IRTAD and the Cities
Methodological approach for the development of the "IRTAD and the Cities" network and database

Veronique Feypell, International Transport Forum
George Yannis, Eleonora Papadimitriou, Katerina Folla, National Technical University of Athens

The IRTAD Group

- IRTAD is an international group of road safety experts and statisticians, operated by the Transport Research Centre of the International Transport Forum at the OECD.

- Its members include research institutes, transport ministries, the industry, NGOs, etc. It is open to all countries.

- IRTAD currently includes more than 70 members from 35 countries. The World Bank, the FIA Foundation, the Association of European Car Manufacturers, etc. are also members.

- The IRTAD Group is a forum for exchange of knowledge on safety trends, recent safety measures, data collection and analysis methodologies.

Background

- By 2050, around **two thirds of the population** will live in urban areas.

- **45% of global deaths** occur in urban areas.

- The recently adopted **UN Sustainable Development Goals 2030**, clearly identify road safety as a main target for cities: *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".*

- There is a **demand and interest from cities** to benefit from:
  - A forum of experts on safety in urban areas
  - A safety database

Pilot project

- Undertaken in **2012-2014**

- 9 cities:
    New York, Paris, London, Bogota, Barcelona
    Chicago, Lisbon, Copenhagen, Lyon

- Conclusions:
  - Genuine interest, added value for such a network

- Key challenges:
  - Defining a city
  - Identifying relevant exposure data: passenger-km
  - Collecting injury data
  - City grouping
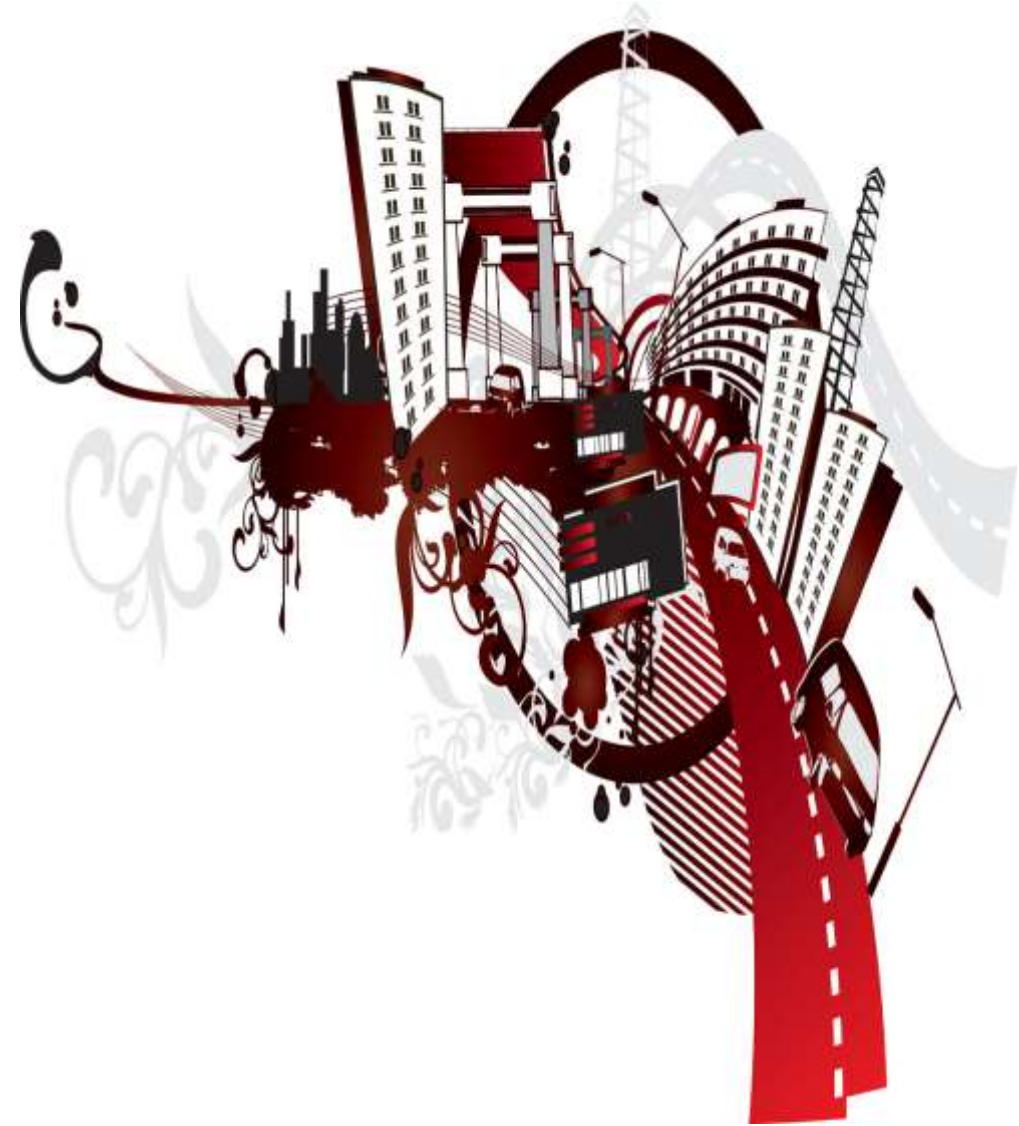
IRTAD and the cities Work Plan

