# UNECE Transport Statistics within the 2030 Development Agenda

*Telavi, Georgia, 15-16 February 2018*

- **SDGs Global Indicator Framework**

- **What to measure?**

- **Glossary for Transport Statistics**

- **Infrastructure**

- **Vehicle fleet**

- **Road Traffic**
  - Vehicle km
  - Goods tonnage and tonne-km
  - Passenger-km
  - E-Road Census
  - Bus and coach statistics

- **How to collect the data**

# Development of SDG indicators (1)

- UN General Assembly adopted the 17 goals, 169 targets in September 2015

- United Nations Statistical Commission (UNSC) established Interagency and Expert Group on SDG Indicators (IAEG-SDG). A **Country led process** (27 countries) to:
  - develop a list of indicators for SDG monitoring
  - provide support for the implementation of the indicator framework to 2030
  - review capacity building and report on progress towards SDGs

- High-level Group for Partnership, Coordination and Capacity-building for Statistics

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# *Development of SDG indicators (2)*

- Indicator list approved by UNSC in March 2016, refined in 2017

- Global list of over 230 indicators - for global review and follow-up
  https://unstats.un.org/sdgs/indicators/indicators-list/

- Tier system to assess availability of the indicators

| Tier 1 | Internationally agreed methods and data widely available | (~35%) |
|--------|----------------------------------------------------------|--------|
| Tier 2 | Agreed methods exist but data not widely available | (~26%) |
| Tier 3 | No agreed methods, no data | (~36%) |

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# IAEG-SDG further steps on SDG indicators

- IAEG-SDG has met 5 times, discussing work stream on disaggregation, and drafting group on guidelines on data flows
  - 4 subgroups (on geo-spatial information, interlinkages, SDMX, capacity building)
  - work stream on disaggregation
- Work plan for custodian agencies developing methodologies for Tier III indicators available unstats.un.org/sdgs/files/meetings/iaeg-sdgs-meeting-05/TierIII_Work_Plans_03_03_2017.pdf
- Considering **data flows** – a drafting group set up (current recommendation: NSOs to coordinate all SDG data)
- Role of **custodian agencies**
- Continuous adjustment of indicators will be necessary – annual refinements; two **comprehensive reviews in 2020 and 2025**
- Increased **capacity building** needed
- Information about the work available at IAEG-SDG website:
  - unstats.un.org/sdgs/iaeg-sdgs/ next IAEG-SDG meeting November 2017

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# SDG targets and indicators + additional road safety targets

**3.6 By 2020, halve the number of global deaths and injuries from road traffic accidents**

- 3.6.1 Death rate due to road traffic injuries
  - Tier 1
  - custodian agency – WHO, other agencies involved: UNECE

- 12 additional global road safety performance targets
  - Consensus reached by WHO member States in November 2017
  - Indicators under development
  - More information at www.who.int/violence_injury_prevention/road_traffic/road-safety-targets/en

# *Global road safety performance targets*

**Pillar 1: Road safety management**

1. By 2020, establish a comprehensive multisectoral national road safety action plan with time-bound targets

2. Accede to one or more of core road safety-related UN legal instruments

**Pillar 2: Safer roads and mobility**

3. All new roads achieve technical standards for all road users that take into account road safety, or meet a three star rating or better

4. More than 75% of travel on existing roads on roads that meet technical standards for all road users that take into account road safety

5. 100% of new and used vehicles meet high quality safety standards, such as recommended priority UN Regulations, Global Technical Regulations or equivalent recognized national performance requirements

**Pillar 3: Safe vehicles**

6. Halve proportion of vehicles travelling over posted speed limit and achieve reduction in speed-related injuries and fatalities

**Pillar 4: Safe road users**

7. Increase proportion of motorcycle riders correctly using standard helmets to close to 100%

8. Increase proportion of motor vehicle occupants using safety belts or standard child restraint systems to close to 100%

9. Halve number of road traffic injuries and fatalities related to drivers using alcohol, and/or achieve reduction in those related to other psychoactive substances.

