



# A comprehensive road safety data and knowledge support tool

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# The need for a comprehensive road safety data and knowledge tool

## Lack of data

(accidents, injuries, exposure, performance indicators,...)

## Data not comparable

Data incompatible

Insufficient data details

Low reliability of data



Correlations but not Causations

Lack of standard methodologies

Analyses not solution oriented

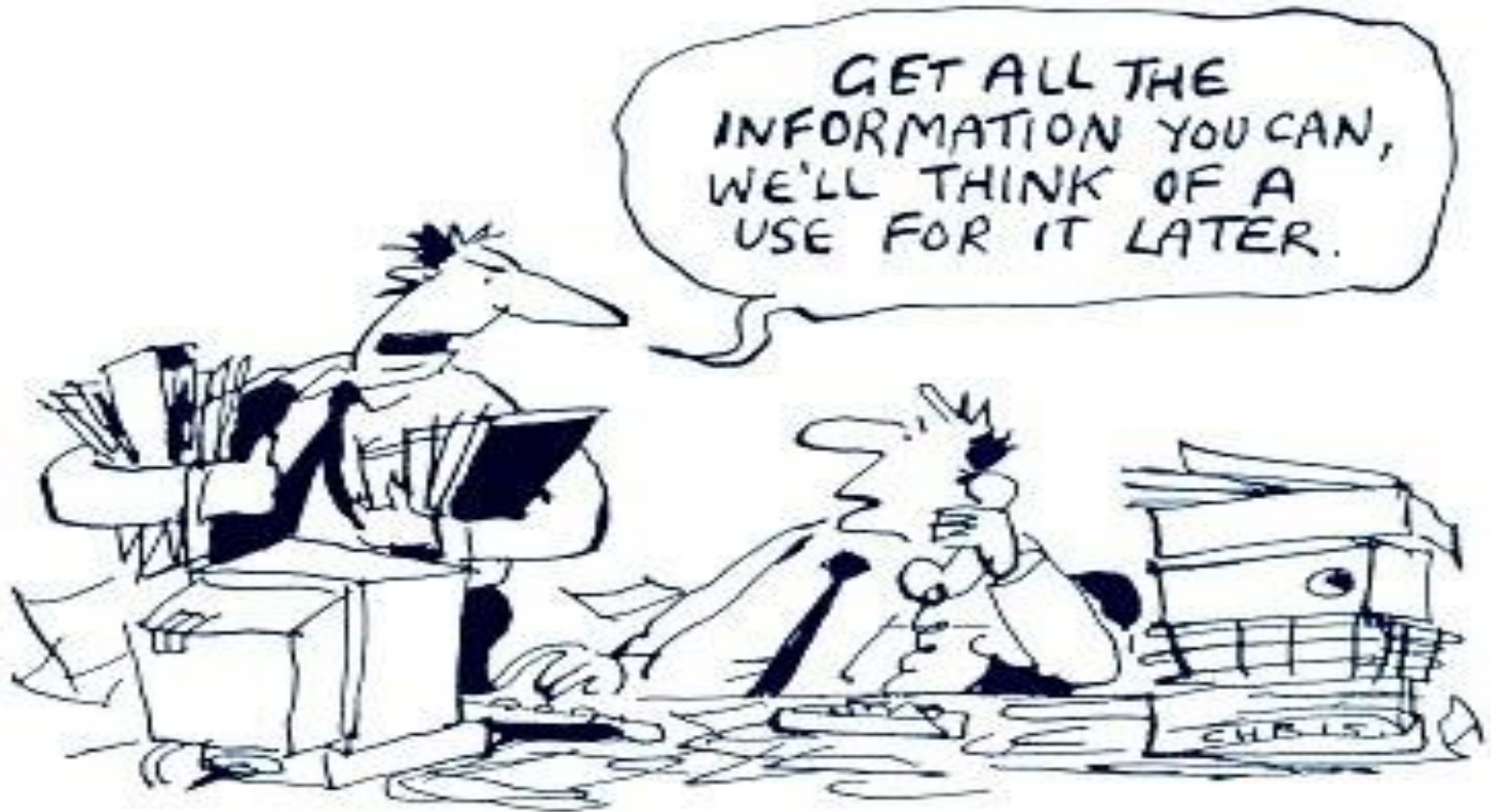
# The need for a comprehensive road safety data and knowledge tool

## Necessity to:

- Consolidate and organise existing data and information
- Make data and information available (one-stop service)
- Provide a complete tool-kit (analyses, methodologies, benchmarking tools)
- Support road safety decision making at all levels



# Systematic collection of road safety data and knowledge



# Three steps for the development of the road safety data and knowledge tool

## A. Data/Knowledge collection & processing

- Data and Information
- Dakota Master Tables

## B. Analyses and Syntheses

- Basic Fact Sheets
- Annual Statistical Report
- Country Overviews
- Road Safety Management Profiles
- Forecast Fact Sheets
- Safety Issues Syntheses

## C. Integrated Road Safety Knowledge System



# Road Safety Data

- Road accident data (CARE)
- Risk-exposure data (Eurostat, IRTAD, national sources, etc.)
- Safety Performance Indicators
- Health data/indicators:
  - Health personnel by the type of personnel, Hospital facilities, Main causes of deaths. (Eurostat)
  - Percentage of casualties attending hospital who are admitted to hospital, Mean length of stay of hospital admissions, Nature and type of body part injured, Types of transport injuries (EU Injury Database)
- In-depth accident data:
  - Data/indicators on Fatal accidents for 7 EU countries (Fatal Accident Database)
  - Causation data/indicators for 6 EU countries (Accident Causation Database)



# DaCoTA Master Tables (1/2)

## Example: Fatalities Time Series - Greece (source CARE)

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	
<b>Number of persons killed</b>																					
1	total figures	2.112	2.158	2.159	2.253	2.411	2.157	2.105	2.182	2.116	2.037	1.880	1.634	1.605	1.670	1.658	1.657	1.612	1.553	1.456	1.281
2	drivers killed	1.114	1.186	1.212	1.256	1.361	1.207	1.199	1.261	1.228	1.193	1.131	979	1.010	1.017	1.053	1.077	1.013	1.020	964	
3	passengers killed	525	509	450	518	569	528	497	504	489	469	411	376	338	360	371	313	344	285	290	
4	pedestrians killed	473	464	498	479	481	422	409	417	399	375	338	279	257	293	234	267	255	248	202	
5	age group 0-14 (children)	30	31	30	38	24	23	25	25	18	14	19	16	9	15	11	11	13	12	10	
6	age group 15-17	11	11	9	4	11	5	5	9	5	5	4	5	6	3	3	2	3	1	1	
7	age group 18-24	28	15	27	30	19	20	15	18	13	16	9	12	9	11	8	14	5	3	7	
8	age group 25-49	58	78	70	77	99	62	73	58	68	61	61	38	41	60	36	56	47	40	40	
9	age group 50-64	105	90	103	83	80	63	75	68	67	58	59	48	36	46	38	33	39	36	31	
10	age group 65+	242	238	256	248	243	237	204	223	209	210	173	152	148	143	126	141	140	142	98	
11	unknown	0	1	4	1	6	12	12	16	19	11	13	8	8	15	12	10	8	14	15	
12	Total vehicle occupants killed	1.639	1.694	1.661	1.774	1.929	1.735	1.696	1.765	1.717	1.662	1.542	1.355	1.348	1.377	1.424	1.390	1.357	1.305	1.254	
13	vehicle age < 1 year	110	144	94	101	97	80	76	88	83	104	108	92	73	87	100	104	92	93	46	
14	vehicle age 1-2 years	245	251	284	250	221	257	245	273	305	310	345	262	251	242	244	242	248	207	179	
15	vehicle age 3-5 years	412	430	510	512	558	303	298	271	280	270	230	267	259	305	264	246	245	236	231	
16	vehicle age 6-10 years	473	452	407	454	512	320	323	358	335	318	292	239	233	222	272	313	282	276	265	
17	vehicle age 11-15 years	399	418	366	455	542	208	242	215	206	202	163	143	187	202	237	187	176	158	167	
18	vehicle age >15 years	-	-	-	-	-	187	177	230	217	177	168	163	132	117	131	116	151	155	192	
19	unknown	-	-	-	0	-	380	335	330	291	281	236	189	213	202	176	182	163	180	174	

- Comprehensive Tables with all types of national data (road accident, risk-exposure, SPI, etc)
- Data for 30 EU countries
- Input from the members of the CARE/RSPI Experts Group

263 data elements in total:

- 73 **road accident** elements based on CARE
- 73 **risk-exposure** elements on population, vehicle fleet, vehicle ownership, motorization level, etc.
- 39 elements related to **Safety Performance Indicators** on:  
alcohol and drugs, use of protective systems, speeding, enforcement, daytime running lights and vehicle safety.
- 37 elements related to **traffic laws** and **road safety measures**
- 27 elements related to **road safety management**
- 14 elements related to **under-reporting, social costs** and **country characteristics**

	CARE
	Eurostat
	IRTAD
	WHO
	EC-DG Move
	IRF
	SafetyNet
	UN
	National Sources
	ROSE25 project
	ETSC
	SUPREME project
	Traffic rules study
	COWI study



## Road safety programmes

- Data on basic road safety programmes in 30 European countries
- Elements related to road safety programmes implementation such as: existence of a broad national road safety strategy with measurable targets, specific national road safety plan with quantitative goals, progress achieved, responsible organization for implementing the safety strategy plans, etc.

