



Interreg Med project "REMEDIO"
International Conference
"Horizontal condominium as a living lab
for Urban Renewals"

Sustainable Urban Mobility and Safety

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Urban road safety - Open questions

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



Objectives and Structure

Objective

To provide a comprehensive picture on urban road safety today and of the future challenges, with focus on urban safety and mobility, especially of the vulnerable road users

Structure

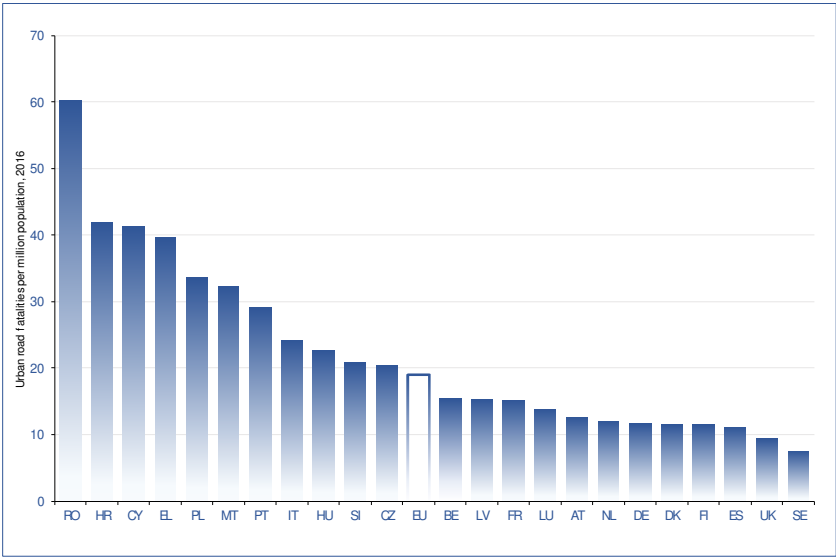
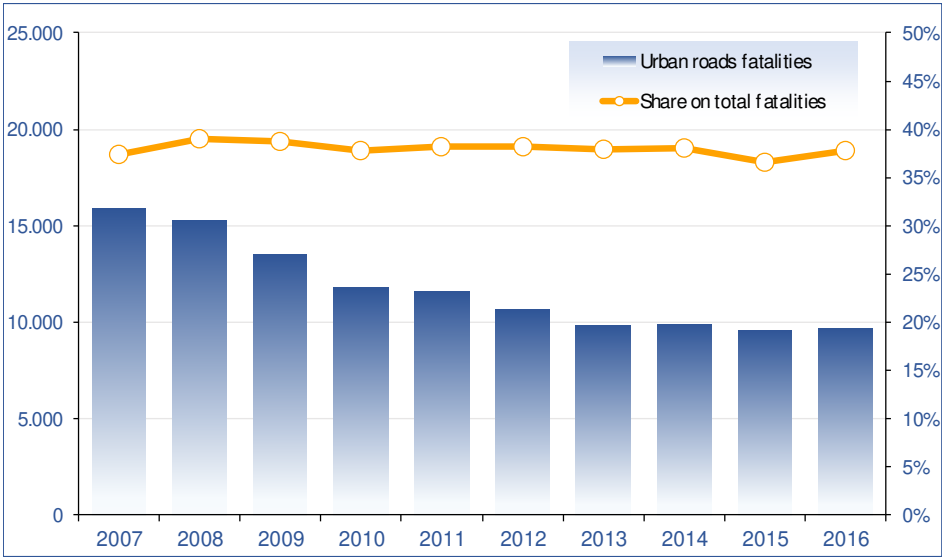
1. Basic facts on urban road safety
2. The need for road safety knowledge
3. Urban road safety priorities
4. Fundamental urban road safety choices



Different urban road safety progress in different countries (1/2)

Road Fatalities change 2008-2017 (source: CARE)

	Urban Areas	
	Inside	Outside
North-Western Countries	-28,8%	-28,1%
Southern Countries	-31,5%	-39,0%
Eastern Countries	-48,7%	-43,6%



