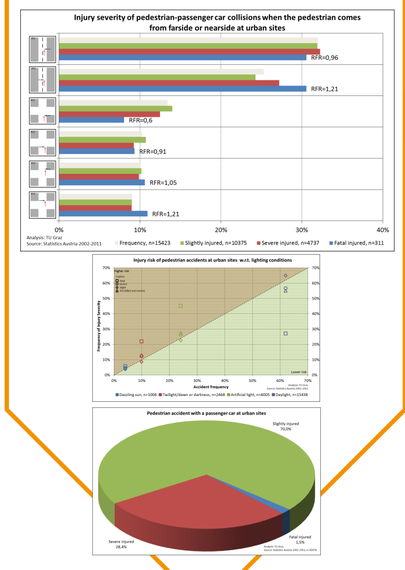
Project SafeEV: Test Configuration Proposal for Impact Collision with Small Electric Vehicles (L7e)

Approach

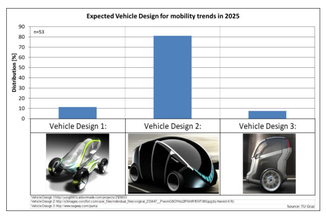
Accident Analysis



Delphi Survey

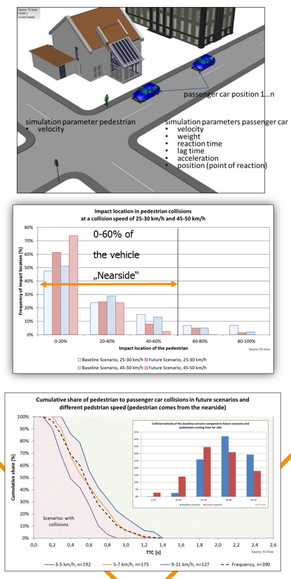
Expert opinion		
Shares of the different scenarios:		
Scenario 1:	Scenario 2:	Scenario 3:
51.25 %	38.75 %	10 %

Scenario 1:	Scenario 2:	Scenario 3:
Global Cities (Winner): City Center, Central Business District; Core areas of metropolitan regions and cities	Cities in Eastern Europe, Main area between center and suburbs, Run-down Cities (Looser): All around	Selected pilot areas, Small Towns: Central Places, Suburban areas, city borders

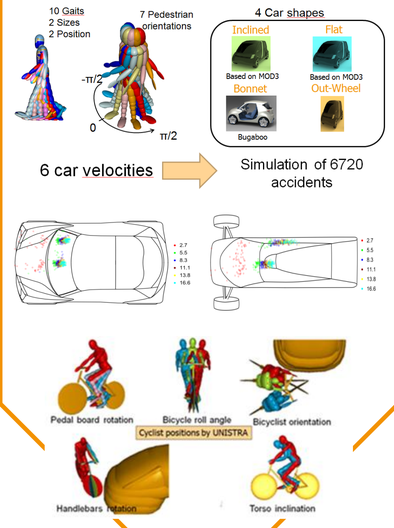


Overall Expert Answers		
Conventional Vehicles (M1 class)	48.00%	71%
Small Electric Vehicles (L7e classes)	10.00%	
LTV (Light truck vehicles)	13.00%	
E-bikes and Pedelecs	11.00%	29%
Conventional Bicycles	18.00%	

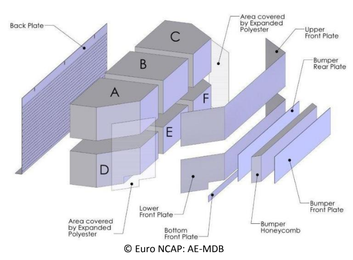
Stochastic Simul.



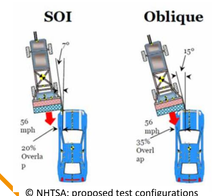
MB - Simulations



Regulatory Trends

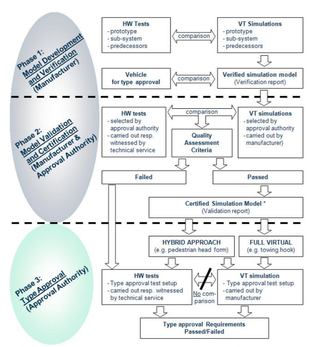


© Euro NCAP: AE-MDB

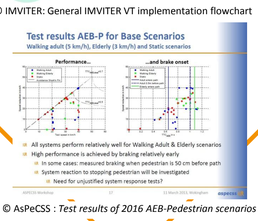


© NHTSA: proposed test configurations

Research Activities



© IMVITER: General IMVITER VT implementation flowchart



© AsPeCSS : *Test results of 2016 AEB-Pedestrian scenarios*

Enhanced Occupant and VRU Protection of L7e Vehicles on Urban Roads

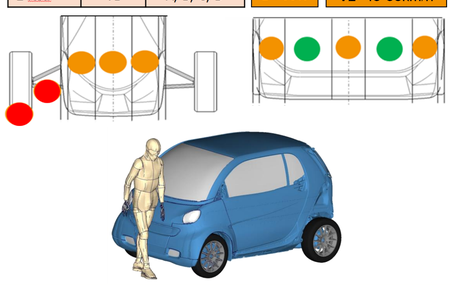
Future Test Configuration Proposal

Pedestrian Impact

- Seven pedestrian impact locations
- Two speed ranges
- Four different percentiles

