Project funded by the European Union

EuroMed Transport SUPPORT PROJECT

Athens Regional Workshop

Experience with road safety data harmonization and sharing in a EU member State - The case of Greece

National Statistics

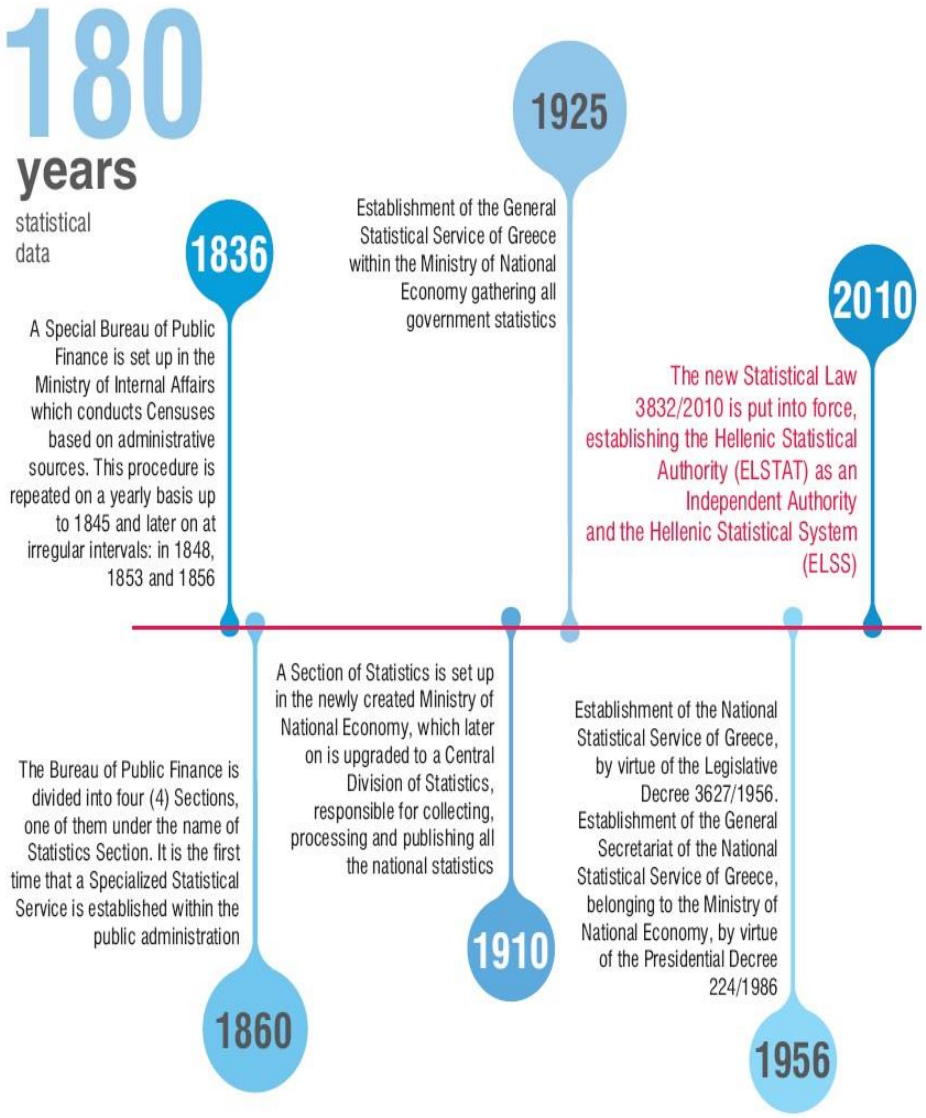
Hellenic Statistical Authority (ELSTAT)

Sofia Balla

www.statistics.gr

Who we are

- The **Hellenic Statistical Authority (ELSTAT)** is the National Statistical Institute of the country.
- The objective of ELSTAT is the systematic production of official statistics (including health and road accidents)
- ELSTAT is an independent authority, established in 2010, enjoying operational independence, subject to the control of the Hellenic Parliament.
- ELSTAT is coordinating the activities of Agencies that produce and disseminate official statistics forming altogether the **Hellenic Statistical System** (Police is part of this System)
- ELSTAT is also partner of the **European Statistical System** (ESS) which is the partnership between Eurostat and the National Statistical Institutes (NSIs) and other national authorities responsible for the production of European statistics.