10. National laws to restrict or prohibit use of mobile phones while driving.

11. Enact regulation for driving time and rest periods for professional drivers, and/or accede to international/regulation in this area.

**Pillar 5: Post-crash response**

12. Establish and achieve national targets to minimize time interval between road traffic crash and provision of first professional emergency care.

**www.who.int/violence_injury_prevention/road_traffic/road-safety-targets/en**

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# SDG targets and indicators – transport infrastructure

**9.1 Develop quality, reliable, sustainable and resilient infrastructure, including regional and transborder infrastructure, to support economic development and human well-being, with a focus on affordable and equitable access for all**

- 9.1.1  Proportion of the rural population who live within 2 km of an all-season road
  - Tier 3
  - custodian agency – World Bank, other agencies involved: UNEP, UNECE
  - more information: suggested methodology exists but not tested
- 9.1.2  Passenger and freight volumes, by mode of transport
  - Tier 1
  - custodian agency – ICAO, ITF-OECD, other agencies involved: UPU, UNEP, UNECE

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**11.2 By 2030, provide access to safe, affordable, accessible and sustainable transport systems for all, improving road safety, notably by expanding public transport, with special attention to the needs of those in vulnerable situations, women, children, persons with disabilities and older persons**

- 11.2.1  Proportion of the population that has convenient access to public transport, by sex, age and persons with disabilities
  - Tier 2
  - custodian agency – UN-Habitat, other agencies involved: UNEP, UNECE
  - more information: City Prosperity Initiative, UN-Habitat has developed the methodology to aggregate the information at national, regional and global levels

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# Transport: what else do we want to know?

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- How do people get around? What is the passenger activity on road vs rail?

- How are goods transported around my country?

- How many cars/trucks are more than 10 years old?

- What is my country's road safety performance after taking into account number of vehicles, or km driven?

- How does my country's motorway network compare to neighbours'?

- How do traffic volumes compare in different regions of my country? Where are "hotspots"?

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# *Statistical dissemination*

- *GOOD!*
  - Publish data in machine-readable format
  - Update every year, maintaining the time series
  - Use international standards

- *NOT SO GOOD!*
  - Data not published at all, or in a poor format
  - Buried in a table (or graph) in a PDF
  - Only one year of data published at a time
  - Definitions not consistent across years
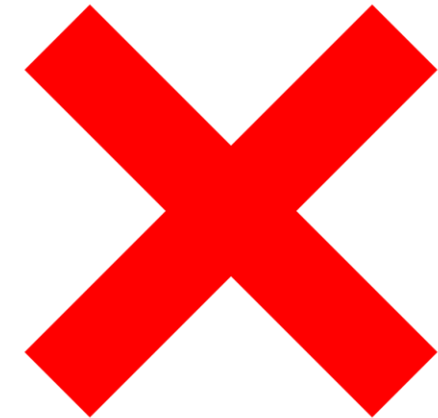
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# Caution when using transport statistics!!

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## "9 Delightfully Geeky Stats About NYC Bridges And Tunnels"

**BuzzFeed**

### 1. It's almost all cars.

Automobile traffic consistently makes up around 91% of the total vehicles going over and through the bridges and tunnels in a month. Trucks make up between 6 and 7 percent, and buses account for the final 2 to 3 percent.

*BUT*....comparing passengers versus vehicles tells a very different story

### Lincoln Tunnel
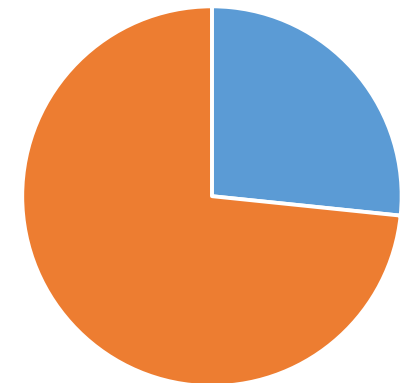
- Total Persons by Auto, Van or Truck
- Total Persons by Bus

1. Buzzfeed article: https://www.buzzfeed.com/johntemplon/9-delightfully-geeky-stats-nyc-bridges-tunnels?utm_term=.rc3RAVyxxy#.xrjBRqz66z
2. Pie chart based on data from New York Metropolitan Transportation Council, via http://nyc.streetsblog.org/2014/07/25/what-buzzfeed-missed-about-how-people-get-around-new-york/