### Example: Assembly of national road safety programmes

	There is a national road safety strategy	The strategy includes measurable national targets	National road safety plan (3)	Preparing national road safety plan	Quantitative targets	Trend to reach fatality target	Central Organisation and lead Agency in charge of implementing National Safety Strategy Plans	Lead Agency Status
BE	Yes	Yes	Yes (2001)	-	50% reduction in fatalities by 2010 compared to 2000	Behind target line (2008)	Ministry of Transport, Interministerial Committee for Road Safety	Interministerial
BG	Yes	Yes	Yes	-	25% reduction in fatalities and injuries by end of 2010 compared to the 2002-2005 average	n/a	Ministry of Transportation, State-Public Consultative Commission on the Problems of Road Safety	Interministerial
CH	Yes	Yes	Yes (2005)	-	Less than 300 fatalities by 2010 and the number of seriously injured to less than 3,000. Reduction by at least 30% every ten years thereafter.	On target line (2008)	Federal Roads Agency, The Swiss Council for Accident Prevention	Governmental
CZ	Yes	Yes	Yes (2003)	-	50% reduction in fatalities by 2010 compared to 2001	Behind target line (2008)	Ministry of Transport, The Czech Governmental Council for Road Safety	Governmental
CY	Yes	Yes	Yes (2001)	-	50% reduction in fatalities by 2010	n/a	Ministry of Communications and Works , Road Safety Council	Interministerial
DK	Yes	Yes	Yes (New version 2007)	-	40% reduction in fatalities and injuries by 2012 compared to 2005	On target line (2009)	Ministry of Justice and Ministry of Transport , Danish Road Safety Commission	Interministerial

## Road safety measures

- 655 safety measures identified for 34 different sub-categories (grouped in 4 main categories), with an exhaustive description and related information

Nr	Source	Category	Measure	Country	Description	Implementation period	Engineering Actions		Speed		Junction layout	
							formal audits on new roads	regular inspections on existing roads	EuroRAP assessment	from (km/h)	To (km/h)	Changing from
<b>ROAD USER BEHAVIOUR</b>												
1	IRTAD "Road Safety Annual Report 2009"	Speeding	Speed cameras	FI	Speed camera, put into use within the decade, covered around 3 000 km of the main roads in 2009	2009						
2	IRTAD "Road Safety Annual Report 2009"	Speeding	automatic speed cameras	FR	The implementation of automatic speed cameras continued in 2008 and will continue till 2012 (500 devices per year including red light or headway camera)	2008-2012						
3	IRTAD "Road Safety Annual Report 2009"	Speeding	Speed cameras	HU	The number of automatic speed cameras is increasing progressively. The most important legal prerequisite for their use was the introduction of owner responsibility (i.e. the owner of a vehicle is responsible for the offences caused by the vehicle). This rule was introduced on 1 January 2008 and entered into force on 1 May 2008	2008						
4	IRTAD "Road Safety Annual Report 2009"	Speeding	Speed cameras	ES	33 new fixed speed cameras were installed at sensitive locations in 2008. A new administrative centre was set up in 2008 to improve the effectiveness of the sanction process	2008						
5	IRTAD "Road Safety Annual Report 2009"	Speeding	speed cameras	SE	Installation of road safety cameras enforcing speed limits continued in 2009. At the end of 2008 almost 1 500 were in use, covering more than 2 700 kilometres	2008-2009						
6	IRTAD "Road Safety Annual Report 2009"	Speeding	mobile speed cameras	DK	* Mobile speed cameras have been supplemented with six stationary speed cameras as a pilot project							
7	ROSEBU (Examples of assessed road safety measures - a short handbook, 2005)(Evik, Vaa, 2004)	Speeding	Tripling stationary speed enforcement in Norway	NO								
8	ROSEBU (Examples of assessed road safety measures - a short handbook, 2005)(Evik R, 1999), Evik R. (2001), Evik R. (2003), Evik, R., Amundsen A.H. (2009)	Speeding	Speed enforcement in Norway and Sweden	NO, SE								
9	ROSEBU (Examples of assessed road safety measures - a short handbook, 2005)(Evik, Vaa, 2004)	Speeding	Tripling stationary speed enforcement in Norway	NO								
10	COVA (Technical Assistance in support of the Preparation of the European Road Safety Action Programme 2011-2020, 2010) (Technical Assistance in support of the Preparation of the European Road Safety Action Programme 2011-2020, 2010) (31 st report on road safety, ERSO)	Speeding	speed	NO						70/90/100		

### Categories of road safety measures

1	Speeding
2	Alcohol
3	Seat belt
4	Helmet
5	Child restraints
8	Cell phone
6	Licencing
7	Physical examination of drivers
9	Pedestrian/ Cyclists
10	Education
11	Education and training
12	Education and campaigns
13	Campaigns
14	Enforcement, campaigns
15	Enforcement
16	Traffic calming
17	Roadside treatments
18	Roadside guard rails
19	Junction layout
20	Junction traffic control
21	Signs
22	Road lighting
23	Infrastructure interventions
24	Safety equipment
25	ITS
26	Trucks
27	Policy
28	Legislation
29	Road safety assessment
30	Road safety audits
31	Road safety inspection
32	Management of hazardous locations
33	Data Analysis
35	Post impact care
34	Trauma management

## Traffic rules

- 46 different traffic rules into 4 main groups: drivers, pedestrians, vehicles, emergency phone number

### Example: Belgium

Country:	Belgium BE						
Category	Sub-category	Regulation	Law enforce	Description (e.g. time of implementation)	Description (e.g. time of implementation)		
DRIVER	ELIGIBILITY FOR DRIVING LICENSE (age)	cat. A1	16	until 18 years just 80 km/h			
		cat. A	18 (21)	minimum 18 year for motorcycles of a power not exceeding 35 kW and with a power/weight ratio not exceeding 0,2 kW/kg			
		cat. B	18				
		cat. C	21				
		moped	16				
		bicycle	?				
	TRAINING	assistance / accompanying driving licence	yes				
		trial driving licence	?				
		theoretical training (how many hour?)	?				
	Physical/psychological examination	practical training (how many hour?)	?				
		future drivers	yes		doctor's certificate/examination, eyes-test		
	SPECIAL REQUIREMENTS	elder drivers (how old?)		?			
				?			
		speed limits (constant or changing in case of bad weather?)	motorways	120			
			urban road	50/30			
		BAC	non-urban	120/90/70			
			drivers of passenger cars	0,5‰			
			novice drivers	0,5‰			
		obligatory helmets for motorcycles/mopeds	professional	0,5‰			
			obligatory helmets for motorcycles/mopeds	yes			
obligatory helmets for bicycles			recommended				
obligatory in front seat			obligatory in front seat			1973 - outside cities; 1975 - post - 1987 cars; 1979 - all	
			back seat	yes		1991	
obligatory seat belts	buses		yes		2003		
	trucks		?				
obligatory child restrain	yes				1996		
DRL	no						
hand-held mobile phone	not allowed						
temporary limited traffic of HGV	no						
PENALTIES	penalties points (existing or not?)	no					
	exceeding the speed limit	?					
	alcohol (how many for what?)	0,5‰-0,8‰- ban 3h = 137,5 EUR					

Categories
<b>DRIVER</b>
Eligibility for driving license (age):
1 cat. A1
2 cat. A
3 cat. B
4 cat. C
5 moped
6 bicycle
<b>Training</b>
7 Assistance / accompanying driving licence
8 Trial driving licence
9 Theoretical training (how many hour?)
10 Practical training (how many hour?)
11 Physical/psychological examination
<b>Physical/psychological examination</b>
12 Future drivers
13 Elder drivers (how old?)
<b>Special requirements</b>
14 Speed limits
15 BAC drivers of passenger cars
16 BAC novice drivers
17 BAC professional
18 Obligatory helmets for motorcycles/mopeds
19 Obligatory helmets for bicycles
20 Obligatory seat belts: passenger cars - front seat
21 Obligatory seat belts: passenger cars - back seat
22 Obligatory seat belts: truck
23 Obligatory seat belts: bus
24 Obligatory child restrain
25 DRL
26 Hand-held mobile phone
27 Temporary limited traffic of HGV
<b>Penalties</b>
27 Penalties points (existing or not?)
28 Exceeding the speed limit urban road (how many for what?)
29 Exceeding the speed limit outside urban road (how many for what?)
30 Exceeding the speed limit - automatic enforcement
31 Alcohol (how many for what?)
<b>PEDESTRIAN</b>
32 Pedestrians' right of way on the zebra stripes
33 Fluorescent elements
34 Parking on the pavement
35 Riding bicycles on the pavement
<b>VEHICLES</b>
36 Technical inspection (how often?..)
37 Fluorescent safety vest
38 Fluorescent triangle
39 Fire extinguisher
40 First-aid kit
41 Winter Tyres
<b>EMERGENCY TELEPHON NUMBERS</b>
42 Emergency number (standard across Europe)*
43 Emergency ambulance service
44 Police
45 Fire service
46 Emergency road service

## Road user behaviour and attitudes

- Main source: SARTRE projects
- Issues related to driver behaviour (self-reported): Speeding, Drink driving, Protective systems usage, Overtaking, Driving through amber light, Giving way to pedestrians, Tailgating
- Attitudes towards risk taking regarding: Alcohol and drugs, Speeding, Protective system usage

Example: Seat-belt use in built-up areas  
(source: SARTRE projects)

			Seat-belt use in built-up areas						Total	
			Never	Rarely	Sometimes	Often	Very often	Always		No belt
Austria	version of sartre sample	SARTRE 1996	54	57	39	39	70	742	0	1001
		SARTRE 2003	51	59	52	56	66	714	2	1000
	Total		105	116	91	95	136	1456	2	2001
Belgium	version of sartre sample	SARTRE 1996	89	120	81	78	61	563	7	999
		SARTRE 2003	92	57	67	78	64	634	13	1005
	Total		181	177	148	156	125	1197	20	2004
Croatia	version of sartre sample	SARTRE 2003	134	189	159	103	78	366	6	1035
	Total		134	189	159	103	78	366	6	1035
Cyprus	version of sartre sample	SARTRE 2003	20	62	102	50	76	654	29	993
	Total		20	62	102	50	76	654	29	993
Czech Republic	version of sartre sample	SARTRE 1996	92	141	112	111	125	398	21	1000
		SARTRE 2003	63	102	116	102	146	478	12	1019
	Total		155	243	228	213	271	876	33	2019
Denmark	version of sartre sample	SARTRE 2003	45	37	38	25	54	874	3	1076
	Total		45	37	38	25	54	874	3	1076
Estonia	version of sartre sample	SARTRE 2003	11	44	82	122	145	573	25	1002
	Total		11	44	82	122	145	573	25	1002
Finland	version of sartre sample	SARTRE 1996	19	33	26	49	57	804	10	998
		SARTRE 2003	18	28	26	36	45	841	6	1000
	Total		37	61	52	85	102	1645	16	1998

## Road accident cost review

- Road traffic injury costs mainly from 4 different sources:
  1. The recent WHO world status report on road safety,
  2. The results of the ROSEBUD project,
  3. The recommendations of the Action COST313,
  4. Various international comparisons on road traffic injury costs or relevant publications on this issue (ERSO, etc.)