EUROPEAN STATISTICAL SYSTEM

The Survey on Road Accidents

History

- The collection of road accidents data in the National Statistical Institute is dated back to **1962**
- In 1993 the **EU Council Decision 93/704/EC** on the creation of a Community database on road accidents was adopted
- In **1996** a wide cooperation of the NSI with state authorities, academia and the Greek Parliament resulted to the revision of the **statistical questionnaire** of the Road Accidents in its present form and to the establishment of the electronic data base
- The **legal requirement** to report injury accidents and the assignment of tasks for each stakeholder consists in a Ministerial Decree and a common Decision of the National Statistical Institute, the Hellenic Police and the Hellenic Maritime Police.
- Minor revisions –mostly updates- in the Questionnaire have taken place since 1996

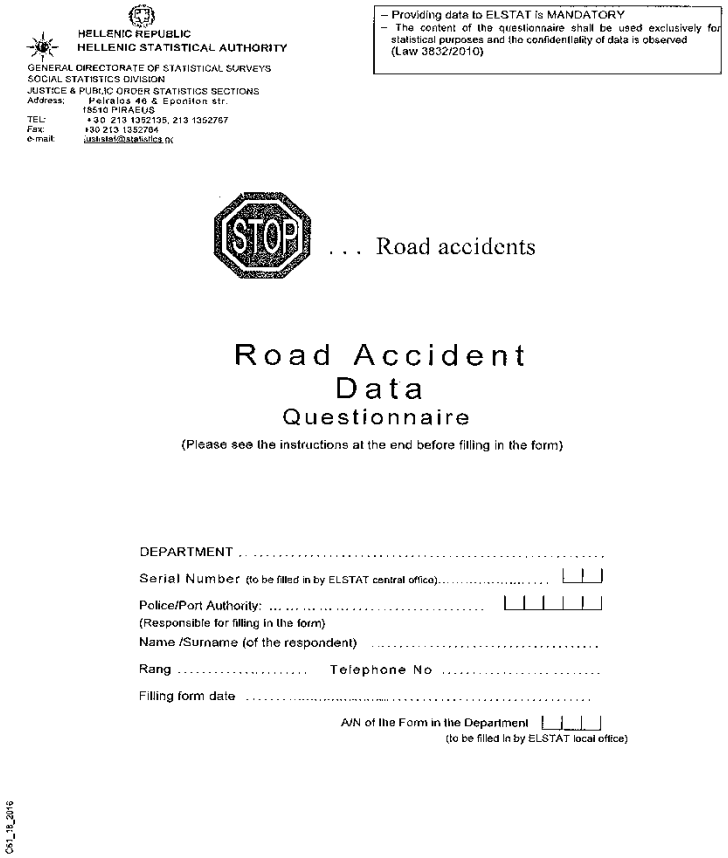
Methodology of the Survey

- It is a **census**, annual survey, measuring final outcomes (accidents, deaths and injuries)
- All the country **regions** are covered
- **Data collection**: Is conducted in paper form with a statistical questionnaire filled in by the Police officers and Port Authorities officers
- Data are submitted to ELSTAT for **statistical process** i.e. codification, quality controls, validation of the data, data entry, output tables and dissemination of the results
- The survey is **harmonized** with the EU standards
- The statistical **concepts and definitions** comply with the EU definitions of the main characteristics (road accidents, fatalities, injuries, vehicles)
- The definition of **person killed** refers to those persons killed immediately or dying within 30days as a result of an injury accident (definition applies since 1996, for the years before a corrective factor is applied to fatalities data for reasons of comparability over time).

Methodology of the Survey → The collection form (1/2)

How the survey is conducted

- Data collection instruments: The Police and Port Authorities of the regional offices of the country are filling in a predesigned questionnaire (7 pages collection form) for every injury accident according to their records.
- In each form, brief fill in instructions are included.
- The forms are submitted to ELSTAT for further processing. Regional Statistical Offices are collecting the forms from the Regional Police Offices, which are responsible for data cleaning, editing and submission of the forms to ELSTAT's headquarters for further processing. The flow of the forms takes place through out the year. The large volume of forms come from capital region & is treated centrally.



HELLENIC REPUBLIC
HELLENIC STATISTICAL AUTHORITY
GENERAL DIRECTORATE OF STATISTICAL SURVEYS
SOCIAL STATISTICS DIVISION
JUSTICE & PUBLIC ORDER STATISTICS SECTIONS
Address: Pireiotos 46 & Epontion str.
18510 PIRAEUS
TEL: +30 213 1352135, 213 1352767
Fax: +30 213 1352784
e-mail: juststat@statistica.gr

– Providing data to ELSTAT is MANDATORY
– The content of the questionnaire shall be used exclusively for statistical purposes and the confidentiality of data is observed (Law 3832/2010)

STOP . . . Road accidents

Road Accident Data Questionnaire

(Please see the instructions at the end before filling in the form)

DEPARTMENT .....
Serial Number (to be filled in by ELSTAT central office)..... |_|_|
Police/Port Authority: ..... |_|_|_|_|_|
(Responsible for filling in the form)
Name /Surname (of the respondent) .....
Rang ..... Telephone No .....
Filling form date .....
A/N of the Form in the Department |_|_|_|
(to be filled in by ELSTAT local office)

