eSUM: european Safer Urban Motorcycling

OPEN DAYS

European Week of Regions and Cities

BRUSSELS, 6-9 October 2008

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1. Consortium

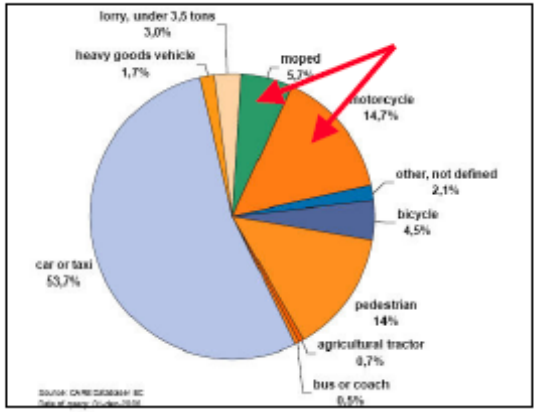
- A consortium of urban and national authorities, PTW manufacturers and road safety investigators.
- Coordinated by Barcelona Municipality, eSUM develops best practice from the experiences of cities from 4 EU countries with high levels of PTW use and experience in developing good PTW road safety.
- EU manufacturers of innovative, safer PTW models (C1, MP3) participate along with ACEM
- Supported by subcontractors (CERTU, UK National Motorcycling Council, etc.) & pending external collaborations (Bast, accessory suppliers, etc. ...)

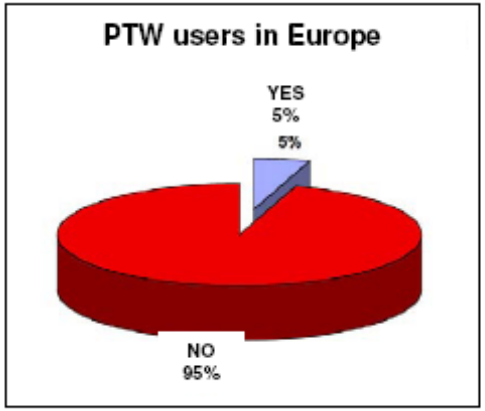
Project sponsor

- Part-funded (50%) by EC Directorate General for Energy and transport (Road Safety &Accident Research):
- 2,407,456 €
- 30 months
- Start date: 01-06-08

PTW – vulnerable, flexible, efficient mobility

- In 2006, PTW users made up 19.7% of road fatalities
- PTWs account for 143,000M. pass-km (2.4%), but a higher % of passenger trips
- Urban situation: e.g. 15% of inner Paris traffic, 36% of fatalities (2007)