- Developing a **methodological approach** (1st quarter 2016)

- **Recruiting a first set of cities** (on going)
    - Starting with capital cities and cities above 1 million
    - Smaller cities in a second stage

- Finalising the methodologies, including **defining variables**

- **First meeting**: later in 2016

- **Database**: 1st version by the end of 2016 (~ 25 cities targeted)

Literature review

- Review of city definitions:
  - Municipality
  - Urban agglomeration
  - Metropolitan area
  - City Proper (UN definitions)
  - Classification of urban areas (Eurostat, UN, Oecd/EC definitions)

- Review of more than 25 major projects and research studies on road safety in cities

- Review of international initiatives on road safety in cities e.g.:
  - POLIS network
  - WRI Sustainable Cities
  - CIVITAS
  - EUROCITIES
  - EcoMobility Alliance
  - Global Road Safety Partnership

- Sources of international traffic and road safety data in cities:
  - CARE
  - Eurostat
  - UITP
  - NHTSA
  - Elltis – the urban mobility observatory
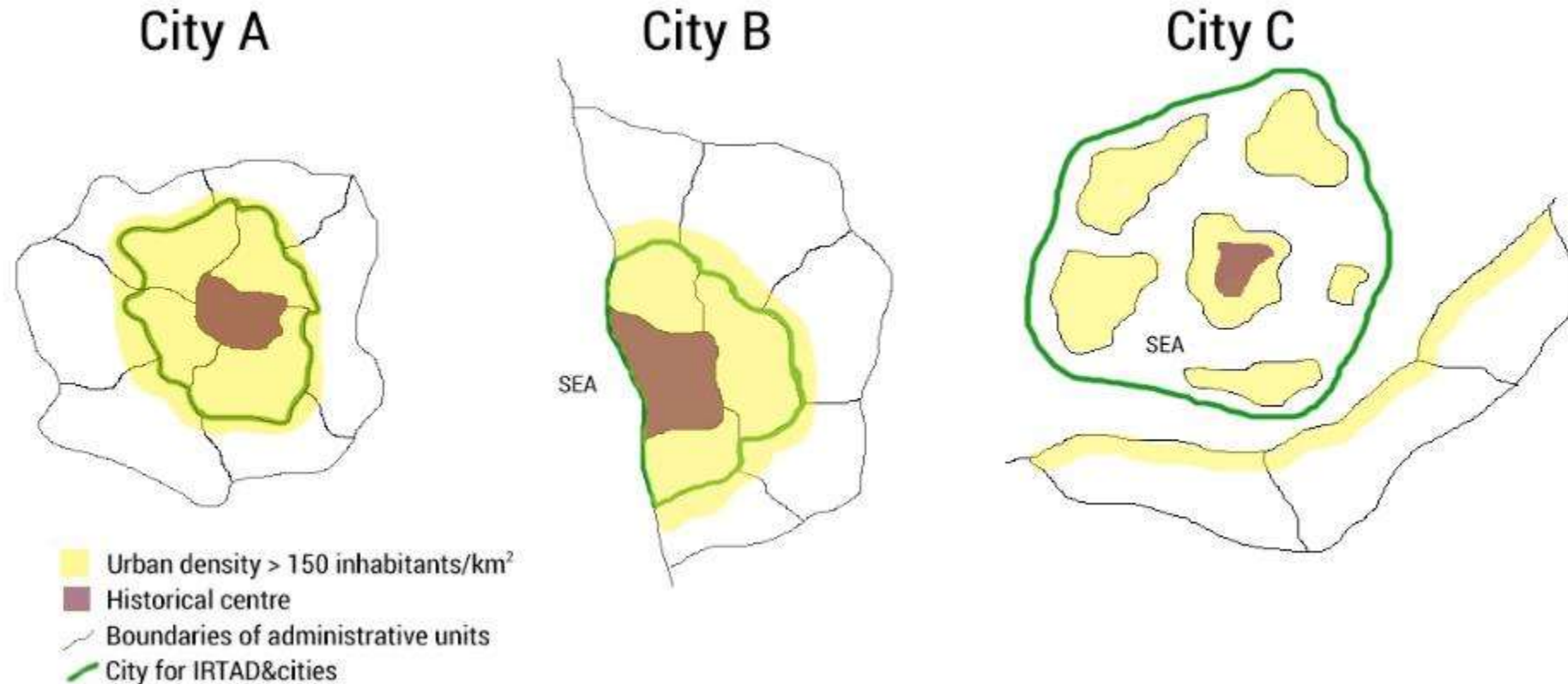 - Urban Mobility Observatory (SMO)-CAF

Road safety situation and data challenges in urban areas

- **Few international projects** or initiatives dedicated to road safety in cities.

- **Fatality data alone may not be sufficient**, especially for cities of small or medium size.
- Most countries / cities have not yet implemented the dedicated studies required to estimate the number of **serious injuries** on the basis of the MAIS3+ definition.