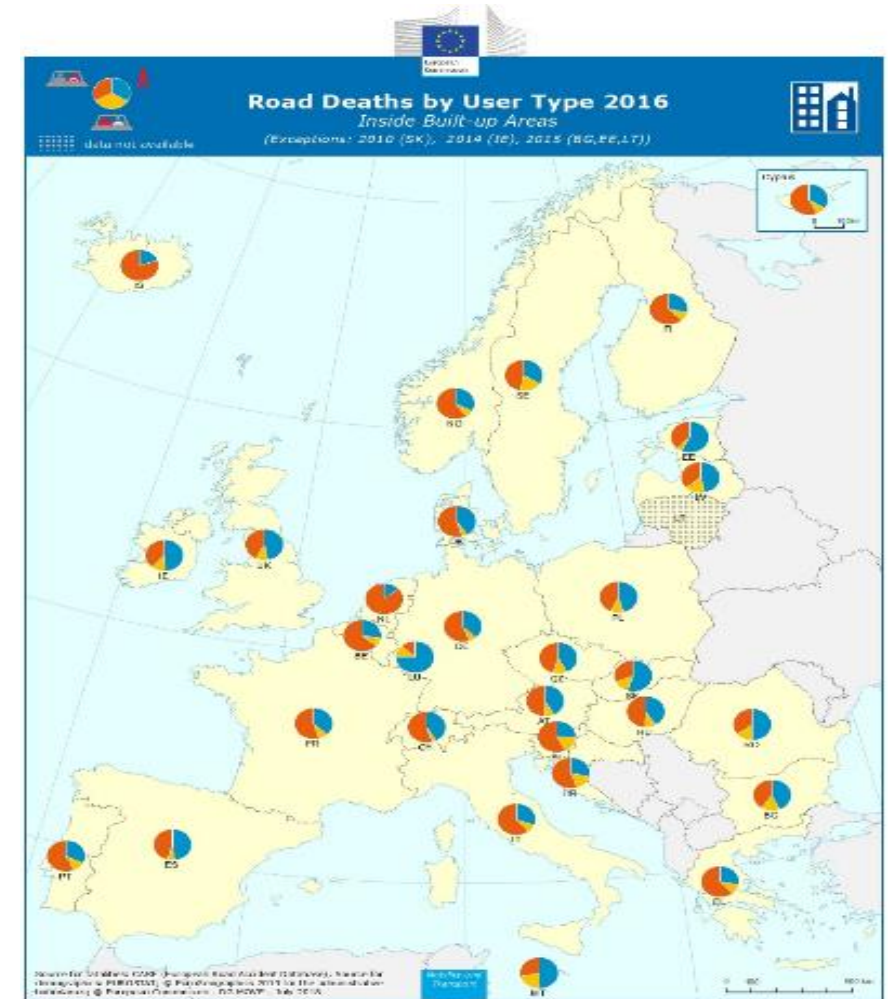
Different urban road safety patterns in different countries (2/2)

Road Fatalities 2016 (source: CARE)

Power Two Wheelers	Urban	Total	%
North-Western Countries	667	3.344	20%
Southern Countries	822	2.693	31%
Eastern Countries	274	3.404	8%

Cyclists	Urban	Total	%
North-Western Countries	531	3.344	16%
Southern Countries	196	2.693	7%
Eastern Countries	388	3.404	11%

Pedestrians	Urban	Total	%
North-Western Countries	1.182	3.344	35%
Southern Countries	920	2.693	34%
Eastern Countries	1.561	3.404	46%