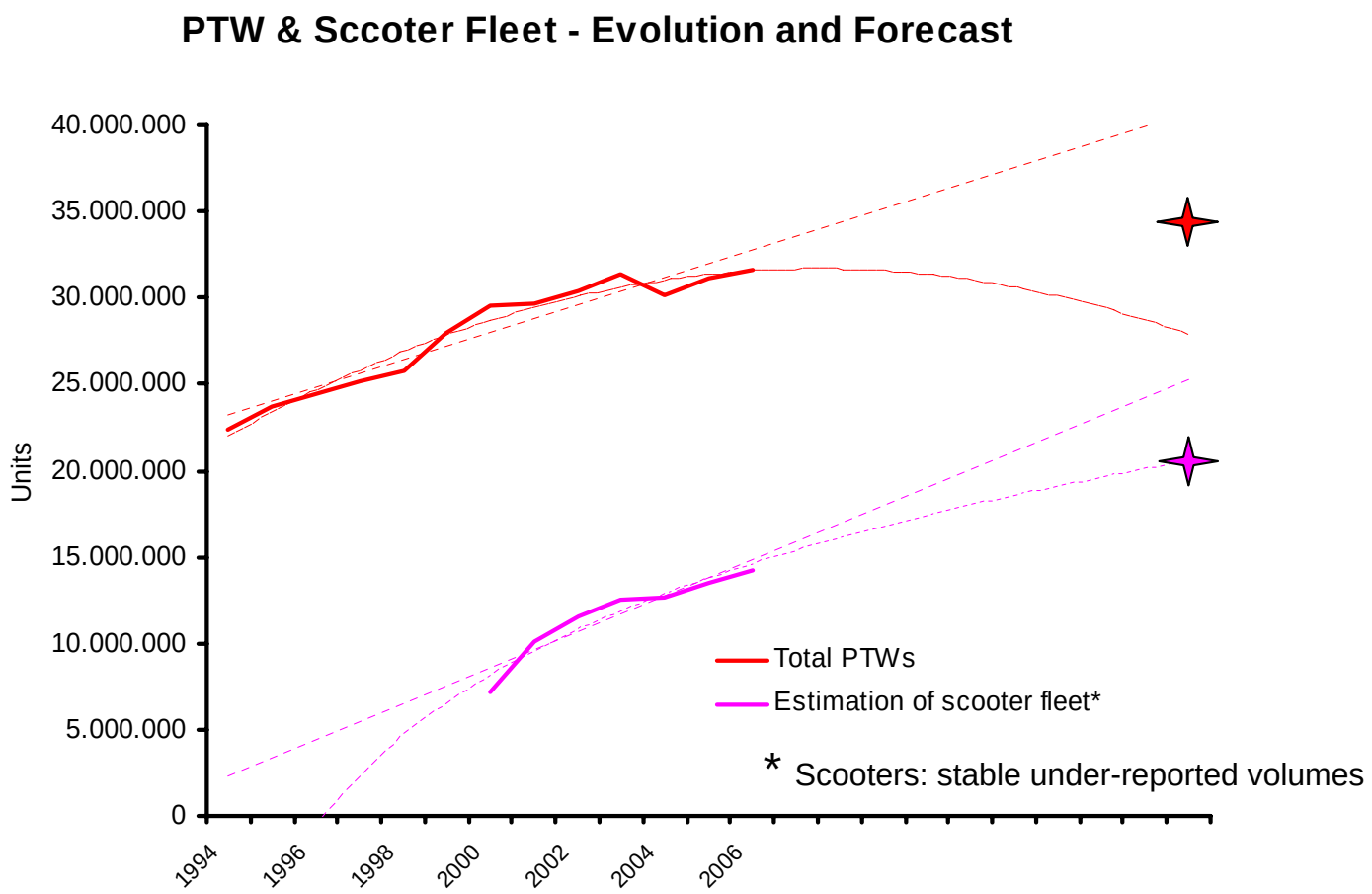


Motorcycling – 30 million users in EU 27

- Diversity of owners, purposes and products

ACEM's park description

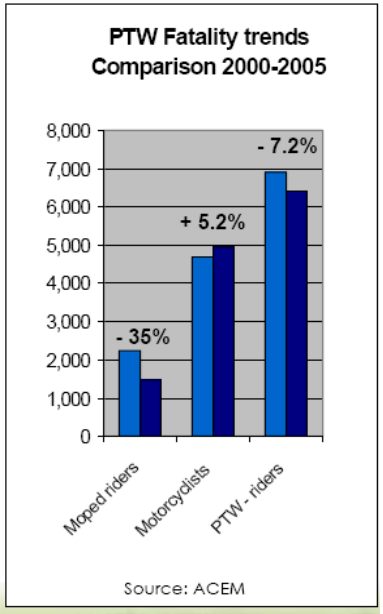
(ACEM's) Market outlook



- 10 years outlook in million units: PTWs **35** (+13% vs. 2006)
- Scooters* (urban two-wheelers): **20** (+43% vs. 2006)

2. Project Objectives

- Identify, Develop and Demonstrate measures designed to deliver safer urban motorcycling, in the short, medium and longer term.
- Using an integrated approach, contribute to a steady decline in PTW user casualities in EU accident trends (currently PTW accident statistics buck the general positive downward trend):
  - Improved diagnosis
  - Identification of demonstrated best practice
  - Apply best practice in urban P2W Action Plans
  - Demonstrate Advances in the State-of-the-art
  - Promotion of rapid adoption of best practice



