/3)

- Restraints systems in vehicle
- Alcotest results
- Driver's and injured persons' information

20. ΕΞΑΡΤΗΜΑΤΑ ΑΣΦΑΛΕΙΑΣ ΠΟΥ ΥΠΑΡΧΟΥΝ ΣΤΟ ΟΧΗΜΑ
(ανεξάρτητα αν χρησιμοποιήθηκαν)

	ΟΧΗΜΑ			Σύστημα περιορισμού ταχύτητας (για φορτηγά και λεωφορεία).....	ΟΧΗΜΑ		
	A*	B*	Γ*		A*	B*	Γ*
Ζώνες ασφαλείας εμπρός	1	1	1	7	7	7	
Ζώνες ασφαλείας πίσω	2	2	2	8	8	8	
Στηρίγματα κεφαλής εμπρός	3	3	3	9	9	9	
Στηρίγματα κεφαλής πίσω	4	4	4	10	10	10	
Ειδικό κάθισμα για βρέφη/παιδιά	5	5	5	11	11	11	
ABS	6	6	6				

Αερόσακος (AIR BAG)

Προσθετα προφυλακτικές

Κανένα από αυτά

Άγνωστο

22. ΣΤΟΙΧΕΙΑ ΟΔΗΓΟΥ ΚΑΙ

Κατηγορία παθόντων	ΟΧΗΜΑ Α*							ΟΧΗΜΑ Β*		
	Φύλο	Ηλικία (σε έτη)	Υψηλότητα	Χρήση εξοπλισμού ασφαλείας	Σοβαρότητα ατυχήματος	Θέση στο όχημα	Λόγος μετακίνησης	Ειδικά στοιχεία πεζών έως 18 ετών	Φύλο	Ηλικία (σε έτη)
Οδηγοί παθόντες και μη	1								1	
Μεταφερόμενοι παθόντες (συνοδηγοί και επιβάτες)	2								2	
	3								3	
	4								4	
	5								5	
	6								6	
	7								7	
	8								8	
Πεζοί παθόντες							A B		9	
									10	
									11	

ΦΥΛΟ	ΗΛΙΚΙΑ (σε έτη)	ΥΨΗΛΟΤΗΤΑ	ΧΡΗΣΗ ΕΞΟΠΛΙΣΜΟΥ ΑΣΦΑΛΕΙΑΣ	ΣΟΒΑΡΟΤΗΤΑ ΑΤΥΧΗΜΑΤΟΣ (στιγμή ατυχήματος και μέχρι 30 ημέρες)
Άρρεν	1	Ελληνική	009	Ζώνη
Θήλυ	2	Ξένη (να γραφεί ποια είναι)	998	Κράνος
Άγνωστος	9	Χωρίς ύψηλότητα	999	Ειδικό βρεφικό/παιδικό κάθισμα
		Άγνωστη	999	Δεν χρησιμοποιήθηκε ζώνη
				Δεν χρησιμοποιήθηκε κράνος
				Δεν χρησιμοποιήθηκε παιδικό κάθισμα
				Άγνωστο

21. ΑΛΚΟΤΕΣΤ

	ΟΔΗΓΟΣ			1,0 - 1,5 gr./lit. αιμάτος <th colspan="3">ΟΔΗΓΟΣ</th>	ΟΔΗΓΟΣ		
	α	β	γ		α	β	γ
Δεν έγινε	1	1	1	5	5	5	
α) έγινε με λήψη αιμάτος	2	2	2	6	6	6	
β) έγινε με τραπεζι	3	3	3	7	7	7	
Βρέθηκε αρνητικό (0 gr./lit. αιμάτος)	1	1	1				
Βρέθηκε μέχρι:	2	2	2				
0,1 - 0,25 gr./lit. αιμάτος	3	3	3				
0,25 - 0,8 gr./lit. αιμάτος	4	4	4				
0,8 - 1,0 gr./lit. αιμάτος	4	4	4				

1,5 και άνω

Δεν δόθηκε ακόμη απάντηση

Όρα που έγινε το αλκοτέστ (00 - 23) Τόπος που έγινε το αλκοτέστ:

α) Τόπος ατυχήματος

β) Νοσοκομείο

γ) Άλλου

ΠΑΘΟΝΤΩΝ ΠΡΟΣΩΠΩΝ

ΜΑ Β*					ΟΧΗΜΑ Γ*							
Χρήση εξοπλισμού ασφαλείας	Σοβαρότητα ατυχήματος	Θέση στο όχημα	Λόγος μετακίνησης	Ειδικά στοιχεία πεζών έως 18 ετών	Φύλο	Ηλικία (σε έτη)	Υψηλότητα	Χρήση εξοπλισμού ασφαλείας	Σοβαρότητα ατυχήματος	Θέση στο όχημα	Λόγος μετακίνησης	Ειδικά στοιχεία πεζών έως 18 ετών
					1							
					2							
					3							
					4							
					5							
					6							
					7							
					8							
				A B	9							A B
					10							
					11							

ΘΕΣΗ ΣΤΟ ΟΧΗΜΑ	ΛΟΓΟΣ ΜΕΤΑΚΙΝΗΣΗΣ (οδηγού και μεταφερόμενων παθόντων προσώπων)	ΕΙΔΙΚΑ ΣΤΟΙΧΕΙΑ ΠΕΖΩΝ ΕΩΣ 18 ΕΤΩΝ
Συνοδηγός	2	Α. Σημείο ατυχήματος
Άλλη θέση, παράθυρο	3	Κοντά σε σχολείο, φροντιστήριο (έως 150 μ.)
Άλλη θέση, διαδρόμος	4	Κοντά σε σχολείο, φροντιστήριο (άνω των 150 μ.)
Άλλου	5	Σε στάση λεωφορείου
Άγνωστη	9	Κοντά σε παιδική χαρά
		Στο δρόμο κατά τη διάρκεια του παιχνιδιού
		Σε χώρους άθλησης κατά την προσέλευση ή αναχώρηση
		Άλλου
		Άγνωστο
		B. Αν πεζός παθών έως 8 ετών
		Συνοδεύονταν από γονείς
		Συνοδεύονταν από άλλους ενήλικες
		Δεν συνοδεύονταν από γονείς ή ενήλικες
		Άγνωστο