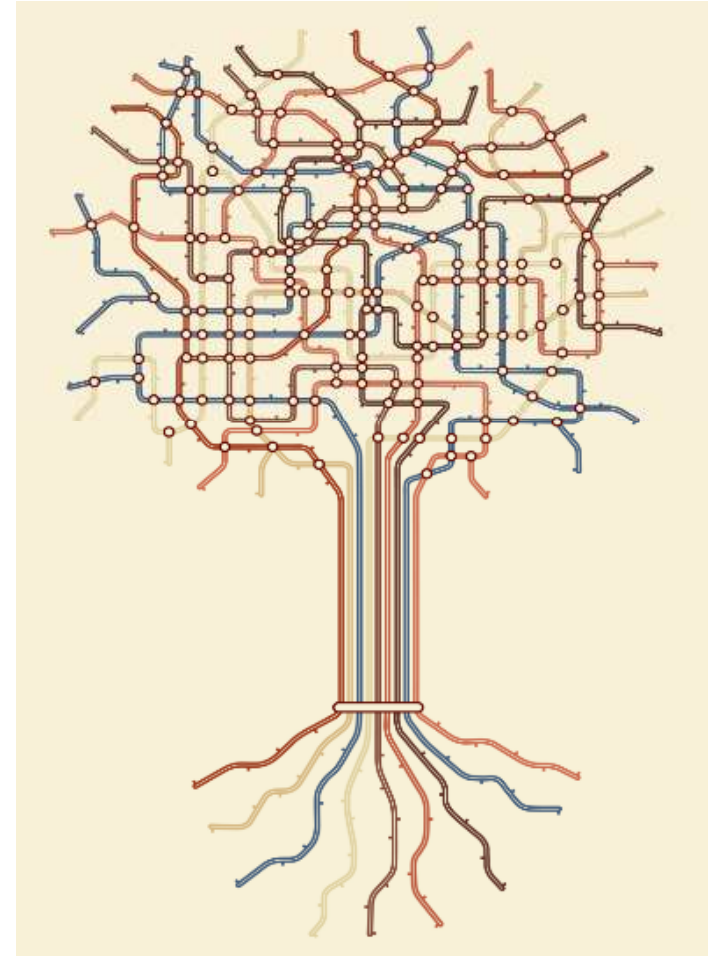
Current Urban Road Safety Problems

- 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 has a direct impact to road fatalities decrease, but lately slow progress is observed.



From Problems to Measures

- The identification of the suitable **measures** for **specific urban 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.
- Road safety research and international cooperation are the keys to **support evidence-based decision making**.



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 urban 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.
- Good practices manuals are useful but each measure should be tailored to the particular needs of each urban environment and the overall network design and traffic operation.



Urban road safety priorities

- Road user behaviour
- Infrastructure
- Vehicle technology
- Road safety management



Road user behaviour

Vulnerable road users

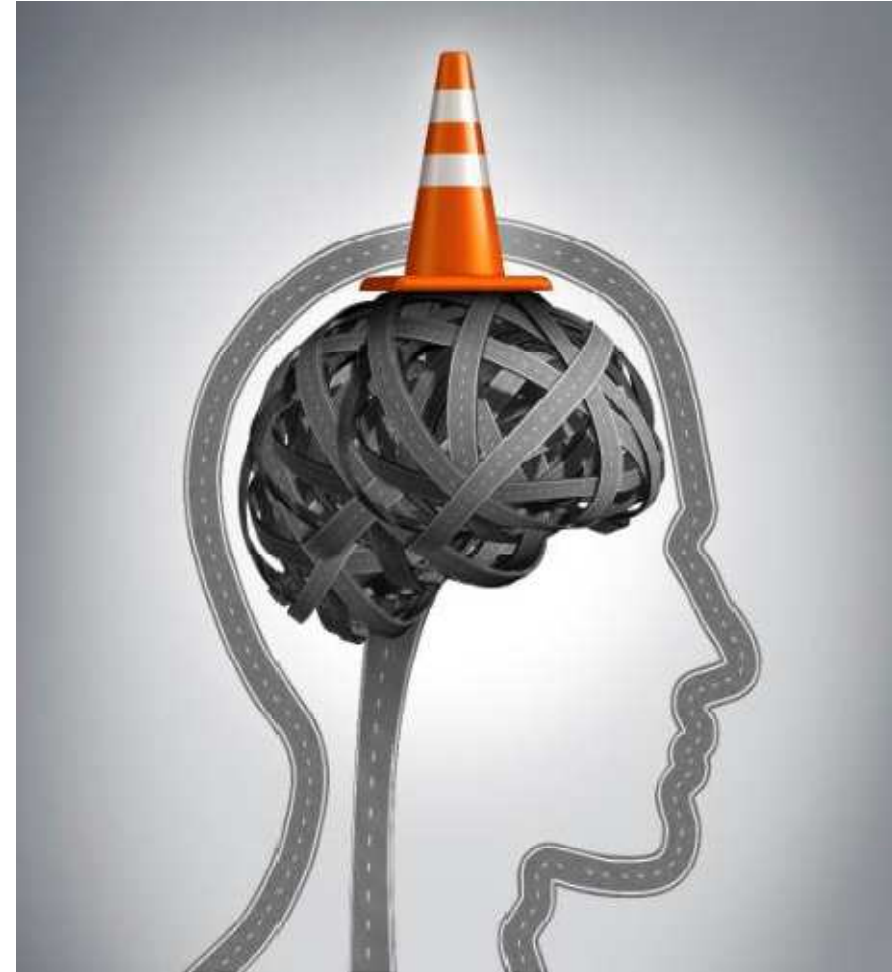
Young: still at highest risk
Elderly: ageing population
Pedestrians: still often overlooked
Cyclists: still often overlooked
PTWs: an emerging problem in several countries

