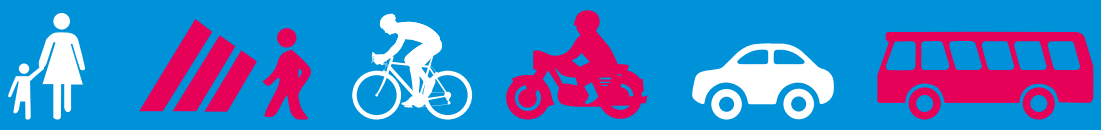
Czech Republic
Ministry of Transport

CZECH ROAD TRAFFIC SAFETY STRATEGY 2021-2030

CZECH REPUBLIC



ROAD SAFETY IS EVERYONE´S RIGHT AND RESPONSIBILITY

BESIP

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1. Introduction

Czech Road Traffic Safety Strategy 2021–30 (hereinafter referred to as the 'Strategy') builds upon Czech Road Traffic Safety Strategy 2011–20 and European Commission White Paper 2002–10 called 'European Transport Policy for 2010: Time to Decide'. The priorities are in line with the targets set by the Member States of the European Union and the United Nations, which have set the objective **of reducing the number of persons killed and seriously injured** on the roads by half (50% less in 2030 compared to the baseline).

Note: The baseline for the Strategy is the average from 2017–19.

1.1 Impacts of Traffic Accidents

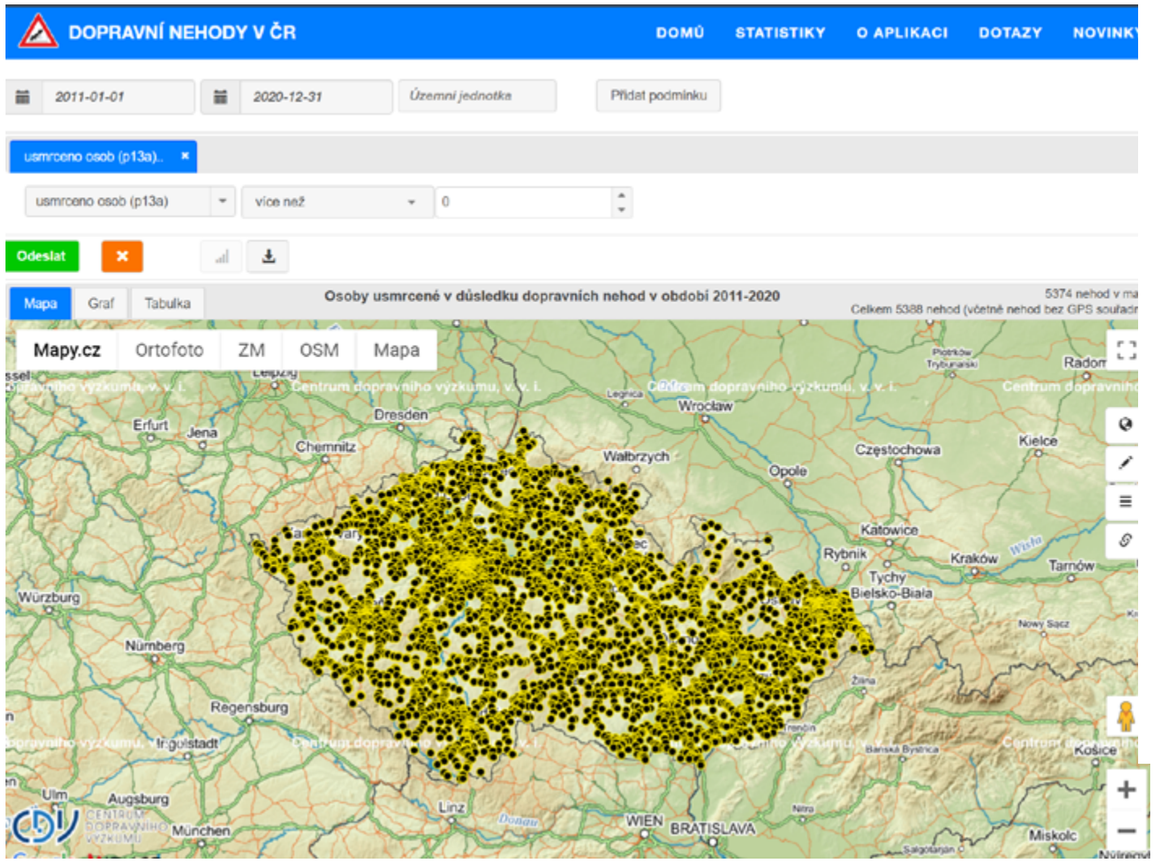
From 2011 to 2020, 5,879 people were killed and 25,463 were seriously injured on roads in the Czech Republic *(Note: the statistics are for within 24 hours of the accident).* When compared to 2001–10, when 10,850 were killed and 43,630 were seriously injured, **there was a 46% decrease in the number of persons killed and a 42% decrease in the number of persons seriously injured.**