- Little usable data available in **international road safety databases** (e.g. number of fatalities at administrative unit level).
- **Lack of traffic / exposure data** and safety performance indicators.
- **Data availability and comparability** issues are expected to be considerable.
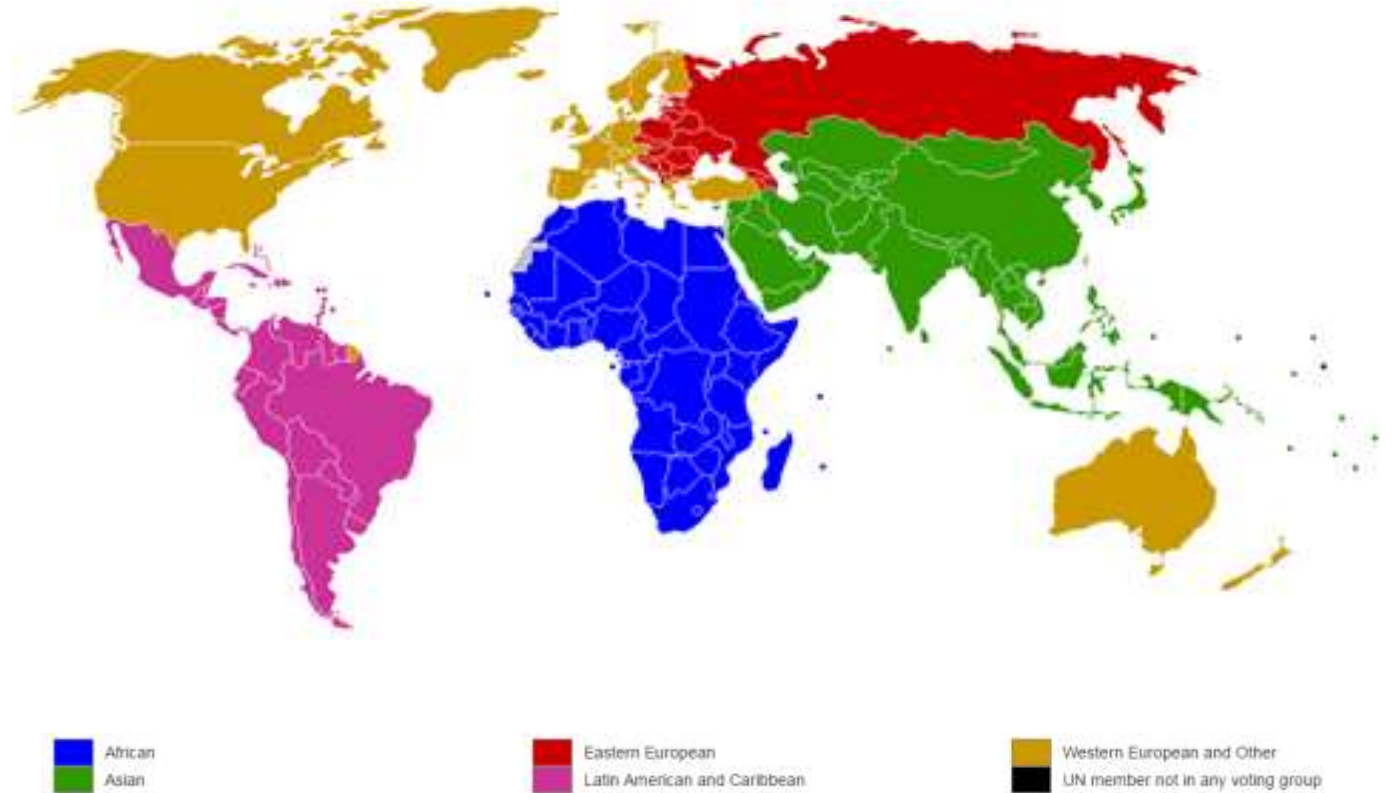
Proposed city definition

- The **City** is defined as the area with clear administrative boundaries containing the historical city centre and the inhabited area. A minimum population density ranging between 100 - 150 inhabitants per km^2 is proposed for defining the inhabited area.
- The **Greater City** is defined as the area outside the "City" (as defined above), containing an inhabited area with minimum population density ranging between 50 -100 inhabitants per km^2.

City A	City B

Urban density > 150 inhabitants/km^2
Historical centre
Boundaries of administrative units
City for IRTAD&cities

City grouping criteria:

- Geographical
  (UN World regions)

- City size
  (OECD, 2012)

	African		Eastern European		Western European and Other
	Asian		Latin American and Caribbean		UN member not in any voting group

Data needs

- Data is recommended **to be collected mainly from the cities** themselves.
- To be **complemented with existing data** from international databases.

- **Fatality data and serious injury data** (preferably on the basis of the MAIS3+ definition).

- For small and medium size cities, the **average of 3 to 5 last years** may provide the necessary statistical significance.

- **Local safety performance indicators** are preferred.
- A two-level data collection, with **"core data" and "additional data"**.
- Additional **background information** will be exploited (demographic and socio-economic aspects).

Data framework

Data
1. **Road safety outcomes;** e.g. fatalities and serious injuries per road type and road user type.
2. **Safety performance indicators;** e.g. road user protection indicators (seat belt and helmet use), road infrastructure indicators.
3. **Transport demand and exposure;** e.g. modal split/share of trips (also for non-motorised travel), person-kilometres, vehicle fleet.
4. **Demographic and socio-economic indicators;** e.g. GDP per capita, unemployment rate, population/population density, road length.

Background Information
   Road safety background: e.g. road safety management indicators, road safety measures, mobility plans etc.

