

# **SIMUSAFE: Simulation of Behavioural Aspects for Safer Transport**

## **Simulators in drivers' training**

Conference **AV-POLAND**  
2021 - June 7<sup>th</sup> - Warsaw

***Manuel Picardi, Ph.D***  
*EFA – General Secretary*



# Who is EFA



**23 National Driving School Associations**

**11 Affiliate Members**

**7 Road Safety Partners**

**Standardization of Education and**

**Examination of Future Drivers**

**Standardization of Education and**

**Examination of Driving Instructors**

**Minimum Standards for Driving Schools**

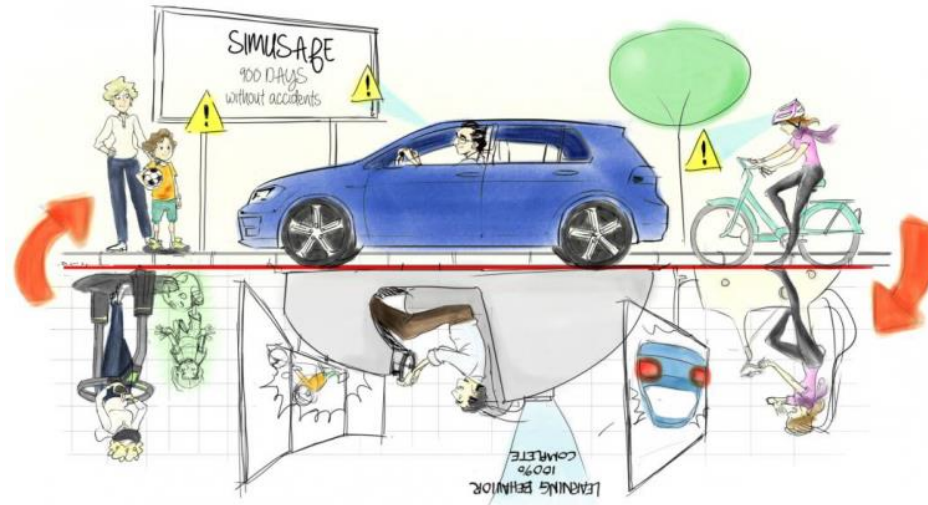


# EFA Drivers Training Lab



## Simusafe Aims

Currently, **driving simulators have limited use** in safety studies due to the limited realism of road users' behaviours in models. **SIMUSAFE will bridge this gap** by collecting and integrating sources of road user behaviour to build more realistic simulation environments.



**Data collected** from simulations **will be correlated with naturalistic driving tests**, such that the simulation and model aspects are the closest possible to real world data.





What EFA should have done for the Simusafe project:

1. **Collecting information of EU training curricula**
2. **Organize International Workshops and Seminars**
3. **Create New Training Modules**



The EFA MATRIX: A training framework for CLASS-B licensing in Europe

EUROPEAN CLASS "B" LICENSE	
TO BE DONE AT THE DRIVING SCHOOL	
(Certified / Not tested)	(To be tested by administrations)
<b>THEORY</b>	<ol style="list-style-type: none"> <li>1. Causes and consequences of traffic crashes*</li> <li>2. Risk/hazard perception</li> <li>3. Norms and conduct: legal and personal responsibility*</li> <li>4. Vulnerable groups of road users</li> <li>5. Risk factors: speeding, alcohol &amp; drugs, and distractions*</li> <li>6. Passive and active safety: ABS, seatbelt, helmet, child restraint systems, etc.</li> <li>7. Behavior in case of suffering a crash</li> </ol>
<b>PRACTICAL</b>	<ol style="list-style-type: none"> <li>1. Rules and regulations</li> <li>2. Traffic signals</li> <li>3. Driver's documentation and insurance</li> <li>4. Risk/hazard perception test</li> <li>5. Main risk factors</li> <li>6. Ecological and economic driving: Vehicle and environment</li> <li>7. Car maintenance and basic vehicle technology</li> <li>8. Parking and vehicle maneuvering (stopped and moving)</li> <li>9. Urban roads</li> <li>10. Rural/regional roads</li> <li>11. Highways/motorways</li> <li>12. Safe use of ADAS</li> <li>13. Mechanical components and vehicle safety</li> </ol>

\*In the 1 (Causes and consequences of traffic crashes), 3 (Norms and conduct), and 5 (Risk factors) theoretical topics, it is proposed to give participation to victims of traffic crashes, in order to share their testimony and increase the awareness of trainees.