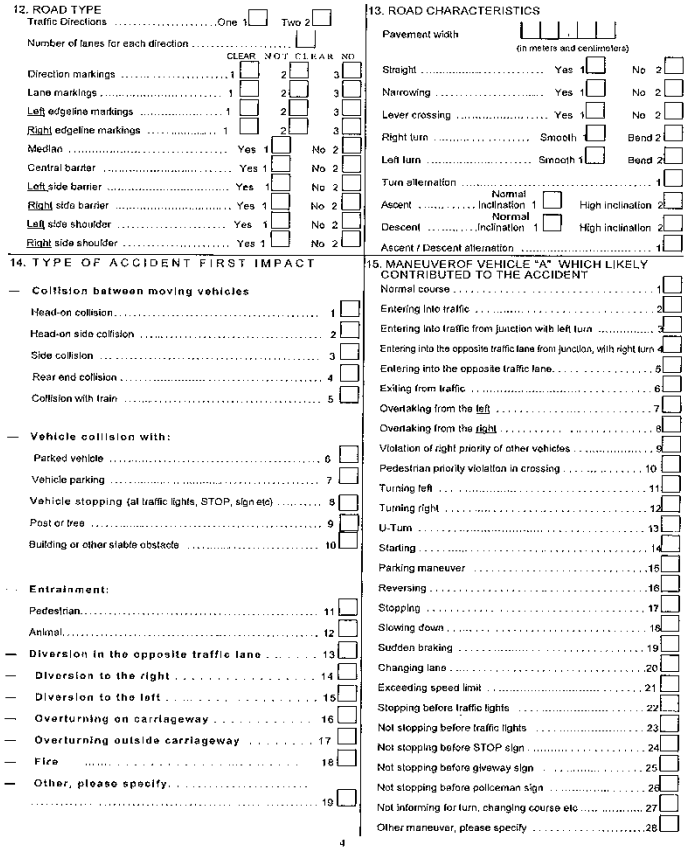
C61_18_2016

Methodology of the Survey → The collection form (2/2)

- ELSTAT's **human resources** involved with the Survey:
  - One staff member in charge for the overall survey,
  - two staff members are assigned with codification and validation controls,
  - one IT expert and 2-3 staff members for the data entry
  - Regional offices staff (one person)

On average more than 10.000 completed forms are treated every year.

- The form is structured in sections, collecting information on **76 variables**


12. ROAD TYPE
Traffic Directions ... One 1 Two 2
Number of lanes for each direction ...
CLEAR NOT CLEAR NO
Direction markings ... 1 2 3
Lane markings ... 1 2 3
Left edgeline markings ... 1 2 3
Right edgeline markings ... 1 2 3
Median ... Yes 1 No 2
Central barrier ... Yes 1 No 2
Left side barrier ... Yes 1 No 2
Right side barrier ... Yes 1 No 2
Left side shoulder ... Yes 1 No 2
Right side shoulder ... Yes 1 No 2

13. ROAD CHARACTERISTICS
Pavement width ... (in meters and centimeters)
Straight ... Yes 1 No 2
Narrowing ... Yes 1 No 2
Lever crossing ... Yes 1 No 2
Right turn ... Smooth 1 Bend 2
Left turn ... Smooth 1 Bend 2
Turn alternation ... 1
Ascent ... Normal Inclination 1 High inclination 2
Descent ... Normal Inclination 1 High inclination 2
Ascent / Descent alternation ... 1

14. TYPE OF ACCIDENT FIRST IMPACT
— Collision between moving vehicles
Head-on collision ... 1
Head-on side collision ... 2
Side collision ... 3
Rear end collision ... 4
Collision with train ... 5
— Vehicle collision with:
Parked vehicle ... 6
Vehicle parking ... 7
Vehicle stopping (at traffic lights, STOP, sign etc) ... 8
Post or tree ... 9
Building or other stable obstacle ... 10
Entrainment:
Pedestrian ... 11
Animal ... 12
— Diversion in the opposite traffic lane ... 13
— Diversion to the right ... 14
— Diversion to the left ... 15
— Overturning on carriageway ... 16
— Overturning outside carriageway ... 17
— Fire ... 18
— Other, please specify ... 19

15. MANEUVEROF VEHICLE "A" WHICH LIKELY CONTRIBUTED TO THE ACCIDENT
Normal course ... 1
Entering into traffic ... 2
Entering into traffic from junction with left turn ... 3
Entering into the opposite traffic lane from junction, with right turn ... 4
Entering into the opposite traffic lane ... 5
Exiting from traffic ... 6
Overtaking from the left ... 7
Overtaking from the right ... 8
Violation of right priority of other vehicles ... 9
Pedestrian priority violation in crossing ... 10
Turning left ... 11
Turning right ... 12
U-Turn ... 13
Starting ... 14
Parking maneuver ... 15
Reversing ... 16
Stopping ... 17
Slowing down ... 18
Sudden braking ... 19
Changing lane ... 20
Exceeding speed limit ... 21
Stopping before traffic lights ... 22
Not stopping before traffic lights ... 23
Not stopping before STOP sign ... 24
Not stopping before giveway sign ... 25
Not stopping before policeman sign ... 26
Not informing for turn, changing course etc ... 27
Other maneuver, please specify ... 28