- Basic Fact Sheets
- Annual Statistical Report
- Country Overviews
- Road Safety Management Profiles
- Forecast Fact Sheets
- Safety Issues Syntheses





- Disaggregate road accident data for a decade on specific road safety topics
- Worth-noticing comments outlined in the “highlight boxes”



- Maps from the CARE/CADaS database
  - Tables and Figures with in-depth accident/causation data for 6-7 countries
  - Health indicators

[www.erso.eu](http://www.erso.eu)

[http://ec.europa.eu/transport/road\\_safety/specialist/statistics/index\\_en.htm](http://ec.europa.eu/transport/road_safety/specialist/statistics/index_en.htm)

## Traffic Safety Basic Facts 2012

### Motorways

Almost 40.000 people were killed in traffic accidents on motorways in 19<sup>1</sup> European Union countries between 2001 and 2010<sup>2</sup>. This number corresponds to 8% of all traffic accident fatalities in those countries.

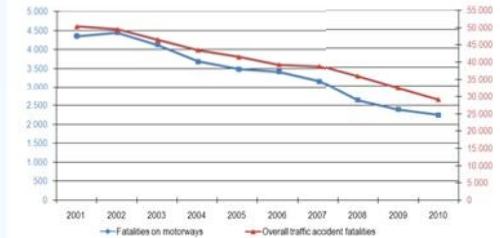
There were 4.354 traffic accident fatalities on motorways in 2001, and the number fell by more than 48% by 2010<sup>2</sup> (2.244). The total number of traffic accident fatalities in the 19 European Union countries also fell significantly over the same decade, by 42%.

The number of people killed in traffic accidents on motorways fell by more than 48% in the decade from 2001 to 2010

Although the overall number of road accident fatalities decreased rather steadily, the trend for motorway fatalities has been more variable. The most significant reduction of the number of fatalities on motorways in the 19 countries occurred between 2007 - 2008.


Note that in five countries (Greece, Hungary, Netherlands, Poland and United Kingdom) a significant number of fatalities are recorded in the CARE data as being on non-specified road network type (it is not known whether or not they occurred on a motorway).

**Figure 1: Fatalities evolution in the EU-19<sup>1</sup>, 2001-2010<sup>2</sup>**



Source: CARE Database / EC  
Date of query: October 2012

<sup>1</sup> See Table "Country abbreviations used and definition of EU-level" on page 20.  
<sup>2</sup> Where a number is missing for an EU-19/20 country in a particular year, its contribution to the EU-19/20 total is estimated as the most recent known value. For UK data (2010) is the sum of GB (2010) and NI (2009).



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1 / 20

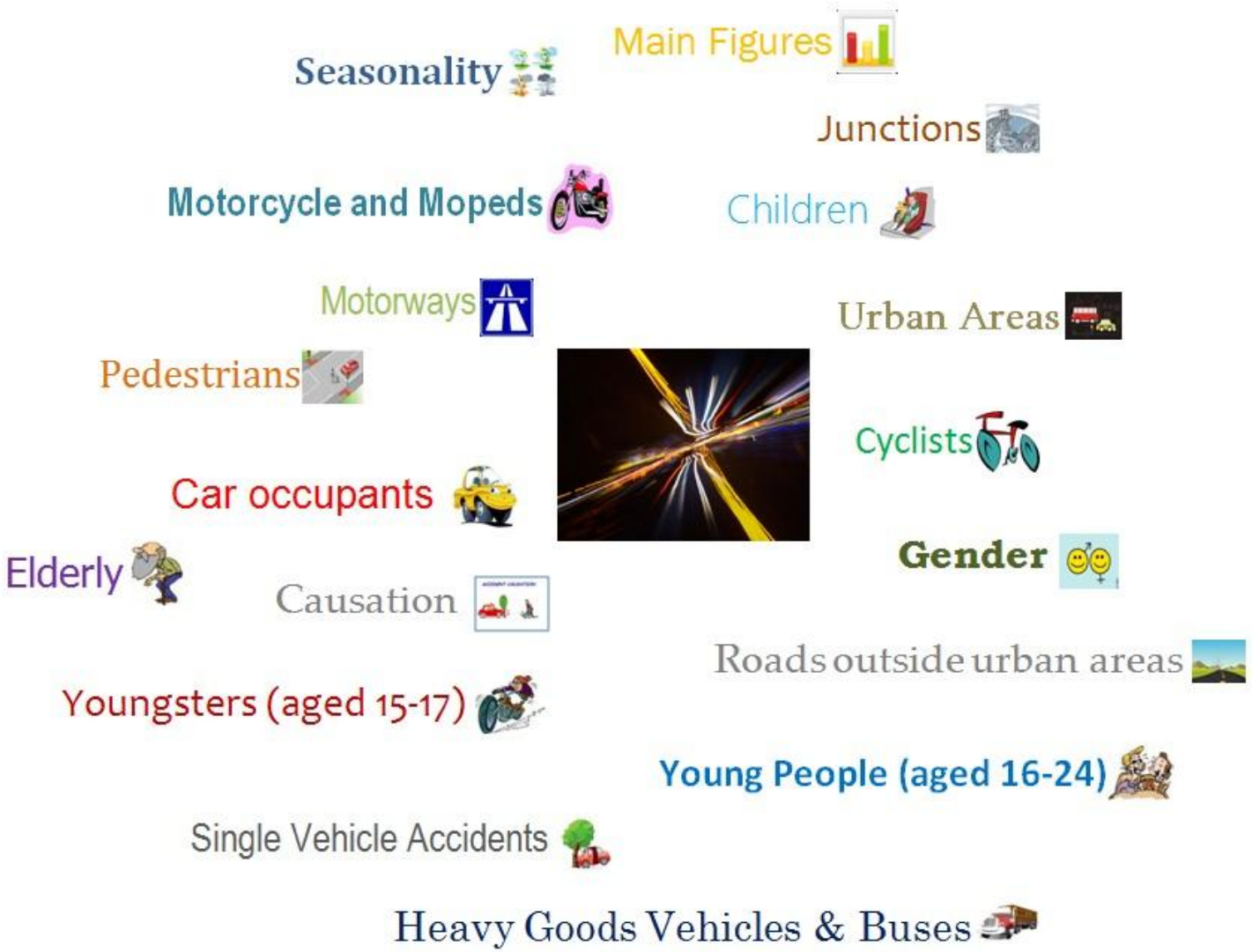
# Basic Road Safety Fact Sheets (2/3)

This grid contains 24 fact sheets, each with a title, descriptive text, and various data visualizations. The sheets are organized into three rows and eight columns.

- Row 1:**
  - Sheet 1:** Traffic Safety Basic Facts 2011. Includes a line graph showing trends from 2000 to 2011.
  - Sheet 2:** Roadway conditions. Includes a large data table with multiple columns.
  - Sheet 3:** Roadway conditions. Includes a bar chart showing data from 2000 to 2011.
  - Sheet 4:** Roadway conditions. Includes a map of the region.
  - Sheet 5:** Roadway conditions. Includes a bar chart showing data from 2000 to 2011.
  - Sheet 6:** Roadway conditions. Includes a bar chart showing data from 2000 to 2011.
  - Sheet 7:** Roadway conditions. Includes a bar chart showing data from 2000 to 2011.
  - Sheet 8:** Roadway conditions. Includes a bar chart showing data from 2000 to 2011.
- Row 2:**
  - Sheet 9:** Roadway conditions. Includes a bar chart showing data from 2000 to 2011.
  - Sheet 10:** Roadway conditions. Includes a pie chart and a bar chart.
  - Sheet 11:** Roadway conditions. Includes a bar chart showing data from 2000 to 2011.
  - Sheet 12:** Roadway conditions. Includes a table and a line graph.
  - Sheet 13:** Roadway conditions. Includes a line graph showing trends from 2000 to 2011.
  - Sheet 14:** Roadway conditions. Includes a line graph showing trends from 2000 to 2011.
  - Sheet 15:** Roadway conditions. Includes a bar chart showing data from 2000 to 2011.
- Row 3:**
  - Sheet 16:** Roadway conditions. Includes a line graph showing trends from 2000 to 2011.
  - Sheet 17:** Roadway conditions. Includes a bar chart showing data from 2000 to 2011.
  - Sheet 18:** Roadway conditions. Includes a bar chart showing data from 2000 to 2011.
  - Sheet 19:** Roadway conditions. Includes a table and a line graph.
  - Sheet 20:** Roadway conditions. Includes a table and a line graph.
  - Sheet 21:** Roadway conditions. Includes a table and a line graph.
  - Sheet 22:** Roadway conditions. Includes a table and a line graph.



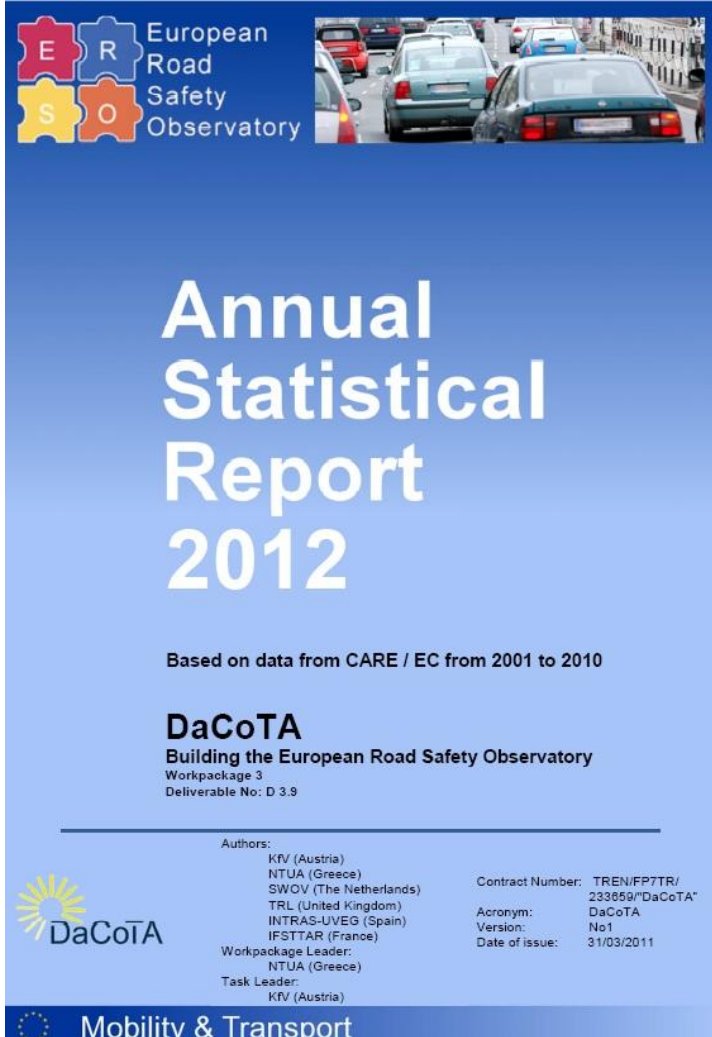
# Basic Road Safety Fact Sheets (3/3)



- Selection of **basic characteristics** of fatal road accidents related to: Person class, Person killed, Area type, Motorway, Junction type, Weather conditions, Modes of transport, Month, Day of the week, Hour of day
- Data from **27 European countries** for a decade
- **52 Tables and 26 Figures** with the most interesting combination of road accident data

[www.erso.eu](http://www.erso.eu)

[http://ec.europa.eu/transport/road\\_safety/specialist/statistics/index\\_en.htm](http://ec.europa.eu/transport/road_safety/specialist/statistics/index_en.htm)



The image shows the cover of the 'Annual Statistical Report 2012' from the European Road Safety Observatory. The cover features a blue background with a photograph of traffic at the top right. The title 'Annual Statistical Report 2012' is prominently displayed in white. Below the title, it states 'Based on data from CARE / EC from 2001 to 2010'. The DaCoTA logo and name are present, along with the text 'Building the European Road Safety Observatory', 'Workpackage 3', and 'Deliverable No: D 3.9'. A list of authors and their affiliations is provided, including KfV (Austria), NTUA (Greece), SWOV (The Netherlands), TRL (United Kingdom), INTRAS-UVeG (Spain), and IFSTTAR (France). Contract and version information is also listed. The bottom of the cover features the 'Mobility & Transport' logo.