Hospitalized Data Files

In Hospitals

- Recording causes of hospitalization
- Recording road accident injured persons
- These files show the lowest degree of incomplete recording
- No central archive is kept, not electronic form

ELSTAT Vital Registration Database (demographic data included)

- Recording time and cause of death
- Statistics
- Publication of aggregate statistics



Database of Vehicle Insurance Companies

Vehicle Insurance Companies of Greece

- Disaggregate data of road injury accidents and road accidents with only material damages
- Accident
- Driver
- Damage
- It' s the unique source of data on road accidents with only material damages
- Only the accidents that are declared are recorded in the database



ΕΝΩΣΗ
ΑΣΦΑΛΙΣΤΙΚΩΝ
ΕΤΑΙΡΙΩΝ
ΕΛΛΑΔΟΣ



Comparison of Data from Different Sources

	Source			Correction Coefficient		
	ELSTAT*	Police*	Hospital*	Police-ELSTAT	Hospitals/ELSTAT	Average
1990	1.737	1.986	2.247	249	1,29	1,20
1991	1.790	2.013	2.246	223	1,25	
1992	1.829	1.995	2.252	166	1,23	
1993	1.830	2.008	1.986	178	1,09	
1994	1.909	2.076	2.221	167	1,16	
1995	2.043	2.149	2.435	106	1,19	
1996	2.157	2.175	2.540	18	1,18	1,15
1997	2.105	2.141	2.333	36	1,11	
1998	2.182	2.229	2.324	47	1,07	
1999	2.116	2.181	2.226	65	1,05	
2000	2.037	2.103	2.288	66	1,12	
2001	1.880	1.911	2.035	31	1,08	
2002	1.634	1.655	1.865	21	1,14	
2003	1.605	1.613	1.794	8	1,12	
2004	1.670	1.547	1.984	-123	1,19	
2005	1.658	1.470	1.971	-188	1,19	
2006	1.657	1.493	1.851	-164	1,12	
2007	1.612	1.449	1.793	-163	1,11	
2008	1.553	1.550	1.722	-3	1,11	
2009	1.456	1.463	1.647	7	1,13	
2010	1.258	1.281	1.430	23	1,14	
2011	1.141	1.092	1.339	-49	1,17	
2012	988	976	1.191	-12	1,21	
2013	879	865	1.096	-14	1,25	
2014	795	801	1.025	6	1,29	

* up to 1995 on accident site, since 1996 within 30 days



Exposure Data (1/2)

Overview

- Road traffic estimates
(**road length**, vehicle kilometres, and **vehicle fleet**)
- Road user at risk estimates
(person kilometres, population, number of trips, time in traffic, **driver population**)
- Basic requirements
 - Travel/mobility surveys for collecting of veh-km or persons-km data
 - Traffic measuring systems to be established on the national and main interurban road network
 - Common vehicle classification by all countries
 - Common method for calculating veh-km from the traffic measurements



Exposure Data (2/2)

Specific Indicators

- Population
- Driver population
 - Total number of active driver licences
 - Number of driver licences by licence group and by age group
- Road length
- Vehicle fleet
 - Total number of registered vehicles
 - Number of vehicles by vehicle type and by age group
- Vehicle kilometres
- Person kilometres



Traffic Volume

- The **main purpose** of road traffic measurements is traffic management and consequently their use for road safety purposes (accident rates) is not always easy
- The **frequency and the level of detail** of these traffic volume counts varies considerably
- There are numerous urban and non urban road networks which are **not covered**



Traffic Data - Surveys

Data

- Motorway tolls
- Traffic Management Centre
- Other individual studies
- Previous studies
- Louis - Berger Study (1979-1989)
- Annual Average Daily Traffic (AADT) of the main country's road network
- New National Survey of Origin – Destination (1993)
- Measurements with equipment and observations in the sections of all main road nodes

Surveys

- In the context of the Metro Development Study (1996-2000), detailed origin - destination data were gathered for the area of Athens
- Vehicle mileage data for urban and intercity buses are available through the Athens Urban Transport Organization (OASA) and KTEL buses respectively



Traffic Measurement Technology

Most common methods for collection of data on traffic volume:

- permanent pneumatic tubes under the pavement (mainly in big cities)
- tolls at motorways
- traffic cameras (Athens and Athens Ring Road Motorway)
- removable pneumatic tubes on the pavement surface (random – occasional measurements)



Database of Vehicles in Traffic (Ministry of Infrastructure, Transport and Networks)

- Disaggregate data
- Technical characteristics of vehicles
- Characteristics of registration licenses

- Data could be used in statistical road accident analyses providing useful indicators

Parameters limiting the potential of their exploitation

- Invalid recording of withdrawals
- No information for vehicles that are no longer in traffic
- No information on mopeds