Fit to drive

Driving under the influence of substances
Driver distraction
Driver fatigue
Definitions, measurement, causes and effects

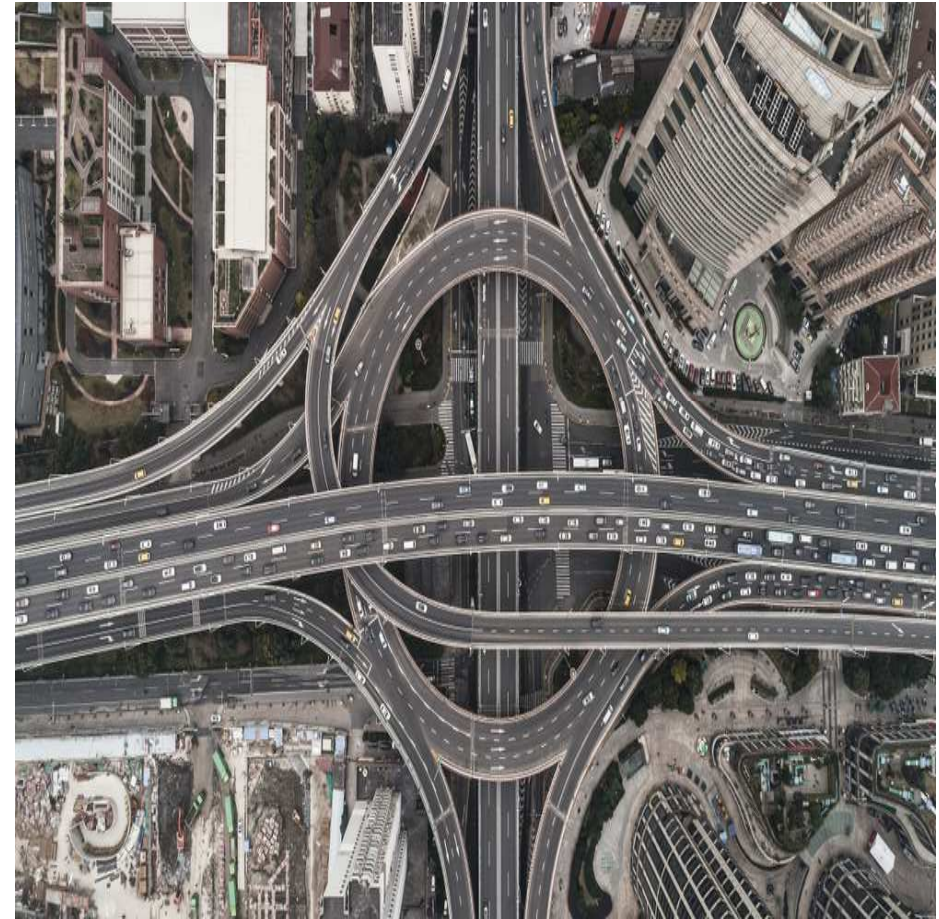
Changing road user behaviour

Enforcement - Campaigns - Education
Focus to the five killers:
Speeding, Alcohol, Cell phone, Seat belt, Helmet