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## What EFA has done for the Simusafe project:



## Collected information of novice drivers curricula

6.1. Level 1 - Summary table NOVICE DRIVERS	ALBANIA	AUSTRIA	BELGIUM	CROATIA	CZECH REPUBLIC	DENMARK	ESTONIA	FINLAND	FRANCE	GB	GERMANY	GREECE	HUNGARY	ICELAND	ITALY	MOLDOVA	NETHERLANDS	NORWAY	PORTUGAL	SLOVAKIA	SPAIN
Do you have to pass a medical check to obtain B driving license?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	Yes	No	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes
Is it possible start training for a cat B license before the age of 18 years?	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes
Road Signs, Norms of Behavior, Documents and Car Maintenance: are these topics included in theory program for cat B license?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes
Are there compulsory driving theory lessons in your Country?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes
Is a Hazard Perception Test required?	No	No	Yes	No	No	Yes	No	No	No	No	Yes	No	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes
Must theory test be passed before training begins?	Yes	No	No	Yes	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No
Is the testing organization a governmental institution (G) or a private enterprise (P)?	G	G	P	P	G	G	G	G	G	P	G	G	G	G	P	G	G	G	G	G	G
Is B theory test computerized?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
How many questions are there in a B theory test?	30	70	40	50	30	70	40	50	30	70	40	50	30	70	40	50	30	70	40	50	30
Are the category B theory test questions compulsory elements in the training?	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No
Is a learner's permit needed before training?	Yes	Yes	No	Yes	Yes	Yes	No	Yes	Yes	Yes	No	Yes	Yes	Yes	No	Yes	Yes	Yes	No	Yes	Yes
Are there compulsory elements in the training?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Is a Log book with a record of training compulsory?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Are simulators used in the training? (C) element	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Are parents and other qualified drivers practicing?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Is there compulsory second-phase training?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Is there a minimum learning period?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Are any restrictions placed on novice drivers at night, stricter penalty/demerit points?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Are any technology systems (ADAS) used in the training?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Is the Theory Course price regulated?	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
Is the Training price regulated by law (L) or by Market(M)?	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M

(\*) Denmark's value 100 comes from the answer "25 figures with 4 questions"





## Novice Drivers in Europe (21 countries)

The research carried out by EFA in the field of Novice Drivers training in Europe has produced the results collected in the following table.

The **EU scenario** for the Novice Drivers training sector is **fragmented**. The 21 countries analysed have very different systems from each other. The topics where the attention has been most focused are:

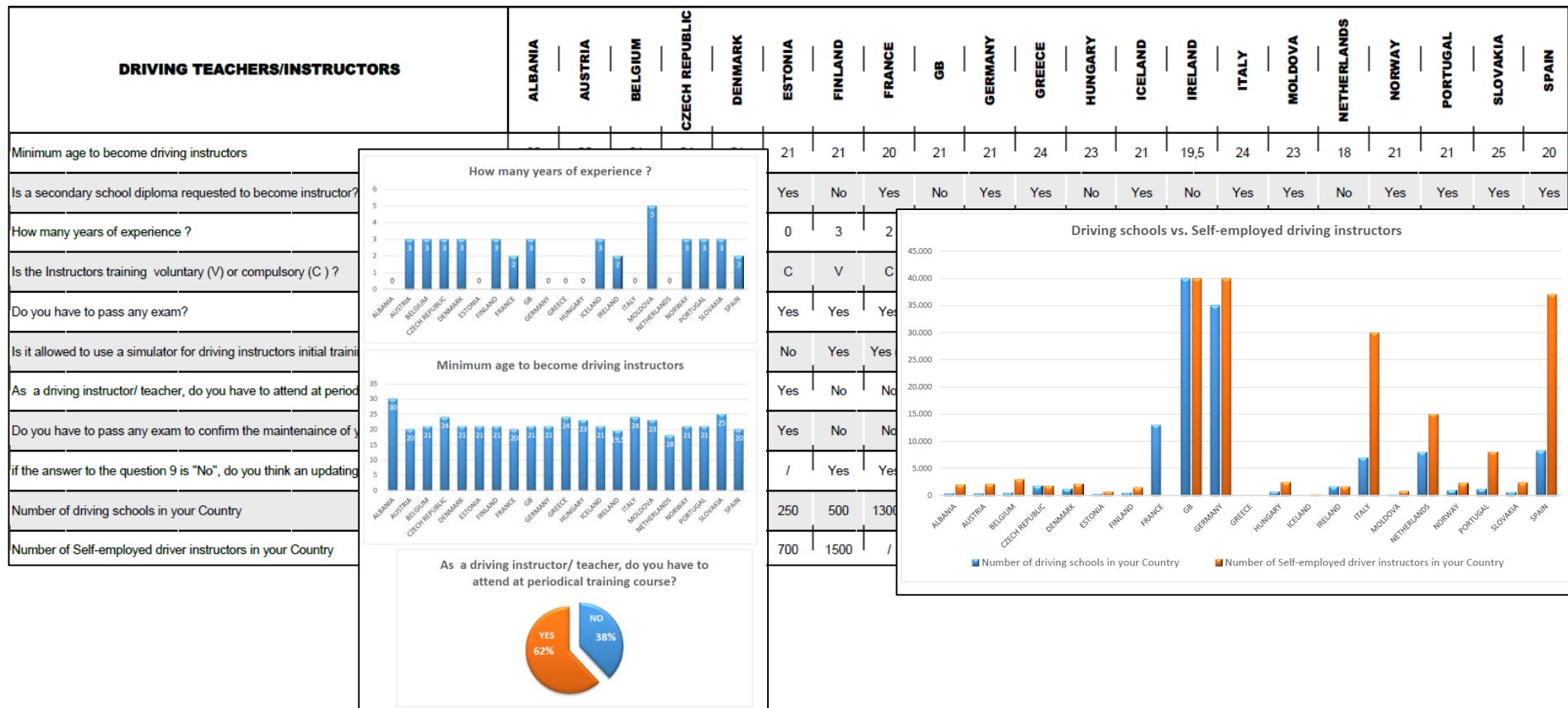
Mandatory attendance in theory course	Completely different
Practical training before theory test	Completely different
Examination Body (Governmental or Private)	Completely different
Compulsory training (practical)	Completely different
Use of simulator	Not popular
Hazard Perception Test	Not popular
Gradual Driving Licence (2° phase)	Not popular
Minimum learning period before the test	Completely different
Accompany learner drivers	Completely different



## What EFA has done for the Simusafe project:



## Collected information of Driving Instructors curricula







## Driving Instructors in Europe (20 countries)

The research carried out by EFA in the field of Driving Instructors training in Europe has produced the results collected below.

The EU **scenario** for the Driving Instructors training sector is **fragmented**. The twenty countries analysed have very different systems from each other. The topics where the attention has been most focused are:

The difference in teaching qualifications in the all categories of driving licenses	Completely different
The requirements for access to the profession such as a driving license and years of experience	Completely different
The use of driving simulators	Not popular
The periodic training system	Not popular
The use of simulators in initial and periodic training	Not in use
The need to update courses for driving instructors	Required everywhere




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What EFA has done for the Simusafe project:




## Organized International Workshops and Seminars



Europäische Fahrlehrer-Assoziation e.V.  
Fédération Européenne Des Auto-Écoles  
European Driving Schools Association  
Driver Training For Life