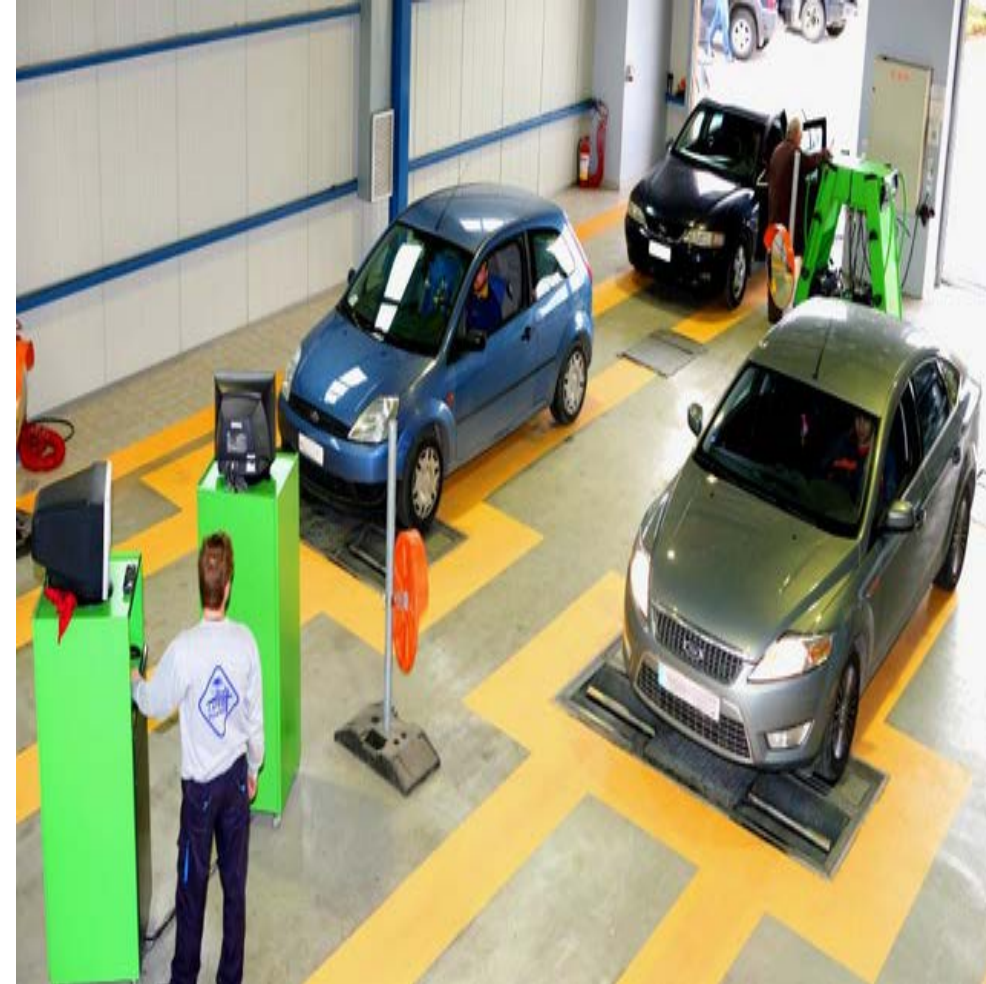
Vehicle Fleet Statistics

- **ELSTAT** provides data regarding the vehicle fleet, derived from the Ministry of Infrastructure, Transport and Networks (MITN)
- Data are based on the issuing of **new vehicle registrations**
- The **monthly report** provides information, at country level, on the brand and type of the motor vehicle, as well as whether it is new or used
- The **annual data** present the breakdown of vehicles by type of vehicle and by geographical area
- The database **does not include** vehicles that move on rails, trolley busses, agricultural tractors and machinery, all motor vehicles of the armed forces, police, fire brigade, state services, diplomatic corps, foreign missions, and invalids of wars, as well as motorcycles with a cylinder capacity less than 50 cc
- Vehicle fleet data can be used as **exposure data** for the accidents and the accident involved vehicles



Vehicle Inspection Data

- **Vehicle technical inspections** in Greece are carried out by public and private vehicle technical control centres
- Data are collected by **MITN**
- Monthly **statistics** are commonly available since 2015
(by year, region , type of inspection, vehicle type and final outcome of the control test)



Road Safety Performance Indicators (1/4)

Overview

- Simply counting crashes or injuries, is often an imperfect indicator of the level of road safety
- The number of road accidents and injuries, is subject to random fluctuations
- In order to develop effective measures to reduce the number of accidents/ injuries it is necessary to understand the **processes** that lead to accidents

Safety Performance Indicators
can serve this purpose



Road Safety Performance Indicators (2/4)

Definition

- Measurements related to crashes or injuries, used in addition to the figures of accidents or injuries, in order to **indicate** safety performance or **understand** the process that leads to accidents
 - **link** between the **casualties** from road accidents and the **measures** to reduce them



Road Safety Performance Indicators (3/4)

Why Use SPIs?

- Provide **more complete picture** of the **level of road safety**
- Able to **highlight** the **emergence of developing problems** at an early stage, **before** these problems show up in the form of **accidents**
- Provide a means for **monitoring, assessing** and **evaluating** the **effectiveness of safety actions** applied
- Utilize **qualitative** and **quantitative information** to help **determine a program's success** in achieving its objectives
 - Able to reflect unsafe operational conditions
 - More general than direct outputs of specific safety interventions



Road Safety Performance Indicators (4/4)