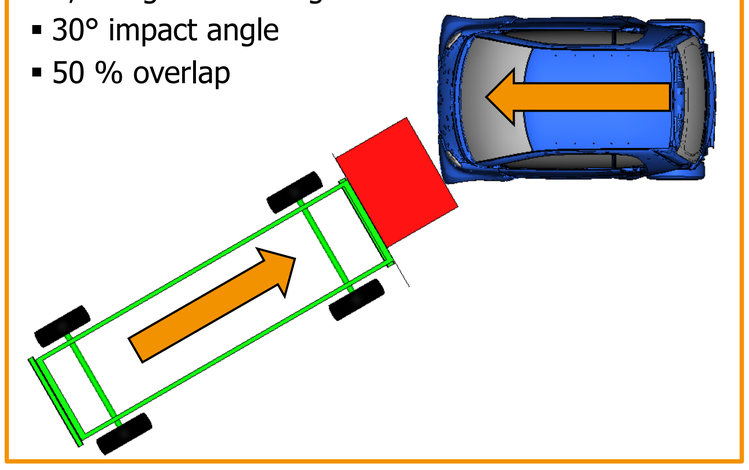
	Speed Range:	Size:
3 Orange	V1, V2	A, B, C, D
2 Green	V1, V2	A, C
2 Red	V1	A, B, C, D

Proposal	
A= 6yO B= 5% C= 50% D= 95%	~36 Sim. V1=25-30km/h V2=45-50km/h



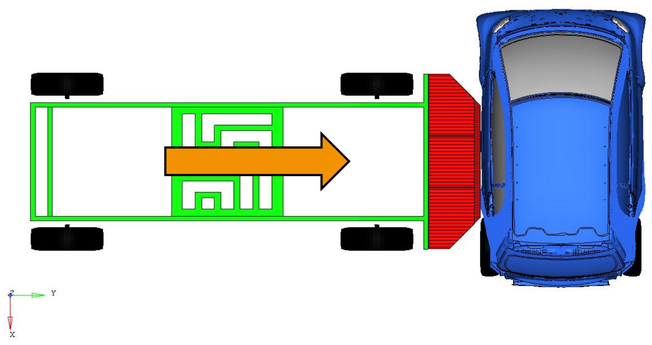
Frontal Impact

- Velocity 35 km/h (barrier) and 35 km/h (vehicle)
- 1,300kg Mobile Progressive Deformable Barrier
- 30° impact angle
- 50 % overlap



Side Impact

- Velocity 40 km/h (barrier)
- Advanced European – Moving Deformable Barrier
- 90° impact angle



Conclusions

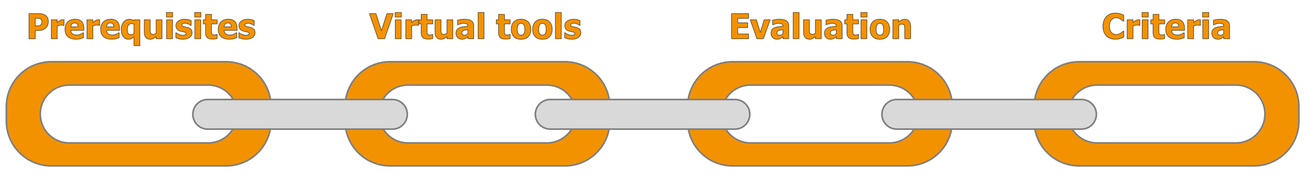
L7e SEV vehicles in urban areas

- New virtual test scenarios for front, side and pedestrian impacts
- Rollover, small overlap, pole side and rear impact less relevant
- Based on a six step approach
- Improve safety of occupant and VRU
- One tool for the SafeEV tool chain
- Usage of HBM within virtual test scenarios proposal

Outlook (Tool Chain):

Main objective of SafeEV project: Development of a seamless virtual tool chain

- Virtual tool chain will be applied within the proposed test configuration



General Project Information

Budget:	3.2 M€	Funding:	2.1 M€
Start:	October 2012	Duration:	36 months
Coordinator:	Virtual Vehicle Research Center	Contact:	info@project-safeev.eu

www.project-safeev.eu

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