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# *Using administrative data*

- "Data collected by sources external to statistical offices" (Conference of European Statisticians, 2000)

- Data might be collected for:
  - Personal tax/social security
  - Import/export duties
  - Business taxes
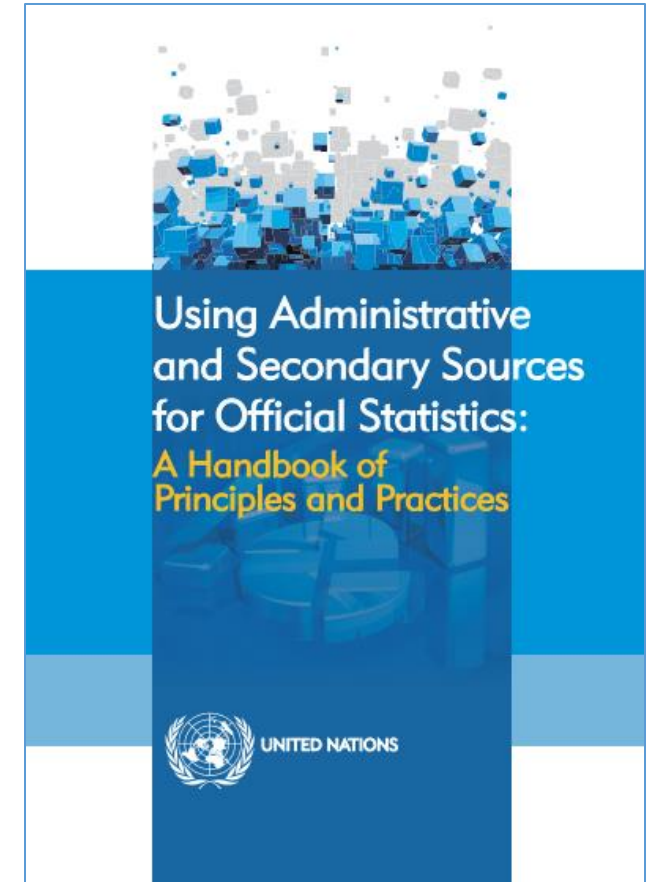
www.unece.org/index.php?id=28898 (English and Russian)

# *Road infrastructure*

- Simple total length of roads, broken down by:
  - Type of road (Motorways, state roads, etc)
  - Road location (inside/outside built-up areas)
- *Useful base indicator for other analyses and network assessment*

- Data from infrastructure managers, highway agencies, ministries of transport….
- These data don't come from surveys; network length is inelastic, thus administrative data should capture this.
- **Be pragmatic on estimation**

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## Motorway/freeway

Road, specially designed and built for motor traffic, which does not serve properties bordering on it, and which:

a) Is provided with separate carriageways for traffic in two directions, separated from each other

b) Has no crossings at the same level with any road, railway or tramway track, or footpath

c) Is especially sign-posted as a motorway and is reserved for specific categories of road motor vehicles. Urban motorways are also included.

*Entry and exit lanes of motorways are included irrespective of the location of sign-posts*

*Urban motorways are also included*

**http://www.unece.org/fileadmin/DAM/trans/main/wp6/pdfdocs/glossen4.pdf**

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# *Vehicle fleet*

- Number of passenger and goods vehicles, broken down by type of vehicle:
  - Passenger cars
  - Motor coaches, buses and trolleybuses
  - Lorries
  - Road tractors
- Further breakdowns: age of vehicle, load capacity (for goods vehicles), fuel type.
- In parallel to this: number of new vehicle registrations, by type

- *Useful to understand number of vehicles per person, age of vehicle fleet, fuels used, road safety, emissions calculations*

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# Glossary example

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## Passenger Car

Road motor vehicle, other than a moped or a motor cycle, for the carriage of passengers and designed to seat no more than nine persons (incl. the driver).

