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

# 1

# Driving licensing in Europe: a new model for a new decade

VNIVERSITAT DE VALÈNCIA
INTRAS
University Research Institute
on Traffic and Road Safety

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**Technical Report: FLAB004/INTRAS**
**Universitat de València**

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# 1. Presentation

EFA (the European Driving Schools Association) is a professional federation representing the interests of the national associations of driving schools across 21 countries in Europe, covering about 120,000 driving schools and 220,000 driving instructors.

The principal mission of EFA is **to contribute to the continuous improvement of road safety**. We develop and strengthen quality-based education programmes for road safety training and develop policies, programs, guidelines and initiatives that pioneer actions aimed at preventing deaths and serious injuries on the roads of Europe and beyond.

**We seek to achieve these goals by encouraging**: (*i*) the harmonisation of the initial training of driving teachers and instructors together with the harmonisation of continuing professional development for driving instructors and teachers; (*ii*) preparing and updating educational concepts, training, and advanced-training curricula for all types of drivers; (*iii*) strengthening and harmonising driver assessment; and (*iv*) improving the standards for examining both driving instructors and examiners.

# 2. Introduction

To use a current analogy, road crashes are a pandemic (and a challenge) too. Their frequency, severe consequences and worldwide coverage have encouraged many organisations to continue working on effective actions to prevent them. As traffic crashes are not really "accidents" but, rather, events that can be avoided, driver training is the best possible "vaccine" for the road crash pandemic.

Below, we present a summary of some of the **key factors** regarding **road safety**, according to some of the most respected organisations worldwide:

1. The number of annual worldwide fatalities caused by traffic crashes has reached 1.35 million. A further 50 million people are seriously injured every year. Although the number of direct and indirect victims is incalculable, vulnerable road users are those suffering the most severe consequences **(Global Status Report on Road Safety 2018, World Health Organization *WHO*).**

2. Children and young people, who are among the most vulnerable road users, are a priority in crash prevention. Therefore, it is essential to accelerate the shift towards safer, healthier, cleaner, energy-efficient and more affordable transportation means, such as walking, cycling and public transport **(Stockholm Declaration Third Global Ministerial Conference on Road Safety: Achieving Global Goals 2030 Stockholm, 19–20 February 2020).**

*3.* This is a **critical decade** for improving road safety. **The United Nations General Assembly** has proclaimed the current decade as the Second Decade of Action for Road Safety, seeking to prevent 50% of road traffic deaths & injuries from 2021 to 2030. Throughout this declaration, the importance of driver training is highlighted, and the member states are requested *to develop and implement comprehensive legislation and policies on motorcycles, **including training and driver licensing**, but also enhancing the **recognized standards, certification and licensing issues of all drivers**, as well as **fostering measures to promote road safety knowledge and awareness among the population***. **For this purpose, more and better education, training** and publicity campaigns (especially among young people), are needed to propagate good road safety practices in the community.

*4.* **Starting in September 2015, the United Nations (UN) General Assembly adopted the 2030 Agenda for Sustainable Development**, composed of 17 Goals. Two of them explicitly refer to road safety; "*3.6. Reduction of road fatalities*" and "*11.2. Urban road safety: access to safe, affordable, accessible and sustainable transport systems for all…*". This agenda calls for more concrete actions across all nations, and training programs for drivers are part of these much-needed solutions.

To meet the objectives indicated by the UN, WHO and the European Commission regarding road safety, **it is necessary to innovate and improve driver training programs.** In many countries, the first contact people have with road safety takes place at driving schools. As a result, driving schools should teach not only "how to drive a vehicle", but also develop different road safety skills, attitudes and behaviours that might systematically contribute to accomplishing the goals appointed in the agendas of all these organisations.

# 3. Driver's Training: from day-0 to 2030

Driving training and road safety, which have always been closely related to each other, can no longer be addressed through traditional -and sometimes outdated methods and curricula. Transportation dynamics are changing, and training programmes must be reconsidered, considering the changing mobility scenarios of 2030 and beyond.

In other words, the model according to which trainees attend a driving school only to obtain a driving qualification is outdated. Nowadays the possibilities and challenges are greater than this. On one hand, more than 30 years of experience allows us to claim that 90% of people going to a driving school for licensing do not necessarily learn how to drive safely. On the other hand, our knowledge has been strengthened by years of research, evaluation and improvement of successful experiences in driver training.

At present, neither the European Directive 2006/126/EC of the European Parliament nor, according to the 20th of December 2006 council on driving licenses, is the issue of training programs for drivers contemplated. **To achieve the road safety objectives of the new decade 2020 - 2030, it is necessary that all member states strive towards a minimum standard in driver training criteria, as well as towards determining minimum competencies and objectives for their training and testing. Furthermore, these minimum competencies must be reflected in the Driving Licence Directive.**

To try and resolve the challenges posed by a lack of harmonised standards for driver training in EU member states EFA has, for many years, been researching and developing a complete integrated model suitable for all its members. This model aims to proactively strengthen the awareness of current and future drivers, addressing key issues including risk perception, risk factors in driving, new technologies, sustainable driving, mobility and ways to properly respond and intervene once a traffic crash has occurred.

# 4. The "EFA MATRIX": Improving Driver Training in Europe

To help achieve the objectives of the decade set by the WHO, UN, and the European Commission, it is important that (besides road-risk awareness) both drivers and other road users receive comprehensive road safety training. In order that they become "safe road users" all new drivers need to receive training, that covers all the skills and knowledge needed for crash prevention.

In the same way, the driver testing process must be standardised and related to the training curricula, that, far from focusing on the simple handling of a vehicle, should be holistic and internationally valid. As a high-quality response to these demands, EFA proposes an innovative training model, adapted to cover both present and future needs, supported by a road safety knowledge chart called the EFA MATRIX.

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

| | **EUROPEAN CLASS "B" LICENCE** | |
|---|---|---|
| | **ALL SUBJECTS TO BE TAUGHT AT THE DRIVING SCHOOL** | |
| | ***(Certified / Not tested)*** | ***(To be tested by administrations)*** |
| **THEORY** | 1. Causes and consequences of traffic crashes* | 1. Rules and regulations |
| | 2. Risk/hazard perception | 2. Traffic signals |
| | 3. Norms and conduct: legal and personal responsibility* | 3. Driver's documentation and insurance |
| | 4. Vulnerable groups of road users | 4. Risk/hazard perception test |
| | 5. Risk factors: speeding, alcohol & drugs, and distractions* | 5. Main risk factors |
| | 6. Passive and active safety: ABS, seatbelt, helmet, child restraint systems, etc. | 6. Ecological and economic driving: Vehicle and environment |
| | 7. Behaviour in case of suffering a crash | 7. Car maintenance and basic vehicle technology |
| **PRACTICAL** | 8. Basic manoeuvres in closed circuits | 8. Parking and vehicle manoeuvring (stopped and moving) |
| | 9. Urban areas and e-mobility | 9. Urban roads |
| | 10. Rural/regional roads | 10. Rural/regional roads |
| | 11. Highways/motorways | 11. Highways/motorways |
| | 12. Adverse weather conditions | 12. Safe use of ADAS |
| | 13. Night driving | 13. Mechanical components and vehicle safety |
| | 14. Ecological and economic driving | |
| | 15. Safe use of ADAS | |

*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, to share their testimony and increase the awareness of trainees.

This matrix, table, specifies the content (theoretical and practical) needed for the comprehensive training of European drivers in matters of legislation, vehicle management and road awareness.

In the **column of the matrix marked Certified/Not tested**, a series of theoretical (work in the classroom) and practical (work in the vehicle) subjects are listed, based on awareness, sensitivity and broad training on safe attitudes. **These subjects should be compulsory in road training centres and driving schools.** Therefore, an official certification model, audited by the competent administration and driver training centres, is proposed.

In the **right column of the matrix**, a series of theoretical and practical (in-vehicle) subjects are proposed. This training content concentrates **on key issues for road safety**, such as traffic regulations, critical manoeuvres and driving on different types of roads. The contents of this column would be subject to **evaluation by the competent administrations of each member state of the European Union.**

The different contents included in each section of the EFA MATRIX, as well as their rationales, are grounded in three different sources: scientific literature (see the document: *Driving Licensing in Europe: Training and Testing*[1] for a synthesis); the positive experiences of each country of the European Union in the field of drivers' training during recent years (see the document: *The "EFA MATRIX": Considerations for improving Driver Training in Europe*[2]); and the opinion of prominent EFA specialists with extensive experience in driver training, as well as other experts in the field of road safety (European Commission, 2017; INTRAS, 2018).

Finally, and based on a comprehensive approach to road safety in the European Union, performed in consideration of the four major fields of road safety (i.e., roads, vehicles, enforcement and human factors), we would like to make an additional consideration **on behalf of all members of the European Driving Schools Association (EFA)**:

During the last two decades, many substantial transformations have contributed to the improvement of critical areas of road safety: better vehicles, active & passive safety systems (many of them already mandatory), better designed and safer roads, crucial technological developments (such as ADAS), and better systems aimed at detecting and controlling traffic offenders. All of them are gaining ground across the European Union. However, and as for the human factor - clearly the one with the greatest weight when it comes to causing and preventing crashes - very few actions have been promoted in the field of driver training. This is contradictory, if we consider the fact that **improving driver training is the "first step" towards ensuring safe driving**. Precisely, the vision of EFA and the spirit of this proposal for urgent action aimed at driver training, to accomplish the road safety goals expected for the year 2030 in the European Union.

[1] See this document at: https://www.efa-eu.com/news/ or https://www.uv.es/uvweb/university-research-institute-traffic-road-safety-INTRAS/en/publications/publications/publications-1285898457374/Publicacio.html

[2] See this document at: https://www.efa-eu.com/news/ or https://www.uv.es/uvweb/university-research-institute-traffic-road-safety-INTRAS/en/publications/publications/publications-1285898457374/Publicacio.html

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# 2

# Driving licensing in Europe: Training and Testing

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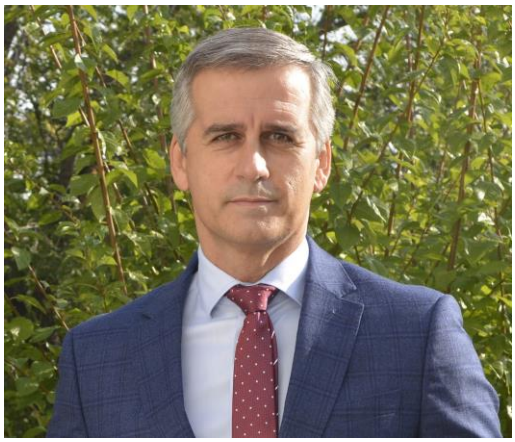
# 1. PREFACE



It is well known that traffic crashes are one of the most serious problems that modern society faces. Their impact on the health, labour, social, personal, and even economic spheres is extremely high. However, if the appropriate measures are applied, these crashes can be preventable. Fortunately, in the European Union -thanks to a greater awareness about the problem and to the development of different preventive strategies- the situation has been improved over the years, despite the fact that 22,800 people still die every year in European cities and on their roads.

The causes of traffic causalities are multiple, and they relate to the four major components of road safety: infrastructure (its condition, conservation, etc.); traffic regulations, police control and enforcement; vehicles (their conservation, security systems, etc.); and finally (and most important) the human factor, which, according to numerous studies carried out at different times and in different countries, seems to be directly or indirectly involved in about 70%-90% of traffic crashes.

To act on the human factor in the field of road safety, two major strategies have been historically used: road safety education (during the whole lifecycle) and theoretical/practical road training for drivers, which over the years has been recognized by both researchers and drivers as one of the most effective and solid strategies to prevent traffic causalities.

The following pages provide a description of the different regulations and models currently used for training and for the other elements required to obtain a driving license in different European countries. It also describes some innovative practices that may be useful to enhance the improvement of the preparation of new drivers, further contributing to the prevention of traffic crashes.

Given the disparity of approaches, standards and training models existing across the member states and other European countries, a major standardisation and harmonisation of driver training processes must be contemplated in the Directive 2006/126/EC on driving licenses, both for improving safety, mobility and for achieving a stronger and more unified Europe in terms of road safety and training.

Finally, driving schools are institutions historically linked to road safety and driver training, this is why EFA want to establish a strong commitment to the 2030 Agenda for Sustainable Development of the General Assembly of the United Nations (UN), as well as to the objectives of the Second Decade of Action for Road Safety (2020-2030), also proclaimed by the UN. This commitment will also contribute to reducing road-related deaths and injuries by at least 50% during this period, in accordance with the objectives of the Stockholm Declaration on Road Safety for the new decade, an initiative of the United Nations Assembly endorsed by the World Health Organization (WHO).

**Enrique Lorca Sánchez**

**EFA President**

# 2. INTRODUCTION

Several strategies aimed at improving road safety have been introduced over the years. They have addressed key issues such as infrastructure, traffic regulations, police control systems, in-vehicle technological developments and, more recently, human factors. Among these crash-prevention strategies, the "human factor" has shown a special relevance, in the improvement of road safety when focusing on the new drive. It is expected that, through a higher standard of theoretical and practical training road safety education, especially at an early age, new drivers acquiring a driving license will be safer drivers.

By increasing the body of knowledge regarding the different training models used in European countries, for driving licence acquisition we will gather information of interest and value thereby enabling a better understanding of how new drivers across the continent are trained. This can help to propel changes in training systems and assist in the raising of driver training standards across Europe.

A recent investigation carried out by the Research Institute on Traffic and Road Safety (INTRAS) at the University of Valencia (Spain) analysed in depth the existing regulations, programs and systems involved in the training of drivers, as well as other issues concerning driver licensing (such as theoretical and practical exams) across 31 European countries.

For this document, much shorter than the full report, only a synopsis of the specific requirements for obtaining a Class B Driving License in twenty-two (22) of these countries (appended as a summary tables) is presented. The countries covered by this document are: Albania Austria, Belgium, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Moldova, Netherlands, Norway, Poland, Portugal, Slovakia, Spain, Sweden, Romania and the United Kingdom.

To carry out the study, and to guarantee the rigorousness of the information used, almost exclusively official documents (directly retrieved from government websites, official repositories and/or specialised agencies) have been analysed. In a few cases, official websites of reputable organisations directly involved in road safety, road traffic or transportation issues have also been used.

In this regard, it is necessary to highlight the complexity and extent of the performed research, due to the relatively high number of countries covered by the study. These problems arose from the different languages, the variety of the existing regulations (still noticeable despite harmonisation recommendations provided by the EU), and the difficulties related to establishing "driving license equivalences" among the different member countries of the Union.

It is also important to point out that the current training systems, and certain peculiarities observed across the twenty-two countries described below, are subject to occasional modifications, some regulations may have undergone slight changes during the time that this document has been researched and prepared.

The information related to each one of the countries covered by the study has been organised and described as uniformly as possible, in order to facilitate the understanding and identification of both common and different criteria among our readers. We have tried to provide a holistic view of European driving training and testing using a similar perspective for each country.

The standardised sections that have been considered for each country are the following:

- The theoretical-practical training model.
- The theoretical-practical exam model.
- The psychophysical requirements (driver's fitness) necessary to obtain a driving license.
- The ages at which the different driving license types can be obtained.
- Interesting and/or differential national particulars, if any.