Description of the tasks

- **WP1 MANAGEMENT**

  lead BCN mun – contributing DSD

- **WP2 DIAGNOSIS**

  lead ATAC – contributing BCN mun; Tfl; MdP; ACEM; Uni FIR

- **WP3 IDENTIFICATION OF BEST PRACTICES**

  lead Tfl – contributing ACEM

- **WP4 STATE-OF-THE ART; DEMONSTRATIONS**

  lead BCN mun – contributing DSD

- **WP5 MONITORING, EVALUATION, SYNTHESIS**

  lead Uni ATH

- **WP6 TRANSFER AND CONSUMER INFORMATION MATERIALS**

  lead ACEM

- **WP7 DISEMINATION**

  lead BCN mun

Project deliverables

- D7.1 Website
- D2.1 eSUM Diagnosis of Urban Motorcycling Safety
- D3.1 Best Practice Guidance for Improving Urban P2W Safety
- D4.1 Demonstrations for Improving Urban P2W Safety
- D7.2 eSUM Mid-term workshop
- D5.1 Potential Impacts for Improving Urban P2W Safety
- D6.1 Downloadable promoting safer P2Ws models and features on European City Streets
- D7.3 eSUM Final Conference
- D1.1 Final Report

3. eSUM diagnosis of urban PTW road safety

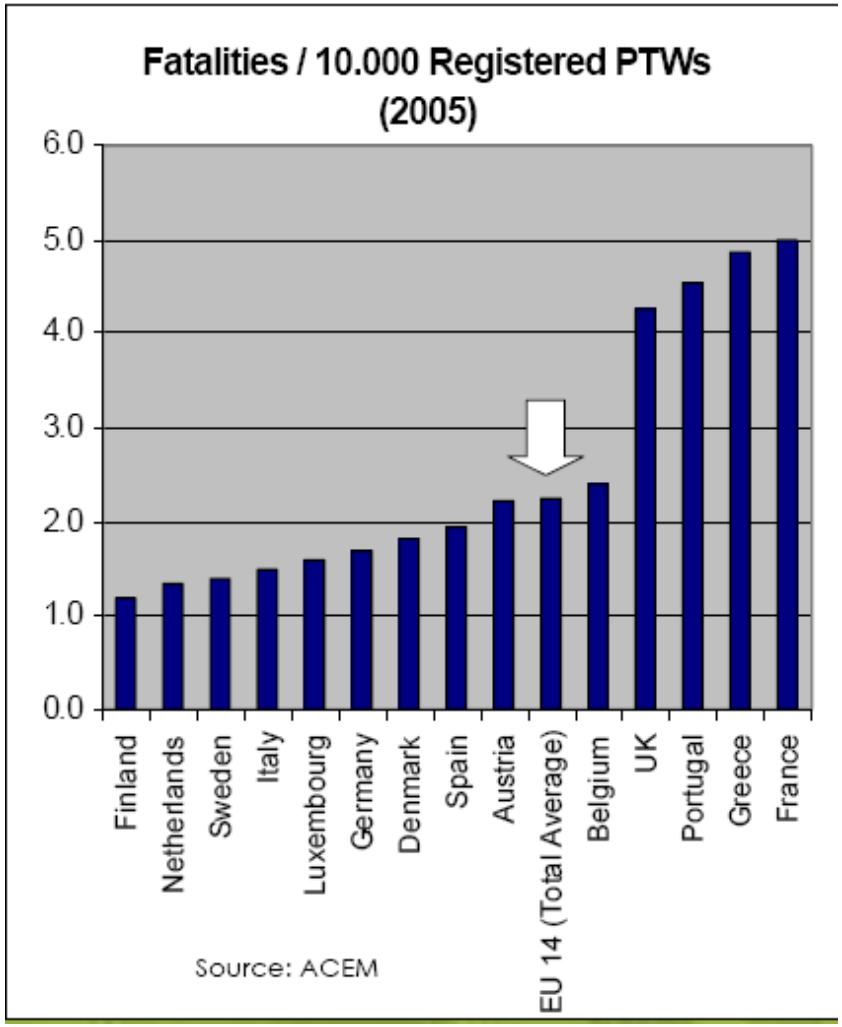
WP3 activities comprise:

- In-depth investigation of urban cases (MAIDS accident database & local studies by core cities partners)
- In-depth investigation of national accident databases
- Benchmarking PTW urban road safety of participating cities (in-depth for core cities, lighter for transfer cities)

The eSUM core cities & PTW accident context

	Motorcycle fatalities	Moped fatalities	total fatalities (vehicle occupants)	total fatalities	year
IT	1070	388	4915	5625	2004
Rome				231	2006
%				4,11%	
FR	789	317	4174	4709	2006
Paris	14			37	2007
%				0,79%	
ES	472	312	3763	4442	2005
Barcelona				49	2005
%				1,10%	
UK	561	23	2637	3336	2005
London					
%					

