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Project V4SAFETY

TECHNOLOGICAL SOLUTIONS FROM 3 EU-PROJECTS

Event: Webinar on road safety

Date: 27 February 2023



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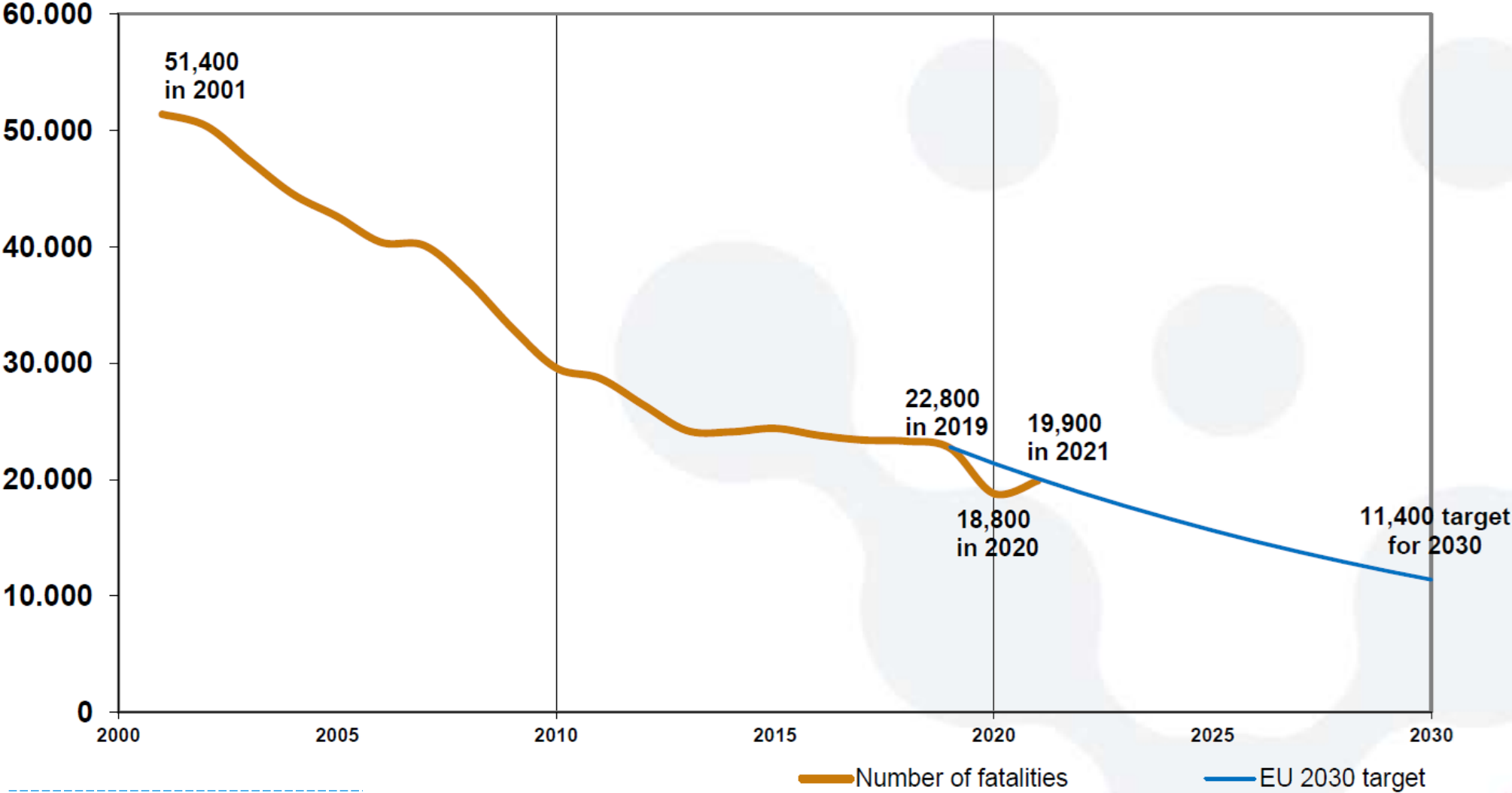


V4SAFETY

Who we are:



Trend in the number of road deaths in EU



Source: CARE (EU database on road crashes) | EU DG Mobility and Transport



ROAD TRAFFIC FATALITIES IN THE EU IN 2021

by road user and (other) 'main vehicle'
involved in the crash

IN A COLLISION WITH...