At the end of the document a second series of summary tables has been attached, allowing our readers to get a quick comparative view of the different models used in these twenty-two countries, thus providing an overarching view of the key issues related to the candidates' training and their testing during the licensing process in Europe.

# 3. SUMMARY TABLES FOR THE 24 EUROPEAN COUNTRIES

## ALBANIA

| Summary Table of Albania | |
|---|---|
| **Theoretical training:** | It is mandatory receive it in a driving school. Trainees have to attend 36 hours of training and 25 theoretical topics for Class B license. The topics that make up the theoretical training (and that will be subsequently examined) are published by the Ministry of Transport. |
| **Practical training:** | Mandatory in driving schools. It can be started once the theoretical exam has been passed. The "Authorization for practical test" allows individuals to drive as practice for a period of 6 months, if accompanied by an experienced driver (>10 years) aged under 65, respecting certain speed limits especially established for this modality. If candidates opt for practicing at a driving school, they have to do 25 sessions in not less than 25 calendar days and they have to drive a minimum of 6 hours under different traffic conditions. |
| **Other (additional) training:** | There is no mandatory additional training outside the established program. |
| **Theory test:** | The theoretical exam consists of 40 multiple choice questions, with two options: true or false. The applicant has 40 minutes to answer the questions, passing if no more than four mistakes are made (90% of accuracy is needed). The exam questions are extracted from a set of 13 official topics published for theoretical learning. |
| **Practical test:** | During the exam, three domains are checked: 1) How properly the internal (mirrors, seats, etc.) and external elements of the vehicle (tires, windscreen wipers, lighting, etc.) are known and used. 2) The trainee's ability to carry out different maneuvers (e.g.) circulate in reverse; change direction; precision in parking and braking. 3) Circulation under real traffic conditions, following the examiner's instructions (changing direction, moving forward, parking, etc.). |
| **Accompanied driving:** | Not documented nor contemplated. |
| **Psychophysical conditions:** | Candidates must pass a mandatory medical examination, carried out at specially authorized/recognized centers. |
| **Peculiarities / Interesting Facts:** | There are no remarkable facts. |

## AUSTRIA

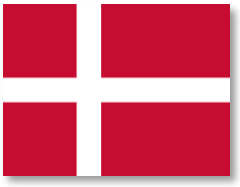
| Summary Table of Austria | |
|---|---|
| **Theoretical training:** | Mandatory at the driving school. 20 basic theoretical hours have to be done in all licensing categories, plus 12 specific 50-minute classes for Class B Driving License, addressing topics such as: regulations, attitudes, road safety, etc. |
| **Practical training:** | Also mandatory at the driving school. There is a minimum of 18 hours of class: 3 in a closed circuit, 3 in reduced traffic conditions (plus up to 6 or more, according to the instructor's judgment, in order to acquire more experience), 1 hour of night driving, 1 hour on the road, 1 hour of driving on unpaved tracks, 2 hours of improvement and 1 of preparation for the exam. |
| **Other (additional) training:** | Mandatory first aid course. |
| **Theory test:** | It is taken through a computer and the duration of the exam is 30 minutes. In total, it consists of 40 questions, which have different values and may imply several alternative answers: 20 questions address basic topics and the rest 20 more specific ones. All the questions are retrieved from a catalogue published by the Ministry itself, that is widely accessible for preparing the test. |
| **Practical test:** | Apart from being over 18 for Class B Driving License, candidates must have previously completed the theoretical and practical training, the first aid course, a medical (fitness) examination, and have no criminal records in traffic. The exam consists of 4 parts: vehicle control, low-speed manoeuvres, driving in real traffic, and a conversation with the examiner about what was done during the test. After passing the practical exam, students must take a “second phase” of training during the following year to obtain the driving license. This strategy has led to excellent results in preventing novice drivers’ mortality. |
| **Accompanied driving:** | With the Class BL17 License, accompanied driving is authorized from the age of 17 for a period of two years, and maximum until the person is 21. |
| **Psychophysical conditions:** | A general medical examination is mandatory. In case it is considered necessary, a psychological examination is also performed. This obligation also extends to license renewals. |
| **Peculiarities / Interesting Facts:** | The Class BL17 Driving License also authorizes accompanied driving in Germany, England, Northern Ireland and Denmark. |

## BELGIUM

| Summary Table of Belgium | |
|---|---|
| **Theoretical training:** | It is mandatory to attend 12 theoretical hours in a driving school (on regulations, road safety, etc.) before taking the practical training lessons. In case the candidate fails the theory test twice, they have to take the course again. Voluntarily, driving trainees can attend 20 more hours of theoretical training at the driving school. |
| **Practical training:** | After passing the theoretical exam, a "practical driving license" is obtained for a specific period, at the end of which the practical test can be taken: if the theoretical training was received at the driving school, that period is 18 months, needing a minimum of 20 hours of practice. If the theoretical training was carried out outside the driving school (through self-training), the waiting period for the practical exam will be prolonged up to 36 months.<br>If the practical exam is not passed, 6 additional hours of practical training must be mandatorily carried out in a driving school. |
| **Other (additional) training:** | No special requirements are defined. |
| **Theory test:** | The exam for obtaining the Class B Driving License is composed of 50 questions with several alternative answers. It is a computer-based test, designed to fully reflect real traffic conditions. The exam covers many topics related to roads, vehicles, regulations, risk factors and groups, infrastructure safety, attitudes, etc. |
| **Practical test:** | In the practical test, trainees perform three basic manoeuvres: preliminary checks, parking and stopping, and U-turns in narrow streets. The examiner provides instructions on the route to follow during the exam. In case of making two mistakes, it will be necessary to take 6 accredited practical classes in a driving school, in order to take the exam for a second time. In some regions of Belgium, there is an additional "risk perception test". |
| **Accompanied driving:** | This modality can be adopted by candidates if they have the 36-month "practice driving license". |
| **Psychophysical conditions:** | Health Affidavit. |
| **Peculiarities / Interesting Facts:** | There is a driving license that authorizes driving trainees to practice on public roads, starting at 17,5 years of age. |

## CZECH REPUBLIC

| Summary Table of the Czech Republic | |
|---|---|
| **Theoretical training:** | It is mandatory receive it in a driving school. Trainees have to attend 32 hours of training for Class B license: 18 on traffic regulations; 2 on vehicle maintenance; 10 on road safety; and 2 on first aid. At the end of the program, the applicant will have four more hours to practice the exam and repeat the failed topics, if needed. |
| **Practical training:** | Mandatory in driving schools. The training program establishes three stages, ranging from maneuvers in a closed circuit, to circulation in medium traffic scenarios. In addition to this, there is a practical training module on vehicle maintenance and first aid. The total of hours is 34. 28 hours of driving, 6 hours of other practice (4 hours first aid, 2 hours' maintenance of the vehicle). 1 training hour is 45 minutes. |
| **Other (additional) training:** | No additional training is defined outside the established program. |
| **Theory test:** | It consists of 25 questions -having different scores-, to be answered in a maximum of 30 minutes: 10 cover traffic regulations; 4 refer to road safety issues; 3 address traffic signs; 3 present traffic situations to be solved (usually crossings); 2 address specific road traffic situations; 2 ask about the driver's legal obligations; and a single question deals with first aid. |
| **Practical test:** | It is composed of two parts. During the first part is checked: Ability to check the preparation a vehicle for driving (seat, mirrors, tech. condition etc.). Maneuvers with the vehicle at low speed, i.e. starting, stopping, reversing and turning, entering and exiting a confined space, parking, stopping and starting uphill. The first part of the test lasts 10 minutes and does not have to be performed on a closed spot. The second part is the driving practice, in which various driving tasks should be performed in real traffic. This lasts 20 minutes, using different types of roads, crossings regulated by traffic lights, road segments in which passenger transport vehicles can be found, pedestrian traffic zones, etc. |
| **Accompanied driving:** | Not documented nor contemplated. |
| **Psychophysical conditions:** | Health affidavit of the applicant and medical certificate. |
| **Peculiarities / Interesting Facts:** | The use of simulators is allowed in substitution of practical training, substituting a greater percentage of practices and a higher number of training stages depending on the technological level of the used simulator. |



## DENMARK

| Summary Table of Denmark | |
|---|---|
| **Theoretical training:** | It is mandatory to receive it in a driving school. In the case of the Class B Driving License, it is necessary to attend 29 hours of theoretical training, following an official handbook, that addresses: traffic regulations, road safety, attitudes, risks, etc. |
| **Practical training:** | Also mandatory in a driving school. For the Class B License, 24 hours of practice are established, of which at least 4 will be in an enclosed area. Practical lessons follow a process that is defined by official agencies. |
| **Other (additional) training:** | A mandatory four-hour first aid course should be taken. Also, candidates must attend a specific course on the influence of alcohol and drug use in traffic. This takes more than three hours of additional training. |
| **Theory test:** | To take the exam, instructor's authorization must be previously obtained. The exam is carried out at the driving school, with a duration of 35 minutes and a length of 25 questions, in which a maximum of five errors are allowed (at least 80% of accuracy is needed). The theoretical exam can be taken either in person ("paper and pencil"), or on-line. |
| **Practical test:** | It seeks to evaluate the knowledge of the vehicle and its mastery in real traffic situations. For this purposes, two tests are carried out: (*i*) questions on different issues related to vehicle's technology; and (*ii*) the driving test in real traffic conditions, that takes about 30 minutes. Along the way, at least two manoeuvres out of a set of four will have to be performed: moving forward and turning at a corner, turning forward or backward, parking and precision braking. |
| **Accompanied driving:** | This modality is authorized in order to tutor candidates who are obtaining a driving license at the age of 17 but does not substitute training. |
| **Psychophysical conditions:** | Mandatory affidavit and psychophysical examination. |
| **Peculiarities / Interesting Facts:** | Trainees can obtain the driving license from the age of 17 (that is valid up to 18 years of age), but only under accompanied driving. |

## ESTONIA

| Summary Table of Estonia | |
|---|---|
| **Theoretical training:** | Theoretical training is mandatory in driving school. Lessons could be held either as contact or on online. Mandatory lessons for Class B license are 28, which are divided into 18 topics. Driving school has to create their own learning curriculum, deciding how long these topics will take. |
| **Practical training:** | There are 28 mandatory practical training lessons in driving school's curriculums, which are divided into 7 topics. Instructor chooses how to divide those lessons, considering student's individual experiences and practicing needs.<br><br>Student also has to go through 1 lesson of basic defensive driving and another hour of night-driving exercises, last of which could also be held using driving simulator. |
| **Other (additional) training:** | Estonia uses primary driver's license, which are given out for two years. During that time, young driver must finish second phase training:<br>• 3 theoretical lessons,<br>• 1 practical defensive driving lesson including safety hall attractions<br>• 1 lesson of eco-driving and defensive driving in traffic situations<br><br>1 practical lesson in special slippery track training field. |
| **Theory test:** | Theoretical test for class B license consists of 40 questions, each one has one right answer. Questions are divided into 9 topics; road safety has 10 questions. Person is allowed to make up to 5 mistakes, although in road safety topic only one mistake can be made. This means one could fail the exam with only two mistakes if both of them are in road safety topic.<br><br>Other 8 topics are based on the category, which class license student would like to apply for. |
| **Practical test:** | Class B practical test consists of at least 45 minutes of driving in traffic and up to 10 minutes for completing 3 exercises which are also held in city traffic. Parking manoeuvre and U-turn on narrow road are mandatory, third exercise is chosen by examiner out of four possibilities.<br><br>All other categories (other than class B) have twofold practical exams. Exercises on training ground and driving in traffic. |
| **Accompanied driving:** | In addition to mandatory driving lessons, student could practice their driving skills with tutor. Special tutoring certificate is given out by Estonian Transportation Agency if tutor has had driver's license for at least five years and hadn't been amerced for DUI. If instructor sees that student is ready to drive with tutor and it would be safe, only then person would be allowed to practice driving with accompanied tutor. |

| | |
|---|---|
| **Psychophysical conditions:** | Medical certificate is mandatory and is given out by general practitioner doctor or special medical committee. |
| **Peculiarities / Interesting Facts:** | The training program in Estonia is made up of different phases, varying in terms of intensity and interspersing theoretical and practical training. Candidates can complete theoretical and practical training when they are between 16-18 years old, accessing an exam that allows limited and accompanied driving. This license would only be valid in Estonia. |

## FINLAND

| Summary Table of Finland | |
|---|---|
| **Theoretical training:** | Finland is in a period of change. Currently, it is mandatory to attend a series of theoretical training hours and contents. In the case of the Class B Driving License, a total of 19 hours of training has been established. The topics to address are distributed and/or disseminated through different means, making them highly accessible for trainees. Attendance at the driving school is not mandatory. |
| **Practical training:** | It begins once the theoretical exam is passed, thus obtaining a “practice/training license”. The minimum number of practical hours to obtain a Class B License is set at 18. Practical training can be performed either at the driving school, or under the "driver training license" model. |
| **Other (additional) training:** | Before the second year after getting licensed, drivers must attend a specialized centre in order to take 2 improvement courses: the “Practical phase” (1 hour of theory + 2 practical hours), and the “Advanced phase” (4 hours of theory + 4 practical hours). Furthermore, a total of 4 hours of mandatory road safety training must be attended in authorized centres. |
| **Theory test:** | The exam consists of 50 items, presenting images of traffic situations and graphics containing statements that must be answered through YES or NO. 10 additional multiple choice text questions are presented afterwards, each one of them containing three possible options per answer. The exam lasts 30 minutes and candidates cannot make more than 8 mistakes in the image-based questions, or 3 in the text-based questions. |
| **Practical test:** | Driving skills and driving style are assessed. The testing time varies according to the type of license (45 minutes for B Class). The exam is divided into various activities: vehicle control; respect for cyclists, pedestrians and other road users; anticipatory driving; and self-control. |
| **Accompanied driving:** | It is regulated through the "Driver Instruction License". To become a tutor, a person has to pass an exam, and once the candidate passes the driving test, the tutor loses the right to accompany any future driver. The tutor is obliged to cover the hours of practice defined by the law. |
| **Psychophysical conditions:** | A medical certificate is necessary, but there may be additional psychophysical examinations. |
| **Peculiarities / Interesting Facts:** | Finland is one of the few cases in which a driver who is going to accompany a candidate has to undergo a prior examination assessing their ability to perform such role. |