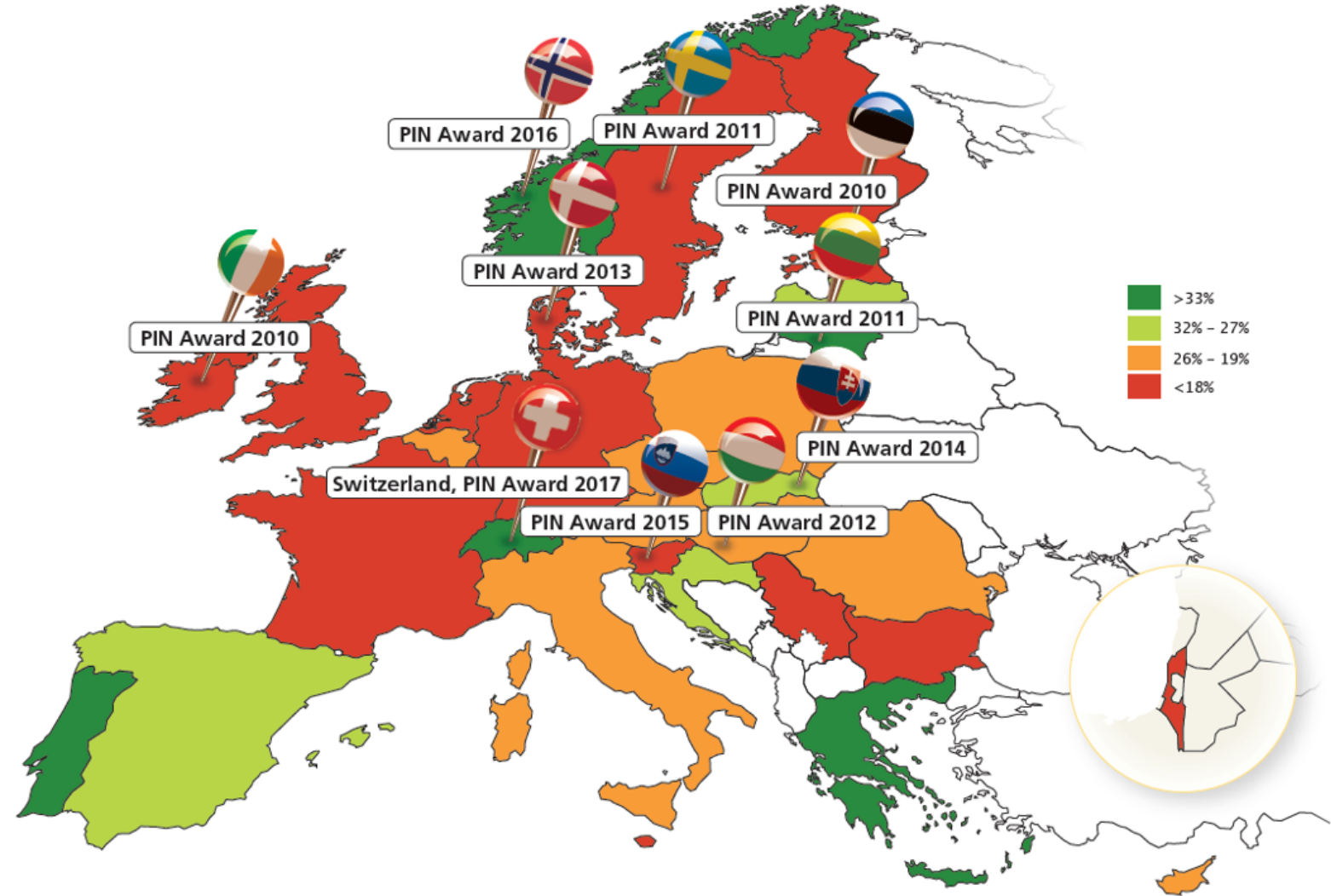
Quality Levels

- **Direct measurement** of the identified **unsafe operational conditions**
 - the indicator covers the complete scope of the problem and reacts to all possible interventions
- **Direct measurement** of the identified problem is **not possible**
 - the identified problem is a hidden variable and is described by several indirect variables as indicators will bridge this gap
 - normal case in the SPI development
 - the solution should be in searching for several indicators, which are independent from interventions and describing the latent variable
- Considering the **expected availability of data** and **assessing** the reasonable effort for **data acquisition**
 - in some cases it would be difficult or even impossible to develop an SPI independent from interventions
 - bridge the gap by sub-dividing the problem