FATALITIES		PEDESTRIAN	BICYCLE	MOPED	MOTORBIKE	CAR	LORRY (<3.5T)	HEAVY GOODS VEHICLE (>3.5T)	BUS OR COACH	OTHER VEHICLE/ UNKNOWN	NO OTHER VEHICLE INVOLVED	TOTAL
PEDESTRIANS		0	29	16	115	2 328	416	391	97	162	0	3 554
CYCLISTS		7	45	6	26	838	183	199	30	77	426	1 837
MOPED RIDERS		0	1	7	6	232	42	27	5	20	175	515
MOTORCYCLISTS		10	8	8	91	1 386	231	207	13	85	1 197	3 236
CAR OCCUPANTS		18	6	4	21	2 504	625	1 392	115	298	3 900	8 883
LORRY (<3.5T) OCCUPANTS		1	0	1	0	124	62	250	10	32	262	742
HEAVY GOODS VEHICLE (>3.5T) OCCUPANTS		1	1	0	0	40	11	192	2	13	153	413
BUS OR COACH OCCUPANTS		3	0	0	0	6	7	12	4	14	74	120
OTHER/UNKNOWN		2	3	2	4	169	34	52	4	27	300	597
TOTAL		42	93	44	263	7 627	1 611	2 722	280	728	6 487	19 897

Clear need for a safety assessment framework

- Capable of dealing with current challenges and the **fast developments in technology**, now and in the future;
- Requires a **feasible testing effort**, e.g., by making use of virtual testing using simulations;
- Conforms with EC and UN **regulations**, as well as international **standards** (ISO, SAE);
- Is capable of handling the **changing role of the human** driver, evolving as a result of new transport modalities at various automation and communication levels;
- Is fair, comparable and clear: **unambiguous**, easily understood, **explainable**