Methodology of the Survey → Variables (1/2)

❖ Accident

- Accident identifier
- Date
- Time
- Municipality / place
- Maneuver of 1st vehicle which likely contribute to the accident
- Impact type
- Weather conditions
- Accident severity

❖ Road

- Type
- Pavement type / conditions / state / width
- Night lighting
- Traffic directions / lanes
- Markings (direction / lane / edge line)
- Junction
- Curve
- Alternation
- Traffic control

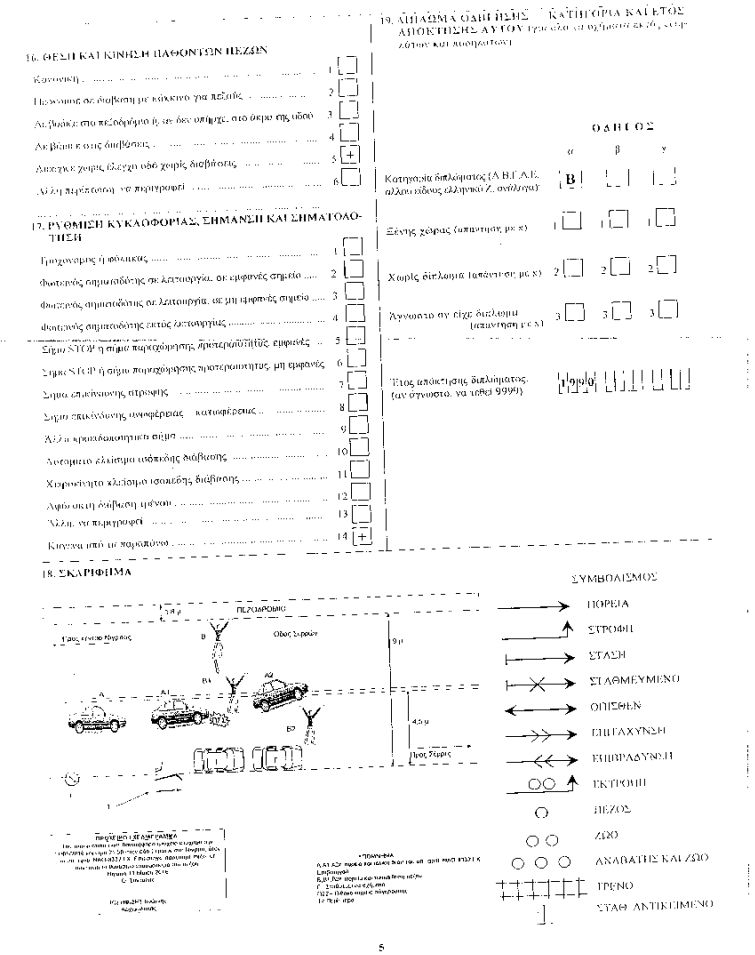
Methodology of the Survey → Variables (2/2)

- **Vehicle**
  - Vehicle identifier
  - Vehicle type / usage
  - Capacity
  - Year of registration
  - Plates nationality
  - Vehicle technical inspection
  - Number of passengers
  - Safety equipment
- **Driver**
  - Alcohol test / results / time / place
  - Driving license issue date / category

- **Casualty**
  - Casualty ID
  - Casualty category
  - Gender
  - Age
  - Nationality
  - Injury severity
  - Seating position
  - Use of safety equipment
  - Pedestrian maneuvre
  - Trip / journey purpose

Methodology of the Survey → Additional information

- Data collection forms, in addition to the fields for recording information on accident, road vehicle and casualty variables, are providing adequate space for **a sketch** of the collision and **a summary report of events**



Statistical output → Monthly data

- Preliminary monthly rapid (flash) aggregated data are available at t+2months

- Monthly data are published in a Press Release of 8pages. The release dates are preannounced every year in a 12 month release calendar

HELLENIC REPUBLIC
HELLENIC STATISTICAL AUTHORITY

Piraeus, 27 April 2018

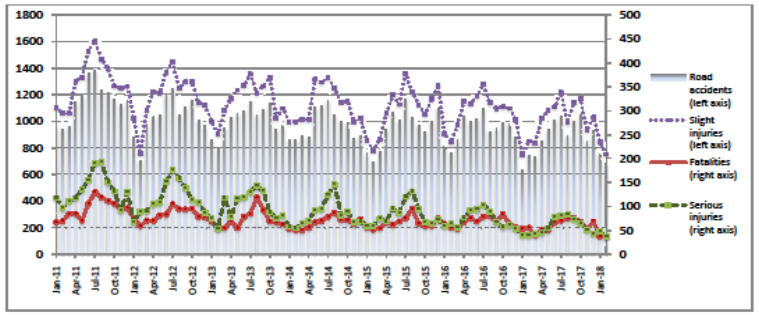
PRESS RELEASE

ROAD ACCIDENTS: February 2018

The Hellenic Statistical Authority (ELSTAT) announces provisional[1] data on Road Accidents for February 2018. In particular, the road traffic accidents which occurred in Greece, resulting in death or injury, decreased by 9.2% in comparison with the corresponding month of 2017 (680 road accidents in February 2018, against 749 road accidents in February 2017).