## FRANCE

| Summary Table of France | |
|---|---|
| **Theoretical training:** | There is no mandatory theoretical training to obtain a driving license. However, candidates must be in possession of a Road Safety Certificate (ASR), which implies having completed a road safety training program at school. |
| **Practical training:** | For Class B Driving License, it is mandatory to carry out 20 hours of practice at the driving school, but their contents are not specified. |
| **Other (additional) training:** | As previously stated, applicants must have taken a road safety course, which is normally completed before the age of 16 at their school or institute, in order to obtain their driving license. |
| **Theory test:** | The theory exam has 40 questions on 9 officially established topics: traffic rules, the driver, the road, other users, traffic and insurance offenses, precautions, mechanics, safety equipment and eco-driving. |
| **Practical test:** | It lasts 32 minutes in total. The driving test takes 25 minutes. Driving skills, rule knowledge and respect for traffic regulations are checked. Additionally, two specific tests are carried out: firstly, the trainee is asked to verify a technical issue important for road safety, both inside and outside the vehicle. Secondly, two manoeuvres must be performed: a precision braking and a reverse manoeuvre. |
| **Accompanied driving:** | Defined as "early learning", it can be requested between 15 and 17,5 years of age. Once the applicants have passed the theoretical exam and completed the 20 hours of practical training in a driving school, they can drive if accompanied by an experienced driver. This type of driving will last for 18 months and at least 3,000 km must be travelled during this period. Throughout these 18 months, the driving school controlling the mandatory practical training will hold at least two meetings with the applicant and their companion, so that they can evaluate the trainee's skill development. |
| **Psychophysical conditions:** | The medical examination is mandatory if the candidate acknowledges, in their affidavit, any medical problem that may be incompatible with (or hazardous for) driving. |
| **Peculiarities / Interesting Facts:** | In addition to early learning, there is a supervised driving model for individuals over 18 who have passed the theoretical exam and the mandatory 20-hour practical training. In this case, neither the duration nor mileage of this model are defined. |

## GERMANY

| Summary Table of Germany | |
|---|---|
| **Theoretical training:** | It is mandatory to undergo the theoretical training at the driving school: it consists of 12 basic theoretical hours, for all license categories, and 2 specific hours for Class B Driving License for instance, addressing topics such as: ecological ("green") driving, basic regulations, road safety, hazard perception, vehicle technologies, etc. |
| **Practical training:** | It is mandatory to undergo the practical training at the driving school. There is no minimum number of hours to be completed, either in a closed circuit, or in the city; rather, it is the driving instructor who decides (together with the trainee) the number of practical hours, depending on their learning progress. On the other hand, minimum practical hourly intensity is defined for certain scenarios (A-B licenses: 5 hours on the country road (daylight), 4 hours on the highway, and 3 hours of night driving). |
| **Other (additional) training:** | Mandatory first aid course. |
| **Theory test:** | It is taken through a computer, after completing the mandatory training at the driving school. This test is randomly generated from a pool of around 1200 questions. It consists of 30 multiple choice questions with several alternative answers, as well as different values. The test includes knowledge questions, questions about situation images and situation videos (hazard perception). Questions composing the exam address an extensive set of mandatory (essential) topics. |
| **Practical test:** | Since January 1st, 2021, the class B practical test has lasted 55 minutes. It is based on a driving task catalog and is documented by the examiner with an electronic test report. It is carried out on a route defined by the driver examiner: e.g., where to turn, where to park, which street or road to drive, etc. There are three core tasks to be done: parking, emergency braking and driving through real-traffic areas in city, country roads and highway. |
| **Accompanied driving:** | It is authorized from 17 to 18 years of age, having a Class BF17 Driving License. The training and examination is identical to the normal class B. |
| **Psychophysical conditions:** | For classes A and B, the visual acuity is examined when the application is submitted. Class C and D license holders must also pass general medical and visual examinations every 5 years. |
| **Peculiarities / Interesting Facts:** | In Germany, highway driving practices are established as mandatory, being, together with Italy, the only two countries that define a minimum number of training hours on this type of road. The BF17 license also allows for accompanied driving on Austrian roads. From |

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| | April 1, 2021, a practical test with automatic transmission is possible under certain conditions, which also allows driving with gearshifts abroad. (B197) |

## GREECE

| Summary Table of Greece | |
|---|---|
| **Theoretical training:** | It is mandatory to receive it in a driving school. 20 hours of generic training must be carried out for all license categories, but motorcycle license applicants must take 10 additional hours. An additional hour is devoted to practicing the exam on a computer. An official handbook collects the 21 topics assessed during theoretical training, with contents such as: traffic regulations, road safety, risk factors, etc. |
| **Practical training:** | It is also mandatory to perform practical sessions at the driving school. Trainees have to go through 25 practical hours, whose distribution is not clearly defined. However, practices must be performed under as many conditions as possible, including low visibility and night driving scenarios. |
| **Other (additional) training:** | There is no mandatory additional training. |
| **Theory test:** | The model implies a very demanding computer-based test randomly presenting 30 questions, extracted from all the ones published in an official handbook (e.g., traffic regulations, road safety, mechanical equipment, etc.), plus (if necessary) 10 more questions on specific theoretical contents. The questions may have two or three possible answers. Applicants must not make more than one mistake for each block. |
| **Practical test:** | It is done in both closed circuits (if are available) and/or open circuits. In the case of Class B License, the closed circuit tests are: change of direction, parking (entrance and exit) and starting the vehicle with a 10% slope. If this part is passed, the test moves to the real traffic for 25 minutes. It is intended to make the trainee circulate on as many roads as possible, under a great variety of traffic density conditions and possible situations. |
| **Accompanied driving:** | It was announced that from the age of 17 candidates will be able to start theoretical and practical driving lessons. However, the candidate driver will have the right to participate in the practical test for obtaining a license after completing the 18th year of age. It has not been implemented yet, an amendment to the legislation is expected. |
| **Psychophysical conditions:** | Two medical certificates (ophthalmologist and pathologist) and a medical record (primary health certificate) are necessary, initially and in every renewal. If there are no issues nor changes in health, no further examinations are necessary to renew driving licenses (unless the driver is over 80 years old). |
| **Peculiarities / Interesting Facts:** | There are no remarkable facts. |

## HUNGARY

| Summary Table of Hungary | |
|---|---|
| **Theoretical training:** | Can be done online or at the driving school. Its duration and contents vary depending on the type of license applied for. For Class A, 22 hours are established, and a total of 28 hours apply for Class B. The training program is made up of topics that are grouped in blocks, which are taught in all driving schools of the country. The main blocks are: training on traffic, driving and road risks, and technical knowledge. |
| **Practical training:** | Mandatory at the driving school. The standard establishes a number of hours for each scenario (General practice - Class B: 9 hours general, 14 hours in the city, 4 hours on the road and 2 hours of night driving). The number of kms to be covered during this training process is also defined, and it consists of 580 km for Class B licenses. |
| **Other (additional) training:** | The execution of tests through the official application is defined as "training". This time is not accounted, however, in the number of hours established for theoretical training, although the time dedicated to this activity is included in the candidate's training record. |
| **Theory test:** | The theoretical exam has a variable number of multiple choice questions, depending on the class of license to be obtained. The number of questions for Class B is 55, with different levels of complexity and scoring. The exam questions are related to standardized topics, defined for the theoretical training: traffic knowledge; driving knowledge; technical and operational knowledge. |
| **Practical test:** | It is carried out after passing the theoretical test and the mandatory practices. Traffic/rule knowledge, driving skills and behaviors are assessed. In the case of Class B Driving Licenses, the first tests are performed in city area, implying the following tasks: reversing driving direction without using reverse gear, reverse driving direction by maneuvering the car, parking and exiting the parking lot, and performing an emergency braking. In the second part (i.e., open circuit) the test consists of tasks such as: starting from a standstill, driving in a straight line and in curves, crossing at intersections, etc. |
| **Accompanied driving:** | It is not contemplated in Hungary. |
| **Psychophysical conditions:** | A basic psychophysical examination must be carried out at an approved/recognized center. It is mandatory for license renewals. If an applicant fails the practical exam five times, they must undergo a psychological examination. |
| **Peculiarities / Interesting Facts:** | Authorizations to be a driving school instructor can be obtained to teach specific contents. |

## ICELAND

| Summary Table of Iceland | |
|---|---|
| **Theoretical training:** | The training must be provided by certified professionals, whether or not they are part of a driving school. There are 25 mandatory class hours for Class B Driving License, divided into 8 lessons: traffic rules, behaviors, risk factors, first aid, sanctions, responsibilities, safety equipment, etc. |
| **Practical training:** | Also taught by certified professionals. 17 hours of practice are mandatory. There is a standard program to carry out the practices, including driving in urban and rural areas, under special conditions, etc. |
| **Other (additional) training:** | Theoretical and practical training are taught together in different lessons. In the theoretical part, introduction to the first aid training is included; as for practical training, it includes driving under difficult conditions (ice/snow, low visibility, etc.). |
| **Theory test:** | The exam takes 45 minutes. It consists of 30 multiple choice questions with three options per answer. These questions address topics covered by the theoretical training programs specific to each license type. A maximum of seven mistakes are allowed to pass the exam. Each time the exam is failed, at least a week must pass before candidates are allowed to take it again. |
| **Practical test:** | The practical exam is made up of two tests: an oral exam, which evaluates whether candidates know well enough the type of vehicle for which they want to obtain a driving license; and a driving test to verify (e.g.) the use of controls, rule compliance, use of safety elements and the ability to drive in real traffic conditions. |
| **Accompanied driving:** | A 18-month authorization is granted if someone wishes to be a trainee's companion. However, it does not exempt trainees from the obligation to take practical classes. To become a tutor, an individual must be older than 24, and have had a driving license for at least 5 years, and not without a driving license for the last 12 months. |
| **Psychophysical conditions:** | Applicant's health affidavit. If the individual suffers from any health issue contemplated by the law, a specific medical certificate is required. |
| **Peculiarities / Interesting Facts:** | The authorization to be a driving instructor expires every five years. Such authorization is renewed after completing a mandatory 16 hours updating course. |

## IRELAND

| Summary Table of Ireland | |
|---|---|
| **Theoretical training:** | Although there is no established, mandatory theoretical training model, Ireland has a detailed syllabus and a large number of published tests, useful for the applicant's preparation. |
| **Practical training:** | It is taught by certified teachers. It contemplates a fixed number of lessons to be taught throughout a 6-months training period. In the case of the Class B license, these lessons can be taken for a minimum of 12 hours. |
| **Other (additional) training:** | There is no mandatory additional training. |
| **Theory test:** | It is made up of 40 multiple choice questions, with a minimum of 35 right answers needed to pass (An 87,5% of accuracy is needed). If the theoretical test is passed, trainees must have taken 12 mandatory one-hour practical classes, plus other various practices supervised by an instructor or sponsor, in order to take the practical exam. |
| **Practical test:** | The practical exam lasts between 30 and 40 minutes. During the test, the examiner can ask specific questions on topics related to road safety and traffic laws. Also, examiners ask the applicant to perform certain manoeuvres during a journey of about 8 km on different types of roads and in various traffic conditions. The evaluation is global, assessing (e.g.) behaviours and attitudes towards other road users, the use of the vehicle features and its control under different traffic situations. |
| **Accompanied driving:** | The figure of the "Sponsor" is established, created to increase the driving experience of trainees. The Sponsor's work ends once the applicant has obtained the driving license and has gone through the first year of license. However, sponsored driving does not substitute compulsory practical training. |
| **Psychophysical conditions:** | Applicant's health affidavit. If the individual suffers from any health issue contemplated by the law, a specific medical certificate is required. |
| **Peculiarities / Interesting Facts:** | There is a central register of official driving instructors, available for applicants. It contains information on the performance scores given by their students in regard to the development of their role, to help trainees choose a "good instructor" as transparently as possible. |

## ITALY

| Summary Table of Italy | |
|---|---|
| **Theoretical training:** | There is no obligation to attend a driving school. The topics that make up the theoretical training (and that will be subsequently examined) are published by the Ministry of Transport. |
| **Practical training:** | It can be started once the theoretical exam has been passed. The "Foglio Rosa" allows individuals to drive as practice for a period of 6 months, if accompanied by an experienced driver (>10 years) aged under 65, respecting certain speed limits especially established for this modality. Everyone have to drive a minimum of 6 hours under different traffic conditions, such as: night driving, narrow streets, secondary roads, highways, at different gears, etc. with a driving school, even if they will take the driving test with a rented car. |
| **Other (additional) training:** | There is no mandatory additional training outside the established program. |
| **Theory test:** | The theoretical exam consists of 40 multiple choice questions, with two options: true or false. The applicant has 30 minutes to answer the questions, passing if no more than five mistakes are made. passing if no more than four mistakes are made (90% of accuracy is needed. The exam questions are extracted from a set of 25 official topics published for theoretical learning. |
| **Practical test:** | During the exam, three domains are checked: 1) How properly the internal (mirrors, seats, etc.) and external elements of the vehicle (tires, windscreen wipers, lighting, etc.) are known and used. 2) The trainee's ability to carry out different maneuvers (e.g.) circulate in reverse; change direction; precision in parking and braking. 3) Circulation under real traffic conditions, following the examiner's instructions (changing direction, moving forward, parking, etc.). |
| **Accompanied driving:** | Optional, and alternative to the driving school model. If trainees choose this modality, they must first do 10 mandatory practices in a driving school. The future driver must be between 17 and 18 years old and must have at least t A1 or B1 driving license. |
| **Psychophysical conditions:** | Candidates must pass a mandatory medical examination, carried out at specially authorized/recognized centers. |
| **Peculiarities / Interesting Facts:** | The "Foglio Rosa" (whose application is voluntary) is granted after approving the theoretical test, still needing to perform a certain number of practical hours at the driving school. |

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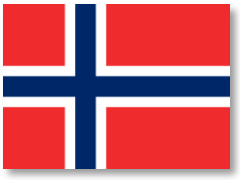
| | Accompanied driving forces trainees to receive more practical classes than if they had opted for practical training at the driving school, but the average amount of practical classes is usually less than trainee which don't take the opportunity of Accompanied driving. |

## MOLDOVA

| Summary Table of Moldova | |
|---|---|
| **Theoretical training:** | Mandatorily received in driving schools. At least 144 hours of theoretical training, covering four main topics: first aid and anti-drugs (20 hours); general traffic legislation (64h); safe and ecological driving (40h); and knowledge and maintenance of the vehicle (20h). |
| **Practical training:** | Also mandatory in a driving school. For Class B Driving License, 40 hours of practice are needed to meet the mandatory coverage of driving scenarios and behaviors. Of them, 8 hours on the training range. |
| **Other (additional) training:** | There is no mandatory additional training outside the established program. |
| **Theory test:** | It is not possible to take this test if the trainee does not have a certificate (granted by the driving school) endorsing the fulfillment of the training process. The exam for Class B license is computerized and consists of 20 multiple choice questions, with choices. The theoretical exam lasts 30 minutes, requiring 18 correct answers (90 % of accuracy is needed). |
| **Practical test:** | The exam is open-circuit and lasts 15 minutes on the training range and 30 minutes on the roads of the city. The situations that can be evaluated are: preparation and technical verification of the vehicle; positioning and management of the vehicle while driving; changes of direction and turns; traffic at crossings; overtaking; vehicle and pedestrian priorities; respect for signs; speed management; driving under adverse weather conditions. |
| **Accompanied driving:** | Not documented nor contemplated. |
| **Psychophysical conditions:** | Medical examination obtained from authorized centers. |
| **Peculiarities / Interesting Facts:** | There is a unified registration program for of students and driving schools. |

