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Safety of Future Mobility

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Abstract

The global road safety problems in relation to the Vision Zero [5] and current statistics

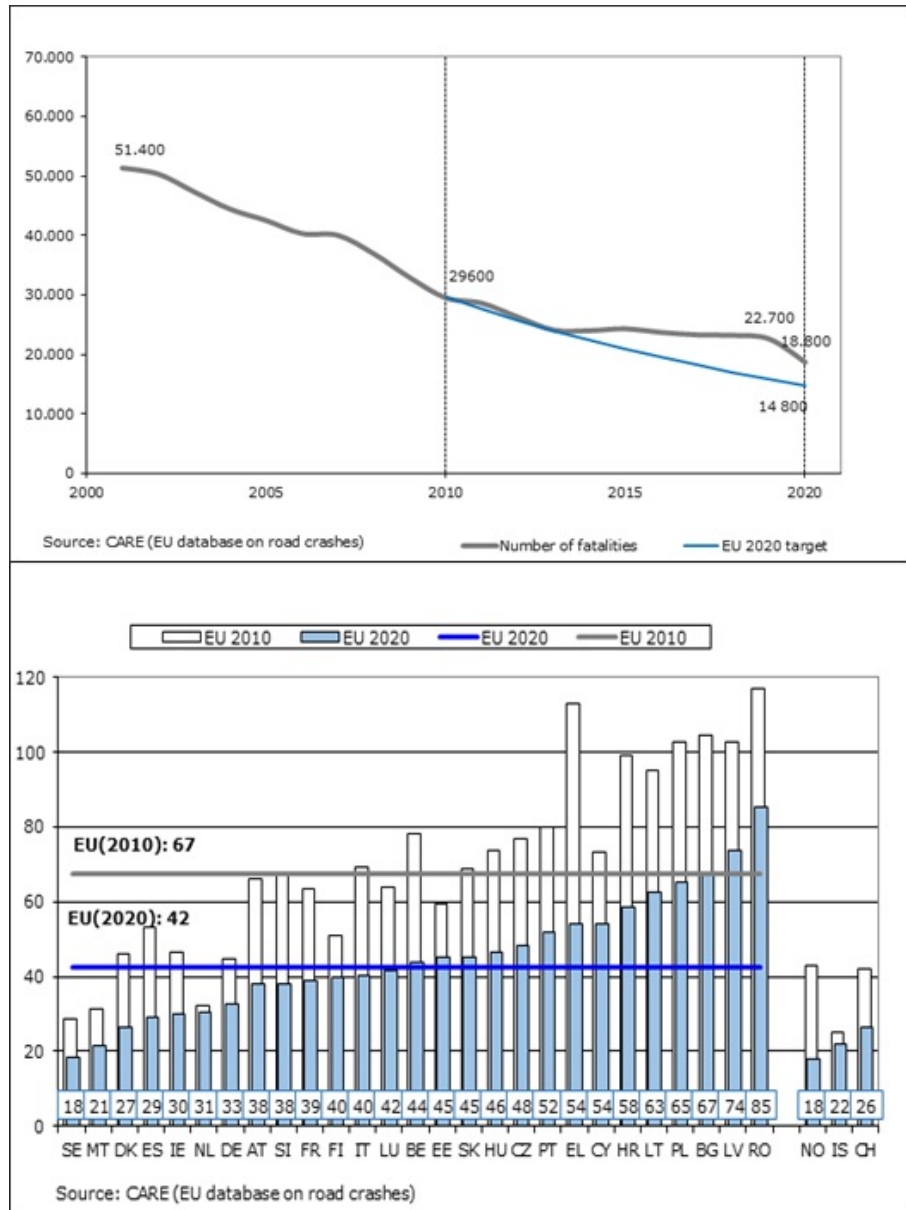


Figure 4: EU Road Statistics, source CARE (EU database on road crashes)

Fatalities are just the tip of the Iceberg according to the WHO 2013/2015 and Worldbank/IHME 2014. Important is The 2030 Agenda for Sustainable Development, adopted by all UN Member States in 2015.