Although there were gradual reductions in both categories, the defined objectives of Strategy 2011–20 were not met for fatalities. The Czech Republic has been reducing the number of accident victims in this decade at a rate that corresponds to the average of the EU countries; however, it did not rank among the safer countries within the EU, nor among the EU countries that have made the most progress in road safety.

Until 2020, more than 500 people were killed every year in traffic accidents in the Czech Republic (Note: 460 people were killed in 2020). The accidents in which people were killed from 2011 to 2020 are shown below in the 'Road Accidents in the Czech Republic' application. The primary and long-term objective of the Strategy is to prevent all loss of human life on Czech roads.

In addition to the protection of human life and health, increased road safety also has a significant positive impact on the economy of the Czech Republic. Socio-economic costs from traffic accidents in the Czech Republic in the decade from 2011 to 2020 will reach CZK 660 billion (Note: this qualified estimate is based on final data from 2011–18; from 2001 to 2010, the socio-economic costs amounted to CZK 506 billion).

Despite the downward trend in fatal and serious-injury accidents (see below), the economic losses are trending upward.



Input data source: nehody.cdv.cz

1.2 VISION ZERO and a Safe System

The basic philosophy of the Strategy is to confirm VISION ZERO, which the Czech Republic wants to approach significantly in the next decade. VISION ZERO considers death and serious injury on the roads to be unacceptable. To achieve this vision, it is necessary to create a **safe system** for safe road-user behaviour, safe vehicles, and safe infrastructure, which are all cornerstones of the Strategy.

The Strategy is crucially interlinked with other strategic and departmental documents (see the final section), such as the Transport Policy of the Czech Republic, the Innovation Strategy of the Czech Republic, the Action Plan for Intelligent Transport System (ITS) Development after 2020, and others. The principle is relatively simple: a modern country builds a safe transportation space to primarily protect human life and, secondarily, to reduce economic losses related to accidents.

Society is unwilling to accept fatalities at workplaces, in air transport, and in rail transport, so why should roads be an exception?

VISION ZERO represents a change in the understanding of responsibility. Although road-user behaviour significantly influences road safety, the strategy of building a safe system assumes that people are not infallible and will always make mistakes. Therefore, the traffic system should be as 'forgiving' as possible so that accidents do not necessarily result in death nor serious injury. **It is not only the responsibility of the road user who caused the accident, but it is also the shared responsibility of those who are involved in setting the parameters of the transport system**, including transport system designers, road managers, car manufacturers, motorists' service providers, the police, other emergency service providers, legislators, representatives, administrative authorities, judicial authorities, and other entities that influence behaviour in the traffic area through their actions (e.g., the media, teachers).

VISION ZERO TRANSPORT RESEARCH CENTRE

1.2.1 Coherence at Different Levels

The primary long-term goal of VISION ZERO is that no person will be killed or seriously injured on the roads by 2050 at the latest.

The Strategy is a tool to move towards this common goal. At the national level, areas with the greatest potential to reduce the serious consequences of road accidents are defined, but there is no room to address the different specificities within individual regions and cities. Hence, the key is to transfer the Strategy from the national level to the regional and local levels, where there is scope to address unique elements, including specific accident locations that can be identified with an appropriate certified method. The hierarchy of the different documents is illustrated in the following infographic.

The Zlín Region and the town of Otrokovice are examples of regional and local strategies. Both developed a road traffic safety strategy based upon a document adopted at the national level. The fact that it makes sense to address safety issues at the regional level is demonstrated by the fact that the Zlín Region was the only region to reach historic lows in both fatalities and serious injuries in 2019, while meeting the assumptions set by Strategy 2011–20.