National motorisation indices puts on favourably place Italy, but city fatalities tell a different story



MAIDS In-depth Urban research

Urban accidents comprise an part of the 921 accident cases recorded in the MAIDS (5 countries*, 2000 variables) database. The analysis examines:

- a) Where and when urban accident occur:
  - Analysis of variables describing the time and location of the accidents, such as time of day, day of week, illumination, intersection type, road condition and defect, traffic signs, etc. In this section variables such as origin and destination of the trip, trip length, frequency of use and length ridden since departure would be included.
- b) Who and what kind of vehicle is involved:
  - Analysis of variables describing the rider/driver characteristics, such as age, occupation, vehicle experience, previous accidents and violations, number of days ridden yearly, training, etc. In this section also the type of vehicle involved would be described, such as PTW style, PTW displacement, vehicle gross mass and OV size/classification.
- C) How and why urban accidents occur
  - Analysis of the variables that can describe the dynamics of the accident events and the possible accident causes. In this section selected variables could be analyzed, such as attention to driving/passenger tasks, stress experienced that day, and transient physiological impairment.

In-depth Urban research by core city partners

Example of Barcelona

"A+ study" of PTW accidents:

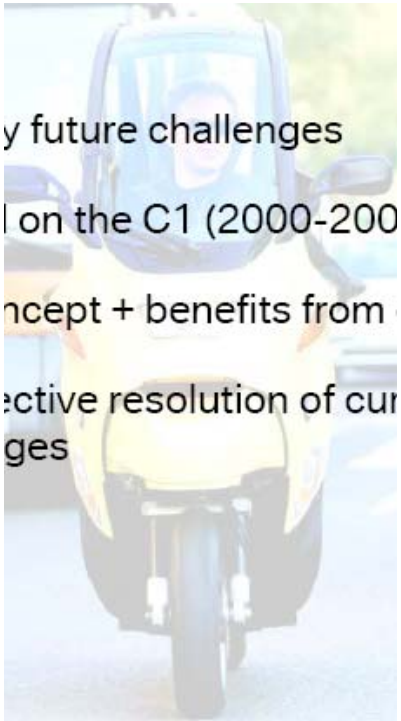
- Uses 5 years' data (2000 – 2004) to identify main accident types
  - Red-light jumping
  - Incorrect turns in wide streets
  - Passing between vehicles in heavy traffic
  - General disregard of traffic regulations

	INDICADORS	Any 2.000	Any 2.001	Any 2.002	Any 2.003	Any 2.004
TOTAL	N. accidents de trànsit	12.917	11.983	11.434	11.137	10.695
	N. AT amb víctimes	11.348	10.755	10.359	10.096	9.745
	N. de víctimes	14.836	14.386	13.906	13.480	12.911
	N. de morts	54	59	35	46	42
DUES RODES	N. AT amb víctimes	6.757	6.617	5.949	5.826	6.192
	N. de víctimes	7.850	7.262	6.915	6.774	6.842
	N. de morts	23	25	13	24	23
	N. AT amb víctimes	2.929	2.949	2.571	2.530	2.873
	N. de víctimes	3.298	2.988	2.897	2.838	2.955
	N. de morts	10	12	6	16	12
	N. AT amb víctimes	3.772	3.772	3.287	3.184	3.331
	N. de víctimes	4.373	4.084	3.814	3.712	3.624
	N. de morts	13	12	4	7	11

Font: Guàrdia Urbana de Barcelona. En el mateix accident de trànsit hi pot haver implicat més d'un vehicle de dues rodes i poden ser de diferent tipus.

- Analyses specific risks using video & simulation

International investigation of safer / other PTW models' participation in accidents



- What evidence exists (that these models are safer)?
- Concerning the analysis of P2W models, where the number of cases is limited by the short time in circulation (e.g. Piaggio's MP3) data is collected for additional cities with high model sales.
- BMW's C1 model – the only PTW designed from crash-worthiness design principles. 30,000 units sold since 1990s. The proposed retrospective analysis considers accident data from different countries (Spain & Germany &...), comparing C1 against similar cc model performance in urban (and interurban) areas..
- Are any alternative=?

