



"Parking under Constraints: Localization, simulation, decision making" Athens, 7 July 2015

Traffic safety in urban mobility policy



George Yannis, Professor <u>www.nrso.ntua.gr/geyannis</u> National Technical University of Athens

Urban road safety - Open questions

- Which are the urban road safety problems of this decade?
- Are they the same across Europe?
- Can road safety compete environmental, energy and mobility concerns?
- How to integrate road safety into urban mobility plans?
- Which are the safety parameters of parking policies
- How critical are data and evidence based decision making?
- Are Citizens and Authorities ready for the necessary choices?
- Which are the future challenges of urban road safety?



Different urban road safety progress in different countries

Road Fatalities change 2004-2013 (source: CARE)

North-Western countries Southern countries Eastern countries

Inside	Outside
-43,9%	-44,9%
-44,2%	-56,8%
-40,0%	-37,6%

Urban Areas



Different urban road safety progress in different countries

Road Fatalities 2013 (source: CARE)

Power Two Wheelers North-Western countries Southern countries Eastern countries

Urban	Total	%
645	3.143	21%
861	2.717	32%
337	3.320	10%

Cyclists

North-Western countries Southern countries Eastern countries

Pedestrians

North-Western countries Southern countries Eastern countries

Urban	Total	%
489	3.143	16%
206	2.717	8%
398	3.320	12%

Urban	Total	%
1.160	3.143	37%
867	2.717	32%
1.578	3.320	48%



Current Urban Road Safety Problems

- More road fatalities outside urban areas, more **injuries inside** urban areas.
- More PTWs in the North-Western EU countries and more cyclists in the Southern EU countries result in:
 - Power-two wheelers' safety problems migrating at North and West
 - Cyclists' safety problems of the North migrating at the South
- Recession had a direct impact to road fatalities decrease, but what will happen when recession will be over?



Road safety is ideal for spending money for nothing

- Authorities and other stakeholders may fear that ex-post evaluation of measures may prove that important road safety investments had little or limited impact.
- Comparisons of measures effectiveness between different regions and between different countries may reveal high discrepancies not only in the unit cost of the measures but also in the implementation effort.
- Sometimes measures assessment invited by the authorities tend to use faster and less rigorous methodologies, favouring prevailing opinions and decisions already taken, creating thus a wide variety of non-converging efficiency results.



The need for evidence based decision making

- Positive and negative aspects of each solution in the short and long term should be demonstrated allowing all road safety actors (society, decision makers) to realize the positive and negative consequences of their choices.
- On that purpose there is a clear need for publicly available high quality and impartial data and knowledge, with focus on the effectiveness assessment of road safety alternative solutions.
- The identification of the suitable measures for specific road safety problems is a key challenge, possible only through the application of scientific and impartial methodologies
- The social and economic benefits from a rigorous application of measures efficiency assessment can be very high.

www.erso.eu





European Road Safety Policy Orientations 2011-2020

- 1. Improved safety measures for trucks and cars
- 2. Building safer roads
- 3. Developing intelligent vehicles
- 4. Strengthening licensing and training
- 5. Better enforcement
- 6. Targeting injuries
- 7. A new focus on motorcyclists.

Overall target: halving the overall number of road deaths in the European Union by 2020 starting from 2010. Equivalent target for serious injuries.

These targets should also be set for each city separately.





Fundamental directions for urban road safety choices

- Safety should be integrated not only into the development of Urban Mobility Plans but also into proposed Urban Mobility Audits and Guidelines and be reflected in common targets.
- Plans should adopt a clear hierarchy of transport users, with public transport users, cyclists and pedestrians at the top of the hierarchy.
- The core public transport modes (bus and rail) are the safest modes of transport.
- Real and perceived safety can have a profound effect on modal choice especially in terms of the most sustainable modes of travel - walking and cycling and ability to access public transport.







Some good practices for urban road safety

- Draft guidelines for promoting best practice in traffic calming measures (roundabouts, road narrowing, chicanes, road humps, space-sharing).
- Promotion (including legislation) of passive and active vehicle safety technologies for the unprotected road users (Intelligent Speed Assistance, car windshield airbags, pedestrian friendly bumpers, etc.).
- Introduction of minimum requirements for cycle lighting and reflective elements.
- Support the assessment of the safety impact of new traffic rules, e.g. contra-flow cycling, cycles in buslanes.



- Vehicle parking has non-negligible implications for road safety mainly concerning potential conflicts between vehicle traffic and the vulnerable road users (VRUs): pedestrians - cyclists - motorcyclists.
- Special attention should be paid at parking provisions at the vicinity of the junctions, with emphasis on VRUs visibility.
- Special provisions are also necessary for minimising vehicle conflicts at the entrances and exits of parking stations, with emphasis on avoiding surprises and forgiving road user errors.
- Need for respecting pedestrian traffic within offstreet parking areas.



Urban Mobility and Road Safety Choices

The high complexity of the urban environment makes road safety choices a very difficult task, attempting to balance conflicting social needs and economical restraints, especially during the economic crisis.

- Traffic Efficiency (Speed) <u>Versus</u> Traffic Safety
- Vehicles <u>Versus</u> Vulnerable Road Users
- Expensive but safe <u>Versus</u> Cheap but unsafe (vehicle, infrastructure, management)
- Priorities in policies, measures, research, etc.



The urban road safety choices

- First comes safety then speed and traffic efficiency
- First comes public transport then cycling and walking and last car traffic.
- Identify the right mix between separated and non separated vehicle traffic from pedestrian and cycling traffic.
- Optimum separation of passenger traffic from urban freight transport.
- In complex locations (junctions, etc.):
 - optimum readability of directions,
 - road design consistency (no surprises)
 - a forgiving road environment.



Conclusion

- Urban road safety should be integrated into the urban mobility plans, equally with environment, energy and mobility concerns.
- Both authorities and citizens should realise the choices to be made (with focus on car traffic restriction) and work together and sincerely to implement them.
- Urban road safety policies should be tailored to the specific mobility and safety problems and needs of each city.



The future urban road safety challenges

Brave Road Safety Choices

Vehicle Technology

Smart Infrastructure Efficient Enforcement



Driver Behaviour Safety Culture

Power Two Wheelers Pedestrians

Efficient Measures Available Data & Knowledge

International Cooperation Scientific Research Evidence Based Policy Making





"Parking under Constraints: Localization, simulation, decision making" Athens, 7 July 2015

Traffic safety in urban mobility policy



George Yannis, Professor <u>www.nrso.ntua.gr/geyannis</u> National Technical University of Athens