In 2020, the Czech Ministry of Transport approved **the Methodology for the Development of Local Road Safety Strategies**, and, in 2021, the **Methodological Recommendations for the Implementation of Local Road Safety Strategies will be completed.**

2. Trends for Traffic Accidents

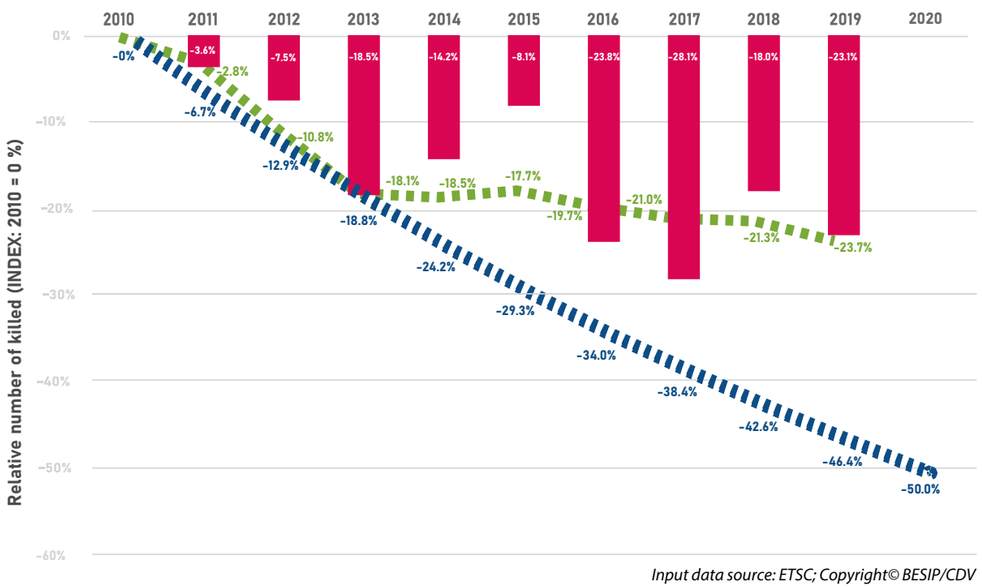
The following subsections analyse the consequences of accidents at the European level (i.e., deaths within 30 days of the accident and serious injuries) and the national and regional levels (i.e., deaths within 24 hours of the accident and serious injuries).

2.1 Europe

For 2011–20, the EU publicised a target to reduce fatalities to half of 2010 levels by 2020, with no more than 14,841 deaths in 2020.

Historically, the lowest number of people (i.e., 22,659) were killed in accidents on EU roads in 2019, which was 23.7% less than in 2010. To compare, in the Czech Republic the number of people killed in that year (i.e., 617) was 23.1% less than in 2010. Historically, in the Czech Republic, the fewest people killed in accidents (i.e., 577) was in 2017, which was 28.1% less than in 2010. The graph below shows that the target is very unlikely to be met in 2020, both at the EU level and in the Czech Republic. It is also evident that both the EU and the Czech Republic **failed to meet the targets in any year.** For example, in 2019, 46.4% fewer people were expected to be killed on the roads in the EU than in 2010.

CHANGE RELATIVE DEVELOPMENT OF THE NUMBER OF KILLED PERSONS AS A RESULT OF ROAD ACCIDENTS IN THE CZECH REPUBLIC AND EU BETWEEN 2011 AND 2019
TO RELATIVE TREND FOR THE NUMBER OF KILLED PERSONS AS A RESULT OF ROAD ACCIDENTS IN THE CZECH REPUBLIC AND EU BETWEEN 2011 AND 2019



Input data source: ETSC; Copyright© BESIP/CDV

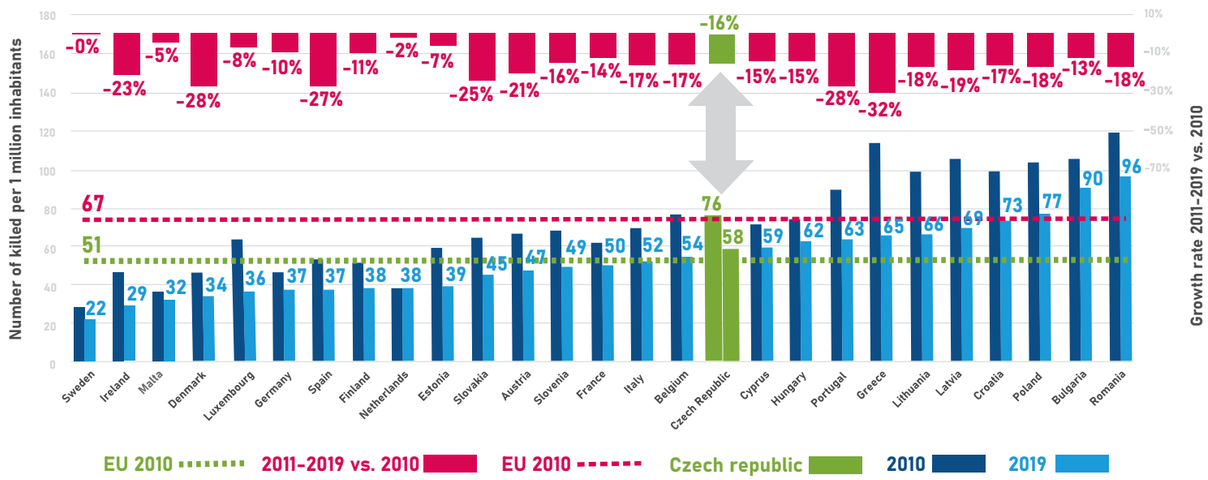
Note: In the graph on the bottom right, BESIP = Road Safety Department of the Ministry of Transport, CDV = Transport Research Centre. These abbreviations are used in other graphics.