Benchmarking PTW urban road safety

- For the core cities (Barcelona, London, Paris & Roma):
  - Definitions and accident reporting process
  - Accidents and accidents with a PTW involved: number of fatality accidents, killed and serious injured (KSI) accidents and total accidents.
  - Types of accidents, accident blackspots inventory
  - Number of killed, seriously injured and slightly injured.
  - Driver's age
  - Vehicle-kilometres by type vehicle
  - Population by age group
  - Number of motorcycles
  - Driver licenses Legislation: minimum age, speed limit, compulsory test (theoretical and/or practical), compulsory helmet, alcohol limit, etc.
  - History of key actions (Enforcement, Awareness campaigns..)
  - Relationships with mobility & structural characteristics of the cities

Core city PTW benchmarking

- ATAC is leading the current proposal.
- The group must improve more. In addition to general data, road safety details, mobility and network data are required, with separate moped / MC analysis.

Background	2006 or 2007
Population	
Area (SqKm)	
Road network length (Km)	
Number of motor vehicles	
Lorry / Van	
Cars	
Motorcycles	
Mopeds	
Other vehicles	
Number of accidents	
Number of fatalities	
Number of injured	
Veh*km (*100 million)	

Indicators	2006 or 2007
Density (A3/A4)	
Motor veh per population (A6/A3 *1.000)	
Car per inhabitant (A8/A3 *1.000)	
Mortality rate (A13/A3* 100.000)	
Fatality rate (A13/A6* 10.000)	
Fatality risk (A13/A15)	
Death rate (A13/A12*1.000)	

Number of motorcycles & mopeds

Año	Motorcycles (*1000)	Mopeds (*1000)	All Vehicles (*1000)
1996			
1997			
1998			
1999			
2000			
2001			
2002			
2003			
2004			
2005			
2006			
2007			

Population (*1000)

Año	City	Metropolitan area	Metropolitan region	City: 15 - 17	Share
1996					
1997					
1998					
1999					
2000					
2001					
2002					
2003					
2004					
2005					
2006					
2007					

Motorcycles & mopeds per inhabitant

Año	Motorcycles per inhabitant	Mopeds per inhabitant (15 -17)
1996		
1997		
1998		
1999		
2000		
2001		
2002		
2003		
2004		
2005		
2006		
2007		

Benchmarking: transfer cities

Core country Transfer cities:

- Madrid (ES)
- ... (GB)
- ... (FR)
- ... (IT)

- Comparisons based on a basic common dataset, consistent with the POLIS Urban Road Safety Initiative

- Together, the benchmarking must facilitate the identification of best practice

4. Identification of Best Practice

eSUM offers an open initiative to EU cities,
to improve PTW accident data recording procedures, to build an EU-urban database study tool. As well as a Haddon approach for action evaluation:

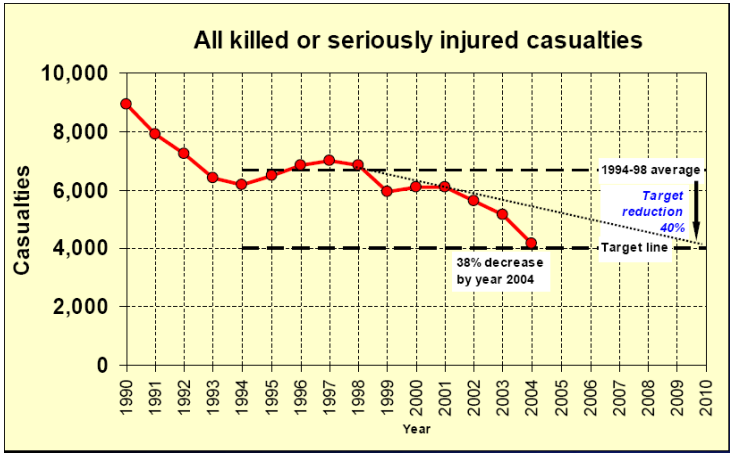
eSUM actions framework	***Driver***	***Vehicle***	***Infrastructure***	***Regulation & Enforcement***
Preventing collision	BP1		BP2	BP3
Avoiding accident			BP4	
Reducing severity		BP5	BP6	