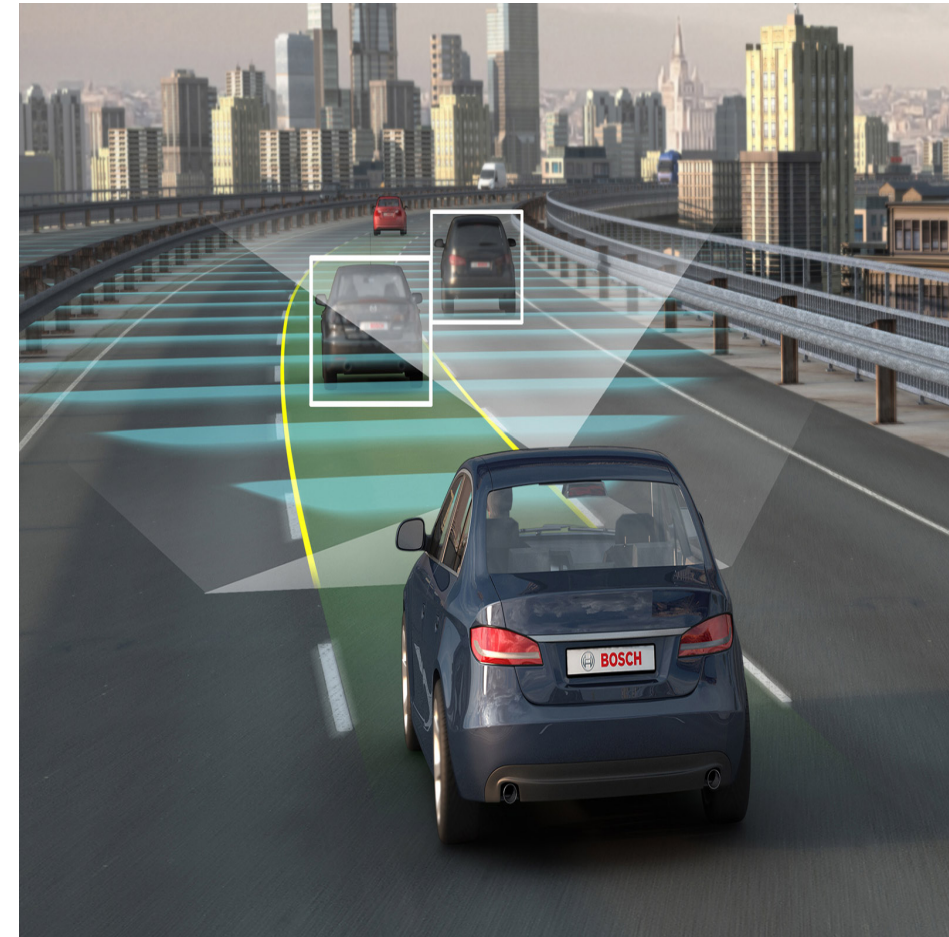
Infrastructure

- Smart infrastructure
- New road safety infrastructure management techniques
- Self-explaining roads, forgiving infrastructure, roadside treatment
- New road safety infrastructure measures and investments
- Integration of road safety into transport / traffic / urban plans
- New generation of pedestrian and cyclist arrangements
- Infrastructure and traffic arrangements for PTW
- Special design for the elderly, the vulnerable and for users with specific needs