SIMULATION OF BEHAVIOURAL  
ASPECTS FOR SAFER TRANSPORT



AIPSS  
Assoziation der Profisimulatoren  
des Verkehrs

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement N. 723386

**Autonomous vehicles and road safety: towards new training modules for drivers and driving instructors.**

**WORKSHOP – 16 May 2019 – Brussels, Rue de la Loi 223 (ground floor)**

The road mobility environment is continuously evolving and vehicle types are beginning to change as a result of increasing levels of automation: at the present vehicle SAE2 are already circulating and the SAE 3 ones are close to be deployed; their interaction with conventional vehicles and other road users, particularly the vulnerable ones are an increasing concern. While the commonly accepted definition of Vulnerable Road Users includes pedestrians, cyclists, elders, impaired persons, etc., in the increasingly connected and mixed road transport system "vulnerability" may in the future be more related to the non-connected users and people unable to properly use the new technologies that will be embedded in the new generation of vehicles. There is therefore a risk of a new "automotive digital divide" with relevant impact on socio-economic and road safety aspects. *In order to face the above risks and prevent the envisaged digital barrier, new education and training schemes (for both trainers and novice drivers) should be agreed at European level and implemented in a way which match the speed of the increased implementation of automated driving functions.* The SIMUSAFE project is dealing with new standards related to the introduction of autonomous vehicles and organizes a series of thematic workshops. EFA and AIPSS are proud to invite you to the first one.


The number of participants is limited in order to have an actual and effective round table.

**DRAFT Programme**


- 14h00 Registration
- 14h30 Welcome speech and introduction of EFA(EFA – John Lepine)
- 14h40 Presentation of INEA and SIMUSAFE project ( Ancuta Pasca –INEA project officer in SIMUSAFE )
- 14h50 Current and potential safety issues related to the introduction of autonomous vehicles (AIPSS: Carlo Polidori)
- 15h00 Overview of the driving schools in Europe: current issues and needs How can driving schools benefit from simulators in relation to AV ?(EFA: Manuel Picardi and Enrique Lorca)
- 15h15 Speech of European Transport Safety Council (Antonio Avenoso Executive Director)
- 15h30 Speech of DG MOVE- Casto Lopez Benitez- Team Leader - Road Safety -, vehicles, automatisaton
- 15h45 Speech of DEKRA Oliver Deiters, Managing Director
- 16h00 Coffee Break
- 16h30 Round Table with the speakers and the participants- Moderator: Frank Mütze (ETSC)
- 18h20 Closing remarks ETSC
- 18h30 End of the workshop

Working Language: English  
Participation under invitation only

Supporters:



Fondazione CS HARE



ETSC  
European Transport Safety Council



May 16° 2019 – Brussels



## What EFA has done for the Simusafe project:



### Organized **International Workshops** and Seminars

#### Outputs

Several questions remain open, but it is commonly recognized that drivers need to follow specific trainings and lessons on semi and full automated vehicles and how to use these IT features and equipment. Vehicle manufacturers are building systems which might be updated constantly and often add different services to their vehicles to provide guidelines and help to users. Unfortunately, all these additional features are continuously changing and it is extremely difficult to follow every change.

Since driving on autonomous vehicles generates the degradation of the human driving skills and a driver used to run an autonomous car may become dangerous when he goes back to a normal one, a periodic driving test on a normal car could be useful to ensure the level of driving skills.

The main issue remains the diversification of training system country by country: a joint regulation, as well as measures and guidelines are necessary to make sure that autonomous vehicles are safe rather than comfortable and convenient for the user.


The use of driving simulators would provide the possibility to expose drivers to situations they cannot encounter during a regular training and in addition may make drivers aware of dangerous situations they can be involved.




## What EFA has done for the Simusafe project:



### Organized International Workshops and Seminars








Europäische Fahrlehrer-Assoziation e.V.  
Fédération Européenne Des Auto-Écoles  
European Driving Schools Association  
Driver Training For Life













**Technology and Training: a threat or an opportunity?**





**TORINO, ITALY October 17<sup>th</sup>, 2019**  
NH Hotel Torino Centro  
104, Corso Vittorio Emanuele II - Torino, Italy













This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement N. 723386





October 17<sup>o</sup> 2019 – Turin





## What EFA **has done** for the Simusafe project:



### Organized **International Workshops** and Seminars

Many driving instructors and other stakeholders involved in the world of training and road safety have been involved in the event (**150 participants**).