*Included are:*

a) Passenger cars

b) Vans designed and used primarily for transport of passengers

c) Taxis

d) Hire cars

e) Ambulances

f) Motor homes.

**www.unece.org/fileadmin/DAM/trans/ main/wp6/pdfdocs/glossen4.pdf**

*Excluded are light goods vehicles, motor coaches and bus, and mini-buses and mini-coaches*

*"Passenger car" includes microcars (needing no permit to be driven), taxis and passenger hire cars, provided that they have fewer than ten seats.*

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# *Vehicle fleet – data collection*

- Administrative data sources
  - vehicle register
  - insurance information
  - car sales/scrappages (tax records)
  - cars imported?

- Cross-checked or supplemented by household or business survey/census data ("how many vehicles does your household have?")

# Road traffic

- Motor vehicle movements on national territory (vehicle km), by vehicle type
  - *Gives local and national insights…AADT, total use of road network.*

- Goods transport on national territory by road (tonnes carried and tonne-kms)
  - *Provides understanding of haulage sector (and e.g. security of food and energy supply), can be compared with rail and waterway quantities to see modal split, $CO_2$ intensity of delivered goods, SDG9*

- Passenger transport on national territory by road (passenger km)
  - *Data used for modal split calculations, commuting trends, analysis of travel patterns, access to jobs and education, carbon intensity of total travel, SDG9*

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# *Motor vehicle movements – data collection*

- Traffic counts
  - Manual or automatic, constant or seasonal

- Odometer readings
  - At vehicle inspection

- Additional: fuel consumption data, phone GPS, satellite images, TomTom…

# Goods transport – data collection

- Surveys necessary, sent to heavy goods vehicle operators
  - Stratified sample, ask the weight of goods and distance travelled
  - A few hundred vehicles monitored each week
- For international transport, use surveys in combination with customs data
- Additional data: Customs, industrial production, cargo unloaded from trains or ships?



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# Goods transport – not so straightforward
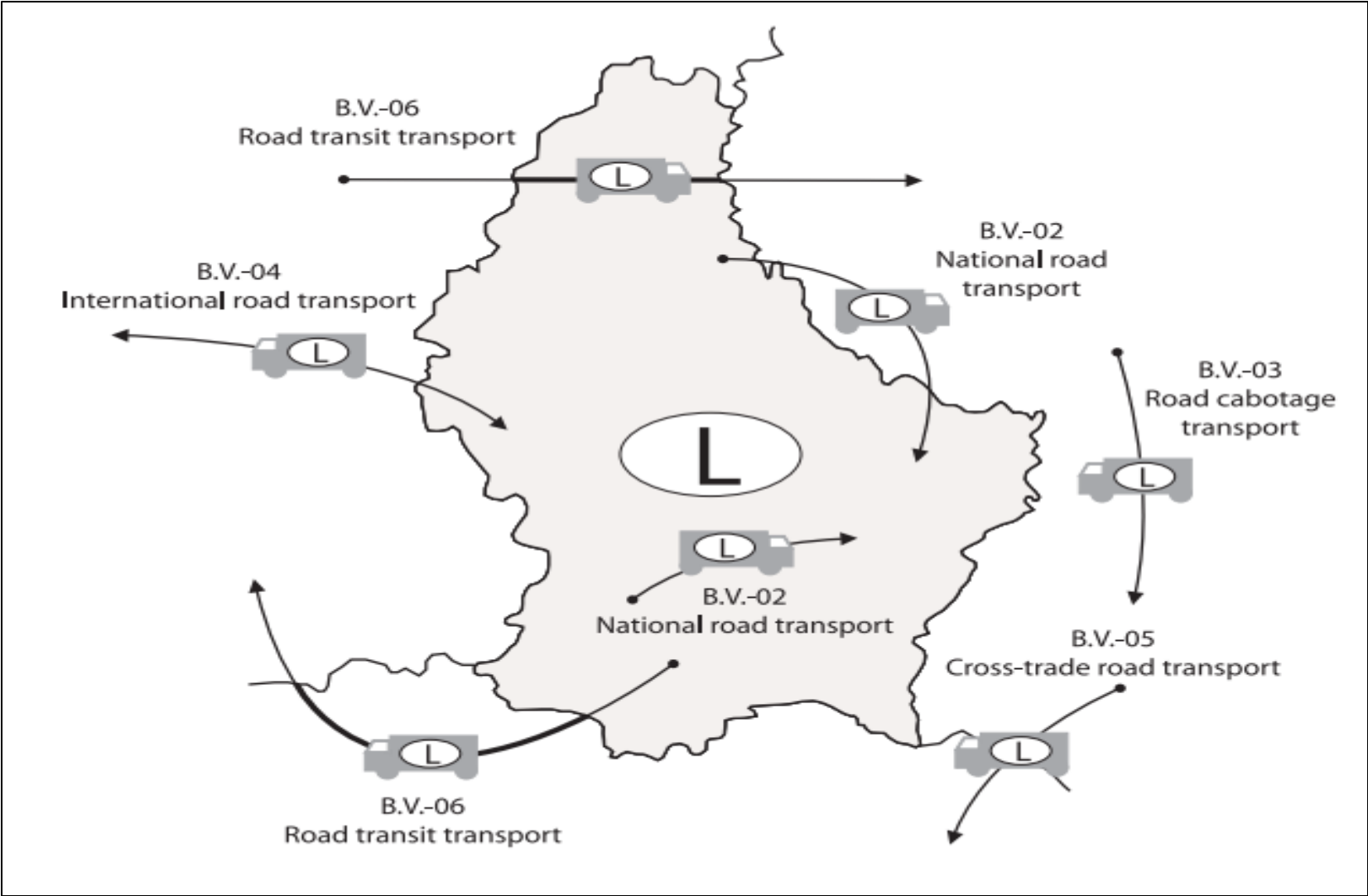
# Passenger transport – data collection