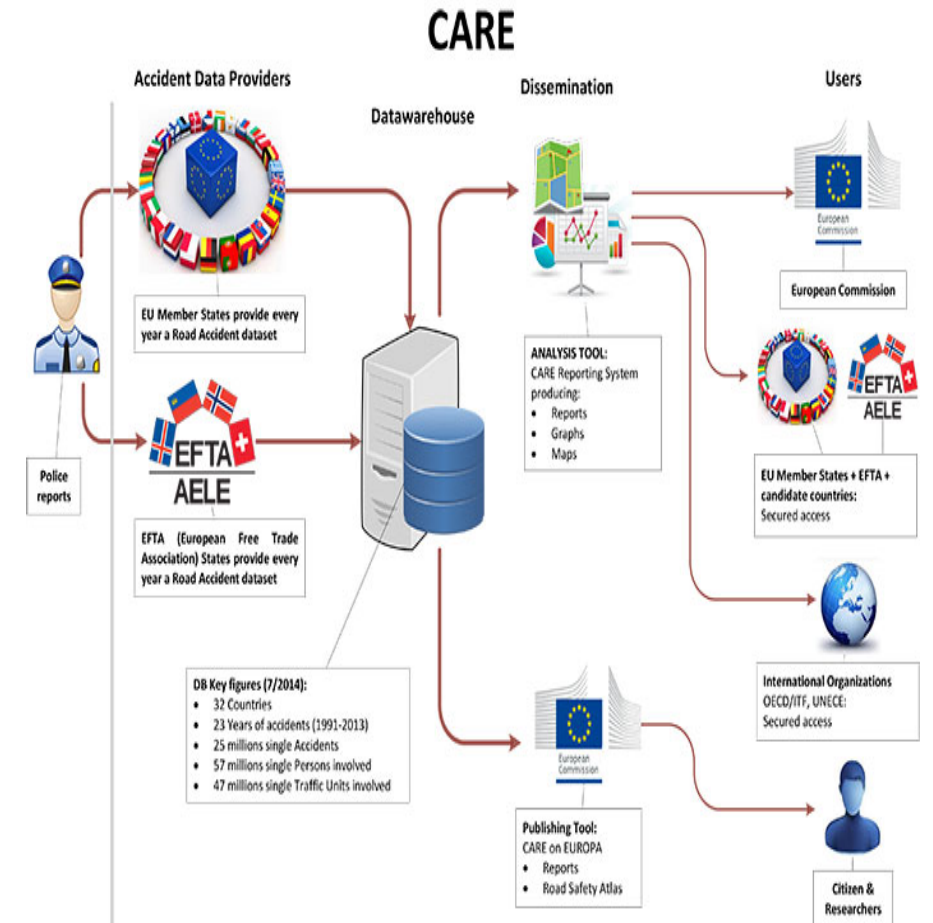
Europe

Reduction in road deaths (%) between 2010 and 2016



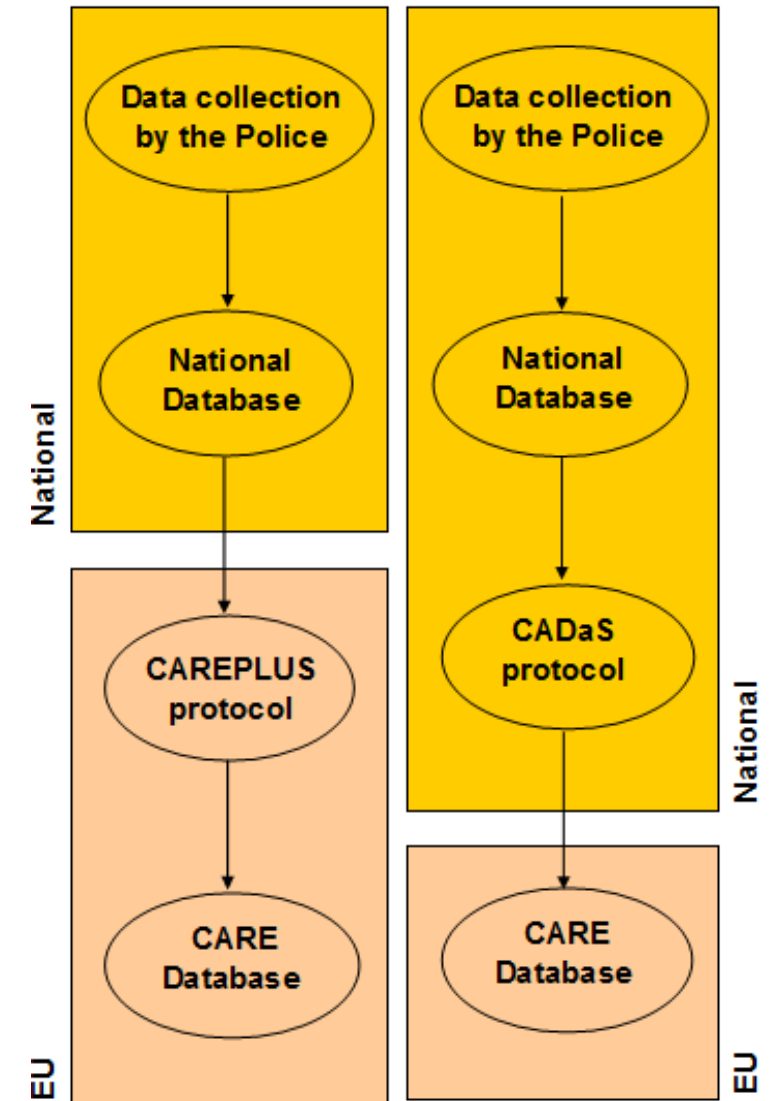
CARE Database

- CARE - the **Community database on road accidents** resulting in death or injury
- **Disaggregate** road accident data since 1991
- Parts of the national data sets are integrated into the CARE database in their **original national structure and definitions**
- For the remaining data, the EC provides and applies a **framework of transformation rules** to the national data sets, allowing CARE to have compatible data
- **Common Accident Data Set (CADaS)** has been developed consisting of a minimum set of standardised data elements



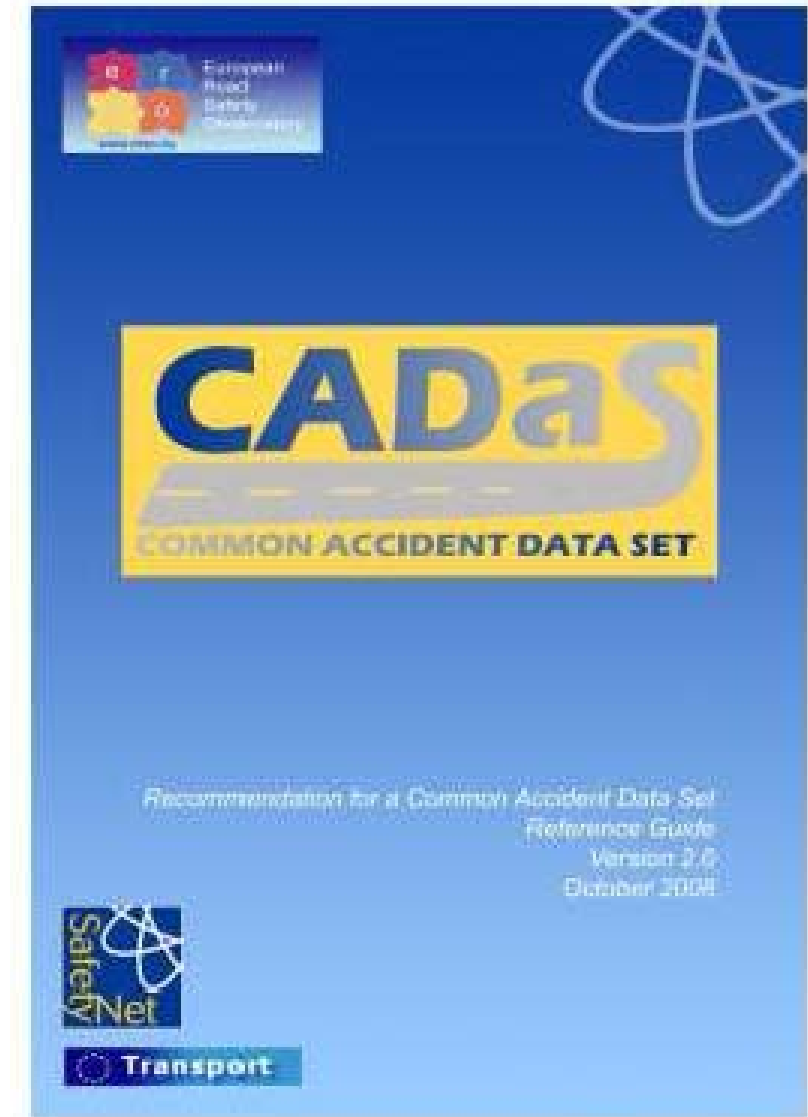
Accident Data Transformation Process

- CARE and CADaS process the national road accident data files
- The **compatibility** of the accident data **among EU countries** is **ensured**
- The main **difference** of the two approaches is related to the **degree of involvement** of the country in the process
- **CADaS process allows** for **more** common **variables** and **values** but also for **higher quality**



Optional Adjustments of the National Systems (1/2)

- EU countries continue using their national accident data collection systems, by collecting data in the way they find it more suitable (manually, electronically, links with other databases, etc.)
- Adjustments are implemented in order to transform data according to the CADaS protocol and provide to EU more compatible data
- Certain variables might need to be collected under a different structure to meet local/regional/national needs