## NETHERLANDS

| Summary Table of the Netherlands | |
|---|---|
| **Theoretical training:** | It is not mandatory to follow theoretical training in driving schools, (although it is advisable, according to the Administration itself). There are many resources available to future drivers, and even companies offering such training through online resources. |
| **Practical training:** | There is no obligation to attend practical lessons. Although 99,9% attend practical training these lessons must be completed either at the driving school, or under the supervision of an approved instructor. Practices for obtaining the Class B Driving License can begin from the age of 16,5 years, if the theoretical exam is passed at 16 years of age. The minimum test age is 17 years or older. |
| **Other (additional) training:** | There are special driving schools, called RIS, which apply a modular model of practical training. It consists of four modules. With 2 official test. This is not a mandatory training, more a way to train. |
| **Theory test:** | The length of the theoretical exam is 30 minutes and it consists of three parts: a risk recognition part, composed of 25 questions; 12 questions about traffic knowledge and a 28 questions about traffic insight. All together 65 questions. (25 - 12 and 28 ) |
| **Practical test:** | The practical test lasts 55 minutes, 35 of which consists of driving under real traffic conditions. |
| **Accompanied driving:** | It is carried out through the Accompanied program. It is meant for candidates aged between 17 and 18, who wish to obtain a Class B Driving License. However, it does not exempt trainees from practical training at driving schools or with an approved instructor. This program is for students who pass the test at 17 years old and last to the age of 18 years. |
| **Psychophysical conditions:** | Applicant's health affidavit is mandatory. A psychophysical test is not required. |
| **Peculiarities / Interesting Facts:** | --- |



## NORWAY

| Summary Table of Norway | |
|---|---|
| **Theoretical training:** | Mandatorily received in approved centers (driving schools). The first phase of basic training is composed of 17 hours of class on (e.g.) road safety education, first aid, risk factors, the human being in traffic, night driving/driving in the dark, etc. The formative schema is, actually, a complex educational model that also can begin in secondary school. |
| **Practical training:** | Once the theoretical training is completed, a provisional license is granted to carry out practices. There is no minimum number of training hours required, but "the more the better". Also, it is not mandatory to carry out practical training in driving schools, except the mandatory 19 hours. Driving practices can start from the age of 16. |
| **Other (additional) training:** | It is a mandatory comprehensive training process divided into four stages, which combines the usual theoretical and practical training. Once these stages are completed, a 13-hour road safety course is developed. Topics related to road safety are reviewed, e.g., risk perception and self-control; behavioral and social training, etc. In total the mandatory practical training is 19 hours. |
| **Theory test:** | For the Class B Driving License, the exam lasts 90 minutes. 45 questions are presented, and the maximum number of mistakes allowed is seven (84,5% of accuracy is needed to approve). The questions cover topics such as: driving with traffic, legal responsibilities, driving in complex situations, human behavior, how to locate the vehicle, traffic regulations, crashes, environmental factors, and key traffic issues. |
| **Practical test:** | The road (driving) test is meant for students to demonstrate their skills under varying road and traffic conditions. After the practical test, the examiner holds a conversation with the candidate, providing feedback on their driving performance and indicating the results of the exam. |
| **Accompanied driving:** | Allowed in order to carry out driving practices. This type of authorization expires when the applicant obtains the final driving license. |
| **Psychophysical conditions:** | A general health examination needs to be passed in order to obtain the license. However, it is not mandatory for license renewals, except if the driver is over 80 years of age. This might change, since the authorities have decided to remove the health license for elderly people. |
| **Peculiarities / Interesting Facts:** | Due to the light conditions in Norway, if drivers do not practice driving in the dark, they will not be authorized to drive during the period from November to March. Thus if one takes the practical education in the summer time, you have to take the dark driving course in the autumn. |

## POLAND

| Summary Table of Poland | |
|---|---|
| **Theoretical training:** | Mandatorily received in a driving school. There is a training program that must be strictly followed, in order to prepare and take the theoretical exam. Once the training is completed, the driving school conducts a test to verify the development level of the trainee. In case they fail that test, the specific formation on the failed subjects should be retaken. The training time for the Class B license is 26 hours, covering topics such as: traffic regulations, security threats, risk situations, driver's duties, etc. |
| **Practical training:** | Mandatory at the driving school. A total of 30 hours should be accomplished: 4 in a traffic-restricted area (starting, stopping, going forward and backward, parking, addressing mechanical issues, etc.); and 26 hours driving in different traffic conditions, according to the ones under which trainees are supposed to drive more frequently. |
| **Theory test:** | There are 32 multiple choice questions (20 generics and 12 specifics to each type of license), scoring between 1 and 3 points. The questions can be presented through texts, photographs or videos describing real driving situations, these questions can be answered with YES or NO in the case of the generic ones, or choosing one out of the three possible options (A, B or C) in the case of specific questions. |
| **Practical test:** | It consists of two activities: the first one is carried out in a closed circuit, and the examiner asks the trainee (*i*) about technical features of the vehicle (fluid levels, lighting, signalling, etc.), and then the trainee is required (*ii*) to perform two manoeuvres (parking, changing direction, emergency braking, etc.). The second part of the practical test is performed in real traffic conditions, and various issues are assessed, such as: driving manoeuvres, behaviour towards other users, risk assessment, response effectiveness, vehicle control, etc. |
| **Other (additional) training:** | Four hours of first aid training must be attended. |
| **Accompanied driving:** | Not contemplated. |
| **Psychophysical conditions:** | Psychophysical examination and medical certificate. Depending on the examination's results, the validity period of the driving license can be reduced. |
| **Peculiarities / Interesting Facts:** | There is a license to ride bicycles, after passing a brief course on traffic regulations and road safety. |

## PORTUGAL

| Summary Table of Portugal | |
|---|---|
| **Theoretical training:** | It is mandatory to receive it in a driving school. There is a highly structured syllabus of theoretical training: 7 hours of road safety; 16 hours of driving theory; 4 hours of specific training (only for Class A); and 5 hours of theoretical-practical modules. |
| **Practical training:** | Also mandatory in a driving school. For Class B Driving Licenses, a minimum of 32 hours of practice is established, where at least 500 kms. (including two hours of night driving) must be traveled. In driving school vehicles, recording are used to monitor practical sessions. |
| **Other (additional) training:** | No additional training is defined outside the established program. |
| **Theory test:** | The theory exam for Class B License is composed of 30 questions on the core (mandatory) subjects studied at the driving school. The exam lasts 30 minutes and 27 questions must be correctly answered to pass (90% of accuracy is needed). The exam is telematic, using a touch screen displaying each question and their corresponding answer options. For other categories:<br>Category A: 30 questions on common topics and 10 on specific issues.<br>Category C and D: 20 questions (each) on specific issues. |
| **Practical test:** | In the beginning of the test the examiner asks 3 questions concerning daily care and maintenance of the vehicle. During 40 minutes, the candidate needs to demonstrate he/she is prepared to drive in different road environment, to and traffic situations and also to perform some maneuvers |
| **Accompanied driving:** | Not documented nor contemplated. |
| **Psychophysical conditions:** | Health affidavit and visual acuity test. From 50 years on, a medical certificate is mandatory. |
| **Peculiarities / Interesting Facts:** | 25% of practices are allowed to be done in simulators. Each simulator hour counts as 15 kms. of real driving. |

## ROMANIA

| Summary Table of Romania | |
|---|---|
| **Theoretical training:** | Mandatorily received in driving schools. At least 24 hours of theoretical training must be completed, covering five main topics: first aid (2 hours); general traffic legislation (14h) and specific legislation (2h); safe and ecological driving (4h); and knowledge and maintenance of the vehicle (2h). |
| **Practical training:** | Also mandatory in a driving school. For Class B Driving License, 30 hours of practice are needed to meet the mandatory coverage of driving scenarios and behaviours. A total of 300 kms have to be travelled during that time. There is no specific practice program. |
| **Other (additional) training:** | There is no mandatory additional training outside the established program. |
| **Theory test:** | It is not possible to take this test if the trainee does not have a certificate (granted by the driving school) endorsing the fulfilment of the training process. The exam for Class B license is computerized and consists of 26 multiple choice questions (20 for Class A licenses), with 3 choices. The theoretical exam lasts 30 minutes (20 in Class A applications), requiring 22 correct answers (73,4% of accuracy is needed). |
| **Practical test:** | The exam is open-circuit and lasts 25 minutes. The situations that can be evaluated are preparation and technical verification of the vehicle; positioning and management of the vehicle while driving; changes of direction and turns; traffic at crossings; overtaking; vehicle and pedestrian priorities; respect for signs; speed management; driving under adverse weather conditions. |
| **Accompanied driving:** | Not documented nor contemplated. |
| **Psychophysical conditions:** | Medical examination obtained from authorized centres. |
| **Peculiarities / Interesting Facts:** | There is a unified registration program for driving schools, driving instructors and applicants. |

## SLOVAKIA

| Summary Table of Slovakia | |
|---|---|
| **Theoretical training:** | It is mandatory to attend the theoretical training in a driving school. For each license type a study plan, composed of various subjects, is published, which is taught over 32 hours of training, on topics such as: traffic regulations and legislation, vehicles, road safety, vehicle maintenance, etc. |
| **Practical training:** | Also mandatory in a driving school. 39 hours of practical training are established for the Class B Licenses: 6 hours for manoeuvres in a closed circuit; 2 for low-speed circulation in a closed circuit; 24 for circulating in real traffic; 6 additional hours to improve any of the previous scenarios (varies according to each case); and 1 hour for vehicle maintenance training. An average of 15 kms should be accomplished for each hour of practice (585 km in total). |
| **Other (additional) training:** | 8-hours- first aid course, that is not mandatory, but whose contents are included in the examination. |
| **Theory test:** | It is a multiple-choice test lasting 20 minutes, consisting of 27 questions, with three options per answer. The questions address the following topics: traffic norms and regulations (12 questions); traffic conditions and road safety (3); traffic signs (8). |
| **Practical test:** | The practical test has three parts: an oral test on vehicle issues (conducted by the examiner); a series of closed-circuit exercises; and a driving test under real traffic condition. |
| **Accompanied driving:** | It is authorized in order to tutor drivers who are obtaining a driving license at the age of 17, until they turn 18. It does not replace the compulsory training mentioned above. |
| **Psychophysical conditions:** | Psychophysical examination performed by a primary care physician. It is not mandatory to carry out a medical examination in order to renew the driving license, except if the driver is over 65 years old. |
| **Peculiarities / Interesting Facts:** | A driving license can be obtained at 17, but accompanied driving is mandatory until 18. |

## SPAIN

| Summary Table of Spain | |
|---|---|
| **Theoretical training:** | It is not mandatory to undergo a theoretical training course at the driving school: the applicant for a driving license can individually prepare the exam. However, most drivers still go to driving schools. |
| **Practical training:** | A future driver can only take the exam through a driving school. There is no minimum number of required training hours, nor an official training program in relation to the type of practical training that should be carried out. |
| **Other (additional) training:** | There is no mandatory additional training. |
| **Theory test:** | The number of questions included in the theoretical exams varies depending on the license type. For Class B Driving License, there are 30 multiple choice questions (with several answer alternatives), out of which only 3 can be failed (90% of accuracy is needed). The questions deal with issues related to traffic regulations, signalling, road safety, risk factors, efficient driving, etc. |
| **Practical test:** | In the case of Class B Driving License, the test is carried out on public roads, and at least two of the following manoeuvres have to be accurately performed: straight and curve reverse; U-turn; parking and exiting (in line, oblique or perpendicular conditions); and precision braking. |
| **Accompanied driving:** | There is not an accompanied driving modality. |
| **Psychophysical conditions:** | The psychophysical examination is mandatory in order to obtain a driving license (and also for its subsequent renewals) and must be carried out through an approved/recognized centre. |
| **Peculiarities / Interesting Facts:** | Only in the case of Class A Driving Licenses, there is a mandatory theoretical and practical training at the driving school, lasting 9 hours. |

## SWEDEN

| Summary Table of Sweden | |
|---|---|
| **Theoretical training:** | From an early age, people receive a substantial amount of education and information on road safety. Training is carried out either at driving schools, or with an approved private instructor. There is a detailed training program (including the contents to be examined), but there is no minimum amount of teaching hours. It covers key topics such as: knowledge of the vehicle, road safety, environmental issues, traffic regulations, individual risk factors, etc. |
| **Practical training:** | It can be received in a driving school, with an approved instructor, or under the supervision of a non-professional tutor. A minimum of practicing hours is not established, but the exercises, skills and behaviours to evaluate in the exam are clearly defined. |
| **Other (additional) training:** | There is another part of the theoretical training ("risk education"), taught by a special instructor. It consists of two parts: the first deals with alcohol, drugs and risky behaviour; and the second addresses topics such as speed, road safety and different road situations. |
| **Theory test:** | It is an online-based test, composed of 70 multiple choice questions (on the topics indicated above) in a 50 minutes' time. Five of these questions are "control questions". To pass, trainees have to correctly answer 52 out of the 65 real questions (80% of accuracy is needed). The possibility of taking this exam in 14 different languages is offered. |
| **Practical test:** | The first test is the verification of security elements. Then, there is a 25-minute driving test in real traffic conditions. During this part of the test, the examiner provides instructions on the route to follow, and the manoeuvres to carry out, including braking, parking, starting on a ramp, turning, going through roundabouts, lane changes, etc. |
| **Accompanied driving:** | Authorized for carrying out practical formation with an applicant who wishes to obtain a Class B license. Before starting accompanied driving, both the tutor and the applicant must pass an introductory course taught by an official instructor. |
| **Psychophysical conditions:** | No medical certificate is required. If the candidate has suffered a psychophysical problem among those specified by the law, the administration may require a medical certificate. |
| **Peculiarities / Interesting Facts:** | The figure of "approved instructors" exists for both theory and practice, together with the possibility of hiring them without being associated with a driving school. |

## UNITED KINGDOM

| Summary Table of the United Kingdom | |
|---|---|
| **Theoretical training:** | The training is very complete, and it is carried out either privately or in a driving school. 90% of candidates who pass the exam at their first attempt prepare in driving schools, so this type of training is recommended. Official materials published by the Driver and Vehicle Standards Agency are also useful for training purposes. They cover issues such as: traffic rules, signs, road safety, driving and environment, etc. |
| **Practical training:** | It is carried out from the age of 17, from which trainees can request a provisional license to carry out driving practices, either with an approved instructor, or through accompanied driving. Novice drivers may use any type of road, including motorways with a qualified instructor, under the speed limit allowed in each road. |
| **Other (additional) training:** | There is a training in risk perception and hazard detection, which is evaluated through videos in the theoretical test. |
| **Theory test:** | The exams are very complex and rigorous. The theoretical test has 50 multiple choice questions on topics such as: highway code, traffic signs and the Official Drivers Guide, depending on the vehicle. It lasts 57 minutes and trainees need to correctly answer a minimum of 43 questions (86% of accuracy is needed). After passing this exam, a hazard perception test is performed which must score 44/75. |
| **Practical test:** | The practical test for Class B license lasts 40 minutes, but passing it usually takes about 40 hours of practice. The first thing the examiner checks is the candidate's visual acuity. Afterwards, the examiner asks questions such as: "how would you put the blinkers?", "how would you clean the windshield?", etc. included in the test is a 20minute section either following road signs or using a Sat Nav in real traffic conditions, performing maneuvers such as emergency braking, reversing, parking, starting on a ramp, etc. |
| **Accompanied driving:** | To become a tutor, an individual must be older than 21, and have had a full driving license (similar to the one the trainee is applying for) for at least 3 years. |
| **Psychophysical conditions:** | The candidate is required to "Read a license plate 20 meters away" and declare that they do not suffer from a disorder that may be incompatible with safe driving, according to a set of medical and psychological conditions that are included into the traffic authority regulations. |
| **Peculiarities / Interesting Facts:** | There are a published practice guide (Driver's Record) and a database of approved driving instructors. |

# 4. DRIVEN LICENCE AND EXAM BY PRIVATE BODY'S A GOOD PRACTICE IN EUROPE

## Main idea

The privatization of the exams for obtaining the driving licence **has given excellent results in the countries where it was introduced.** The main advantages were obtained above all in the reduction of long waiting times to take exams, extremely **reducing the workload of civil servants** who can be usefully employed in other ways (inspections during exams); in the possibility of having personnel dedicated exclusively to carrying out the exams; greater flexibility in updating staff of retirement age. One remark presented by a few countries (France and Belgium) is the non-reduction of corruption, due to the difficulties to manage the audits. In these situation the corruption could be contained with the control and certification system suggested by this study (already used in Portugal). In these fact sheets is the main information about the countries that have a private examination system. These countries are: Belgium, Portugal, Iceland, Germany, Croatia and France.