- Countings (manual and automatic, constant and seasonal)
- Odometer readings (during road worthiness tests)
- Household travel surveys
- Modelling (employment figures, energy consumption)
- New sources (phone GPS data, satellite information)

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# *E-Road census*

- Conducted every 5 years on E-Road network, defined in European Agreement on Main Traffic Arteries (AGR)
- Collects basic E-Road infrastructure data, and detailed mapped traffic numbers

www.unece.org/trans/areas-of-work/transport-statistics/statistics-and-data-online/e-roads/traffic-census-map.html



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# *Web Common Questionnaire*

- UNECE, ITF and Eurostat work together to minimize the reporting burden on countries
- This has evolved into a common questionnaire, collecting data for rail, road, inland waterways, pipeline transport

# *National focal points*

- Create the ECAS account by connecting on: circabc.europa.eu > Log In > Sign up

- Follow the instructions given under 'How to get an ECAS password and access CIRCABC'

- Connect to: webgate.ec.europa.eu/cq_transport/login/

- Enter the login/password and push "Login"

# Manual data entry



Useful for checking data, fixing a single data point, or entering top-level numbers only. Time-consuming to fill in all data for multiple years

# *Flat file upload*

- Allows data from your own database to be easily sent to UNECE, without manual entry

- Recommended option
  - Saves (lots of) time
  - Reduces potential for input errors

- For this, simply establish a mapping from your indicator names to those of the Common Questionnaire