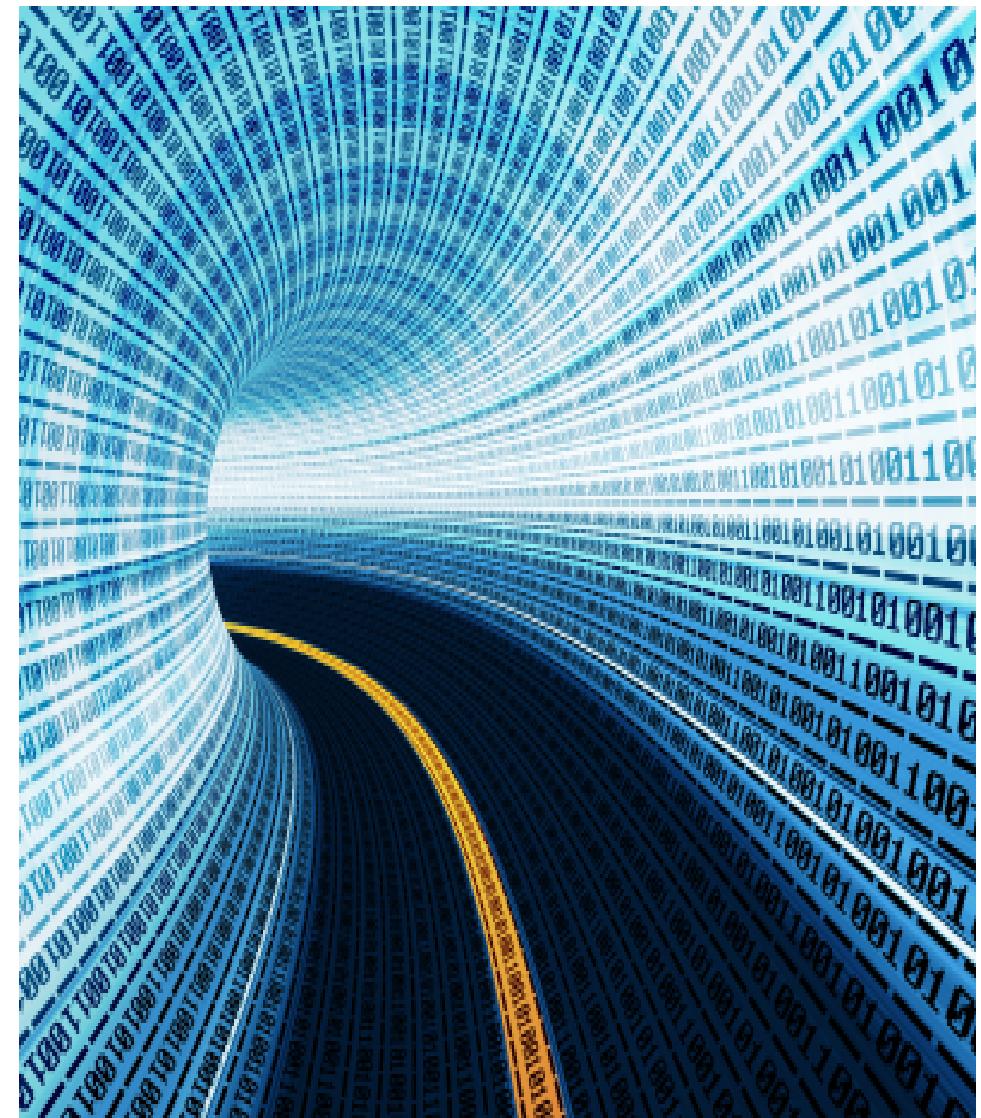
Optional Adjustments of the National Systems (2/2)

- EU **countries** are **encouraged** to **adopt** as many as possible **CADaS variables and values**
- **CADaS** is **structured** in a **simple way**, without levels of hierarchy, constituting in fact the **record layout** of the data set to be transferred to the EU
- **CADaS** may also be **considered** as **recommendation** for national **police road accident** data collection **reports**
- **CADaS** can be **further enhanced** (derived variables to be added) inside the CARE database allowing for a **wide range of analysis reports**



Selection Criteria for CADaS Data

- Variables and values **useful for road accident analysis**, especially at EU level
- **Level of detail** of the variables and values appropriate for macroscopic data analyses
- Each country has the possibility to choose **alternative level of detail**
- Variables and values must be **comprehensive and concise**
- Data which are **impossible or very difficult to be collected** are not retained in the CADaS
- The **future perspective** of using certain variables and values is taken into account
- Existing variables and values of CARE v1 are of **first priority** within CADaS
- CADaS variables and values refer to **casualty road accidents**



List of Variables

CAREPLUS 1

month
hour
day of month
day of week
person class
injury severity (person)
sex (person)
age (person)
lighting
natural light
street light
accident severity
person type
area type
vehicle type
motorway
collision type
junction
junction type
weather

CAREPLUS 2

registration country
nationality
vehicle age
driving licence age
road surface condition
region/province
speed limit
alcohol test
psychophysical circumstances
alcohol level
movement (pedestrian)
carriageway type
number of lanes
manoeuvre (driver)
manoeuvre (vehicle)
junction control
security equipment
road markings
hit and run