European Road Safety Observatory

Annual Statistical Report 2012

Based on data from CARE / EC from 2001 to 2010

**DaCoTA**  
Building the European Road Safety Observatory  
Workpackage 3  
Deliverable No: D 3.9

Authors:  
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NTUA (Greece)  
SWOV (The Netherlands)  
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Workpackage Leader:  
NTUA (Greece)

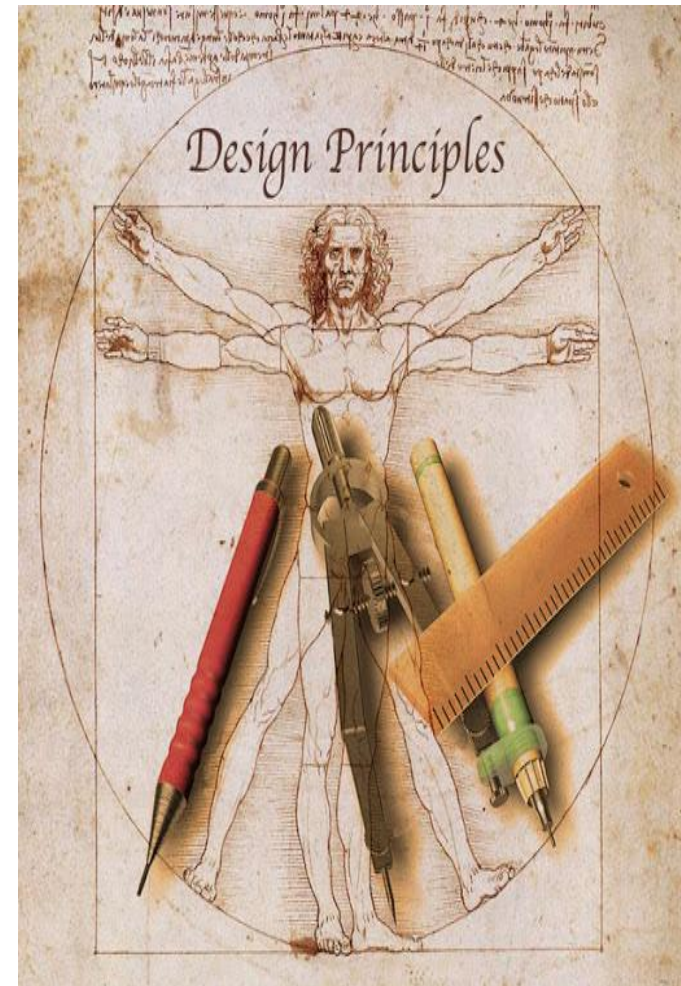
Task Leader:  
KfV (Austria)

Contract Number: TREN/FP7TR/233659/DaCoTA\*  
Acronym: DaCoTA  
Version: No1  
Date of issue: 31/03/2011

Mobility & Transport

# Design Principles for BFS and ASR

- Common formatting (colors, fonts, etc)
- Table and Figures design
- Present fatality data only
- Do not duplicate large tables of count data available in both BFS & ASR
- Calculating EU summary total row
- Statistical principles when presenting data:
  - Choice of graphs or Tables
  - Tables (content, variability of annual percentages, etc.)
  - Graphs (3-D graphs, gridlines, axes, change vs. reduction, etc.)
  - Guidelines for specific graphs (bar charts, pie charts, line graphs)




For each country **all layers of the Road Safety Pyramid** are covered:

- Structure & Culture
- Programs & measures
- Road Safety Performance Indicators
- Road Safety Outcomes
- Social Cost

## Road Safety Country Overview October 2012

### Lithuania



#### Structure and Culture

- Basic data

*Table 1: Basic data of Lithuania in relation to the European average. (Sources: [1] OECD/ITF, 2011; [2] Eurostat; [3] DG-TREN, 2005; [4] CIA; [5] UNECE)*

Basic data of Lithuania	European average
– Population: 3.3 million inhabitants (2010)	17.1 million (2010) [1,2]
– Area: 65 000 km <sup>2</sup> (2010) (4% water) (2010)	156.225 km <sup>2</sup> (2010) [1,3] 3% water (2010) [4]
– Climate and weather conditions (capital city; 2010): Average winter temperature (Nov. to April): -2°C Average summer temperature (May to Oct.): 15°C Annual precipitation level: 705 mm (2004)	(2010) 6°C 16°C 747 mm
– Vehicle fleet: data on vehicle km not available  1.8 billion vehicles (93% passenger cars, 1% lorries, trucks and tractors; 2008) [5]	168 billion vehicle km (2010) <sup>[1]</sup> 12 million vehicles (2010) <sup>[1]</sup>
– 0.55 motorised vehicles per person (2008)	0.7(2010 <sup>[1]</sup> ) [1,2]



- Country characteristics

*Table 2: Characteristics of Lithuania in comparison to the European average. (Sources: [1] OECD/ITF, 2011; [2] Eurostat; [3] national sources)*

Characteristics of Lithuania	European average
– Population density: 51 inhabitants/km <sup>2</sup> (2010)	110 inhabitants km <sup>2</sup> (2010) <sup>[1,2,3]</sup>
– Population composition: is not available	16% children, 67% adults, 17% elderly (2009 <sup>[1]</sup> ) [1,2]
– Gross Domestic Product (GDP) per capita: €6 300 (2010)	€26 100 (2010) [1,2]
– 41% of population lives inside urban area (2010)	42% (2010) <sup>[1]</sup> [1,2]
– Special characteristics: tourism is growing in Lithuania.	

<sup>1</sup> Based on 30 European countries; data of HU = 2009.  
<sup>2</sup> Based on 15 European countries (excl. BG, CY, EE, EL, ES, HU, IT, LT, LU, LV, MT, PL, PT, RO, SK); data of CZ, IE, SE, NO (2009); data of AT, BE, DK (2008); Data of UK (2006); data of NL (2003).  
<sup>3</sup> Based on 28 European countries (excl. CY and LT); data of EL, IT, PL, PT and UK = 2008; data of BE, EE, ES, RO and NO = 2006; data of IE = 2007; data of MT and SK (2002).  
<sup>4</sup> Based on 27 European countries (excl. LT, NO, PL); data of BE, UK (2008).  
<sup>5</sup> Based on 29 European countries (excl. IS).

Lithuania has a low population density.

Project co-financed by the European Commission, Directorate-General for Mobility and Transport 1 / 14

## Synthesis section:

- Safety position
- Scope of problem
- Recent progress
- Remarkable road safety policy issues

## Literature section

### Road Safety Country Overview-Lithuania



There is no data on details of fatal crashes in Lithuania.