V4SAFETY takes the perspective from a vehicle

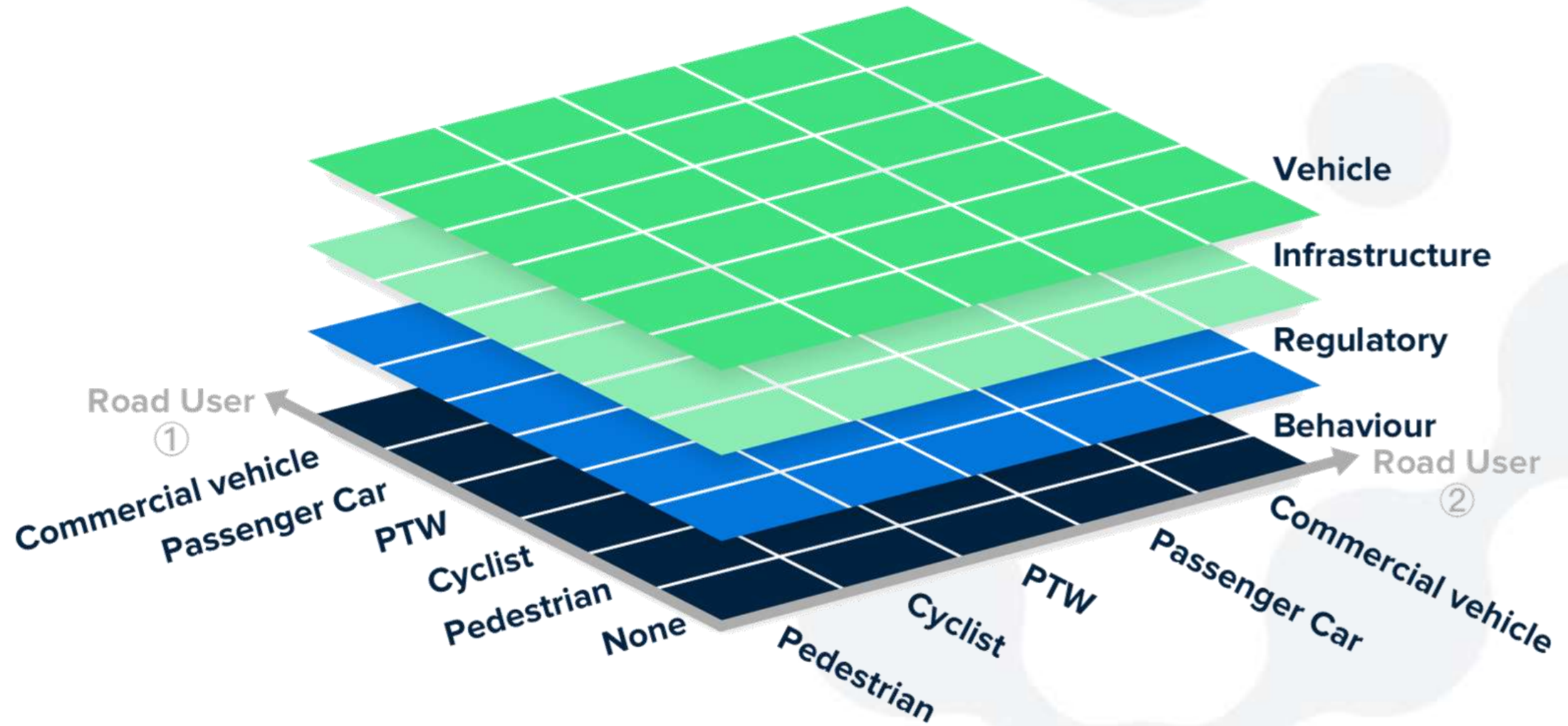


- In-vehicle safety solutions, e.g.:
 - Autonomous Emergency Braking
 - Intelligent Speed Adaptation
 - Automated Lane Keeping System
 - Driver nudging – HMI
- Infrastructure solutions, e.g.:
 - Speed bumps
 - Road layout
 - Cycling lane indicating tarmac
- Regulatory changes, e.g.:
 - Speed limit regulation
 - Regulation on helmet use
 - Vehicle placement on road

V4SAFETY objectives

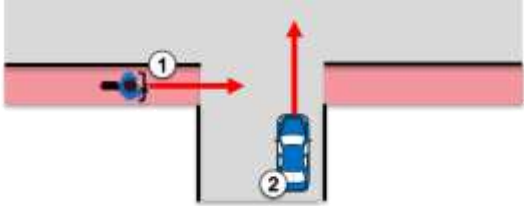
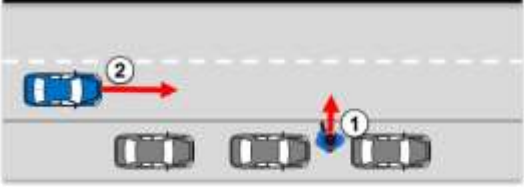
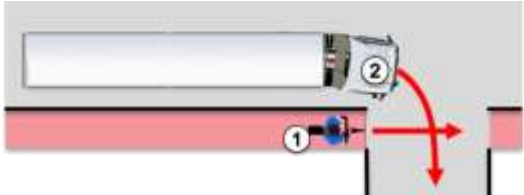
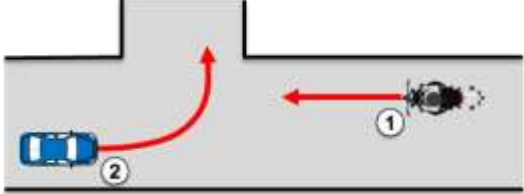
1. A widely **accepted** and **harmonized** predictive safety assessment framework
2. Ensure that simulation models properly address the behaviour of **drivers**, vehicle **occupants**, and **VRUs**
3. Address different types of safety solutions: **in-vehicle**, **infrastructure** and **regulatory**
4. Demonstration of the framework for relevant use cases, e.g., solutions developed by SOTERIA and/or PHOEBE
5. A methodology for projecting the benefits of the application of safety measures throughout the EU in the coming years, also considering the expected **changes in the mobility system**

Use case domain



Inspired by the Haddon Matrix which applies basic principles of public health to motor vehicle-related conflicts that potentially lead to injury (1980)

Potential use case to be addressed

Use case	Road User		Scenario
	①	②	
A	E-scooter	Car	
	<p><u>Crossing paths</u> E-scooters drive fast and are highly manoeuvrable; it is difficult for a car driver to anticipate the e-scooter's intention.</p>		
B	Pedestrian	Car	
	<p><u>Jay-walking pedestrian</u> It is difficult for a car driver to distinguish a pedestrian (e.g., a playing child) who appears from in between cars to cross the road.</p>		
C	Bicyclist	Car / Truck	
	<p><u>Right turn across path</u> A bicyclist in the vehicle's blind spot might not be seen by the driver.</p>		
D	Powered Two-Wheeler (PTW)	Car	
	<p><u>Left turn across path</u> A car driver may turn in the path of a PTW going straight, since the PTW's distance and speed may be difficult to judge.</p>		

V4SAFETY network

- Advisory board



- Simulation tool providers



- Other related harmonization initiatives



Outlook on the collaboration and impact

- The three sister projects each have their own perspective;
- Covering the road safety domain well ➡ significantly contributing to road safety improvement, now and in the future.

V4SAFETY foresees following impacts:

- Societal: **accelerated introduction** of relevant road safety **measures** ➡ reduction of human suffering due to traffic accidents, with special focus on VRUs
- Scientific: **harmonised framework** and principles along with standards for reporting and documenting results
- Technological: **reliable studies** that shorten the development and implementation cycles of safety measures that improve traffic safety & traffic flow and reduce costs of crashes
- Economical: **reduction of social costs** of mobility



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