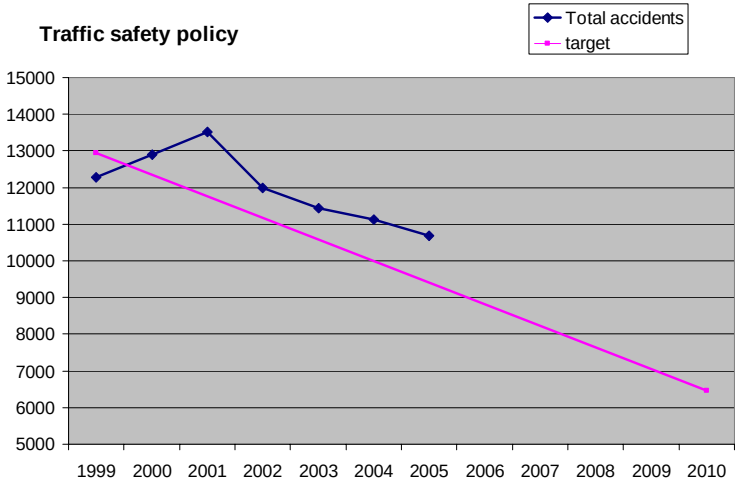
- BP1: Preventing collisions by Driver Training together with Behaviour Campaigns
- BP2: Preventing collisions by Street & Traffic Management Design
- BP3: Preventing collisions by high levels of targeted enforcement
- BP4: Avoiding accidents through specific P2W blackspot remedial programmes
- BP5: Reducing injury severity by Improved P2W vehicles (design & protective devices)
- BP6: Reducing injury severity by reducing & softening street furniture

Establishing accident reduction targets

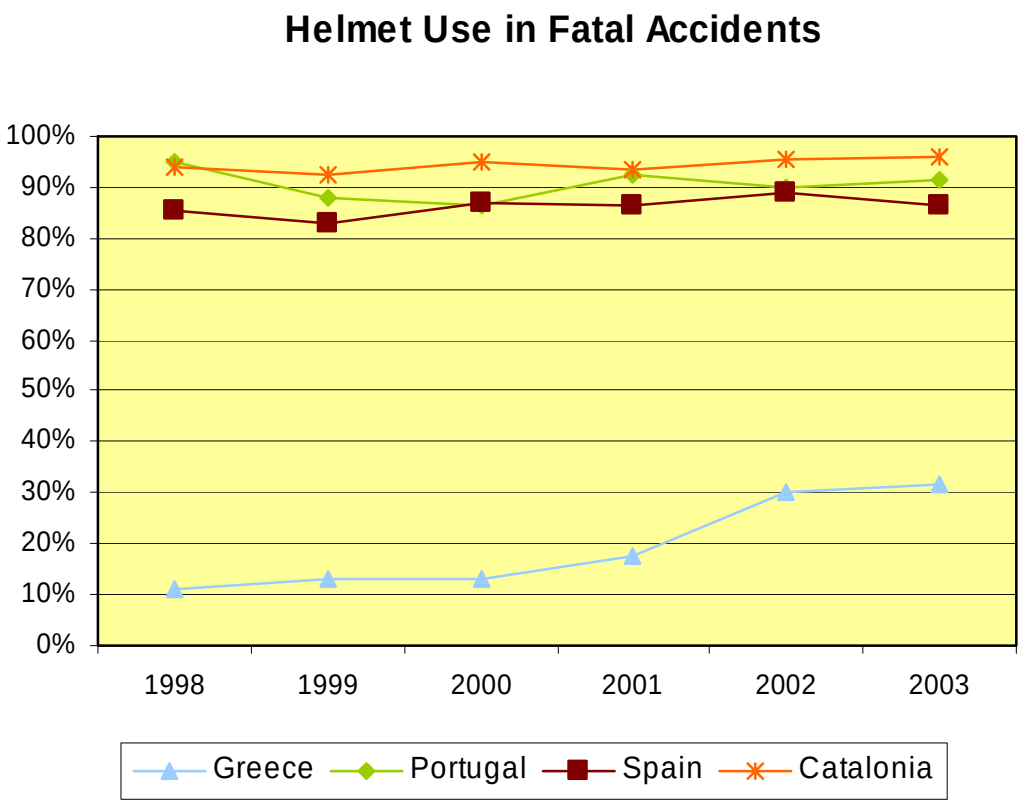
Recommended as best practice by WHO and other reference organisations…

Do the eSUM urban authority partners have specific accident reduction targets? Is the PTW problem specifically addressed?