Despite the unsatisfactory trend in fatalities in the decade of 2011–20, a reduction of 50% in fatal road accidents was set as the main target for the decade of 2021–30 (Resolution adopted by the 74th UN General Assembly and called 'Improving Global Road Safety').

Sweden, with only 22 deaths per 1 million inhabitants, is a 'European Champion' in the field of lowering the number of fatalities. Other top countries with the lowest number of fatal accidents include Ireland (29 deaths per 1 million inhabitants) and Malta (32). On the other hand, Romania (96), Bulgaria (90), and Poland (77) had significantly higher than average numbers of fatalities in 2019.

The Czech Republic ranked 17th in 2019 with 58 deaths per 1 million inhabitants. It lagged behind the European average by almost 14%. An interesting angle is to compare countries according to their growth coefficient (i.e., the average annual number of deaths in the period 2011–19 vs. 2010). Within the EU, a decrease of 17% was registered, while the Czech Republic recorded a decrease of 16%. In neighbouring countries, a higher decrease was registered for Slovakia (-25%), Austria (-21%), and Poland (-18%), while Germany had a decrease of -10%. **Exc ept for Poland, the number of deaths per 1 million inhabitants in neighbouring countries was lower than in the Czech Republic in 2019.**

RELATIVE COMPARISON OF THE NUMBER OF KILLED PERSONS AS A RESULT OF ROAD ACCIDENTS IN EU COUNTRIES IN 2010 AND 2019



Input data source: European Commission database, ETSC and Eurostat; Copyright © BESIP/CDV

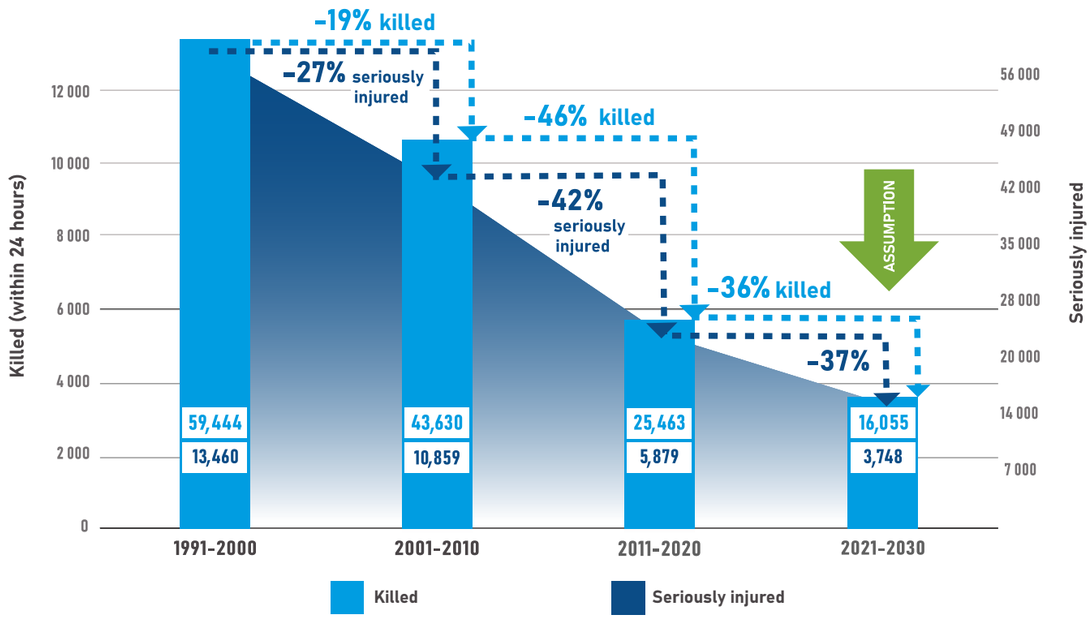
2.2 Czech Republic

The Czech Republic set two strategic goals for the decade of 2011–20: **to reduce the number of deaths in 2020 to 40% of the 2009 total**; and **to reduce the number of seriously injured to 60% of the 2009 total.**