## *General Information (Private Organizations)*

| 1 General information about exam and private organizations | | | | |
|---|---|---|---|---|
| | **Who are the Bodies/Organizations that manage the license exams?** | **Do these Bodies have the exclusivity? Who are they authorized by?** | **Who has control over the Bodies:Ministry? Driving School Associations? Other subjects?** | **What are the selectioncriteria to become a private Body institution?** |
| **Belgium** | Private organizations united in an association called GOCA | Yes. The examination centers are regulated by the regional administration of mobility (MOW) | Administration controls GOCA, which is a sort of federation of examination centers and technical inspection | These data are not available publicly |
| **Portugal** | IMT (18 Public), ANIECA (6 Private), ACP (2 Private), AHBVT (4 Private), APEC (1 Private) | IMT (Portuguese Road Administration) makes the regulation and controls all public and private centers. | IMT: Ministry of Transportation; ANIECA: Driving School Association; ACP: Portugues Auto Clube; APEC: Driving School Association; AHBVT: Fire Department Humanitary Association | NGO, with the main goal of promoting road safety |
| **Iceland** | Frumherji, private company | Frumherji has made a contract with Icelandic Transport Authority after a tender | Icelandic Transport Authority which is an institution under the Ministry of Transport | The number of test, locations and the minimum waiting time for tests, price of exam and the quality standards |
| **Germany** | It depends by country: TÜV Nord, TÜV Hanse, TÜV Rheinland, TÜV Hessen, TÜV Süd, DEKRA | Yes, the Governments of the Countries (Bundesland like Bavaria) indicate only one Institution per country | The additional Ministry of the Country | TÜV/Dekra have an exclusivity. They must be able to absolve all the examinations required by the driving schools |
| **Croatia** | Croatian Automobile Club, nonprofit association | Yes exclusivity authorized by Ministry of Interior Affairs | Ministry of Interior Affairs | Safe infrastructures, licenced employees, digitalization with Ministry of Interior Affairs |
| **France** | Ministry of the Interior has entrusted the supervision of the theory exam to private companies: La Poste, Dekkra, SGS, Pearson, Veritas | Ministry of the Interior autorizes the private Bodies for theory exams only | It is the Ministry of the Interior that has control of the bodies authorized to take the theoretical exam | Equipment used; a minimum coverage of the theoretical exams; the service provider must guarantee the security of the servers, etc.. |

| 2 General Information about exam and private organizations | | | | |
|---|---|---|---|---|
| | **Do these entities have employees, offices and branchoffices?** | **Are the offices, exam rooms and exam tracks(cars and motorcycles) owned/rented?** | **Can the Authorities examine candidatesfor all categories of driving licence?** | **How are reservations for driving licence exams (theoryand driving) done? Can they be done online?** |
| **Belgium** | Yes, they are running as examination centres, but their mainactivity is the exploitation of technical inspection centres | Owned in 100% of the cases | Yes | Mostly online, but not in all companies there is an onlinereservation system |
| **Portugal** | Yes. ANIECA has 1 head office (Lisbon), 1 branch office (Porto) and 6 driving examination centres. A round 70 employers | Some are rented others are owned | Yes | Yes. And, with the Covid situation, we promote onlineattendance. |
| **Iceland** | Yes | Varies by location, ownedor rented | Yes | Both are done online |
| **Germany** | Yes. The examiners are normally engineers | The exam rooms and the offices belong to the institutions. The owner ofthe exam vehicles are the driving schools | Yes | Yes, it can be ordered online.More than 95% of the drivingschools make it online |
| **Croatia** | In Zagreb is headquarters with main offices in Rijeka, Split andOsijek | Somewhere is owned and somewhere is rented | Yes | Driving school is sending application form online to Croatian Automobile Club |
| **France** | Approved providers must hire examiners to supervise candidates who come to take the knowledge test at the exam centre | For the theory test, the premises used may be owned by the service providers or have a leaseagreement | Yes | Bookings for theory exams aremade online only, applicants must reserve their place on the supplier's website or authorize their driving school to register them |

| 3 General Information about exam and private organizations | | | |
|---|---|---|---|
| | **Who books the exams: driving schools or individualcandidates?** | **Is there a minimum waiting period from the submission ofthe exam? Is this waiting time the same between public and private bodies?** | **Does the theory or practical private Body exams systemhave any critical issues?** |
| **Belgium** | Both (we have lay system) | There is no legal minimum. Normally and depending the time of year, waiting periods arebetween 4 and 8 weeks. | They had negative reviews, there are numerous issues with their monopoly etc. |
| **Portugal** | Usually driving schools (about 95%) | In private sector it must wait 5 week days (after validation) to perform the exam. No rules forpublic centers | No. It works very well |
| **Iceland** | Candidate books theory test online and pays the exam fee at the same time. The driving instructor books a practical test A, B, BE (driving school C, D, CE, DE) | 1 - 3 weeks | No |
| **Germany** | Mostly by the driving school (both theoretical and practical exams) | 2 - 5 weeks | Not really. Sometimes there are regional problems like disposition. But normally there are directly solutions |
| **Croatia** | Driving school | 1 week | No |
| **France** | For the theory test, reservations are mainly made by the driving school. For the practical test, currently, mostlydriving schools | For the reservation of theoreticalseats no waiting | The low quality of candidates who pass the theory exam: people try the exam several times in 1 day. The number of exams is too large to have enough audits (1,400.000 applicants/year). It impossible for a private body to check all |

## *Theory Exam Information (Private Organizations)*

| 1 Theory Exam (private organizations) | | | | | |
|---|---|---|---|---|---|
| | **Is the theory exam also managed by private Bodies?** | **How is the candidate recognized before the theory exam?** | **Are the examining staff employed or self-employed?** | **Who can apply for the selection? (requirements)** | **Is there an initial and periodic training? If so, how does it work?** |
| **Belgium** | Yes | By Identity Card by the employeein charge | Employed | The examiners are trained and examined by GOCA. Administration (MOW)checks punctual someexams | Both. Initial: traffic code, psychology,... Periodic isbeen done according to the EU directive |
| **Portugal** | Yes | By Identity Card by the employeein charge | Usually they are employed | Examiners have a certificate, issued after attend a course/education and perform a test in IMT | The training is only to adapt to working procedures and to recognize geographical area where to perform practical tests |
| **Iceland** | Yes | By Identity Card by the employeein charge | Employed | To be at least 24 years old; all driving licences since 5 years; medical check; high school | Yes, the Body trains its employees according to a quality system. Expertsfrom Icelandic Transport Authority evaluate new examiners after exams |
| **Germany** | Yes exclusive TÜVs / DEKRA | By Identity Card by the employeein charge | Employed | It´s described in the law "KraftfahrSachverständigenverständigengesetz" | Yes, every year several days |
| **Croatia** | Croatian Automobile Club nonprofit association | By Identity Card by the employee in charge | Employed | It must have Faculty of Transport Sciences (5 years) incensed from Ministry of Interior Affairs; 3 years professional experience in the theory or driving in the driving school | In Croatian Automobile Club like seminars, conference, professional meetings etc. |
| **France** | Yes, only the theory exam is run by private organizations thatobtain accreditation validfor 10 renewable years | By Identity Card by the employeein charge | Employed or consultant of private organization | It must not be guilty bya court and it's not possible supervise the following people: the spouse or partner; his relatives of the first degree | Yes, after 1 year, to understand the norms forpassing the theoretical exam; to know the ethical rules and the ability to manage accidents |

| 2 Theory Exam (private organizations) | | | | | |
|---|---|---|---|---|---|
| | **Who manages theinitial and periodictraining courses?** | **Is there an initial and periodic examination? If so, how does it work?** | **How is the assignmentof the designated examiner for an exam carried out?** | **How much does the service of an examiner cost?** | **Is the exam room owned by the drivingschool or by the institution?** |
| **Belgium** | GOCA and/or external bodies (such as Federdrive, VSV,...) | Initial exam | Since theory exams are purely on pc, there is no 'designated examiner' | 15€/theory exam, except for professional exams, they are much higher | It's in an examination centre |
| **Portugal** | For examiners it's IMT. For other employees is the organization. | Only for examiners. It's performed by IMT. | It's a random informatic system, performed 10 minutes before each test | IMT 15 €; ANIECA 16 € | By the organization. Driving school have noconection/influence with examination services |
| **Iceland** | Frumherji's quality system | Yes, new examiners are trained for 3-4 weeks. Every year the examiners are trained for 2 days and every 3 year for 7 days | Examiners will be assigned a daily schedule put together by "Frumherji" | Theory test is 27,19 €. Exam fees are part of the tender | Owned or rented by institution, No exam in driving school. |
| **Germany** | The Institutions it selves | No, but the Institutions are controlled by the state authority "BAST" (Bundesanstalt für Straßenwesen) | Since theory exams are purely on pc, there is no 'designated examiner' | For Theory 22,49€ | Institution |
| **Croatia** | Croatian Automobile Club and other Institutions, Faculties etc. | Croatian Automobile Club organizes test every 2 years (psychology, didactics, road traffic, etc.) | Decision is on expert services in Croatian Automobile Club | The candidate for drivers is paying 20 € for theory exam to Croatian Automobile Club | Institution or another subject |
| **France** | The private entity approved by the state | No | Since theory exams are purely on pc, there is no 'designated examiner' | The state has fixed the cost of presenting the theoretical exam, which cannot exceed 30 euros. | The theoretical test room cannot in any case belong to a driving school. |

| 3 Theory Exam (private organizations) | | | | | |
|---|---|---|---|---|---|
| | **Are the exams computerized?** | **Is the Private Body authorized to modify or update the list ofexam questions?** | **Are the exam questions public ordo the candidates discover them on the day of the exam?** | **Are instructors alsopresent during the theory exams?** | **Does the theory examsystem managed by private Bodies have any critical issues?** |
| **Belgium** | Yes | Yes, they are owners of the questions. MOW keeps eye on the questions. | Not public | No | Yes, there is (a lot) of identity fraud and fraud during the exams with cameras, earplugs etc. |
| **Portugal** | Yes | No. The questions database is created and updated by IMT only | IMT published the data base on website. But there is no information about the correct answer | No | No, it works well. However, the theory examination system is managed by IMT and private organizations pay a fee to use it |
| **Iceland** | Only on paper, but will be computerized in the future | No, all tests are made by Icelandic Transport Authority | Not public | No | No |
| **Germany** | Yes | No, there is a working group, which take care of them | The questions are all published | They can, but outside of the exam room | No |
| **Croatia** | Yes, but the candidate can choose if he want the exam on computer or print paper | Yes | No public | No | No |
| **France** | Yes, the theory test is performed on a tablet | No | No public | No | The low quality of candidates who pass the theory exam: they can try the exam several times in 1 day. The frauds: the number of theory exams is too large to have enough audits |

## *Practical Exam Information (Private Organizations)*

| 1 Practical Exam (private organizations) | | | | | |
|---|---|---|---|---|---|
| | **Is the driving test also managed by private Bodies?** | **How is the candidate recognized before the driving test?** | **Are the examining staff employed or self-employed?** | **Who can apply for the selection? (requirements)** | **Is there an initial and periodic training? If so, how does it work?** |
| **Belgium** | Yes | With identity document by the employee in charge | Employed | The examiners are trained and examined by GOCA. Administration (MOW) checks punctual some | Both. Initial: traffic code, psychology,... Periodic is been done according to the EU directive |
| **Portugal** | Yes | With identity document by the employee in charge | Usually they are employed | Examiners with an IMT certificate | Yes. IMT organizes and book the training |
| **Iceland** | Yes | With identity document by the employee in charge | Employed | To be at least 24 years old;all driving licences since 5 years; medical check; high school | Yes, the Body trains its employees according to a quality system. Experts from Icelandic Transport Authority evaluate new examiners after exams |
| **Germany** | Yes | With identity document by the employee in charge | Employed | Examiners are trained and examined by Dekra and TuV | Compulsory training |
| **Croatia** | Croatian Automobile Club, nonprofit association | With identity document by the employee in charge | Employed | The examiner must have Faculty of Transport Sciences (5 years), licensed from Ministry of Interior Affairs, 3 years professional experience in the theory or driving in the driving school | In Croatian Automobile Club like seminars, conference, professional meetings etc. |
| **France** | No | With identity document by the employee in charge | They are public servant | It is a public call | Training is provided to candidates who have passed the public call |

| 2 Practical Exam (private organizations) | | | | |
|---|---|---|---|---|
| | **Who manages the initial and periodic training courses?** | **Is there an initial and periodic examination? Ifso, how does it work?** | **How does the assignment of the designated examiner for an exam take place?** | **How much does the service of an examiner cost?** |
| **Belgium** | GOCA and/or external bodies (such as Feder drive, VSV,...) | Initial exam | Random, never twice the sameas much as possible | 41€ for B; 38 for A; 55€ for C,E,D; 102 for CAP and 152€ for test on road |
| **Portugal** | IMT | Only initial examination (for examiners) to obtainthe IMT certificate | It's a random informatics system, performed 10 minutesbefore each test | IMT 30 €; ANIECA 40 € |
| **Iceland** | Frumherji's qualitysystem | Yes | Examiners will be assigned a daily schedule put together by "Frumherji" office | Practical B test is 73,53 €. Exam fees are part ofthe tender |
| **Germany** | Driving schools only | Initial examination | Random, never twice the sameas much as possible | Category B 116,93 €. The costs are similar inGermany (fixed by federal government) |
| **Croatia** | Employees of Croatian Automobile Club and other Institutions, Faculties etc. | Croatian Automobile Club organizes test every 2 years (psychology, didactics, road traffic, etc.) | Decision is on expert servicesin Croatian Automobile Club | Category B 31€ |
| **France** | Ministry of Interior | Yes | Examiners not be assigned if they have served as driving instructors in the past 3 years | The cost to take theexam is 30 €. This amount is set by thestate |

| 3 Practical Exam (private organizations) | | | | |
|---|---|---|---|---|
| | **Who is the owner of the test car: the driving school, the institution or the candidate?** | **During the driving exams, does the instructor also getinto the car? If so,where does the instructor sit?** | **How many candidates can a private examinerassess in one exam session day?** | **Does the driving test system managed by private entities haveany critical issues?** |
| **Belgium** | Driving school orcandidate in lay system | Yes, instructor sits next to candidate, examiner behind (right) | 11 | They had negative reviews, there are numerous issues withtheir monopoly etc. |
| **Portugal** | The driving school | Yes. Behind the examiner | 10 (Public examiners only carry out 6 to 8) | No. It works very well |
| **Iceland** | Driving instructor for category A, B, BE Driving school ownsheavy vehicles | No ( it is still possible in special cases, thensits in the back seat) | 9 | No |
| **Germany** | Driving school | Instructor sits in fronton the right side. The Examiner sits in the rear on the right side. | 9 | There are few problems(not specified) |
| **Croatia** | Driving school | Yes in front is the instructor and on theback is examiner | 8-10 | No |
| **France** | The cars are ownedor rented by the driving school | The driving instructor is seated in the rear ofthe vehicle | 10-12 | It impossible for a private body to check all applicants. There istoo much room for fraud (1,400,000 applicants per year) |