Future Outlook

Global Societal Trends 2030+:

Strong increase in population, particularly in Asia and Africa, aging population, increasing urbanization and congested megacities, increase of motorization in low and middle income countries, climate change: urgent need to reduce CO₂ and emissions due to transportation, many new technology developments including automation, policy focus on liveable cities and smart cities. Solution: lightweight vehicles, autonomous driving, roadway management, electrification, virtual testing and its growing role:

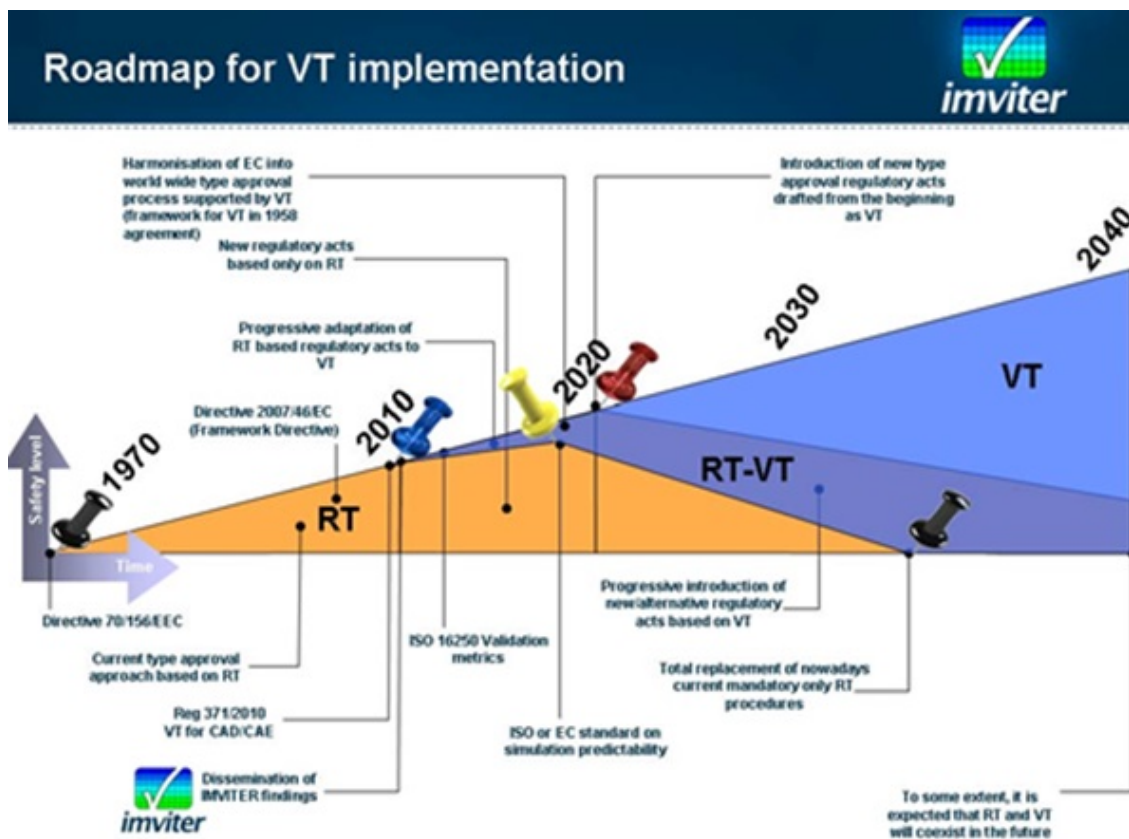


Figure 5: Roadmap for VT, source Inviter project [1], [2], [3]

Example of Safety project on UWB – The Safe Tram Front End:



Figure 6: Skoda Transportation safe front end, source Project Final Report [4]

Conclusion:

- Next to further improvements in vehicle safety (incl. autonomous driving), prioritization should be given to vulnerable road users like separate lanes for Non-Motorized Traffic (NMT), helmet usage for pedal bikes and in particular e-bikes,
- Also very important is better and safer public transport especially for the elderly. Note that public transport is \approx 10 times safer than cars per km travelled,
- Measures to improve motorcycle safety like ABS, helmets, protective clothing, visibility and most importantly Intelligent Speed Adaption (ISA),
- Measures for trucks include blind spots, compatibility with other road users, EA fronts, ISA etc.

References:

- [1] Wismans, J.: Global Challenges for Road Safety till 2030. The 2nd International Symposium on Future Mobility Safety Science and Technology. 2019, Pilsen, CZ
- [2] Wismans, J.: Reflection on 50 Years of Human Body Modelling and Future Challenges from a Global Perspective. 8th International Symposium Human Modeling and Simulation in Automotive Engineering, 2020, Wiesbaden, Germany
- [3] Corgero, R.: Inviter Final Report, Cidaut 2007, Spain
- [4] Rajdl, P. et all: Final Report of Safe Tram Front End Project. Skoda Pilsen 2021, CZ
- [5] Commission Document: EU Road Safety Policy Framework 2021-2030, 2019, Brussels