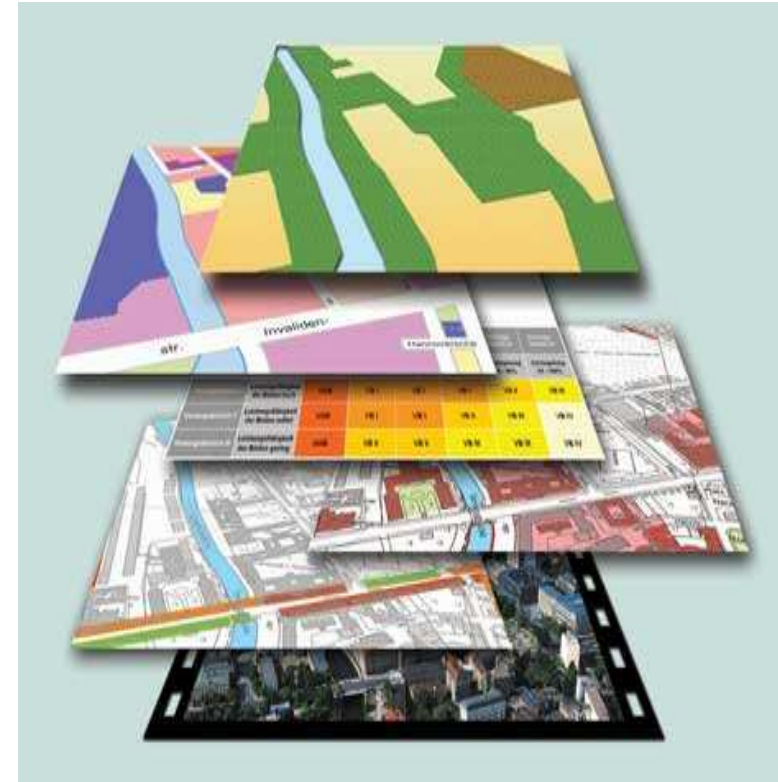
Vehicle technology

- Advanced driver assistance systems with focus on safety (ADAS)
- Safe design of Human Machine/Vehicle Interface (HMI/HVI)
- V2V and V2I communication and co-operative systems
- New active and passive safety equipment
- Better understanding and support of the pre-crash phase
- Improved pedestrian and 2-wheeler detection systems for accident avoidance
- Systems for the protection of (motor)cyclists
- Safety of new vehicles (hybrid, electric)



Road safety management

- Developing the Road Safety Culture
- Targeted strategies and integrated policies at city level
- Efficient programmes and measures
- Linking road safety management with road safety performance
- Monitoring implementation and effectiveness
- Efficiency assessment and cost-benefit (crash modification factors, standardization and transferability)



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



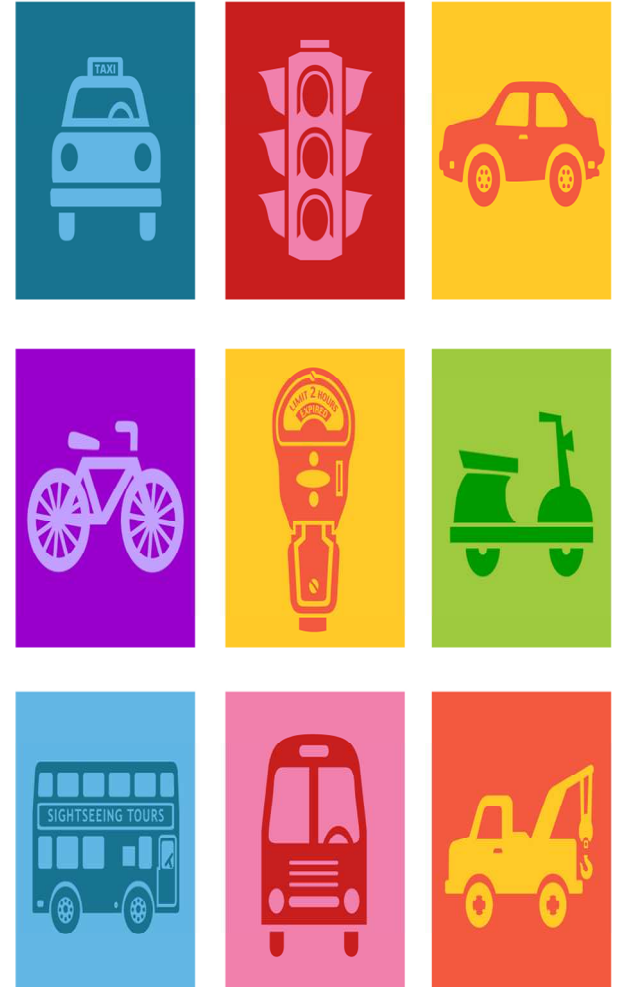
The urban road safety choices

- First comes safety then speed and traffic efficiency.
- Priority should be given to calmer transport means.
- First comes public transport then cycling and walking and last car traffic
- Maximum separation of vehicle traffic from pedestrian and cycling traffic (pedestrian paths, bicycle routes, bus lanes etc.).
- Maximum separation of passenger traffic from urban freight transport.