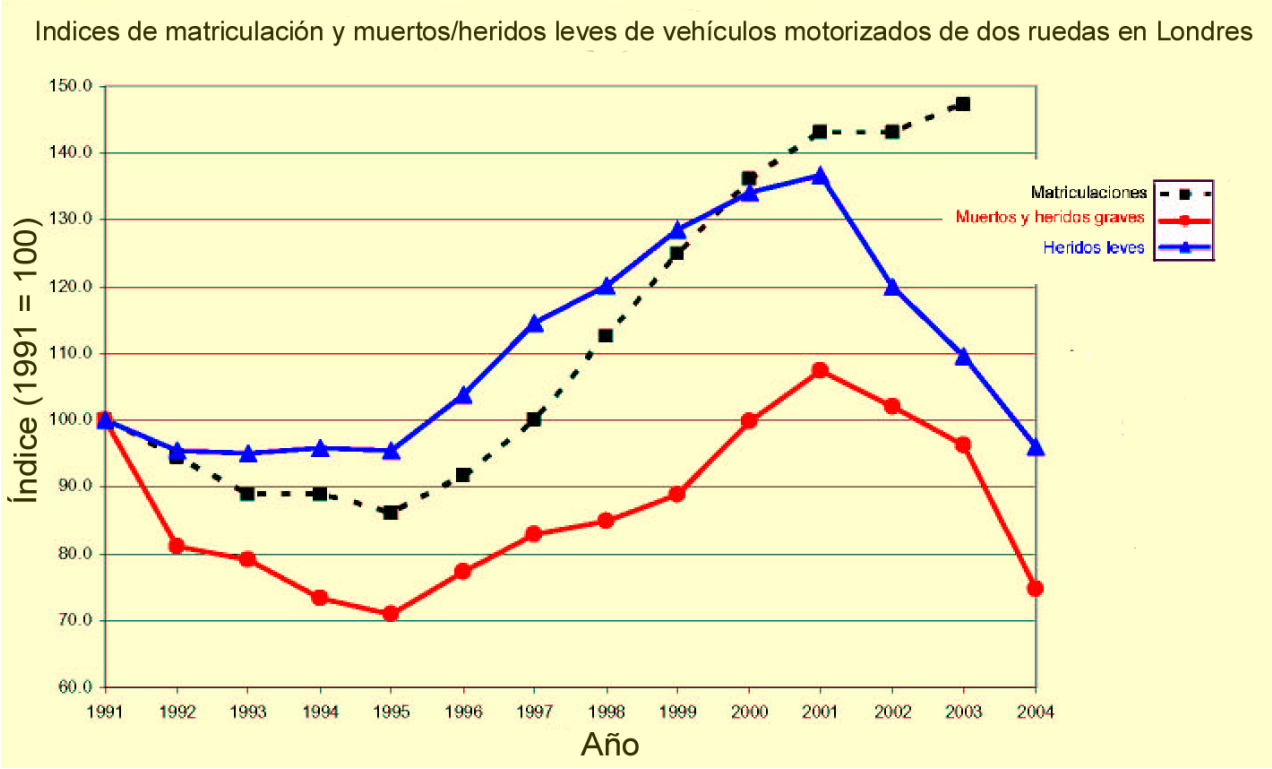
Example: Identification Best Practice



Reducing injury severity can be achieved by enforcing a high usage of helmets by drivers.

The relatively good performance of Catalonia in the South-group PTW analysis is at least partly attributable to the greater impact of the urban enforcement effort led by the city of Barcelona.