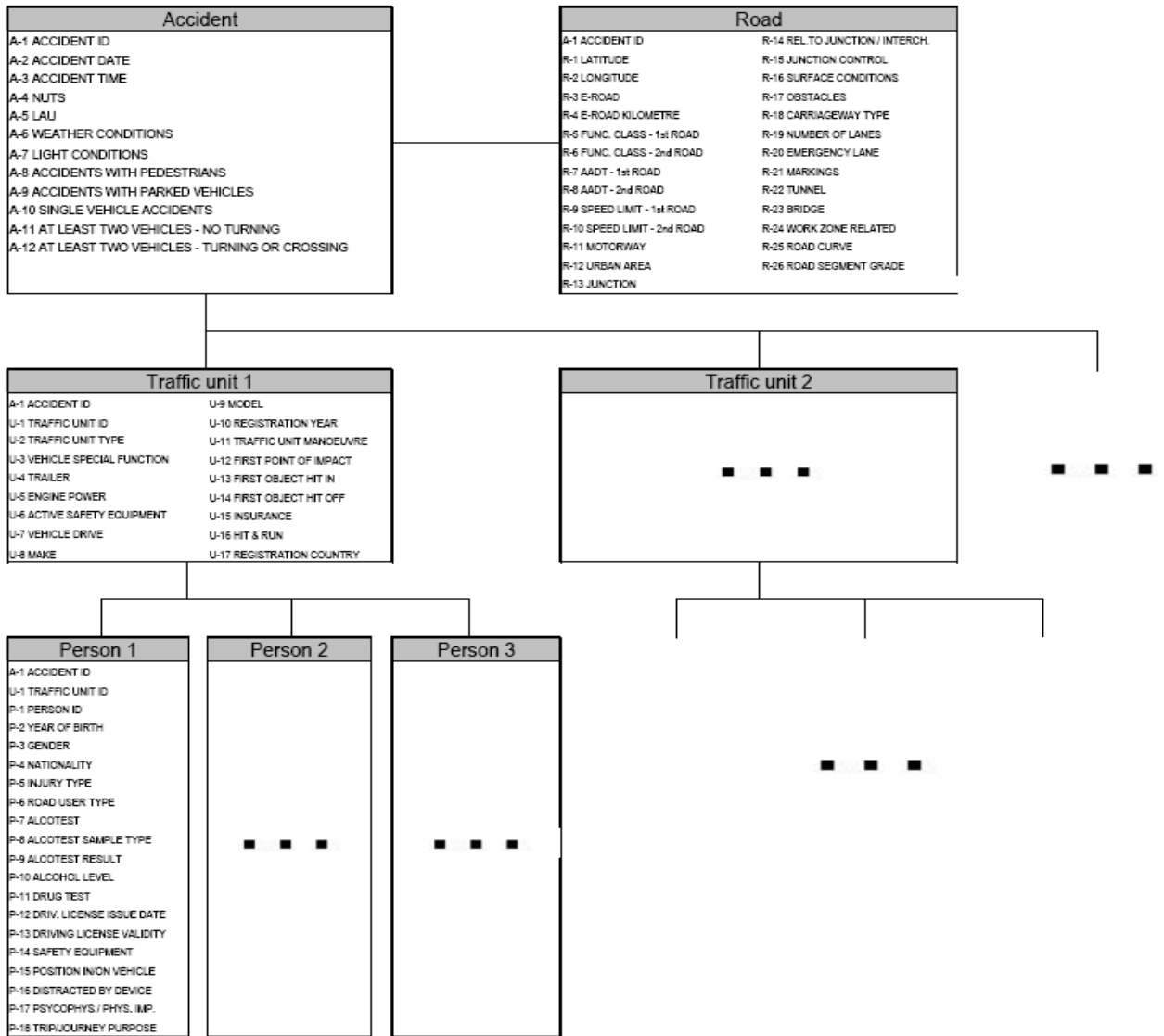


Variable Categories

- The **CADaS variables** are divided into **4 basic categories**, identified by the unique letter (code) which refers to the beginning of the respective variable's name :
 - A, for Accident related variables,
 - R, for Road related variables,
 - V, for Vehicle related variables,
 - P, for Person related variables

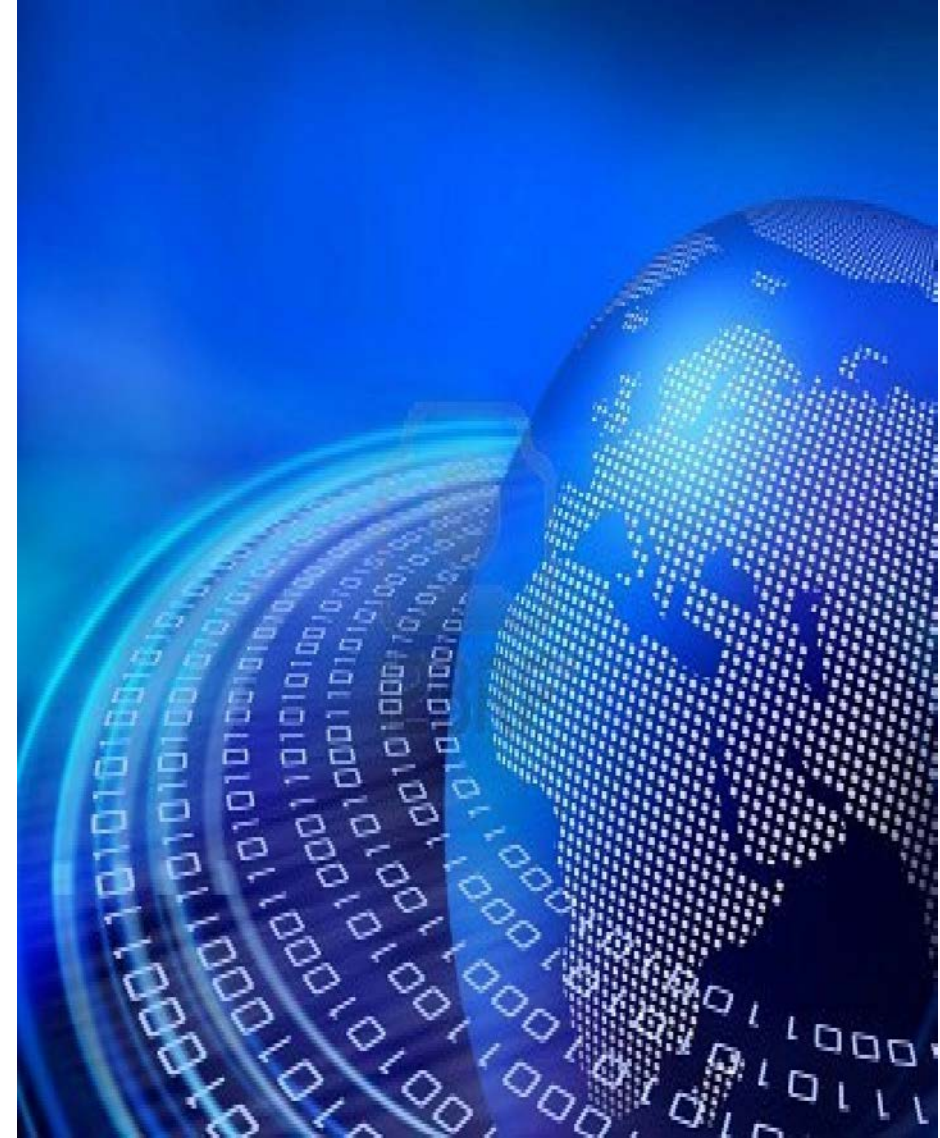


CADaS Structure



Variable Components

- **Variable Label:**
 - Section identifier (A, R, V or P)
 - Numbering and Name
 - Variable rating (H or L)
- **Variable definition and scope:**
 - Variable definition
 - Brief description
 - Importance and usefulness
(rational lying behind its selection)
- **Values list**



Value Components

- **Value Labels:**
Each value is further identified by the code of the variable, followed by a number which corresponds to each value and its name
- **Value definitions:**
Definition of each value is given, indicating also any particularities and any relevant assumptions regarding its collection process
- **Data format :**
 - The possibility to attribute one or more values to a variable
 - The format of the value (number of digits, decimal places etc.)