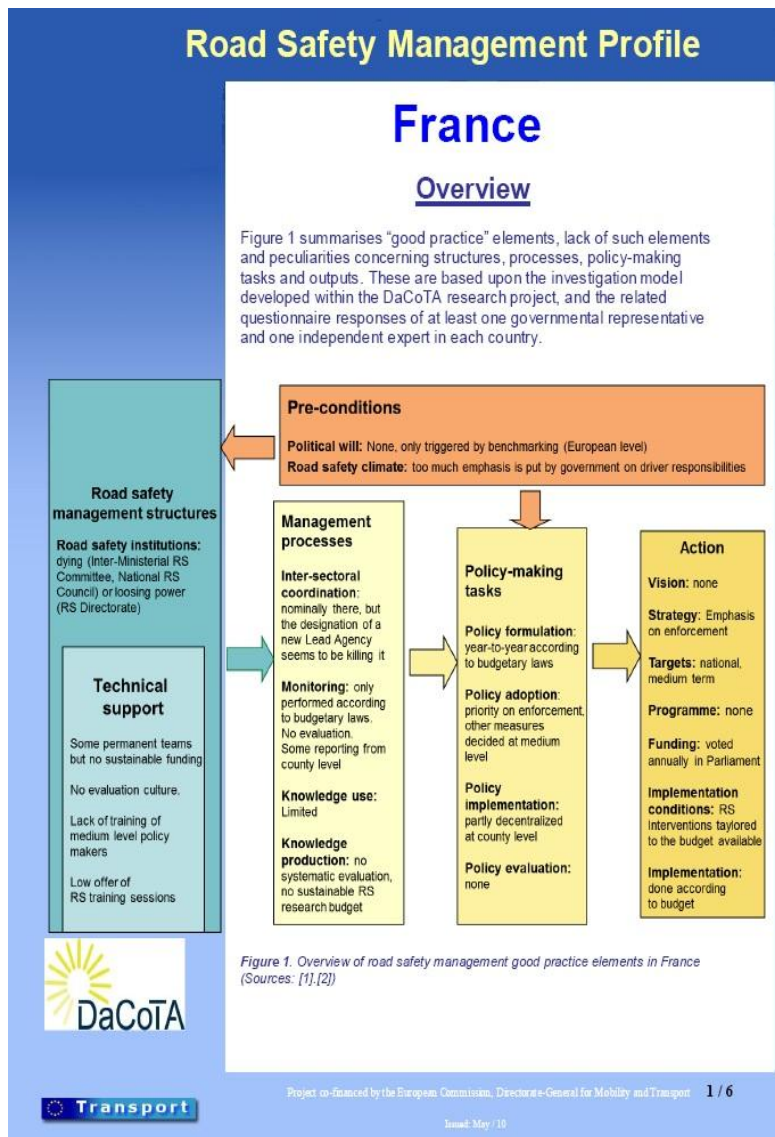
#### Synthesis

- **Safety position**
  - In terms of total road accident fatalities per population, Lithuania is on the 25<sup>th</sup> position among the 30 European countries, so it is performing below average.
- **Scope of problem**
  - High-risk groups as well as very common fatality factors cannot be indicated due to lack of detailed data.
  - Enforcement effectiveness as well as the amount per population is lower than average in Lithuania, but drink-driving enforcement is improving. Drink-driving offences however have not decreased between 2006 and 2008.
  - Seat-belt wearing is low in Lithuania and data are only available of the front part of the vehicle.
  - Lithuania has one of the highest shares of old cars (> 10 years) in the EU.
- **Recent progress**
  - Over the last decade, 2001-2010, the number of fatalities per population in Lithuania has decreased by 55%, with a steep drop in fatalities per population between 2007 and 2010.
  - The amount of speed offenders (not mean speed) has decreased over time.
  - Recently, the number of roadside alcohol breath tests per inhabitants has increased, but still is below the European average.
- **Remarkable road safety policy issues**
  - The majority of EU-recommended road safety laws are adopted by the country.
  - Most obligatory parts of the EU road infrastructure Directive were adopted by the country: safety audits, safety inspections and black-spot treatment.
  - Lithuania has lower legal drink-driving levels than most other European countries.



For each country the **Road Safety Management Profile** is provided:

- ‘Snapshot’ of the road safety management system
- Experts interviewed in the first quarter of 2012
- Based on coded answers to questionnaire and comments of governmental and independent Experts



- Overview of road safety management good practice elements
- Structures, processes & outputs described according to the policy-making cycle.
- Notes & Observations
  - Policy orientation
  - Medium-level intersectoral coordination
  - Stakeholders' consultation
  - Funding
  - Monitoring and reporting
  - Relations between national/regional level
  - Knowledge production & use

## Road Safety Management Profile - France

### Structures, processes and outputs

In Figure 2, road safety management structures, work processes and outputs in France are described according to the policy-making cycle (agenda setting, policy formulation, adoption, implementation and evaluation) set against the background of a typical hierarchical national government organization (see Appendix). Focus is on the national organization and the relations between national and regional/local structures.

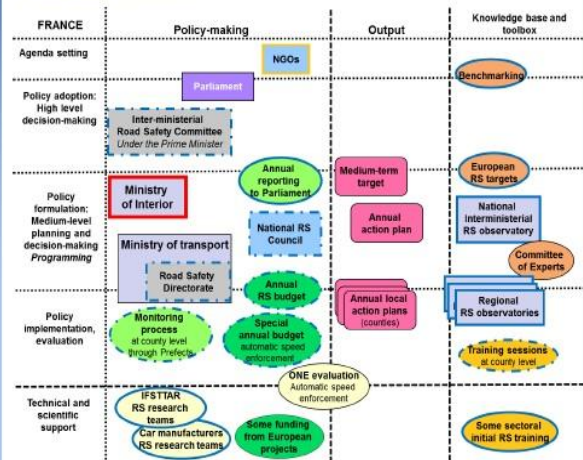
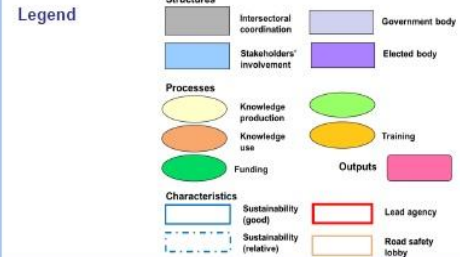


Figure 1. Structures, processes and outputs in France (Sources: [1],[2])





# Road Safety Management Profiles (3/3)

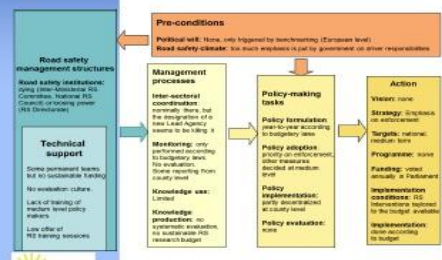
## Example: France (FR)

### Road Safety Management Profile

#### France

##### Overview

Figure 1 summarises "good practice" elements, lack of such elements and peculiarities concerning structures, processes, policy-making tasks and outputs. These are based upon the investigation model developed within the DaCoTA research project, and the related questionnaire responses of at least one governmental representative and one independent expert in each country.



**Pre-conditions:** Road safety structures, Road safety culture, Road safety calendar, Road safety training.

**Management processes:** Inter-sectoral coordination, Monitoring, Knowledge use, Knowledge production.

**Policy-making tasks:** Policy formulation, Policy adoption, Policy implementation, Policy evaluation.

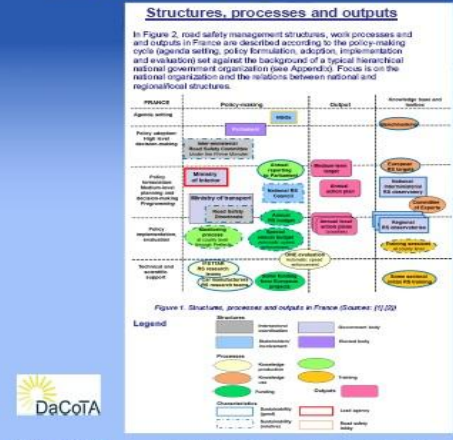
**Action:** Targets, Programme, Implementation, Improvement.

DaCoTA logo and Transport logo at the bottom.

### Road Safety Management Profile - France

#### Structures, processes and outputs

In Figure 2, road safety management structures, work processes and outputs in France are identified according to the policy-making cycle (agenda setting, policy formulation, adoption, implementation and evaluation) set against the background of a typical hierarchical national government organisation (see Appendix 3). Focus is on the national organization and the relations between national and regional/local structures.



Legend: Structures (Government level, Regional level, Local level), Processes (Policy-making, Monitoring, Knowledge production), Outputs (Policy, Programme, Implementation, Improvement).

DaCoTA logo and Transport logo at the bottom.

### Road Safety Management Profile - France

#### Notes & observations

**Policy orientation:**

- No long-term vision for France has been formally adopted. The European-level RSI target is regarded to serve as a vision but no long-term strategy has been developed to support it.
- After a successful period of road safety improvement, largely due to the introduction of automatic speed enforcement, France's road safety management system has recently been changing, and the new government in place since June 2012 has confirmed the Ministry of Interior as the new Lead Agency for road safety. As the previous coordinated RSI coordinating structures were primarily under the Ministry of Transport (Directorate for Road Safety and Traffic, DSCR), it was still unclear how things would get organized at the time the questionnaire survey was carried out.
- RSI policy was originally based on a systems approach, but there are now two separate budgetary lines, one for automatic speed enforcement and another for other safety interventions. This procedure, combined with the fact that infrastructure safety has recently been decentralised to the county level and that the Ministry of Interior is the Lead Agency, actually shifts the focus from a "safe system" towards driver behaviour as a key factor and driver being responsible for road safety performance.
- The Parliament recently took some initiatives to develop RSI policy but a new Parliament has just been elected and RSI is not currently a priority issue. The Parliament has just been elected and RSI is not currently a priority issue. The Parliament has just been elected and RSI is not currently a priority issue.

DaCoTA logo and Transport logo at the bottom.

### Road Safety Management Profile - France

#### Funding

- Budgetary cuts are used in lieu of planning and programming, so that annual RSI programmes are designed and the road safety budget is voted as part of the national budget every year. This creates some stability but has also encouraged very short-term decision-making and been used as a pretext for not designing any medium-term action plans. As there is no multi-annual RSI programme, RSI interventions are adapted to the funds available rather than calibrated to result from budgetary constraints. Funding is not enough funding available and government representatives indicate that the margins available have been decreasing and is insufficient in all sectors.

#### Monitoring and reporting

- In the current situation, reporting on road safety activities is purely a budgetary exercise. Road safety trends are monitored but there is no systematic effort at evaluation (one exception is the process and product evaluation study which was carried out on automatic speed enforcement at the initiative of the Road Safety Observatory). Fortunately, the evaluation at the European level has provided an incentive to keep up the RSI effort.

#### Relations between national and regional level

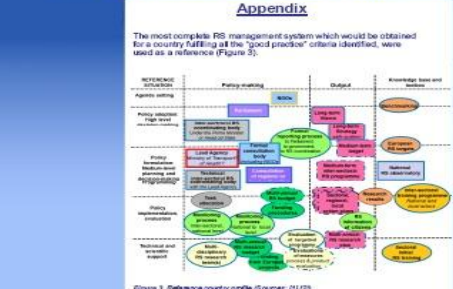
- The link between the national level and the "debarment" (county) level used to be a strong point of French RSI management. Vertical coordination was performed by GOSIR through coordinated Prefects and a coordination of all stakeholders at that level ensured that medium-term strategy and annual action plans were agreed upon. However, during the survey, neither the experts nor the policy-makers at the national level seemed to be fully aware of what has become of that system lately.

DaCoTA logo and Transport logo at the bottom.

### Road Safety Management Profile - France

#### Appendix

The most complete RSI management system which would be obtained for a country fulfilling all the "good practice" criteria identified, were used as a reference (Figure 3).



Legend: Structures (Government level, Regional level, Local level), Processes (Policy-making, Monitoring, Knowledge production), Outputs (Policy, Programme, Implementation, Improvement).

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### Road Safety Management Profile - France

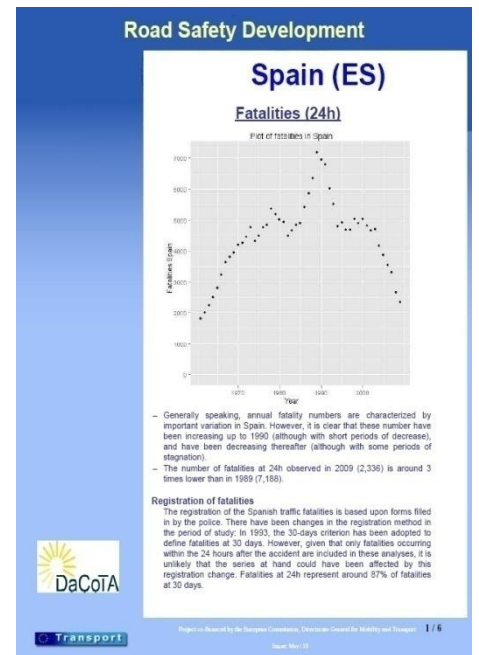
#### References

- Muhrad, H., Oskamen, V., Butler, I. (Eds) (2011) Road safety management investigation model and questionnaire, Deliverable 2.2 of the EC FP7 project DaCoTA.
- Papadimitriou, E. et al. (2012) Analysis of road safety management in the European countries, Deliverable 1.5/07 of the EC FP7 project DaCoTA.