# 5. COMPARATIVE SUMMARY SHEETS: TRAINING AND TESTING ACROSS 22 EUROPEAN COUNTRIES

## *Mandatory Theoretical Training*

| Country | Theoretical training | | | | | |
|---|---|---|---|---|---|---|
| | General | AM | A | B | First Aid | Additional |
| **Albania** | 36 | | | 25(N) | | |
| **Austria** | 20x50' (N) | 8x50' | 8x50' | 12x50' | | |
| **Belgium** | 12 | | | | | |
| **Czech Republic** | -- | 21 | 21 | 20 | 2 | 10 (R.S.) |
| **Denmark** | -- | 22 | 29 | 29 | 4 | 3 |
| **Estonia** | 41 | | | | | 5 |
| **Finland** | 4 | au6 | 12 | 19 | | 4 |
| **France** | | | | | | |
| **Germany** | 12x90' (N) - 6x90' (O) | 4x90' | 4x90' | 2x90' | 1d | |
| **Greece** | 20 | 10 | 10 | | | |
| **Hungary** | -- | 16 | 22 | 28 | | |
| **Iceland** | -- | 12 | 24 | 25 | | |
| **Ireland** | D.P. | | | | | |
| **Italy** | | | | | | |
| **Moldova** | 144 | | | | 20 | |
| **Netherlands** | | | | | | |
| **Norway** | 17 | | | | 4 | 3 |
| **Poland** | -- | 5 | 26 | 26 | 4 | |
| **Portugal** | 16 | | | | | 7 (R.S.) + 5 |
| **Romania** | 18 | | | | 2 | 4 (R.S.) |
| **Slovakia** | 32 | | | | 8 | |
| **Spain** | | | 3+6 | | | |
| **Sweden** | D.P. | | | | | |
| **United Kingdom** | D.P. | | | | | |

- (N)= training for new license types.
- (O)= in cases where the applicant has previously obtained another license type.
- (R.S.) = Road Safety.
- D.P.= Detailed training program not indicating a minimum training time, or mandatory training in a driving school.
- Figures in which no units are indicated refer to “hours”.
- Symbol "+" indicates theoretical and practical training for this section.
- Symbol "x" is associated with the number of sessions per (x) number of hours per session.

## *Mandatory Practical Training for obtaining the Class B Driving License*

| Country | Practical training for Class B Driving License | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | General | Closed circuit | Urban streets | Road traffic | Highway | Darkness | Risks (additional) | Accompanied driving |
| **Albania** | 25 | 6 | 6 | 6 | 6 | 6 | | YES |
| **Austria** | 10 | 3 | 3 | 1 | | 1 | | COMP |
| **Belgium** | 20 | | | | | | | YES |
| **Czech Republic** | 2 | 4 | 17 | 9 | | | | |
| **Denmark** | 20 | 4 | * | * | | | | COMP |
| **Estonia** | | 7 | 21 | 14 | | | 7 | COMP |
| **Finland** | 10 | | | | | | 4 | YES |
| **France** | 20 | 2 | 4 | | | | | COMP |
| **Germany** | | N.M. | N.M. | 5 | 4 | 3 | | COMP |
| **Greece** | 25 | * | * | * | * | * | | |
| **Hungary** | 580 km | 9 | 14 | 4 | | 2 | | |
| **Iceland** | 17 | * | * | * | | * | * | COMP |
| **Ireland** | 12 | * | * | * | | | * | COMP |
| **Italy** | | - (A.C. 1) | 1 (A.C. 3) | 2 (A.C. 2) | 2 (A.C. 2) | 1 (A.C. 2) | | YES |
| **Moldova** | 40 | | | | | | 8 | |
| **Netherlands** | N.M. | | | | | | | COMP |
| **Norway** | 2 years | | | | | YES | 13 | YES |
| **Poland** | 26 | 4 | * | * | * | | | |
| **Portugal** | 30 + 500 km | | | | | 2 | | |
| **Romania** | 30 + 300 km | | | | | | | |
| **Slovakia** | 7 + 585 km | 8 | 24 | * | * | | | COMP |
| **Spain** | N.M. | | | | | | | |
| **Sweden** | D.P. | | | | | | | YES |
| **United Kingdom** | | | | | | | | YES |

- Figures in brackets indicate the required hours in case of having a previous driving license from another category.
- (A.C.) = Mandatory training to be carried out at the driving school in case the applicant chooses to do their practices exclusively through the accompanied driving model. It applies to Italy only.
- Figures in which no units are indicated refer to “hours”.
- D.P.= Detailed training program not indicating a minimum training time, or mandatory training in a driving school.
- N.M.= Training in driving schools without detailed training plans, nor minimum training length.
- COMP= Accompanied driving that does not substitute the practical training received from driving schools.

## *Ages of access to driving licensing and psychophysical assessment of drivers*

| Country | License Category | | | | | Psychophysical capabilities |
|---|---|---|---|---|---|---|
| | AM | A1 | A2 | A | B | |
| **Albania** | 15 | | 18 | 24 (22) | 18 | Certificate - Emitted by an authorized centre. |
| **Austria** | 15 | 16 | 18 | 24 (20) | 18-17 (A.C.) | Certificate - Emitted by an authorized centre. |
| **Belgium** | 16 | 18 | 20 | 24 (22) | 18 | Health affidavit or psychophysical test. |
| **Czech Republic** | 15 | 16 | 18 | 24 (2 years) | 18 | Health affidavit and medical certificate. |
| **Denmark** | 18 | 18 | 18 | 24 (22) | 18-17 (A.C.) | Medical examination and certificate. |
| **Estonia** | 14 | 16 | 20 | 24 (22) | 18 - 16 (A.C.) | Medical certificate. |
| **Finland** | 15 | 16 | 18 | 24 | 18 | Medical certificate. |
| **France** | 16 | 16 | 18 | A2 + 2 | 18 | Health affidavit. |
| **Germany** | 15 | 16 | 18 | 24 | 18-17 (A.C.) | Visual check. |
| **Greece** | 16 | 18 | 20 | 24 (22) | 18-17 (A.C.) | Two medical certificates and medical record. |
| **Hungary** | 14 | 16 | 18 | 24 (2 years) | 18 | Medical examination and certificate. |
| **Iceland** | 15 | 17 | 19 | 24 (21) | 17 (N.L.) | Health affidavit or certificate emitted by a General Practitioner (GP). |
| **Ireland** | 16 | 16 | 18 | 24 (20) | 17 (N.L.) | Medical examination (only if pertinent). |
| **Italy** | 14 | 16 | 18 | 24 (20) | 18 | Medical examination and certificate. |
| **Moldova** | 14 | 16 | 18 | 24 (20) | 18 | Certificate - Emitted by an authorized centre. |
| **Netherlands** | 16 | 18 | 20 | 21 (2 years) | 18-17 (A.C.) | Health affidavit. Questions from the driving examiner. |
| **Norway** | 15 | 16 | 18 | 24 (22) | 16 (P.L.) - 18 | Medical examination and certificate. |
| **Poland** | 14 | 16 | 18 | 24 (2 years) | 18 | Medical certificate. |
| **Portugal** | 14 | 16 | 18 | 24 (20) | 18 | Medical examination (only if pertinent). |
| **Romania** | 16 | 16 | 18 | 24 (2 years) | 18 | Medical examination and certificate. |
| **Slovakia** | 15 | 16 | 18 | 24 (20) | 18-17 (A.C.) | Medical examination (primary healthcare system). |
| **Spain** | 15 | 16 | 18 | A2 + 2 | 18 | Certificate - Emitted by an authorized centre. |
| **Sweden** | 15 | 16 | 18 | 24 (20) | | Health affidavit. Medical examination (only if pertinent). |
| **United Kingdom** | 15 | 17 | 19 | 24 (2 years) | 17 (P.L.) - 18 | Practical vision check-up during the driving test. |

- Figures in brackets in category A indicate the minimum age at which, after two years of having an A2 license, the category can be accessed.
- (2 years) indicates that category A can be accessed after two years of A2 license, regardless of the age at which this occurs.
- A2+2 indicates that category A can only be accessed if the applicant has previously obtained an A2 license for two years.
- (N.L.) = New driver's license that becomes definitive at the age of 18.
- (A.C.) = License that conditions accompanied driving.
- (P.L.) = Provisional license enabling the trainee to carry out practices, and then take the exam to obtain the definitive driving license.

# 6. CONCLUSION

The different training and assessment systems necessary to access a driving licence have a very relevant impact on the overall road safety and on the prevention of traffic crashes, so their knowledge is of special interest and usefulness. In this study, grounded in the analysis of official data and documentation, the different training models used for driving licensing in 22 European countries were synthetized. Also, their specific examination models were addressed, as well as their psychophysical fitness requirements and their differential facts or peculiarities in relation to the previously described areas.

It is worth highlighting, in a special way, how the majority of these countries have been putting important efforts into making positive changes during recent years, with the aim of strengthening the preparation of new (and safer) drivers.

In brief, safe driving involves both skills and (a good amount of) behavioural training. For this reason, the current systems highly emphasize the theoretical and practical training, which in general is mandatory, given face-to-face, and supported by the key role of driving schools.

Unlike the previous decades, when the core topics addressed in drivers' training were predominantly limited to traffic norms and vehicle maintenance, the growing interest on human factor-based road safety is also being reflected by the theoretical tests, in which further and crucial topics are gaining ground: risk factors, risk groups, risk perception, risky driving scenarios, behavioural management, environmental issues, first aid, etc. In regard to practical training – which is also generally compulsory and carried out in a driving school-, there is an increasing tendency among governments to regulate the scenarios used for driving trainees' practice (closed circuits, low and high-traffic traffic spots, night driving, etc.), frequently in consideration of the particular scenarios that novel drivers might face in their everyday driving.

With the introduction of various mandatory practices in the European driving training systems, the aim is that those who apply for a driving license may train in determined, relevant traffic situations, whether or not these are evaluated in the exams. For this (as with theoretical lessons), most of the countries have developed new and better standards and control systems for the driving-related activities carried out by trainees.

In addition, and in order to guarantee adequate levels of preparation for a complex activity such as driving, entailing several risks and potential hazards, almost all countries are opting for driving schools and instructors as the key stakeholders in charge of training safer drivers, by means of increasing strategies aimed at their professionalization and updating. However, the initial levels required from these practitioners, the programs they must develop, and the control and assessment these must undergo, still present many variances.

Regarding the exams, the incorporation of new technologies and advances from computer sciences into the theoretical exams has helped, among other things, change the model and approach, thus advancing towards a better assessment of the applicant's knowledge and aptitudes. In practical settings, further resources such as videos, infographics and simulators may help expose novice drivers to situations that could otherwise imply actual hazards if encountered in real traffic scenarios, by firstly developing virtually supported skills, making it possible to act on the evaluation and reinforcement of their key features, capabilities and behaviours. Among these competences, it is important to point out the abilities to detect risks, anticipate driving hazards and improve decision-making.

Finally, it is important to highlight -in consideration of what we have mentioned before-, that the European Union should develop further and more extensive efforts to increase research, reflection and consultation in what concerns the drivers' theoretical and practical training (since, despite the existence of some common approaches, there is a great variety of programs, systems and models) with the objective of unifying the norms and criteria of such an important issue for road safety and traffic crash prevention.

# 7. A "ROADMAP" FOR THE FUTURE

This book documents, in great detail, a complete exploration of road training (and its best practices) in the fragmented European scenario, to reach new models of driving training, taking advantage of milestones that can raise awareness about the importance of adequate training as a first measure for achieving road safety.

If any government wants to achieve good results in the field of road safety, it is necessary to change the "driving school only for driving licence" paradigm. Instead, trainees must be prepared to face more realistic driving scenarios, rather than simply learn "how to pass" a driving test. **The training driving programs must proactively strengthen the awareness of current and future drivers, addressing key issues such as (among others) risk perception, risk factors in driving, new technologies ADAS sustainable driving and mobility, (hybrid and electrical cars) and ways to properly respond and intervene once a traffic crash has occurred.**

Training and testing are factors that go together. There is no point in updating just one of these two factors. High-quality training makes sense under a fair testing model, considering the need to update the exam model for obtaining a driver's license. However, the first step must be taken by the testing system, which must be a fair examination that respects what is indicated in the corresponding European Directive, seeking the improvement of the driver's training and testing. In this regard, the suggested training model (EFA Training Matrix a new model for Drivers) comes from the latest innovations applied by European countries in the field of training[1].

On the other hand, testing should be managed in such a way so that it can be done fairly, and the available technology will certainly help to achieve these desired outcomes. A good example of it is the Portuguese certification model, supported by the use of QR codes, valid for both the training and testing phases.

Talking about the future, the first step to maximize the quality of drivers' training will surely be a process of professional updating for human beings who care about protecting the future of society, including the most vulnerable users, such as young drivers.

Driving instructors and examiners must undergo a continuous professional development and update, thus guaranteeing that their trainees will acquire a high-level training and appropriate skills, in order to face both the current and future challenges implied by road safety dynamics.

For this reason, a driving training model (EFA) is proposed, that, based on a training matrix, aims to create awareness and responsible drivers. Whenever possible, road safety

[1] See the document *The "EFA Matrix": a new horizon for driving training & testing in Europe* at: https://www.efa-eu.com/news/ or https://www.uv.es/uvweb/university-research-institute-traffic-road-safety-INTRAS/en/publications/publications/publications-1285898457374/Publicacio.htmlhttps://www.efa-eu.com/news/

topics should be separated from a theoretical/practical exam. Awareness, whose value is simply undisputable, needs to be measured by the quality of teaching, not just through an exam that, although necessary, will not be sufficient to fulfil the current needs of human factor-based road safety.

Our main recommendations are: (*i*) that the new European Directive should contain the changes foreseen in the current training & testing model, thus strengthening a system that increases the quality of the process of obtaining a driving license, also including key issues such as the mandatory face-to-face training (to be certified by the authorized bodies, i.e., the driving schools); (*ii*) that a high-quality risk perception test should be introduced; and (*iii*) that a second-level driving license can be finally -and uniformly- included, in order to control and verify the degrees of learning and safe road behaviour achieved by young drivers.