**Technology is not a threat**, but an opportunity to be seized. The event achieved considerable success and good involvement of the participants.

The main conclusions are the need to understand **how**:

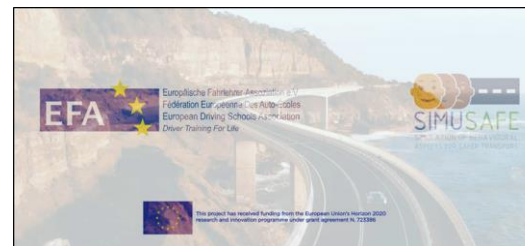
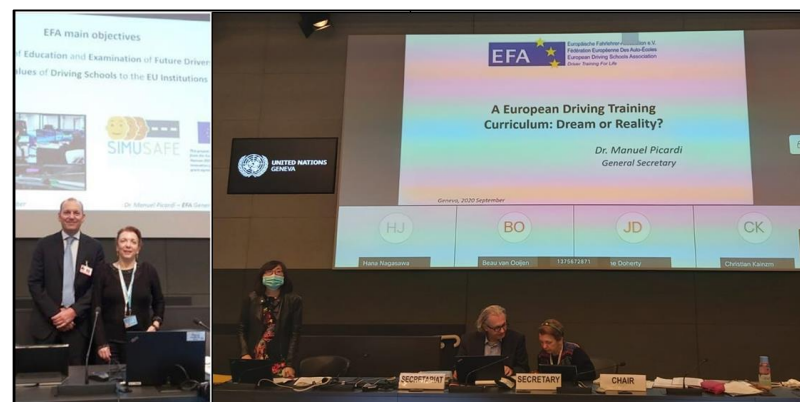
- **To use modern** and effective technologies and tools;
- **Drivers training should be supported** by technologies (novice drivers and driver instructors);
- To create a **scheme of lifelong driver training**.



## What EFA has done for the Simusafe project:



## Simusafe logo advertised everywhere



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What EFA has done for the Simusafe project:



## Created New Training Modules for Novice Drivers

EUROPEAN CLASS "B" LICENCE		
	TO BE DONE AT THE DRIVING SCHOOL	TO BE DONE AT THE DRIVING SCHOOL
	<i>(Certified / Not tested)</i>	<i>(To be tested by administrations)</i>
THEORY	Causes and consequences of traffic crashes*	Rules and regulations
	Risk/hazard perception	Traffic signals
	Norms and conduct: legal and personal responsibility*	Driver's documentation and insurance
	Vulnerable groups of road users	Risk/hazard perception test
	Risk factors: speeding, alcohol & drugs, and distractions*	Main risk factors
	Passive and active safety: ABS, seatbelt, helmet, child restraint systems, etc.	Ecological and economic driving: Vehicle and environment
	Post Collision care	Car maintenance and basic vehicle technology
PRACTICAL	Basic maneuvers in closed circuits	Parking and vehicle maneuvering (stopped and moving)
	Urban areas and e-mobility	Urban roads
	Rural/regional roads	Rural/regional roads
	Highways/motorways	Highways/motorways
	Adverse weather conditions	Safe use of ADAS
	Night driving	Mechanical components and vehicle safety
	Ecological and economic driving	
	Safe use of ADAS	



## What EFA has done for the Simusafe project:



### Created New Training Modules for Novice Drivers

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	Risk factors: speeding, alcohol & drugs, and distractions*	Main risk factors
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	Post Collision care	Car maintenance and basic vehicle technology
PRACTICAL	Basic maneuvers in closed circuits	Parking and vehicle maneuvering (stopped and moving)
	Urban areas and e-mobility	Urban roads
	Rural/regional roads	Rural/regional roads
	Highways/motorways	Highways/motorways
	Adverse weather conditions	Safe use of ADAS
	Night driving	Mechanical components and vehicle safety
	Ecological and economic driving	
	Safe use of ADAS	





What EFA **has done** for the Simusafe project:



## Created **New Training Modules** for **Novice Drivers**

EFA accepts the use of simulator only in some training modules:

- Bad weather conditions
- By night
- Manual transmission (Code 78)
- Use of ADAS
- Eco Driving