DaCoTA logo and Transport logo at the bottom.

## Estimation of road traffic fatalities based on time-series analysis

- Road traffic fatalities
- Traffic volume
- Fatality risk
- Forecasts to 2020
- Forecasts according to mobility scenarios

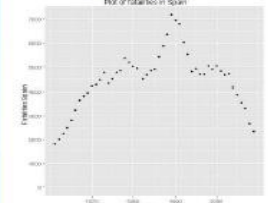


# Forecast Fact Sheets (2/2)

## Example: Spain (ES)

### Road Safety Development - Spain (ES)

#### Fatalities (24h)



— Generally speaking, annual fatality numbers are characterized by important variation in Spain. However, it is clear that these numbers have been increasing up to 1950 although with short periods of decrease, and have been decreasing thereafter (although with some periods of stagnation).

— The number of fatalities at 24h observed in 2000 (2,396) is around 3 times lower than in 1959 (7,188).

**Registration of fatalities**  
The registration of the Spanish traffic fatalities is based upon forms filed in by the police. There have been changes in the registration method in the period of study. In 1960, the 30-days criterion has been adopted to define fatalities at 30 days. However, given that only fatalities occurring within the 24 hours after the accident are included in these analyses, it is unlikely that the areas at hand could have been affected by this registration change. Fatalities at 24h represent around 67% of fatalities at 30 days.

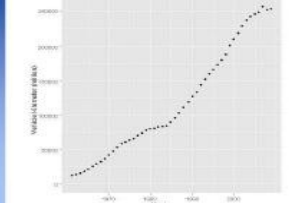
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Page 1 of 6

### Road Safety Development - Spain

#### Traffic Volume



— The number of vehicle kilometers is estimated and includes only non-urban trips. The quality of estimations is unknown. From 1954 there is a change in the calculation method, but it does not seem to have caused any loss in the series.

— Overall, vehicle kilometers in the Spain increased from 1950 to 2007 but have started to fall in recent years.

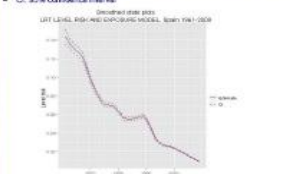
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Page 2 of 6

### Road Safety Development - Spain

#### Fatality Risk



— The fatality risk is the number of fatalities per billion vehicle kilometers.

— Estimation model – technical definition: Latest time with interventions in major fatalities & exposure (1961-92 and 2000-2011) (Björnskov et al., 2006).

— CI: 95% confidence interval

Decoded time plot:  
LRT: Ljung-Box, 95%-99.99% confidence interval, Spain (1961-2000)

The fatality risk has been decreasing.

— 1951-1952: number of fatalities increased but even stronger increase in traffic volume → risk reduction.

— 1975 of crisis, reduced the traffic volume but the number of fatalities continued to rise → fatality risk increased in risk.

— 1950-1959: increase in traffic volume has been proportionately less than the increase in the number of deaths → increased risk. This period coincides with the country's economic expansion from 1954.

— 1950-1964: sharp decrease in the number of fatalities even though the traffic volume continued to rise despite the onset of the crisis of 1950 → strong risk reduction.

— 1964-2003: stagnating number of fatalities even though traffic volume continues rising → risk reduction. Coincides with the beginning of a new situation of economic expansion.

— 2004-2007: sharp decrease in the number of deaths and a slowdown in the traffic volume → marked risk reduction. Road safety is incorporated into the political agenda as a priority.

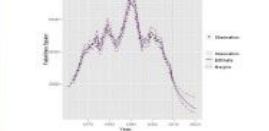
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Page 3 of 6

### Road Safety Development - Spain

#### Forecasts to 2020



if the change in slope seen in 2000-2010 returns to the trend seen prior to 2000. In 2012, the following forecasts can be made for the number of fatalities in 2020:

Decoded time plot:  
LRT: Ljung-Box, 95%-99.99% confidence interval, Spain (1961-2000)

If road safety returns to the trend seen prior to 2000 by 2012, the expected number of fatalities in 2020 is 438.

**Forecast of road-traffic fatalities in Spain up to 2020**

Year	Prediction	Lower CI	Upper CI
2010	2,062	1,764	2,373
2011	1,739	1,389	2,101
2012	1,477	1,027	2,005
2013	1,269	771	2,089
2014	1,069	583	2,140
2015	930	406	2,155
2016	824	289	2,140
2017	681	203	2,324
2018	583	149	2,304
2019	509	96	2,883
2020	428	55	2,927

Disclaimers:  
— Statistical forecasting does not offer a definite prediction of what is actually going to happen in the future.  
— The estimates are based on the "business as usual" assumption: no principal changes between past and future development.  
— Given in these conditions future outcomes are uncertain. This uncertainty is represented in the confidence intervals (plotted in the red margin: 95%, shown in table 2020).


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Page 4 of 6

### Road Safety Development - Spain

#### Scenarios



— The strong uncertainty about the development of the fatalities in the Spain is due to the development in traffic volume.

— The forecast estimates 438 fatalities in 2020. This could vary from 710 to 207 depending on the development of mobility scenarios.

— To illustrate the uncertainty of the traffic volume, three point-estimates for fatalities in Spain 2020 are plotted assuming three different scenarios for traffic volume:

- o Reference: further stagnation (forecasted value)
- o Scenario 1: growth (forecast plus 1 stand dev.)
- o Scenario 2: reduction (forecast minus 1 stand dev.)

Decoded time plot:  
LRT: Ljung-Box, 95%-99.99% confidence interval, Spain (1961-2000)

Scenarios for Traffic Volume

	Vehicle kilometers	Road traffic fatalities
Estimation 2000	282.3	2,396
Assumption: 2010 proportionally to mobility development		
- Growth	307	438
- Stagnation	176	207

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Page 5 of 6

### Road Safety Development - Spain

#### References

- [1] EC National Expert for road accident statistics and road safety performance indicators.
- [2] Dupont & Mathiesen (Eds.) 2012. Forecasting road traffic fatalities in European countries. Deliverable 4.4 of the EC FP7 project DaCoTA.
- [3] Björnskov F., Comansmaer J., Christ P., Koopman S. J. (2006) Model-based measurement of latent risk in time series with applications. Journal of the Royal Statistical Society, Series A, 2006.
- [4] Mathiesen & Dupont (Eds.) 2010. Forecasting road traffic fatalities in European countries: model and first results. Deliverable 4.2 of the EC FP7 project DaCoTA.
- [5] Comansmaer J. & Koopman, S.J. (2007). An introduction to State Space Time Series Analysis. Oxford University Press.

DaCoTA

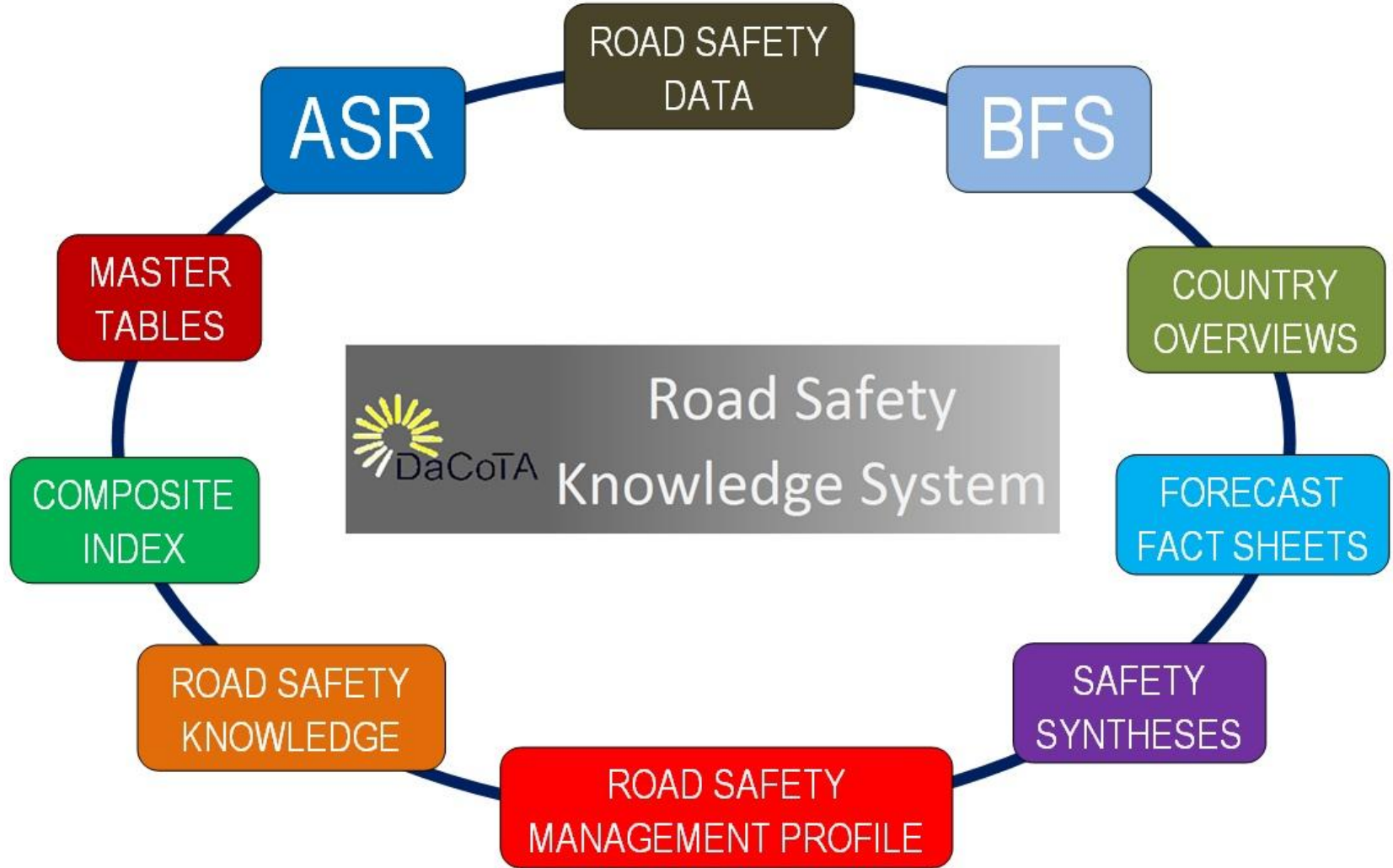
Transport

Page 6 of 6

# Syntheses on key road safety issues - 22 webtexts (1/1)



# C. Integrated Road Safety Knowledge System





# DaCoTA Integrated Road Safety Knowledge System

- A comprehensive and integrated road safety information system with aggregate data and information consolidating, organising and making available existing data and information, necessary for the **support of road safety decision making** in Europe
- The DaCoTA system consists of **five main components** (safety issues, countries, statistics, methods, links) in the pilot website

<http://safetyknowsys.swov.nl/>

DaCoTA Road Safety Knowledge System

Home Safety issues Countries Statistics Methods Links FAQ

Home

News  
About  
Contact

European Commission  
Road Safety  
Project co-financed by the European Commission

About this website

This pilot website is one of the final results of DaCoTA. Its basis is led in the SafetyNet project. Both projects are funded by DG-TREN of the European Commission. The aim of both projects is/was to produce a framework and enhance road safety information for a European Road Safety Observatory (ERSO). ERSO helps policy makers, researchers and road safety advisors to find their way into the European road safety world.