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

# 3

# The "EFA Matrix": a new horizon for driving training & testing in Europe

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# 1. Technical and empirical background of the "EFA MATRIX".

Speaking in current terms, road crashes are a pandemic (and a challenge) too. Their daily frequency, severe consequences and worldwide coverage have encouraged many organizations to continue working on effective actions to prevent them. As traffic crashes are not really "accidents" but, rather, events that can in fact be avoided through prevention, drivers' training has shown to be the best possible "vaccine".

Below, we present a brief summary of the key facts on the present-day road safety, according to some of the most recognized organizations worldwide:

1. The number of annual worldwide fatalities caused by traffic crashes has reached 1.35 million. Besides, 50 million people get seriously injured every year. Although the number of direct and indirect victims is incalculable, vulnerable road users are those suffering the most severe consequences **(Global Status Report on Road Safety 2018, World Health Organization *WHO*).**

2. Children and young people, who are among the most vulnerable users, are a priority in crash prevention. Hence, it is essential to accelerate the shift towards safer, healthier, cleaner, energy-efficient and more affordable transportation means, such as walking, cycling and public transport **(Stockholm Declaration Third Global Ministerial Conference on Road Safety: Achieving Global Goals 2030 Stockholm, 19–20 February 2020).**

*3.* This is a **critical decade** for improving road safety. **The United Nations General Assembly has** just proclaimed the current decade as the Second Decade of Action for Road Safety, seeking to prevent 50% of road traffic deaths & injuries from 2021 to 2030. Throughout this declaration, the importance of driver training is highlighted, and the member states are requested *to develop and implement comprehensive legislation and policies on motorcycles, **including training and driver licensing**, but also enhancing the **recognized standards, certification and***

***licensing issues of all drivers**, as well as **fostering measures to promote road safety knowledge and awareness among the population*. For this purpose, more and better education, training** and publicity campaigns (especially among young people), are needed to propagate good road safety practices in the community.

4. **Starting in September 2015, the United Nations (UN) General Assembly adopted the 2030 Agenda for Sustainable Development**, composed of 17 Goals. Two of them explicitly refer to road safety; "*3.6. Reduction of road fatalities*" and "*11.2. Urban road safety: access to safe, affordable, accessible and sustainable transport systems for all…*" This agenda calls for more concrete actions across all nations, and training programs for drivers are part of these much-needed solutions.

To meet the objectives indicated by the UN, WHO and the European Commission in regard to road safety, it is necessary to innovate and improve drivers' training programs. In many countries, people's first contact with road safety contents takes place at driving schools. Thus, driving schools should teach not only "how to drive a vehicle", but also develop different road safety skills, attitudes and behaviors that might systematically contribute to accomplishing the goals appointed in the agendas of all these organizations.

Also, and to enhance the achievement of the **road safety-related objectives for the decade 2021-2030**, it is of vital importance that (besides road-risk awareness) both drivers and other road users may have a comprehensive and standardized road safety training. Since it is known that driver testing & testing processes need to become more standardized and directly related to the training curricula, urgent and strategic changes are required in these regards. In other words, far from focusing on the simple handling of a vehicle, training and testing the road users should be more holistic and internationally valid procedures.

As a high-quality response to these demands, the **European Driving Schools Association (EFA)** proposes an innovative training model, justified and adapted to cover

both present and future needs, supported by a road safety knowledge matrix, named *The EFA MATRIX*:

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

| | EUROPEAN CLASS "B" LICENSE | |
|---|---|---|
| | **TO BE DONE AT THE DRIVING SCHOOL** | **TO BE DONE AT THE DRIVING SCHOOL** |
| | ***(Certified / Not tested)*** | ***(To be tested by administrations)*** |
| **THEORY** | 1. Causes and consequences of traffic crashes* | 1. Rules and regulations |
| | 2. Risk/hazard perception | 2. Traffic signals |
| | 3. Norms and conduct: legal and personal responsibility* | 3. Driver's documentation and insurance |
| | 4. Vulnerable groups of road users | 4. Risk/hazard perception test |
| | 5. Risk factors: speeding, alcohol & drugs, and distractions* | 5. Main risk factors |
| | 6. Passive and active safety: ABS, seatbelt, helmet, child restraint systems, etc. | 6. Ecological and economic driving: Vehicle and environment |
| | 7. Behavior in case of suffering a crash | 7. Car maintenance and basic vehicle technology |
| **PRACTICAL** | 8. Basic maneuvers in closed circuits | 8. Parking and vehicle maneuvering (stopped and moving) |
| | 9. Urban areas and e-mobility | 9. Urban roads |
| | 10. Rural/regional roads | 10. Rural/regional roads |
| | 11. Highways/motorways | 11. Highways/motorways |
| | 12. Adverse weather conditions | 12. Safe use of ADAS |
| | 13. Night driving | 13. Mechanical components and vehicle safety |
| | 14. Ecological and economic driving | |
| | 15. Safe use of ADAS | |

*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 awareness of trainees.

This matrix, consisting of a double entry table, specifies the content (theoretical and practical) necessary for the comprehensive training of European drivers in matters of legislation, vehicle management and road awareness.

In the first column of the matrix, a series of theoretical (work in the classroom) and practical (work in the vehicle) subjects are listed, based on awareness, sensitization, and broad training on safe attitudes. These contents would be mandatorily taught in road training centers or driving schools, although their evaluation could be optional. Therefore, an official certification model, audited by the competent administrations and driving training centers, is proposed.

In the second column of the matrix, a series of theoretical and practical (in-vehicle) contents are proposed. These training contents will lean on key issues for road safety, such as traffic regulations, critical maneuvers and driving on different types of roads. The contents of this column would be subject to evaluation by the competent administrations of each member state of the European Union.

The different contents included in each section of the EFA MATRIX, as well as their rationales, are grounded in three different sources: scientific literature (see the document: Driving Licensing in Europe: Training and Testing[1] for a synthesis); the positive experiences of each country of the European Union in the field of drivers' training during recent years (see the document: The "EFA MATRIX": Considerations for improving Drivers' Training in Europe[2]); and the opinion of prominent EFA specialists with extensive experience in drivers' training, as well as other experts in the field of road safety (European Commission, 2017; INTRAS, 2018).

Finally, and based on a comprehensive approach to road safety in the European Union, performed in consideration of the four major spheres of transport (i.e., roads, vehicles, police control and human factor), we would like to make an additional consideration on behalf of all members of the European Driving Schools Association (EFA):

During the last two decades, many substantial transformations have contributed to the improvement of critical areas of road safety: better vehicle active & passive safety systems (many of them already mandatory), better designed and safer roads, crucial technological

[1] See this document at: https://www.efa-eu.com/news/ or https://www.uv.es/uvweb/university-research-institute-traffic-road-safety-INTRAS/en/publications/publications/publications-1285898457374/Publicacio.html

[2] See this document at: https://www.efa-eu.com/news/ or https://www.uv.es/uvweb/university-research-institute-traffic-road-safety-INTRAS/en/publications/publications/publications-1285898457374/Publicacio.html

developments (such as ADAS), and better systems aimed at detecting and controlling traffic offenders. All of them are gaining ground all across the European Union. However, and as for the human factor -clearly the one with the greatest weight when it comes to causing and preventing crashes- very few actions have been promoted in the field of driver training. This is paradoxical, if we consider the fact that **improving the drivers' training is the "first step" towards ensuring safe driving**. Precisely, the vision of EFA and the spirit of this proposal claim for urgent actions aimed at drivers' training, in order to timely accomplish the road safety goals expected for the year 2030 in the European Union.

## 2. Topics covered by the "EFA Matrix"

### a) Causes and consequences of traffic crashes

Traffic crashes are, undoubtedly, the most critical events that can occur within road safety settings. Therefore, driver training should address them as a first concern, in order to increase the awareness on their severity among trainees; however, it should also develop proper knowledge about their causes; for instance, it is critical to show future drivers how "road accidents" are not really "accidental", but can be preventable instead (Montoro, 2018).

With the aim of raising the interest of driving trainees in road safety, it is also necessary to offer national and international epidemiological figures, systematically showing how traffic crashes affect the health, safety and welfare of the population. For instance, the World Health Organization recently stated that 1.35 million people die every year as a consequence of road trauma, and, on top of that, 50 million are seriously injured (WHO, 2018): and yet, the majority of the population is still unaware of these facts.

Similarly, the heavy burden of traffic crashes on different spheres must be explained. In other words, if people are more aware of the great (e.g.) economic, social, occupational, legal, physical/mental, and healthcare-related costs that road crashes involve, it is expected that they will increase their positive attitudes towards their prevention.

One key figure on the excessive economic burden of Traffic crashes was recently provided by a joint study developed by the Universities of Sevilla and Murcia, estimating

that about 1.4 million Euros is the sum that would be spared if one single fatal victim is saved; 219,000 Euros if one severely injured victim is saved; and 6,100 Euros for a slightly injured one (Pérez et al., 2015).

## b) Risk/hazard perception

For many years, it was thought that the most important cause of traffic crashes was the lack of driving skills. Therefore, training other spheres that exceeded this domain was not considered really relevant, being relegated to a second place in drivers' instruction, whose core purpose was focused on the acquisition of maneuvering skills. Nowadays, this approach to driving safety is considered mostly incorrect: although it is true that driving skills are necessary, they are definitely not sufficient for the prevention of most crashes. Rather, decision-making and risk/hazard perception have shown to have a critical role in the avoidance of road risks (Beanland et al., 2013; Montoro et al., 2000). For example, drivers with a higher risk perception and enhanced decision-making processes are more likely to avoid potentially problematic driving scenarios involving risky driving behaviors or maneuvers. Instead, they tend to (e.g) circulate at a prudent speed, use good security systems and avoid difficult roads (Porter, 2011; Tronsmoen, 2010; Montoro et al., 2000).

Although many differences may be observed in these variables, according to the driver's profile (e.g., age, sex, income, reasons for driving), the available scientific evidence endorses the value of increasing risk/hazard perception and improving the driver's decision-making through road training as an effective road safety strategy, strengthened by both driving instructors and computer-based developments (Horswill, 2016a; Tronsmoen, 2010; Mayhew & Simpson, 2002). Just as an illustrative figure, the inclusion of a hazard perception test in the driver licensing process in the United Kingdom contributed to reducing drivers' crash likelihood by 11.3% during the first follow-up year (Horswill, 2016b).

## c) Norms and conduct: legal and personal responsibility

Traffic rules and drivers' behavior are closely related, as this relationship substantially moderates the occurrence of traffic crashes (Barjonet, 2001). In this regard, it is important to raise awareness on three key facts during driving training: (*i*) The only issue that allows us to anticipate other drivers' behavior is respecting traffic rules; (*ii*) when we drive and do not respect the rules, we "forcefully" involve other road users in risky situations; and (*iii*) all traffic regulations are (directly or indirectly) aimed at ensuring people's safety; thus, respecting them is, nowadays, one of the most recognized social values. In this regard, driver training must cover the legal (sometimes criminal) responsibilities and the economic and administrative sanctions (such as traffic fines and loss of points) that are imposed as a consequence of not respecting traffic regulations (Martí-Belda et al., 2019). Likewise, it would be necessary to inform future drivers about the obligations and responsibilities related to the documentation that must be carried on-vehicle, and the basic aspects and procedures of vehicle insurance.

## d) Vulnerable groups of road users

There are some groups of road users who suffer either considerably higher crash rates or especially severe consequences in case of a crash. For this reason, they are called *vulnerable groups in traffic*. According to the 2017 PIN Report of the European Transport Safety Council (Adminaite, Stipdonk & Ward, 2017), 70% of the 9,500 people who died in urban traffic crashes in the European Union during 2017 were pedestrians, cyclists or motorcyclists, the three most vulnerable groups of road users (European Commission, 2017 and 2020). For the prevention of this problem (that is increasing year after year in many countries), it is important to increase the awareness of road users on the special vulnerability of these groups in comparison with motor-vehicle drivers. In this regard, training scenarios seem to be the best context for fostering safety-related behaviors towards vulnerable road users, and for acquiring a better knowledge of the main causes and consequences of the traffic accidents they suffer.

## e) Risk factors: speeding, alcohol & drugs, and distractions

Risk factors in driving are numerous and very complex. However, there is a "key group" of human factor-related risk factors which are directly or indirectly related to most traffic crashes: distractions, speed, alcohol and drugs (Elvik & Vaa, 2009). For instance, empirical research has found that the crash likelihood of a driver is 12.2 times higher when the driver is dialing, and 6.1 times higher when he/she is texting on a cellphone (Dingus et al., 2016). In the same way, and according to the OECD's Transport Forum, speed can explain up to a third of fatal crashes, partly due to excessive or inappropriate speeding (ECMT, 2006). As for alcohol and drugs, studies have found that the first is involved in about 20-25% of all traffic fatalities (DGT, 2018), while between 14-17% of injured/dead drivers test positive for some type of drug (OECD & ITF, 2010). Furthermore, other risk factors such as fatigue/drowsiness, stress and prescription drugs are still relevant issues that need to be addressed. As, in this context, sanctions seem not to be sufficient (especially if the perceived risk of being sanctioned is low), it is essential to improve the drivers' training in risk factors, something that is not always accomplished in the countries of the European Union. Rather, what has been proven to actually modify driving behaviors is an adequate training from early stages (e.g.), using objective data, formulating reasoned explanations and strengthening decision-making in regard to risky scenarios, such as driving under the influence of alcohol or drugs (Buckley Chapman, & Lewis, 2016; Porter, 2011).

## f) Passive and Active Safety: ABS, seatbelt, helmet, child restraint systems

Currently, vehicles commercialized in the European Union have a mandatory number of "active safety systems" (those meant to avoid suffering a traffic crash), such as Anti-Lock Braking Systems (ABS), Electronic Stability Programs (ESP/ESC), or Anti-Slip Regulation (ASR) systems. Although these advances have implied a relevant improvement in vehicle-safety, recent investigations indicate that a large percentage of drivers (about 25% of them) are unaware of their use, maintenance and/or their actual utility (Lijarcio et al., 2019; FESVIAL-PELAYO, 2013). Likewise, many "passive safety systems" (those

meant to protect occupants once a crash has occurred), such as seatbelts, helmets, headrest or child restraint systems, are still largely unknown or underestimated by many drivers, who are unaware of their proper use, value and importance in preventing injuries. This clearly demonstrates the need to incorporate and enhance drivers' training that focuses on the vehicle's safety elements (Elvik & Vaa, 2009).

## g) Behavior in case of having a crash

After a traffic crash has occurred, the first few minutes (so-called "golden minutes") are essential to prevent deaths or psychological/physical consequences among injured users. It is therefore essential that (although this is sometimes a controversial issue) drivers receive a basic training and knowledge on first-aid procedures (Kureckova et al., 2017). The steps to follow, as agreed by international organizations, can be synthesized with the PAS (*Protect, Alert and Save*) acronym. Also, it is important to know how to recognize things such as: the most serious victims of a crash, the basic actions to be performed, what practices should be avoided, how to properly describe the situation when calling the emergency services, and the minimum measures of secondary prevention (DGT, 2017). An error, an indecision or an omission, due to lack of training, can imply very serious consequences for traffic crash victims.