Difficulties:

- Most of EU driving schools are **family business** and often there is **no room and no staff** available for simulators;
- **Economic crisis** does not allow big investments

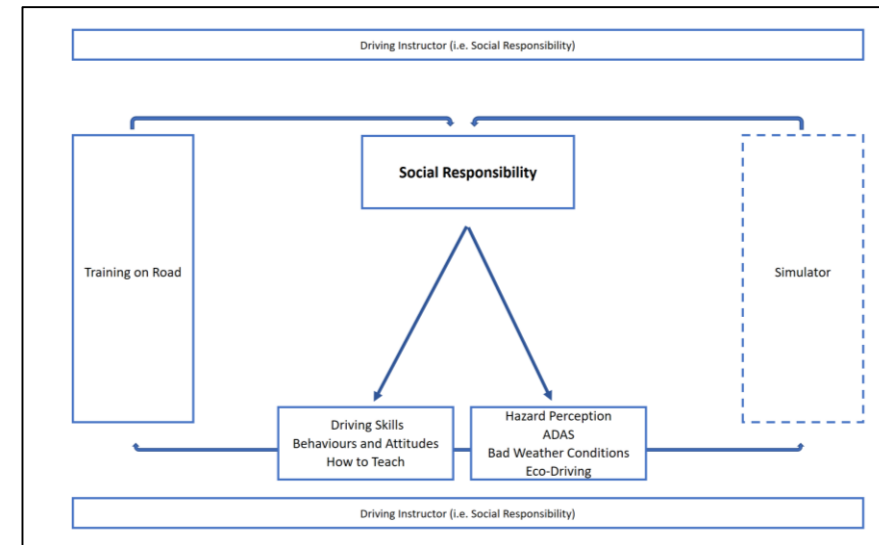
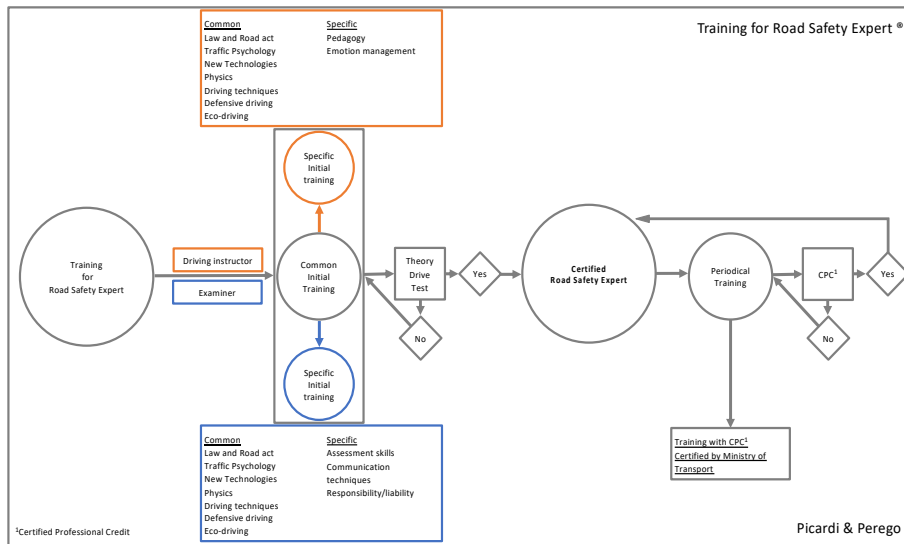


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What EFA has done for the Simusafe project:



## Created New Training Modules for Driving Instructors



What EFA **has done** for the Simusafe project:



## Created **New Training Modules** for **Driving Instructors**

EFA accepts the use of simulator only in some training modules:

- Hazard Perception
- Bad weather conditions
- Use of the ADAS
- Eco Driving

Difficulties:

- There is no EU Directive that regulates the **minimum training standards** for Driving Instructors Training;
- **Balance** between minimum required **quality and cost** of simulators for the organization that manage the training.



[www.simusafe.eu](http://www.simusafe.eu)



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***EFA – General Secretary***