The casualties of the injury-causing accidents that occurred in February 2018 were as follows: 37 deaths, 37 serious injuries and 754 slight injuries. In contrast, in February 2017 the corresponding figures were: 56 deaths, 40 serious injuries and 853 slight injuries. Therefore, road accident casualties in February 2018 decreased by 33.9% for deaths, by 7.5% for serious injuries and by 11.6% for slight injuries.

Graph 1: Road traffic accidents and casualties, January 2011 - February 2018



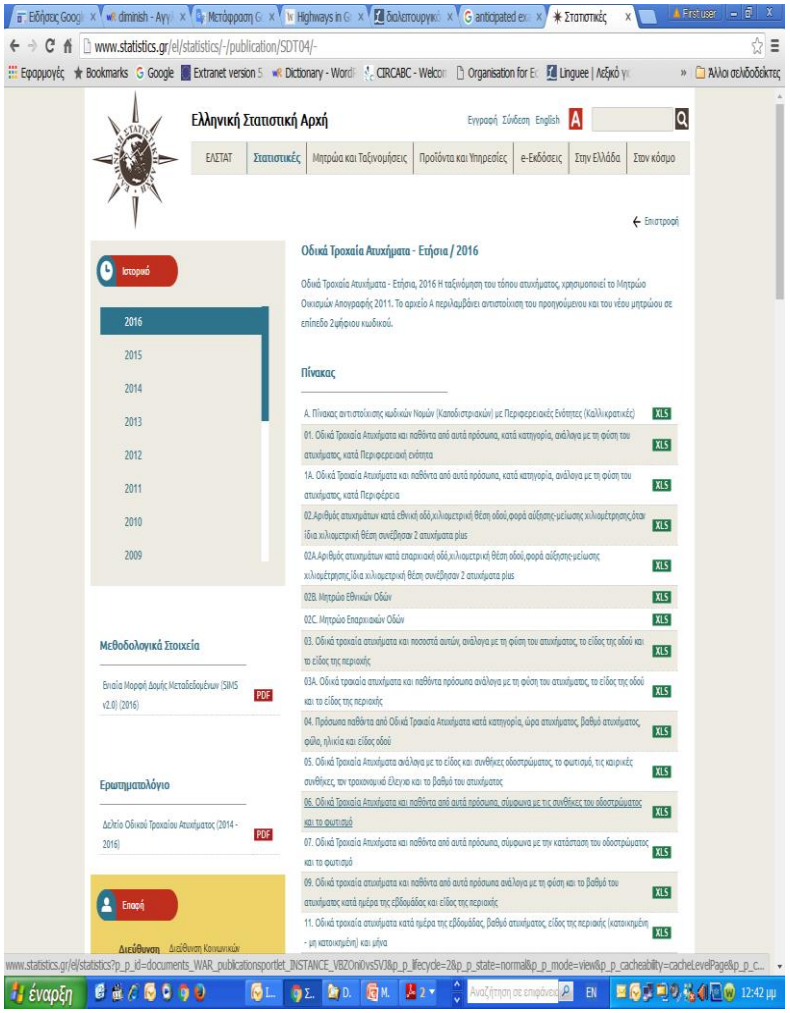
Provisional data: May 17 –Feb 18

Information:
Social Statistics Division
Justice and Public Order Statistics Section
D. Athanasopoulou
Tel: +30 213 1352767
Fax : +30 213 1352764
e-mail: d.athanasopoulou@statistics.gr