| | A | B | C | D | E | F |
|---|---|---|---|---|---|---|
| 1 | PATH | EUROSTAT_CODE | VALUE | FLAG | FOOTNOTE | |
| 2 | Road Transport/Transport Equipment/Motor coaches/Up to 3500 kg/Up to 3500 kg////Petrol (e | B-II-07-30-48.30-0.0 | 263 | | | |
| 3 | Road Transport/Transport Equipment/Motor coaches/Total | B-II-11-30-0.0-0.0 | 376 | | | |
| 4 | Road Transport/Transport Equipment/Motor coaches/Total/Natural Gas Vehicles (NGV) i.e. co | B-II-13-30-93.3-54.5 | 98 | | | |
| 5 | Road Transport/Transport Equipment/Motor coaches/Total/Natural Gas Vehicles (NGV) i.e. co | B-II-03-31-93.3-54.5 | 84 | | | |
| 6 | Road Transport/Transport Equipment/Motor coaches/Total/Natural Gas Vehicles (NGV) i.e. co | B-II-04-07-34.2-0.0 | 397 | | | |
| 7 | Road Transport/Transport Equipment/Motor coaches/Total/Natural Gas Vehicles (NGV) i.e. co | B-II-03-31-34.02-0.0 | 332 | | | |
| 8 | Road Transport/Transport Equipment/Motor coaches/Total/Natural Gas Vehicles (NGV) i.e. co | B-II-07-30-34.2-0.0 | 257 | | | |
| 9 | Road Transport/Transport Equipment/Motor coaches/Total/Natural Gas Vehicles (NGV) i.e. co | B-II-21-30-34.2-0.0 | 25 | | | |
| 10 | Road Transport/Transport Equipment/Motor coaches/Total/Natural Gas Vehicles (NGV) i.e. co | B-II-22-30-34.2-0.0 | 330 | | | |
| 11 | Road Transport/Transport Equipment/Motor coaches/Total/Natural Gas Vehicles (NGV) i.e. co | B-II-12-30-47.2-0.0 | 1 | | | |

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# *Steps to publish data*

1. Data provider fills in the questionnaire (possibly multiple providers for different topics)

2. NSO coordinator validates data

3. Secretariat enters data in production

4. Secretariat downloads to own database and conducts own checks, corresponding with country on anything unusual

5. Data published online

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# *Summary*

- SDGs monitoring requires good transport statistics
- Infrastructure and vehicle data come from admin data
- Measurement and surveys needed for traffic volumes
- Glossary creates internationally-comparable data
- E-Road Census visualizes traffic volumes across countries
- Report this data through the common questionnaire!

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# Suggestions?
# Comments?

# Contact UNECE

*stat.trans@unece.org*

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# *Annex: Road map for statistics for SDGs*

- Conference of European Statisticians (CES) road map for statistics for SDGs
  - Steering Group: to guide the CES work on statistics for SDGs - what, who, when, with whom needs to be done
  1. establishing national mechanisms for collaboration
  2. assessing readiness to report on SDG indicators
  3. selecting national indicators
  4. providing data on global SDG indicators – data flows
  5. capacity building
  6. communication and dissemination

- First Edition endorsed at CES in June 2017

www.unece.org/fileadmin/DAM/stats/documents/ece/ces/2017/CES_Road_Map_for_SDGs_First_Edition_final.pdf

# *Annex: Traffic collection examples*

- UK Vehicle count methodology:
www.gov.uk/government/uploads/system/uploads/attachment_data/file/611304/annual-road-traffic-estimates-2016.pdf

- UK National travel survey:
www.gov.uk/government/uploads/system/uploads/attachment_data/file/633077/national-travel-survey-2016.pdf

- Denmark travel survey: www.modelcenter.transport.dtu.dk/english/TU

- Finland traffic volumes mapped: www.liikennevirasto.fi/web/en/maps-charts/traffic-volumes#.WddBz6iCyUk

- USA National household travel survey: nhts.ornl.gov/

- Travel Survey of Residents of Canada:
www23.statcan.gc.ca/imdb/p2SV.pl?Function=getSurvey&SDDS=3810

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# Annex: Motor vehicle movements – visualization

- UK vehicle counter interactive map: www.dft.gov.uk/traffic-counts/
- Provides AADT for every measured segment