Crash data

- Number of road crash fatalities
- Number of serious injuries in road crashes

Core data	Additional data	Calculated indicators
Number of fatalities per road user type Number of serious injuries per road user type Evolution of fatalities / serious injuries (time series)	Number of fatalities per road type, accident type Number of serious injuries per road type, accident type	Fatalities / serious injuries per person-kilometres (per road user type) Fatalities / serious injuries per road length (per road type) Fatalities / serious injuries per number of vehicles Fatalities / injuries per population (per road user type)

Road Safety Performance Indicators

- Road User protection
- Road Infrastructure
- Vehicles
- Alcohol
- Speeds
- Post-crash care

Core data	Additional data	Calculated indicators
Daytime helmet wearing rates for PTW driver and for passenger (mopeds and motorcycles)	Percentage of drivers above legal alcohol limit in roadside checks	Length of motorways per 1000Km of road network
	Mean age of the passenger car fleet	Length of non-paved roads per 1000Km of road network
Daytime seat belt wearing rates on front seats of cars (aggregated for driver and front passenger)	Mean age of the motorcycle fleet	Length of rail public transport network per 1000Km of road network
	Mean speed on principal arterial roads	
	85% percentile of speed on principal arterial roads	
Daytime seat belt wearing rates on rear seats of cars	Standard deviation of speed on main urban roads	
	Share of High Risk Sites treated	
	Length of road sections treated - traffic calming	
	Mean EMS response time	

Transport demand and Exposure

- Modal split – number of trips
- Traffic – person-kilometres of travel
- Vehicle fleet

Core data	Additional data
Share of public vs. private transport (number of trips)	Share of road transport vs. rail transport (number of trips)
Share of pedestrian trips	Person-kilometres travelled by males
Share of bicycle trips	Person-kilometres travelled by females
Total number of person-kilometres travelled	Person-kilometres travelled by age group
Person-kilometres travelled by passenger cars	
Person-kilometres travelled by Powered Two-Wheelers	
Person-kilometres travelled by pedestrians	
Person-kilometres travelled by bicyclists	
Total number of vehicles registered at city	
Motorcycles registered	
Mopeds registered	

Demographics and socio-economics

- Population
- Urbanisation
- Road length
- Socio-economic indicators
- Post-crash care

Core data	Additional data
GDP per capita Unemployment rate Population density Public transport network length Total length of the road network Length of urban motorways Length of unpaved roads Total number of inhabitants per age and gender	Length of principal arterial roads Length of secondary arterial roads Length of residential roads Number of hospitals / doctors / Intensive Care (IC) beds per population

Outputs of the project

- The **on-line database**, accessible to all participants for visualising the data and obtaining aggregate statistics.

- The **Annual Report**, with city comparisons and city profiles.

- Joint **Research Reports**, with thematic analyses and dedicated statistical analyses (city profiles, benchmarking, etc.).

Network of experts - Participants

- **Participating cities representatives,** either members or external experts appointed by the city authorities.

- **Other data providers,** representatives of international databases with data at city level.

- **Other experts** from research Institutes and other national or international organisations interested in contributing to the project.

Summary

- A **city definition**, tailored to the data availability and analysis needs of IRTAD and the cities.

- A **data framework** for cities' road safety.

- An **annual survey** among city representatives / network members for data collection.

- Data distinguished into "**core data**" and "**additional data**".

- **Data availability and comparability** may be challenging at the early stages of the project.

- Different types of **analyses** suggested.

Challenges

- IRTAD and the cities is **a highly challenging project** with methodological and data analysis complexities.

- The added value of the project is to establish a **network of experts and a database** to support analysis of road safety in cities worldwide.

- New opportunities for **more and better data and insights** for the understanding of urban road safety problems and respective countermeasures.

IRTAD and the Cities
Methodological approach for the development of the "IRTAD and the Cities" network and database

Veronique Feypell, International Transport Forum
George Yannis, Eleonora Papadimitriou, Katerina Folla, National Technical University of Athens