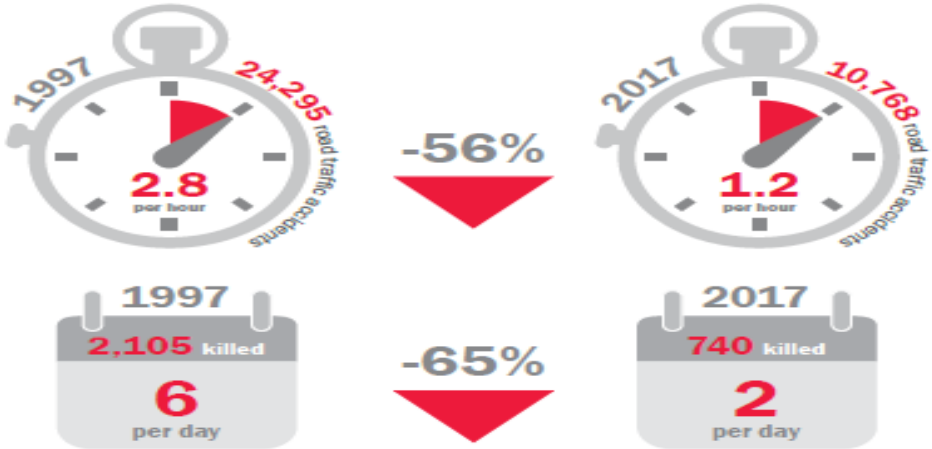
[1] *Data for the reference year are provisional until the finalisation of the annual data, which become final 10 months after the end of the reference year. During these 10 months the provisional data are updated on the basis of the data of the Road Accident Forms which are transmitted to ELSTAT by Police Authorities.*

Statistical output → Annual data

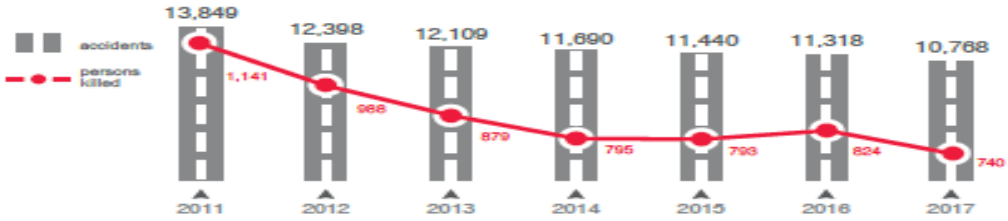
- Detailed **final annual** results are disseminated in **10 months** from the end of the reference period
- Around **45** annual & timeseries statistical **tables** are published in the ELSTAT's portal
- Results are disseminated regularly for **regional level**. Statistical analyses under request is also conducted for local level complying with the rules of confidentiality.
- The **metadata** and the form are also available to the public in the portal. Metadata are published in a standardized form, the Single Integrated Metadata Structure (SIMS).
- The general rules of data **confidentiality** apply also to the traffic accident data (data are published so that the direct or indirect identification of the surveyed units is not possible).