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 bus lanes.



Clear road safety targets

- Urban road safety targets should be **clear and not be confused** with other - legitimate but less important – targets of traffic management or ecological driving (traffic police at junctions, cameras on bus lanes etc.).
- **Safety and speed** within urban areas are two opposite targets and local communities along with their authorities should choose between them.



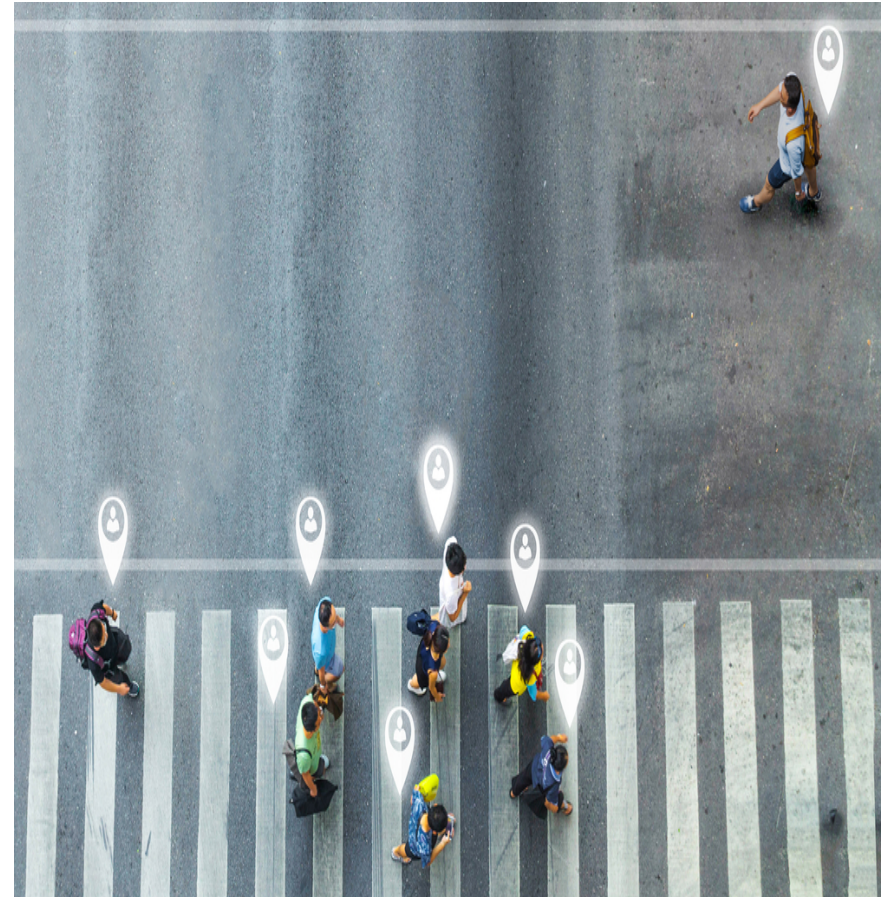
The role of Authorities (1/2)

- Set clear **targets** for drastic decrease of speed.
- Implement an efficient **enforcement** program concerning basic traffic violations.
- Re-define **speed limits** for all roads within urban areas, and zones with limits 30km/h and 40km/h.
- Review horizontal and vertical **signs** after dedicated studies.
- Implement a systematic program of inspection and **maintenance** of roads, pavements and roadside elements.



The role of Authorities (2/2)

- Examine the necessary **interventions** on road infrastructure, integrate them into the urban design plans and implement them properly.
- Integrate **guidelines** and "good practice" design of other countries into new city plans, with emphasis on protection of mild circulation.
- Mobilize all local forces in order to change drastically drivers' and pedestrians' **behavior**.
- **Monitor** and publish systematically road accident data and results of the implementation and effectiveness of the respective actions.



Conclusions

- Urban road safety should be integrated into the urban mobility plans, equally with environment, energy and mobility concerns, within a long term and sustainable vision.
- 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.
- Continuous research is needed to acquire the necessary knowledge for the support of decision making.





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