Variable Example

A-6 WEATHER CONDITIONS (H)

Variable definition and scope

This variable defines the atmospheric conditions at the accident location at the time of the accident and allows for the identification of the impact of weather conditions to the road safety.

Values

A-6.01 Dry / Clear

A-6.02 Rain

A-6.03 Snow

A-6.04 Fog, Mist, Smoke

A-6.05 Sleet, Hail

A-6.06 Severe winds

A-6.07 Other

A-6.99 Unknown

Value definitions

A-6.01: Dry / Clear

No hindrance from weather. Includes clear and cloudy sky.

A-6.02: Rain

Heavy or light rain at the time of the accident.

A-6.03: Snow

Snowing at the time of the accident.

A-6.04: Fog, Mist, Smoke

Existence of fog or mist or smoke at the time of the accident.

A-6.05: Sleet, Hail

Existence of sleet or hail at the time of the accident.

A-6.06: Severe winds

Presence of winds deemed to have an adverse affect on driving conditions.

A-6.07: Other

Other atmospheric conditions that affected the drivers or the road environment are not included in the list of the previous values.

A-6.99: Unknown

Atmospheric conditions not recorded or unknown.

Data format

A two digit number corresponding to one of the values is filled-in to indicate the weather conditions.



Classification of the Variables

- At a first stage, each country can adopt (if they wish) only a subset of CADaS variables
- This selection can be based on the importance of the recommended variables
- For that reason, all variables were separated into two broad categories, according to their importance for road accident analysis:
 - Variables of high importance (H)
 - Variables of lower importance (L)



Summary of CADaS Variables and Values

		Number of variables			Number of values		
Category	Code	High (H) Importance	Lower (L) Importance	Total	Detailed values	Alternative values	Total
Accident	A	7	6	13	91	13	104
Road	R	12	13	25	92	13	105
Traffic Unit	U	8	10	18	181	15	196
Person	P	13	8	21	92	10	102
Total		40	37	77	456	51	507



European Road Safety Observatory

- The ERSO is the information system of the European Commission with harmonised specialist information on road safety practices and policy in European countries
- The framework of ERSO was developed within the SafetyNet project (2004-2008), in which 22 institutes from 17 countries cooperated
- Its content was updated and expanded within the DaCoTA project (2010-2012), in which 17 institutes participated
- Current updates of the ERSO (2015-2018) are carried out by NTUA, KFV and ERF for the EC DG-MOVE



The screenshot displays the ERSO website interface. At the top, there is a navigation bar with the European Commission logo and the text "MOBILITY AND TRANSPORT Road Safety". Below this, a breadcrumb trail reads "European Commission > Transport > Road Safety > For the specialist > European Road Safety Observatory". A left-hand navigation menu lists various sections: Home, Users, Topics, Going abroad, For the specialist (English only), EU road safety policy, European Road Safety Observatory, Safety issues, Country profiles, Analytics, Accident information, Important links, Index, Projects, Safer roads - infographics, Statistics, Toolbox, Funding, Take part, and Useful links. The main content area features a search bar and a grid of six tiles: safety issues, country profiles, analytics, accident information, important links, and index. Below the grid, there is a section titled "European Road Safety Observatory" with a logo and text explaining the observatory's mission. A "Toolbox" section is also visible, detailing EU-funded research projects on road safety. At the bottom right, there is a "Share" button.

Current interface of ERSO



DaCoTA Master Tables

- A wide range of data was gathered together in the form of Master Data Tables, which were filled in for each European country for the period 1975-2010
- The Master Tables contain the following data:
 - Road accident data
 - Risk exposure data
 - Safety Performance Indicators
 - Under-reporting of crashes
 - Country characteristics
 - Social Costs
 - Traffic Laws and Measures
- Various data sources were used (European, international, projects)



[Home](#) [Partners](#) [Work packages](#) [Project deliverables](#) [Conference](#) [Links](#)



The DaCoTA EU Road Safety Project is complete

Traffic crashes have a tragic impact on peoples' lives and immense consequences on societies. Reducing road casualties is a high priority for the European Commission and National Governments. Over 38,000 road users died in 2008 in Europe alone and a further 1.2 million people were injured, which were estimated as costing over €160 billion for 15 EU countries. It was found that countries performing the best on road safety based their most effective policies on scientific evidence-based knowledge.

The DaCoTA EU Project Team gathered and analysed data from 30 European countries on a wide range of road safety topics. The aim is to share the benefits of this leading-edge research and the decision-making tools with the international Road Safety Community in an effort to reduce casualties worldwide through data and knowledge-based policy-making. [Read more](#)

[Introducing the new website](#)

**The DaCoTA
Final Project
Report is now
available**

[Final report](#)

[Executive Summary
and
recommendations
for ERSO](#)

**You are also
invited to
review the**

**DaCoTA EU
Conference**



ERSO Data

- Data included in ERSO (macroscopic and in-depth) concern:
 - Road accidents
 - Risk exposure
 - Safety performance indicators
 - Under-reporting of accidents
 - Country characteristics
 - Social costs
 - Traffic laws and measures
 - Accident causation data
 - Accident injury data
- The knowledge section contains several reports on important road safety issues, as well as the road safety country profiles

Current interface of ERSO:

European Commission, Directorate - General for Mobility & Transport
(https://ec.europa.eu/transport/road_safety/specialist/erso_en)

The screenshot displays the ERSO website interface. At the top, there is a header with the European Commission logo and the text 'MOBILITY AND TRANSPORT Road Safety'. Below the header, a navigation menu lists various sections: Home, Users, Topics, Going abroad, For the specialist (English only), EU road safety policy, European Road Safety Observatory, Safety issues, Country profiles, Analytics, Accident information, Important links, Index, Projects, Safer roads - infographics, Statistics, Toolbox, Funding, and Take part. The 'Important links' section is highlighted, showing a list of topics: Alcohol/drugs, Campaign, Data, Drivers, Intelligent Transport Systems, Knowledge dissemination, Law, and Protection. A 'Share' button is visible in the bottom right corner.





**Ministry of
Transport and
Maritime Affairs**
Ministry of Economy



UNECE

How to achieve Transport- and Trade-related SDGs

Greek Road Safety Statistics – Best Practices



Stergios Mavromatis, Katerina Folla, Alexandra Laiou, George Yannīs
National Technical University of Athens

Podgorica, October 2017