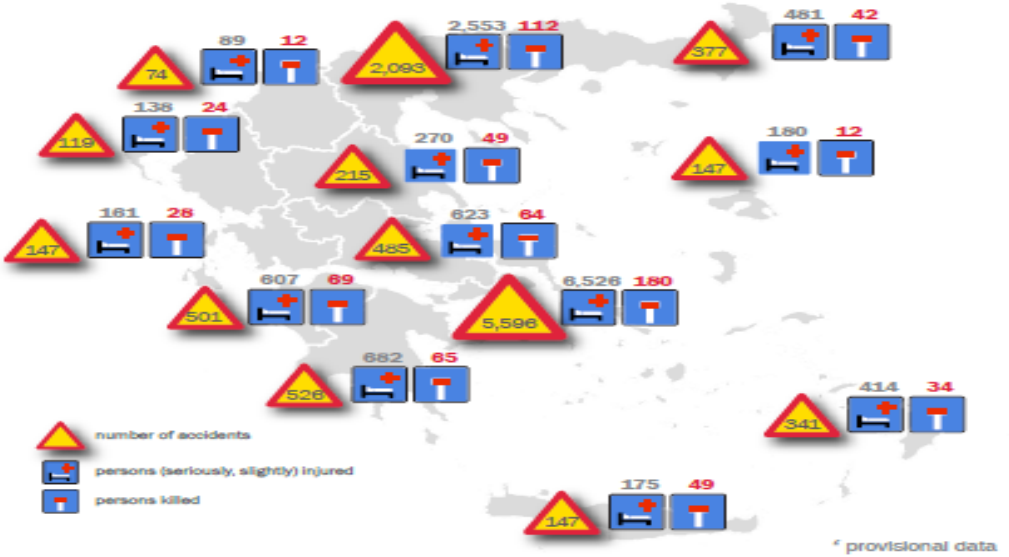
ROAD TRAFFIC ACCIDENTS, 2017*



ROAD ACCIDENTS AND PERSONS KILLED



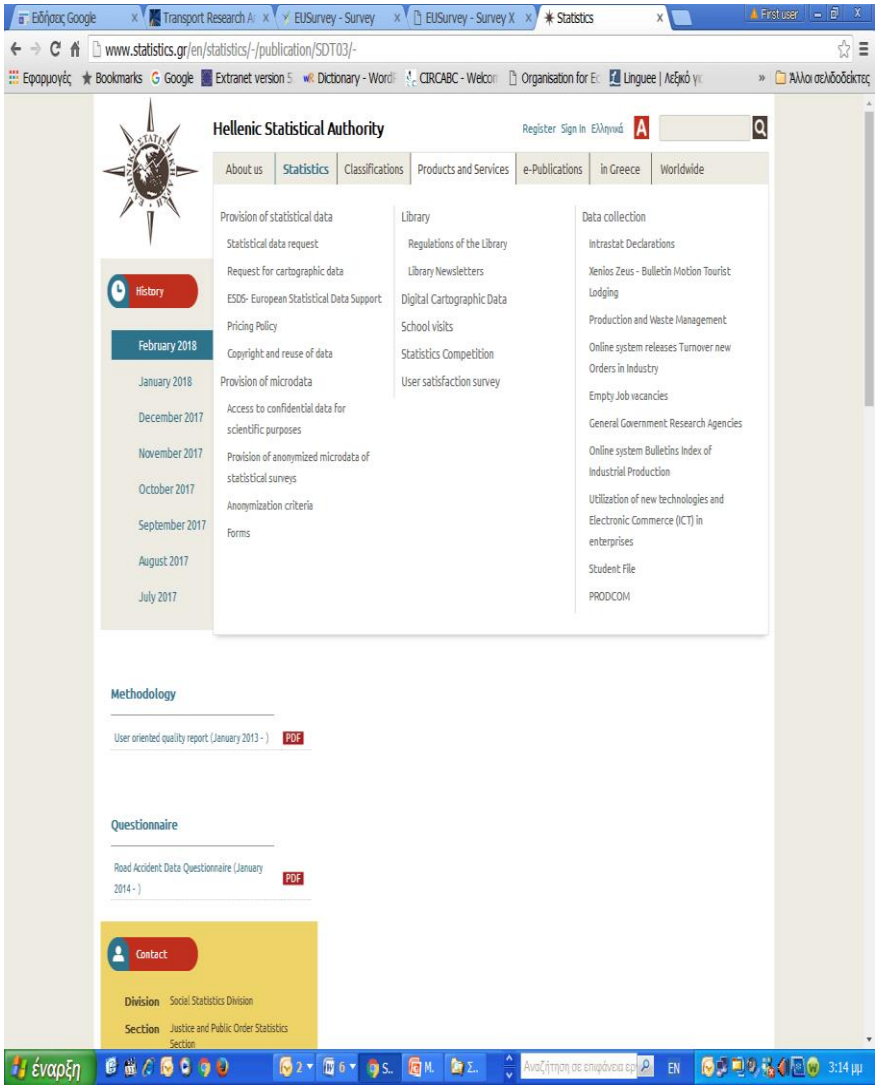
ROAD ACCIDENTS AND CASUALTIES BY NUTS 2 REGION, 2017



Source: Hellenic Statistical Authority / 28 February 2018

Statistical output – Users needs

- In 2016 total access to the website for the road accidents data was 11. 431 hits.
- We receive and treat per year around **20** requests from users for **customized data**. Most of them are provided free of charge.
- According to the dissemination policy of our Institute, we can provide anonymised microdata and grant access to confidential data for **scientific purposes** under strict conditions, applying controlled and transparent procedures.



Output – Institutional Users

- The Survey is able to produce data according to the requests of the Community Database on Road Accident CARE and the main requests of other European and International Organizations.

- We are also providing data on a regular basis to the IRTADatabase of OECD and the International Transport Forum (ITF), the UNECE, the WHO etc.

Quality of the statistical output

According to the European Statistical System (ESS) the statistical output should comply with the **European quality standards** and meets users' needs

The data quality of road accidents statistics applying the following criteria is regarded satisfactory

The quality **criteria** are:

- **Relevance (meet user needs),**
- **Accuracy (portray reality),**
- **Timeliness & punctuality,**
- **Comparability & coherence (comparable across countries, different periodicities are compared)**
- **Accessibility & clarity**

To interpret accidents data and measure **output indicators** → Road accident data have to be combined with demographic data, number of licensed drivers, traffic volume data, infrastructure factors

Health data (1/1)

Data from Hospitals and Vital Registration System

Other sources of road traffic accidents data in ELSTAT:

- for casualties → the in-Patient Hospital Care Survey (discharge data) &
- for fatalities → the causes of death from the Vital Registration system Survey (death certificates)

The International Classification of Diseases (ICD-10 version) is a codification used globally allowing for comparisons between national administrations and countries.

Data for fatalities from the Vital Registration System with ICD-10 are available for 2013-2015. Police reporting rate for deaths is representing around 82-84% of death certificates.