The objective of SafetyNet, which was completed in October 2008, was to build the framework of a European Road Safety Observatory that should become the primary focus for road safety data and knowledge in Europe. When SafetyNet was finalised, the ERSO-website was transferred to the Road Safety section on the website of the European Commission, Directorate-General for Transport & Energy (DG-TREN). It is accessible by using the address: [www.erso.eu](http://www.erso.eu).

DaCoTA is the follow-up of SafetyNet and is also funded by DG-TREN (now: DG MOVE) of the European Commission. The objective of DaCoTA is to add to the strength and wealth of information in the Observatory by enhancing the existing data and adding new road safety information. This project will be finalised in 2012. During the project, the updates of the ERSO website will be available on this website.

Links:

[DaCoTA-project website](#)  
Information about DaCoTA, its results and partners

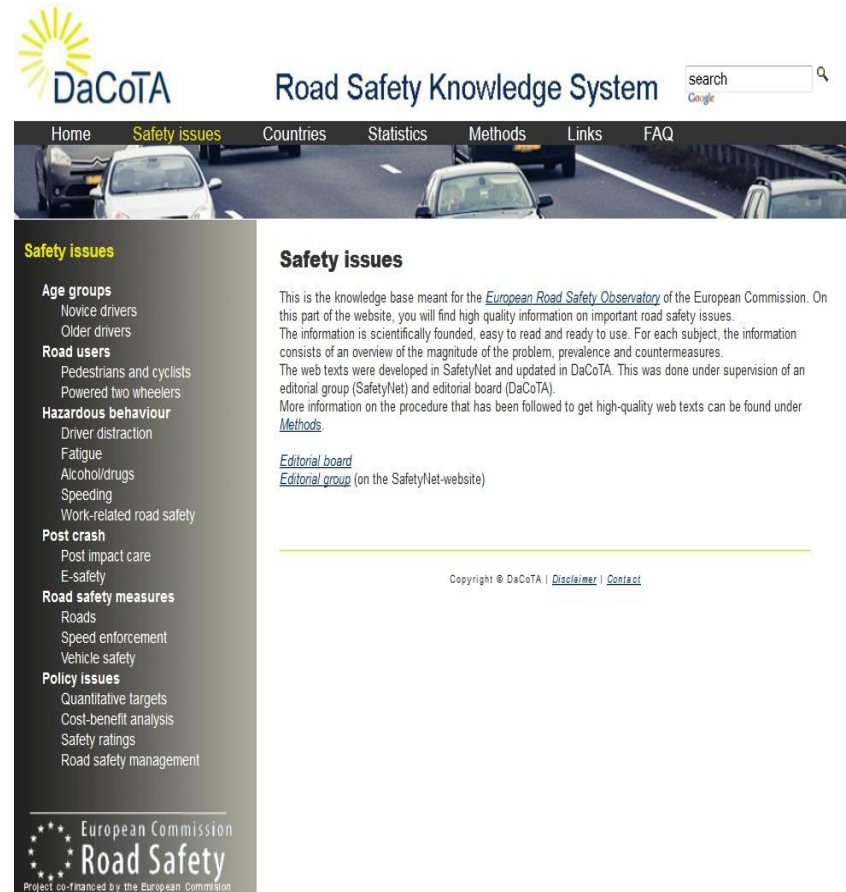
[SafetyNet website](#)  
Former European Road Safety Observatory (ERSO) hosted by SWOV

[European Road Safety Observatory \(ERSO\)](#)  
Official ERSO on the website of the European Commission

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## Safety issues

- High quality information on important road safety issues
- Information scientifically founded, easy to read and ready to use
- For each subject, the information consists of an overview of the magnitude of the problem, prevalence and countermeasures



The screenshot shows the DaCoTA Road Safety Knowledge System website. The header includes the DaCoTA logo, the title "Road Safety Knowledge System", and a search bar. The navigation menu contains links for Home, Safety issues, Countries, Statistics, Methods, Links, and FAQ. The main content area is titled "Safety issues" and features a sidebar with a list of categories: Age groups (Novice drivers, Older drivers), Road users (Pedestrians and cyclists, Powered two wheelers), Hazardous behaviour (Driver distraction, Fatigue, Alcohol/drugs, Speeding, Work-related road safety), Post crash (Post impact care, E-safety), Road safety measures (Roads, Speed enforcement, Vehicle safety), and Policy issues (Quantitative targets, Cost-benefit analysis, Safety ratings, Road safety management). The main text area provides an overview of the knowledge base, stating it is for the European Road Safety Observatory and contains high-quality, scientifically founded information. It also includes links for the Editorial board and Editorial group. The footer contains copyright information and links for Disclaimer and Contact.

## Countries

- Tools allowing for a complete view of the road safety state of European countries
- Composite Index:
  - Summarise road safety state of all European countries allowing for benchmarking
- Country overviews:
  - Information about road safety in terms of context, measures and outcome, categorized by country
- Forecasts per country:
  - Estimation of annual casualties development, with exposure as most important explaining variable



The screenshot shows the DaCoTA Road Safety Knowledge System website. At the top left is the DaCoTA logo, followed by the title "Road Safety Knowledge System" and a search bar. A navigation menu includes "Home", "Safety issues", "Countries" (highlighted in yellow), "Statistics", "Methods", "Links", and "FAQ". Below the menu is a banner image of a road with cars. The main content area is divided into two columns. The left column, titled "Countries", lists "Country overviews", "Forecasts per country", and "Composite index per country". Below this is a logo for the "European Commission Road Safety" project, co-financed by the European Commission. The right column, also titled "Countries", contains introductory text about the system's purpose and a link to the "methods" section. At the bottom right, there is a footer with "Copyright © DaCoTA | [Disclaimer](#) | [Contact](#)".



## Statistics

- Road safety related data and important information on what to do with crash data.
- Interactive data browsing tool or static data
- Annual Statistical Reports
- Basic Fact Sheets
- Crash data
- Exposure data
- Performance Indicators
- Attitudes & self-reported behaviour
- Causation information



The screenshot shows the website's header with the DaCoTA logo and the title "Road Safety Knowledge System". A search bar is located in the top right corner. The navigation menu includes "Home", "Safety issues", "Countries", "Statistics" (highlighted), "Methods", "Links", and "FAQ". Below the navigation is a banner image of a highway with cars. The main content area is divided into two columns. The left column, titled "Statistics", lists various data categories: Annual statistical reports, Basic fact sheets, Crash data, Exposure data, Performance indicators, Attitudes and self-reported behaviour, and Causation information. The right column, also titled "Statistics", contains a paragraph explaining that the website provides road safety data and information, organized as either an interactive browsing tool or static data (ASR, BFS, and causation information). It also mentions that information about data sources and methods can be found by clicking on data-links, and that more information is available in the "Methods" section. At the bottom of the page, there is a logo for the European Commission Road Safety project, co-financed by the European Commission, and a copyright notice: "Copyright © DaCoTA | [Disclaimer](#) | [Contact](#)".



# DaCoTA Integrated Road Safety Knowledge System

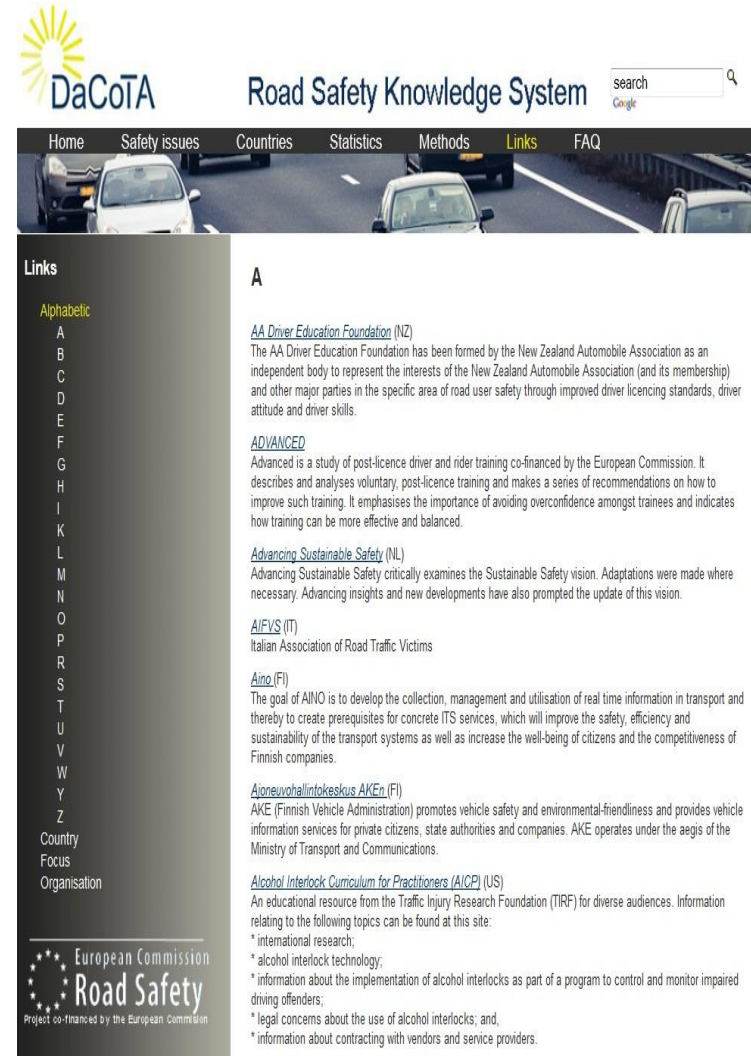
## Methods

- Methodologies developed for each road safety product allowing for high quality data, information and well-structured tools
  - Safety issues
  - Countries
  - Statistics