## h) Basic Maneuvers in Closed Circuits

In almost all the countries of the European Union, carrying out basic maneuvers (generally in closed circuits) constitutes the first contact to the driving task for trainees, who are generally unexperienced. In this regard, and considering its advantages for safety, a good part of practical tests at several countries is performed in "controlled" driving scenarios. In other words, it results useful for both instructors, novice drivers and road users to start the training and testing processes under optimal safety conditions.

Following this approach, many basic issues for safe driving (e.g., seat posture, airbag distance, seatbelt positioning, rear-view mirrors, headrest placement, tire pressure and

condition, etc.) can be put into the practice without compromising the safety of third parties during the early driving stages. Also, and in order to strengthen trainees' familiarity with vehicle controls and systems, a series of basic maneuvers are usually performed at low speed on open roads (parking, braking, driving in slopes, changing direction, going backwards, etc.) This stage, despite seeming unimportant, is essential to increase novice drivers' experience and adaptation, enhancing their likelihood to perform safe driving habits (Dorn & Sullman, 2013; Washington, Cole & Herbel, 2011).

From these initial teachings, training must be directed to the learning of two types of basic skills: *procedural* and *high-order cognitive* skills. Procedural skills involve the execution of a sequence of actions (for instance, vehicle maneuvers, handling vehicle controls in real situations), which can be automated only through an extensive practice, that is acquired over time (Schendel & Hagman, 1982). On the other hand, high-order cognitive skills involve key issues such as actively monitoring driving situations, assessing risks, planning responses, and executing maneuvers (Pollatsek et al., 2011; Chan et al., 2011).

### i) Urban Areas and E-mobility

In most European Union countries, crashes occurring on urban roads are at least twice as high in number as those that take place on interurban roads, although in the latter case the number of deaths caused by high speeds is much higher (Thomas et al., 2013). In addition to this, generally speaking urban roads are the ones where people drive the most, and for the longest time spans. Therefore, the education and training of new drivers in urban driving seems to be an essential step for improving road safety. Also, it is true that drivers will find the most complex settings for training (and driving, once they are licensed) in urban locations, facing situations such as: dealing with pedestrians, cyclists, public transport, countless traffic signals, crossings, parking lots, complex perceptual environments, physical proximity to numerous vehicles (ETSC, 2007 and 2019; Archer & Vogel, 2000). In short: a multifaceted and changing environment, in which all critical decisions may imply substantial risks for all urban road users, many of them highly

vulnerable, such as pedestrians and cyclists. Hence, drivers must necessarily be trained to prevent urban crashes, which have been increasing in many European countries during recent years.

On the other hand, and as it will be discussed later, it is very important that drivers' training addresses the issue of $CO_2$ (and other toxic or greenhouse gases) in cities, in order to strengthen a more efficient and cleaner mobility through, for example, *e-mobility*, that is linked to the global philosophy of Smart Cities (Casals et al., 2016; Van der Steen et al., 2015).

## j) Rural/regional Roads

Compared to urban environments, rural/regional roads tend to present many issues, such as more numerous design problems, poor maintenance, insufficient signaling, and several shortcomings in terms of safety systems, enhancing both the occurrence and the severity of traffic crashes (Henning-Smith & Kozhimannil, 2018). According to the Road Safety Annual Report (IRTAD, 2020) most fatal accidents occur on rural roads. In 2018, road fatalities on rural roads represented between 36% (Portugal) and 73% (New Zealand) of all road deaths. In addition, and unlike motorways, rural roads' users face two particularly important problems: firstly, the unpredictability of the situations that may occur (obstacles, many exits and entries, slow agricultural vehicles, mixed pedestrian-vehicle traffic, etc.), and secondly, the need to make frequent overtaking maneuvers, one of the most frequent causes of lethal frontal collisions. For these reasons and others that could be enumerated, it is essential that future drivers have practical training and go through subsequent testing on this type of roads.

## k) Highways/motorways

Currently, the high number of kilometers of high-speed roads (motorways) that exist in the different countries of the European Union, as well as their frequent use, show the necessity of training drivers, so that they will safely circulate on them. Although this type

of road has the lowest crash rate, due to its high safety, maintenance levels and standards (IRTAD 2020), there are many factors that can cause or aggravate motorway crashes, especially speed, something that drivers should be made aware of during their training process. For instance:

**Speed and traffic crashes -** The generic maximum speed allowed on motorways differs among countries in the European Union. However, and with few exceptions, the limits are set between 100-130 km/h. Studies clearly indicate that the higher the speed, the more likely is that a traffic crash will happen, and with a higher severity. This is crucial for the promotion of safe driving behaviors (ECMT, 2006).

**Speed and perception -** Speed has an important influence on the driver's perception and visual field. As an example, at 65 km/h the visual field is 70º, while it is reduced to 30º if driving at 130 km/h (Lachenmayr, 2006; Rogé et al., 2006).

**Speed and distraction -** On motorways, and given the safety standards they offer, as well as their monotony, distraction-related crashes (Highway Hypnosis, or Driving Without Attention Mode - DWAM) occur very frequently. A three-second distraction can be deadly, since, driving at 120 km/h, 33 meters per second are traveled.

**Speed and mechanical failures -** Speed "stresses" all the vehicle's mechanical systems. Any small problem (e.g., shock absorber, brake or tire-related issue) can be fatal when driving at high speed. In fact, a recent study on mechanical failure-caused crashes, carried out by the University of Valencia (INTRAS, 2017 and 2018), found that 1% of fatal accidents on conventional roads are due to tire blowouts, compared to 15% on motorways. These data highlight the need and usefulness of training new drivers in safe high-speed driving.

## l) Adverse Weather Conditions

Having to drive under adverse weather or environmental conditions is quite common, especially in some countries of the European Union. There are many adverse weather conditions affecting drivers (e.g., rain, snow, ice, wind, fog and lack of visibility) that can lead to traffic accidents (Gates, 2018; Leard & Roth, 2015). According to Andrey et al.

(2003), the most relevant four weather-related hazardous scenarios increasing crash likelihood are: (1) **Rain** - crashes may increase between 50-100%; (2) **Snow** – increases the proportion of crashes even more than rainy scenarios, even though their mortality is lesser; (3) The risk is even greater when (*i*) there is **sleet** on the road, and (*ii*) during the **first snow** of the season; and (4) **Rainy seasons** – explain substantial differences in the types of crashes occurred and their severity, in comparison to other seasons of the year.

Driving under adverse weather conditions, the crash risk is overall high (Elvik & Vaa, 2009), so drivers are required to know the main weather-related risks, as well as to adapt their driving patterns to the demands they impose. However, it is known that -in most situations- drivers' adaptations aimed at reducing road risks are insufficient (Rahman & Lownes, 2012; Strong et al., 2010; Kilpeläinen & Summala, 2007; Maze et al., 2006). Therefore, it is necessary to train future drivers in this matter, addressing three main spheres: firstly, **driving skills**, needed to deal with these adverse situations and their own hazards (e.g., type of braking, steering wheel movements, acceleration, etc.); secondly, to inform about the **vehicle safety systems** that must be used, and how to operate them (e.g., how to use of snow-ice chains, what type of tires are more convenient, adequate loads in windy scenarios, etc.); and thirdly, it is very important to link weather conditions with the **psycho-physical capabilities** of drivers. For example, driving in rain, fog or snow doubles or triples (depending on the situation) the levels of mental, physical and/or ocular fatigue, also affecting drivers' attention (Montoro et al., 2000). Although training on these issues is complex in many countries as a consequence of their specific environmental conditions ("*too cold / too hot / too rainy*"), the basic theoretical training in this matter could be complemented with the use of artificial environments and/or driving simulators (Casutt et al., 2014).

## m) Night driving

At the present day, developing skills for driving at night, or under reduced visibility conditions, is essential for road safety (Gates, 2018). It is important to note that, in relative terms, **there are far fewer traffic crashes at night** than during the day, **although they**

**tend to be more serious** (Zhang & Hassam, 2019). This is due to many factors, about which drivers necessarily require training. For instance: at night, as there is less traffic and fewer visual stimuli, speed usually increases; the risk of sleepiness and fatigue is greater (Mikoski, Zlupko, & Owens, 2019); driving under the influence of alcohol, that also decreases visibility, tends to be observed more often at nighttime (Sullivan & Flannagan, 2002); visual acuity is considerably reduced, depth capture can be seven times less, peripheral vision is very low, and glares may affect driving performance (Lijarcio et al., 2020). Vulnerable groups are also the most affected during night mobility, suffering more lethal crashes enhanced by reduced visibility (Wood et al., 2005; Sullivan, 2001). Studies indicate that knowing how to prevent risks related to night driving is a crucial step for drivers' training. For this purpose, it results valuable the use of simulation technologies for training (Wang et al., 2018), as well as teaching drivers how to act in case of suffering or witnessing a nighttime traffic crash.

### n) Ecological and economic driving

Several stakeholders, such as official institutions, governments, large private entities, universities and researchers (many of them within the European Union), have raised a large number of directives, standards, laws and recommendations aimed at reducing polluting emissions. Specifically, in the European Union, it is intended to diminish these emissions by 55% for the year 2030. During the last decades, the proportion of overall energy used by road transport increased from 23% (1971) to 29% (2017), with oil derivatives being the most predominant and polluting matter (IEA, 2019). Given this situation, and the great contribution of motor vehicles for climate change, there is a large set of actions that must necessarily be directed at road users, through (e.g., in low visibility conditions education, training and more/better information). In this regard, driver training is an ideal scenario for addressing topics such as: the current pollution problem derived from vehicles; mechanical maintenance to avoid polluting; green and efficient driving; alternative vehicles and transportation means; and non-polluting motor vehicles (Ministerio de Fomento, 2019; Paris Climate Change Agreement, 2016). Nowadays, many drivers do not take action in

relation to vehicles or eco-driving, whether because they are not fully aware of the problem, or just because they do not know how to act. Training plays a fundamental role for optimizing energy consumption and environmental sustainability through a more efficient mobility.

## o) Safe use of ADAS

Advanced Driver Assistance Systems (ADAS) are a set of technologies that help drivers to prevent road risks, avoid crashes and enhance the driving experience (Benson, Tefft, Svancara & Horrey, 2018; Souders, Best & Charness, 2017). Currently, there are many types of ADAS; it is actually frequent to find that most of the commercialized vehicles include helpful features, such as emergency braking systems, lane departure warnings, adaptive cruise control, pre-collision systems, pedestrian detection devices, etc. Given their usefulness and effectiveness, the European Union has introduced some types of ADAS on a mandatory basis, and others will be progressively promoted and regulated in the future (Regulation (EU) 2019/2144; Euro NCAP, 2020). However, the greater availability and usefulness of ADAS may be impaired by some fundamental user-related constraints, such as a growing mistrust and ignorance in regard to the value of technological developments for road safety (Lijarcio et al., 2019; BOSCH & FESVIAL, 2020). For this reason, it is necessary to articulate vehicle automation with driving training, in order to maximize both the safety-related and further benefits of ADAS technologies among new drivers (Sætren et al. 2018; Nylen et al., 2019). Since it also encompasses many other contents related to vehicle safety, driver licensing constitutes the ideal scenario for fostering formative & informative actions on ADAS and driving safety.

## p) Rules and regulations

Apart from traffic signals, the only factor allowing us to properly anticipate the behavior of other road users -and thus avoid crashes- is rule compliance. To achieve this desiref outcome, some minimum conditions (that unfortunately are not fulfilled in most European

countries) are necessary, as shown by the so-called SARTRE-4 study (European Commission, 2012): firstly, it must exist a **perceived risk of being sanctioned** for not complying with a rule or regulation (Elvik & Vaa, 2009). Secondly, drivers must have a good knowledge of **which are the rules**; and third, drivers must be explained **why the rules**, which is possibly the most important element for their compliance (Porter, 2011). For example, the mandatory use of helmets on motorcycles is justified by the fact that approximately 80% of motorcyclist deaths occur after they suffer a blow to the head (European Commission, 2020). In short, it is useless for road safety to have excellent traffic regulations if they are not known, nor accomplished by road users, something that happens frequently and that would only be solved through improving drivers' training in this field (United Nations - Economic and Social Council, 2020). Finally, it is important **to overcome the currently often-observed model of "legalistic training" for drivers**, since there are many behaviors that, although not explicitly forbidden, may represent great risks for road users; for example, standing at an inappropriate distance from the airbag, or smoking while driving.

## q) Traffic signals

Traffic signs are the language by which the authorities, the environment and the road itself get in communication with drivers. Furthermore, they are essential for driving safety, since they highlight the existence of hazards, limits, prohibitions, road features, etc. (Castro & Horberry, 2004). In other words, it is impossible to drive safely if drivers (*i*) ignore road signs' meaning, or (*ii*) disrespect them. Therefore, it is essential that the meaning of traffic signs can be learned as a basic subject during driving training, but also that its actual learning must be verified through testing procedures (Montoro, 2018). There are also other constraints related to road signaling that it would be necessary to emphasize, especially the fact that traffic signs (due to various circumstances) do not always meet their "core principles" of being **visible, legible, credible and/or intelligible**. In this sense, it is important that (especially as for young and older drivers) trainees' perceptive and

attitudinal skills may be enhanced, in order to achieve both a good understanding and a major compliance with road signs.

### r) Car maintenance, mechanical components and vehicle safety

These three aspects constitute a **key combination for road safety**. Although the data from accident investigation reveal that few crashes are caused by a mechanical failure (Thomas et al., 2013; Elvik & Vaa, 2009), they also depict that these can be more serious, especially when they are caused by serious tire-related problems (tire blowout crashes).

**Vehicle maintenance** is important and has great benefits, which are often unknown by drivers, as a consequence of their lack of training and information: it helps prevent crashes; it contributes to saving fuel and energy; it ensures fewer breakdowns and lower investments in mechanical repairs (in case they are needed); it lengthens vehicles' life; and, ultimately, an overall higher safety is achieved.

In relation to the vehicles' maintenance and to the knowledge of their mechanical components, a study performed by the University of Valencia: (*i*) analyzed the mechanical condition of 3,500 vehicles, finding that more than 50% of them had tire, shock absorber or brake problems; and (*ii*) it thoroughly interviewed 1,300 drivers about the maintenance of their vehicles. It was discovered that, even having detected possible problems in brakes, steering, tires or shock absorbers, 32% of them had delayed their reparation for days, weeks, or even months. Also, around **50% of them were unaware of very basic vehicle safety issues**, such as: tire expiration; ISOFIX systems; changing the seat belt; utility of shock absorbers, etc. An additional, especially interesting finding was that drivers who had mechanical components of their vehicles in poor condition (e.g., tires, brakes or shock absorbers) and did not perceive the implied risk, **had suffered more traffic crashes than the rest of drivers** (INTRAS, 2017). Coherently, a recent study carried out in the United Kingdom, with the participation of more than 2,000 drivers, warns us about the dangers of vehicle maintenance neglect, highlighting how learning basic vehicle maintenance tasks during the drivers' training could be crucial to reduce their further crashes and car breakdowns (BRAKE, 2020).

## 3. References


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