Fatalities			
Years	Death certificates (ICD V01-V89)	Police data	% difference of two sources
2013	1 078	879	18.5%
2014	977	795	18.6%
2015	943	793	15.9%

Health data (2/2)

Considerations

- We are checking for consistency and coherence between the sources.
- The introduction of ICD-10, which foresees codes for transport accidents, allows for comparisons with hospital data in order to evaluate the accuracy of police-reported injury severity.
- The first results of health data with ICD-10 will be shortly available in ELSTAT, allowing for comparisons between the two sources (traffic injuries counted by the police and the health data).
- Differentiations between the methodologies of the two sources limits the value of accuracy of the comparisons
  - ❑ The ICD does not specify a certain time period for classification of road traffic accidents, so they include deaths occurring beyond the 30-day window after the accident;
  - ❑ Comparisons for different severity levels are not always possible
  - ❑ The external cause of the injury must be recorded to distinguish road traffic injuries as a cause of injury or death. Inadequate training or lack of training of health practitioners, misclassification and completeness of data are influencing factors for estimating the completeness of the two sources;
  - ❑ Persons with minor injuries might not seek hospital medical care.

Situational assessment

- Strengths of the road accident data system
- Limitations of the road accident data system requiring interventions and solutions
- Opportunities for strengthening the performance of the data system for effective planning and monitoring

Strengths

- **Systematic** collection, codification of data, built-in quality checks during data entry, put data in a system, process and analyse data, disseminate and use
- Standard **terminology** → definitions of common terms
- Provide reliable output in a **timely** manner to facilitate evidence-based decisions
- Keep **metadata** information → Documentation on the survey methodology is available to the users
- **Revisions of the form as necessary** → Variables of the minimum dataset remain relatively stable over time for the sake of comparability and data quality
- **Structure and layout of the paper collection form** affects considerably data quality. Avoid frequent revisions (police officers are familiarized with the form)
- **Involvement of the police** in all stages of project planning, ensuring police participation in decisions that will affect their workload and methods of working
- Should a substantially **revision** identified → the experience and expertise of the police officers and of the statisticians must go hand in hand.
- **Keep track of** the national (and European) **legislation** in relation with roads specifications, vehicles, driving licenses and driving equipment, alcohol limits
- **Coherence** of the data with other sources

Weaknesses (1/2)

I. Underreporting (Police)

Under-reporting affects the degree to which the statistical output of a data system reflects reality on the roads. Under-reporting is neither assessed regularly, nor a certain method is applied

II. Misreporting (Police)

Due to lack of training, expertise, interest or time. The attending officer may not record all relevant details of the crash, or may record incorrect information (for example injury severity may be incorrectly classified).

III. Accurate accident location information → Often data on location are not specific enough or even more are inaccurate.

IV. Up-to-date Register of the Road Network → Lack of official updated lists by the Ministry of Transportation & Infrastructure. An appropriate official road classification is required in order to spot the accidents in the national Road network properly.

Weaknesses (2/2)

V. Injuries → accuracy & reliability of information subject to the estimation of the Police officer.

There is a clear lack of consistency around the use of the terms severe' or 'slight' injury → data can be improved by using more appropriate and robust definitions of severity for police recording

Key stakeholders should form a working group exploring ways for the reporting on serious road casualties building a mechanism between police and hospitals (training of police officers, linking Police and Hospital Data)

- A common definition of serious injury is a prerequisite
- The already existing trauma scale 'Maximum Abbreviated Injury Score' (MAIS) could be the preferable option for a common definition.
- The MAIS is a globally accepted trauma scale used by (some) medical professionals

Opportunities (1/2)

- Computer-based data entry, processing, analysis and report writing for data collectors → The introduction from the Hellenic Police of a **computerised system** for the collection and the management of traffic accident data is eagerly anticipated from ELSTAT. The interoperability of the two systems (Police & ELSTAT) is envisaged through web-services.
- **Improve identification of accident location** → Using **X, Y coordinates** with a mobile Global Positioning System (GPS) device at the site of the crash scene → Application of a Geographic Information System GIS.
- Further **training for data collectors** → Police officers with duties on data form completion should receive regular training. ''Train the trainers'' could be an approach.
- **MACRO analysis** → Road accident data should be interpreted in light of other information that cannot be derived from police records, such as population size, or the number of vehicles on the road, length of roads by type, vehicle & passenger – kilometres travelled, time spent in travel etc. ELSTAT provides the basis for outcome indicators, but performance indicators and special analysis run by the experts.

Opportunities (2/2)

- MICRO level analysis → Data for transport sector → **Identification of dangerous locations** (called hotspots or black spots) for analysis of accidents at these sites, and ultimately for the selection of appropriate countermeasures.

  Action: Improvement of the quality of data on location in order to provide accurate and reliable information for the exact location of the accidents for evidence-based interventions and management.

- Closer and systematic **cooperation of ELSTAT with other road safety stakeholders** -public or private legal entities- that directly or indirectly maintain traffic (accident) data or make analysis of them.

  Stakeholders: Academia and research centres (Road Safety Observatory), associations of companies that have undertaken by the wider public sector the management of the infrastructure (including the design, construction, financing, operation, maintenance and/or exploitation) of Motorways, insurance associations etc.

End of presentation

Thank you for your attention