## Links

- Exhaustive catalogue of more than **400 road safety related links** organized:
  - **Alphabetically,**
  - **by Country,**
  - **by Organisation** (EU project, EC level, European road safety organizations, government, library, news, research, special interest group, statistic office)
  - **by Focus** (alcohol/drugs, campaigns, data, drivers, infrastructure, ITS, knowledge dissemination, law, protection)



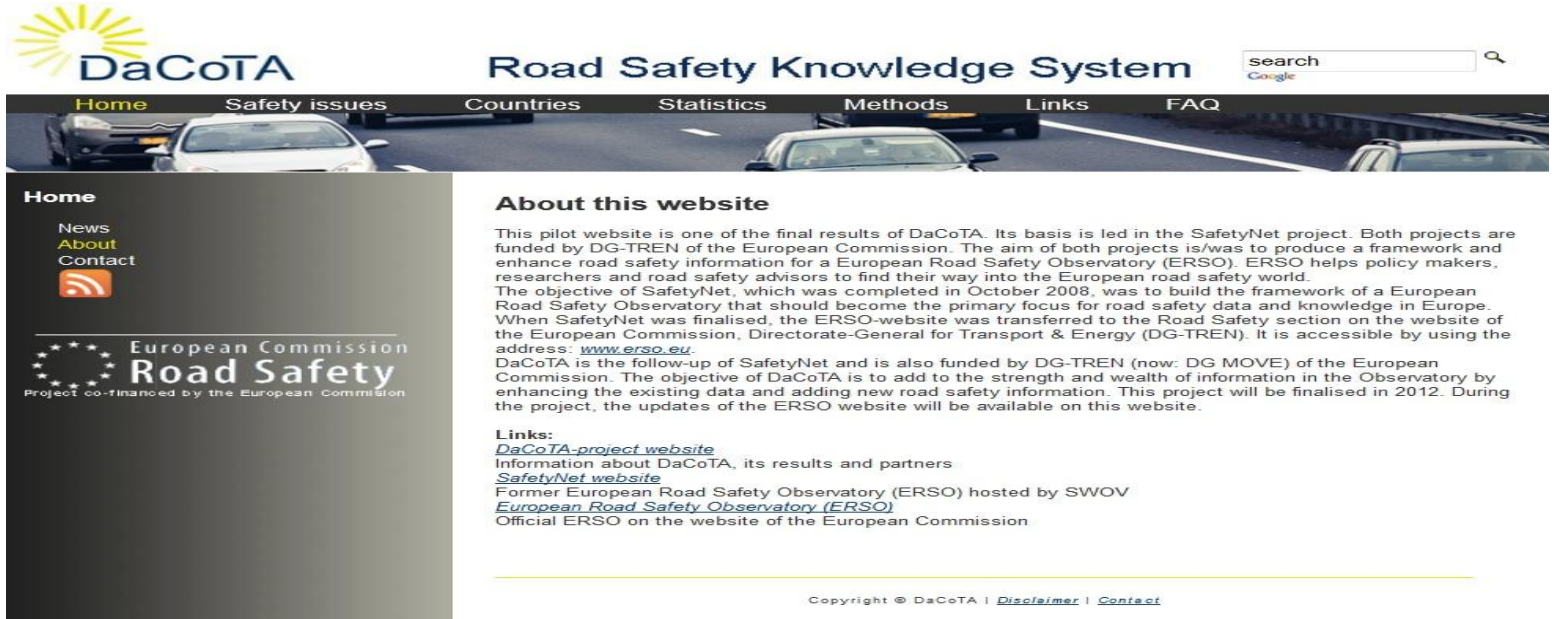
The screenshot shows the DaCoTA Road Safety Knowledge System website. At the top, there is a search bar and a navigation menu with links for Home, Safety issues, Countries, Statistics, Methods, Links, and FAQ. Below the navigation menu is a banner image of a highway with cars. On the left side, there is a 'Links' sidebar with an alphabetical index (A-Z) and categories for Country, Focus, and Organisation. The main content area displays a list of links under the letter 'A', including:

- [AA Driver Education Foundation \(NZ\)](#)  
The AA Driver Education Foundation has been formed by the New Zealand Automobile Association as an independent body to represent the interests of the New Zealand Automobile Association (and its membership) and other major parties in the specific area of road user safety through improved driver licencing standards, driver attitude and driver skills.
- [ADVANCED](#)  
Advanced is a study of post-licence driver and rider training co-financed by the European Commission. It describes and analyses voluntary, post-licence training and makes a series of recommendations on how to improve such training. It emphasises the importance of avoiding overconfidence amongst trainees and indicates how training can be more effective and balanced.
- [Advancing Sustainable Safety \(NL\)](#)  
Advancing Sustainable Safety critically examines the Sustainable Safety vision. Adaptations were made where necessary. Advancing insights and new developments have also prompted the update of this vision.
- [AIFVS \(IT\)](#)  
Italian Association of Road Traffic Victims
- [Aino \(FI\)](#)  
The goal of AINO is to develop the collection, management and utilisation of real time information in transport and thereby to create prerequisites for concrete ITS services, which will improve the safety, efficiency and sustainability of the transport systems as well as increase the well-being of citizens and the competitiveness of Finnish companies.
- [Ajoneuvohallintokeskus AKE \(FI\)](#)  
AKE (Finnish Vehicle Administration) promotes vehicle safety and environmental-friendliness and provides vehicle information services for private citizens, state authorities and companies. AKE operates under the aegis of the Ministry of Transport and Communications.
- [Alcohol Interlock Curriculum for Practitioners \(AICP\) \(US\)](#)  
An educational resource from the Traffic Injury Research Foundation (TIRF) for diverse audiences. Information relating to the following topics can be found at this site:
  - \* international research;
  - \* alcohol interlock technology;
  - \* information about the implementation of alcohol interlocks as part of a program to control and monitor impaired driving offenders;
  - \* legal concerns about the use of alcohol interlocks; and,
  - \* information about contracting with vendors and service providers.

At the bottom of the page, there is a logo for the European Commission Road Safety project, co-financed by the European Commission.

# A comprehensive road safety data and knowledge support tool





The screenshot shows the DaCoTA Road Safety Knowledge System website. At the top left is the DaCoTA logo. The main title is "Road Safety Knowledge System". To the right is a search box with "Google" and a magnifying glass icon. Below the title is a navigation menu with links: Home, Safety issues, Countries, Statistics, Methods, Links, and FAQ. The main content area is divided into two columns. The left column has a "Home" section with links for "News", "About", and "Contact", and an RSS feed icon. Below this is the "European Commission Road Safety" logo, which includes the text "Project co-financed by the European Commission". The right column has a section titled "About this website" with a paragraph of text describing the project's goals and funding. Below this is a "Links" section with three hyperlinks: "DaCoTA-project website", "SafetyNet website", and "European Road Safety Observatory (ERSO)". At the bottom of the page is a copyright notice: "Copyright © DaCoTA | [Disclaimer](#) | [Contact](#)".



# Success Partnership



**NTUA** - Greece



**SWOV** - The Netherlands



**KfV** - Austria



**TRL** - United Kingdom



**IFSTTAR** - France



**MTI** - Poland



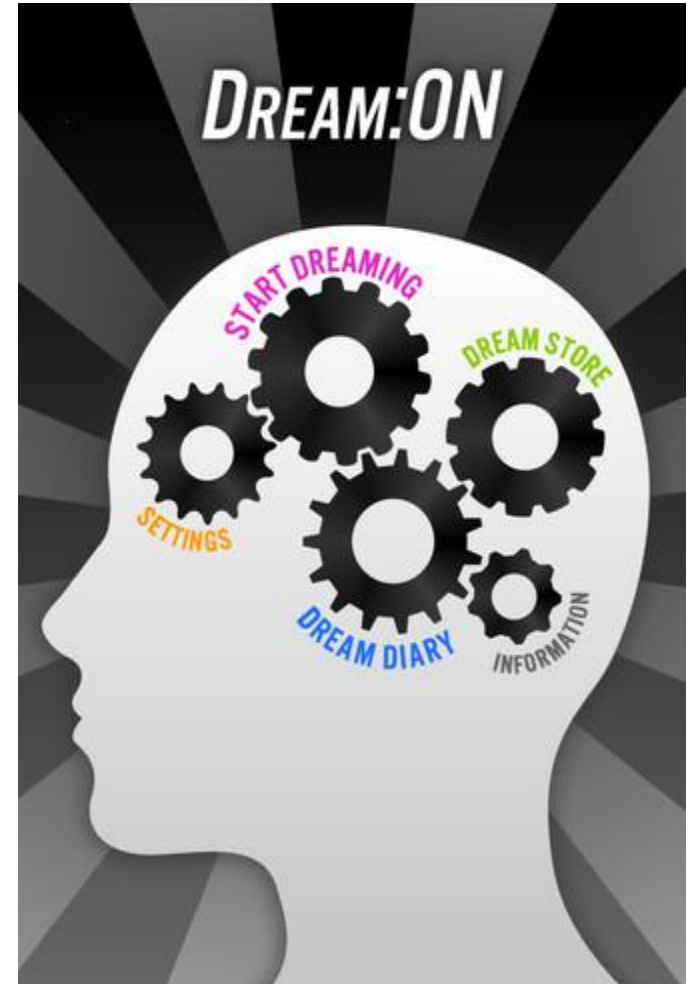
**DGT** - Spain



**TSRC** - United Kingdom

## Next steps for the road safety data and knowledge tool

- More surveys for exposure, performance indicators, driver behaviour
- More large scale experiments (in-depth investigation, naturalistic driving, driving simulator)
- More research and analyses
- More solutions to real life problems
- A more rigid European Road Safety Observatory





# A comprehensive road safety data and knowledge support tool

[George Yannis](#), [Petros Evgenikos](#) - NTUA

Letty Aarts, Divera Twisk - SWOV

Jeremy Broughton - TRL



The DaCoTA European Road Safety Conference  
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