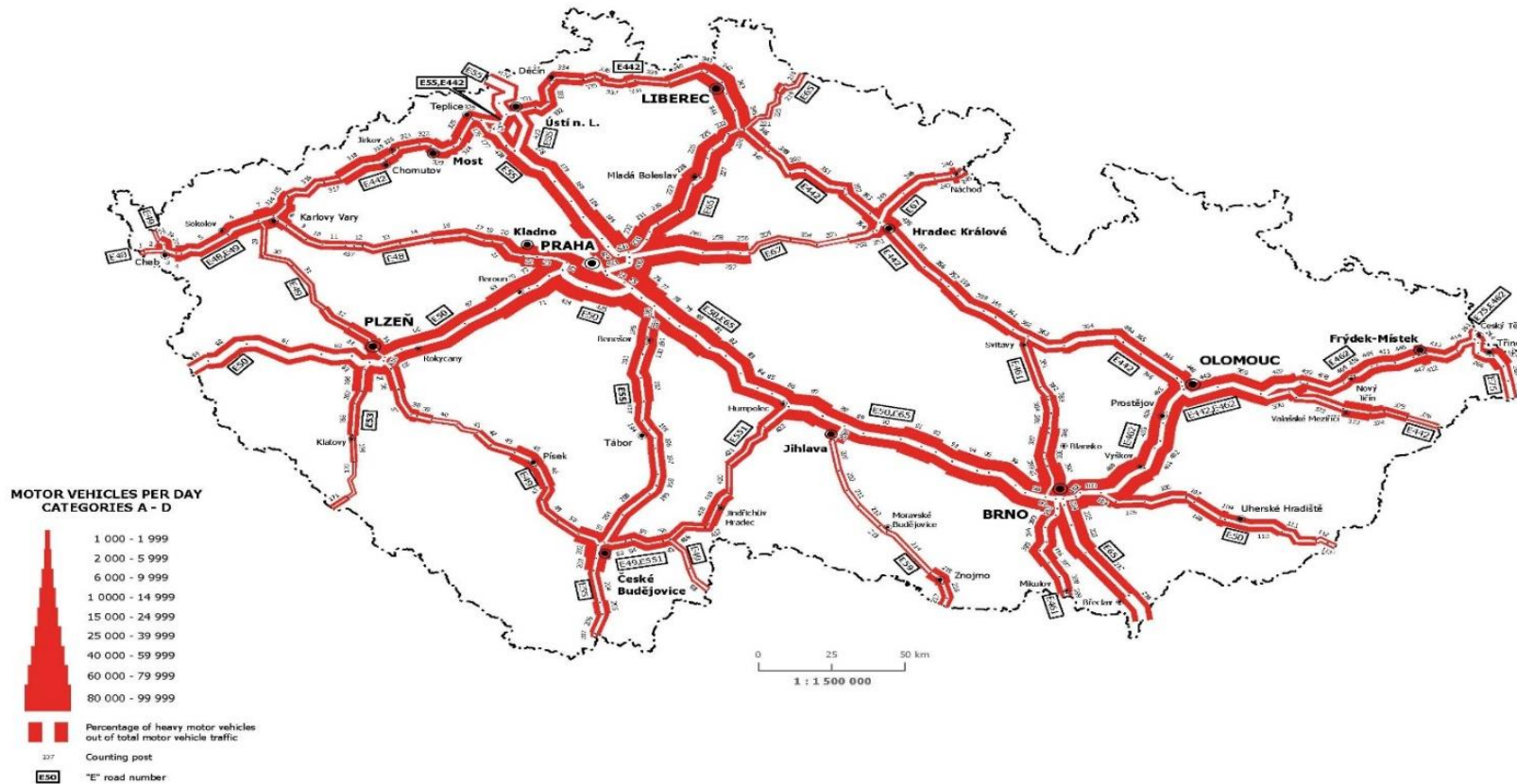# Annex: E-Road census

White thickness indicates HGV %. Shows the crucial goods border crossings



CENSUS OF MOTOR TRAFFIC ON THE CZECH REPUBLIC E-ROADS IN 2016

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# *Annex: Bus and coach statistics*



- UNECE/Eurostat pilot questionnaire
  - Coach movements (vehicle-km)
  - Journeys offered (number of journeys)
  - Seat km offered (seat-km offered)
  - Passenger transport (number of passengers)
- Long-distance bus journeys, i.e. Intercity routes, not local bus trips. (How to define "long-distance"?)

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