- **TfL lead: rise in PTW registrations after congestion charging continues but the trend of increasing PTW accidents (victims killed and injured) has been returned to early '90s level thanks to combination of driver training + awareness campaigns … TfL to articulate latest plans for corporate training**



Thoughts for Identifying Best Practice

BP2: Preventing collisions by Street & Traffic Management Design

- **Use of bus lanes: compare Bcn and Paris prohibitions with TfL's trial results**
- **Paris: recognition of riding between streams of car traffic; conditions in Charter of March 2007; One day PTW experiences for city planners, report of first trials**
- **Good PTW parking practice; Paris' Charter defines it**

BP3: Preventing collisions by high levels of targeted enforcement

- **Collisions that can be enforced are red-light jumping, can we collect before / after data of accidents for sites with installed cameras?**

Thoughts for Identifying Best Practice

BP4: Avoiding accidents through specific P2W blackspot remedial programmes

- **Can we define & collect data? Report Bcn experience (Local Police)… Other core cities?**

BP5: Reducing injury severity by Improved P2W vehicles (design & protective devices)

- **UniFir lead: synthesis of state-of-the-art**
- **Piaggio: of the various safety features demonstrated with MP3, what will be offered to MP3 hybrid customers?**
- **BMW: short report on crashworthiness testing for PTWs**

BP6: Reducing injury severity by reducing & softening street furniture

- **Report Bcn inventory (Local Police)…**

Identifying (& reporting) Best Practice

Advancing this WP will help ensure interaction with data collection & benchmarking

Does this cover all elements?
What about BP for data collection? and staff organisation?,
& charter approach for involving actors?

A TEMPLATE for URBAN MOTORCYCLING ACTION PLAN

5. Demonstrating innovation & best practice

eSUM actions framework	*Driver*	*Vehicle*	*Infrastructure*	*Regulation & Enforcement*
Preventing collision	D4		D1	
Avoiding accident				D2
Reducing severity		D3		

- **D1. Preventing collisions by Street & Traffic Management Design**
- **D2. Preventing collisions by automated (ITS) enforcement of P2W violations**
- **D3. Reducing injury severity by promotion of safer P2W vehicles and features**
- **D4. Preventing collision by Enhanced Training and Awareness Campaigns**

D3. Reducing severity by promoting safer P2W vehicles & features

- **eSUM manufacturers are developing electric / hybrid versions of safe models – how do eSUM cities propose to promote their implementation / maximise their penetration in the city P2W stock?**
- **Possibilities under consideration include:**
  - Exemption from bus lane restrictions for electric / hybrid PTWs (Paris lead)
  - Promotion of recharging points (London to adapt initiative established for 4-wheeled vehicles?..)
  - Bcn (Municipality with BSM): Use of safer & cleaner PTWs by traffic police + PTW recharging /battery exchange at network of car parks / preferential on-street parking
  - Lower vehicle tax (which cities impose local taxes?) according to emissions..
- **More ideas?**
  - More intelligent helmet (lights)..?

D3. Reducing severity by promoting safer P2W vehicles & features

- What? EXACTLY, can the eSUM PTW manufacturers offering?
- Do electric / hybrid PTWs have safety weakspots?

ABS (>500cc? does this exclude the C1 and MP3?), ecall*, helmet advisors, cars with collision-avoidance ISA, external air-bags

Event recorders, alcoholock + adpation of points driver licence for PTWs…

- How many vehicles? For how long? For all sites?

Advanced stop lines: report Bcn trials against other trials

3 sites
2 trial phases
Phase 1: physical only, May-Sept ’08
Phase 2: physical & signal timings, tbd

New markings & layouts for circulating traffic; Paris trial, others?

Comment: may be difficult to obtain conclusive, spectacular results …

D2 & D4 Demonstrations

- **D2. Preventing collisions by automated (ITS) enforcement of P2W violations**

BCN lead

- **D4. Preventing collision by Enhanced Training and Awareness Campaigns**

TfL lead developing corporate best practice

6. Transfer of Best Practice

- Mechanism for transfer being linked to POLIS initiative
- Question of City Size: will BP of larger cities be transferable to medium-sized cities?
- Active transfer cities (i.e. those providing POLIS data) could be invited to comment on draft of best practice report, and to extend the collection of the PTW data to cover the eSUM benchmarking template, and to participate in a workshop to discuss the concept of EU-city collaboration to build a PTW accident database....

7. Upcoming dissemination

- Web Page
- Open Days, Brussels Oct 6-9
- Paris, EU Road safety day; Oct 13
- Barcelona, POLIS Nov 25/26 BcnMun / ACEM /
- Brussels, ACEM Annual conference Dec 1

For more information:

esum.eu

Thanks for your attention!