2.2.1 Decade Comparisons

The graph below compares decades and shows a gradual reduction in both fatal and serious traffic accidents. Based on the strategic objectives, it is assumed that **in the decade of 2021–30 no more than 3,748 people will be killed and 16,055 seriously injured as a result of traffic accidents.**

TREND FOR THE NUMBER OF KILLED AND SERIOUSLY INJURED PERSONS IN INDIVIDUAL DECADES AS A RESULT OF ROAD ACCIDENTS IN THE CZECH REPUBLIC



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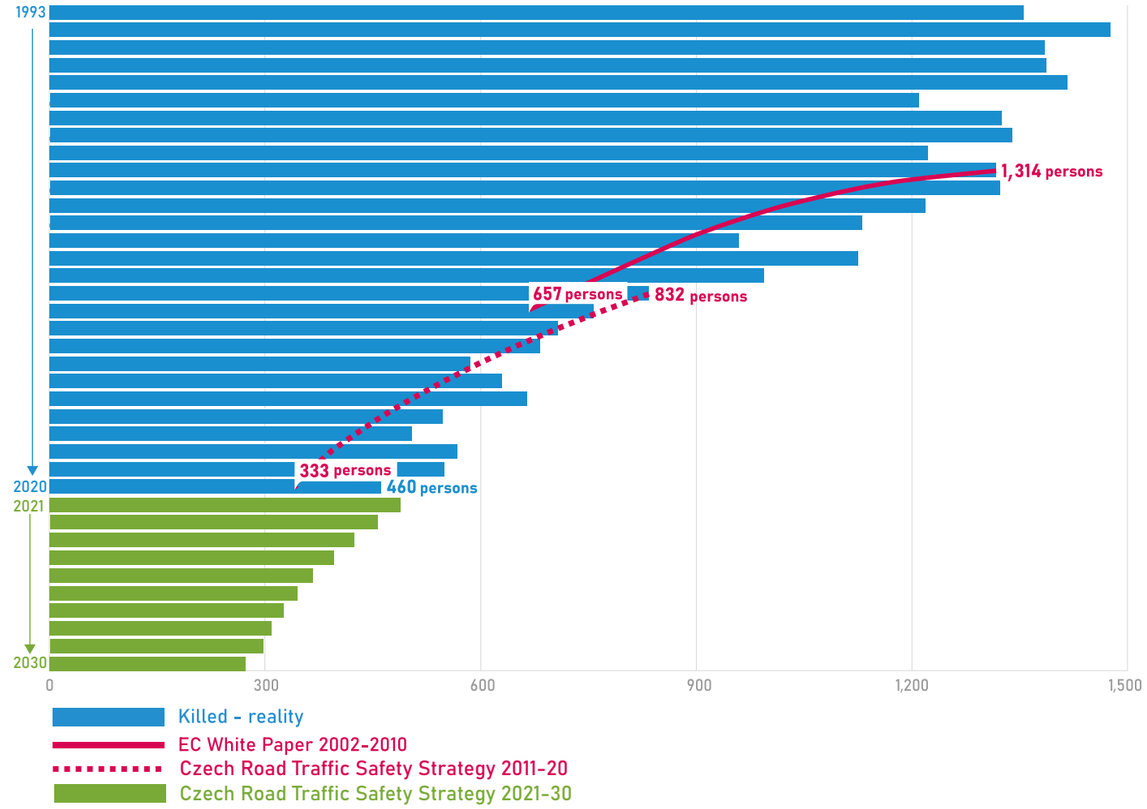
2.2.2 Trend for the Number of Deaths

The first strategic goal which the Czech Republic set for 2011–20 was to reduce fatalities to 40% of 2009 levels by 2020. **In the period of 2011–20, 5,879 people were killed on roads in the Czech Republic** *(Note: statistics are within 24 hours of the accident)*, while the Strategy 2011–20 assumed 4,982 fatalities. In other words, there were 897 more fatalities (+18%) compared to assumptions.

TREND FOR THE NUMBER OF KILLED PERSONS AS A RESULT OF ROAD ACCIDENTS IN THE CZECH REPUBLIC



Input data source: Police of the Czech Republic database; Copyright© BESIP/CDV

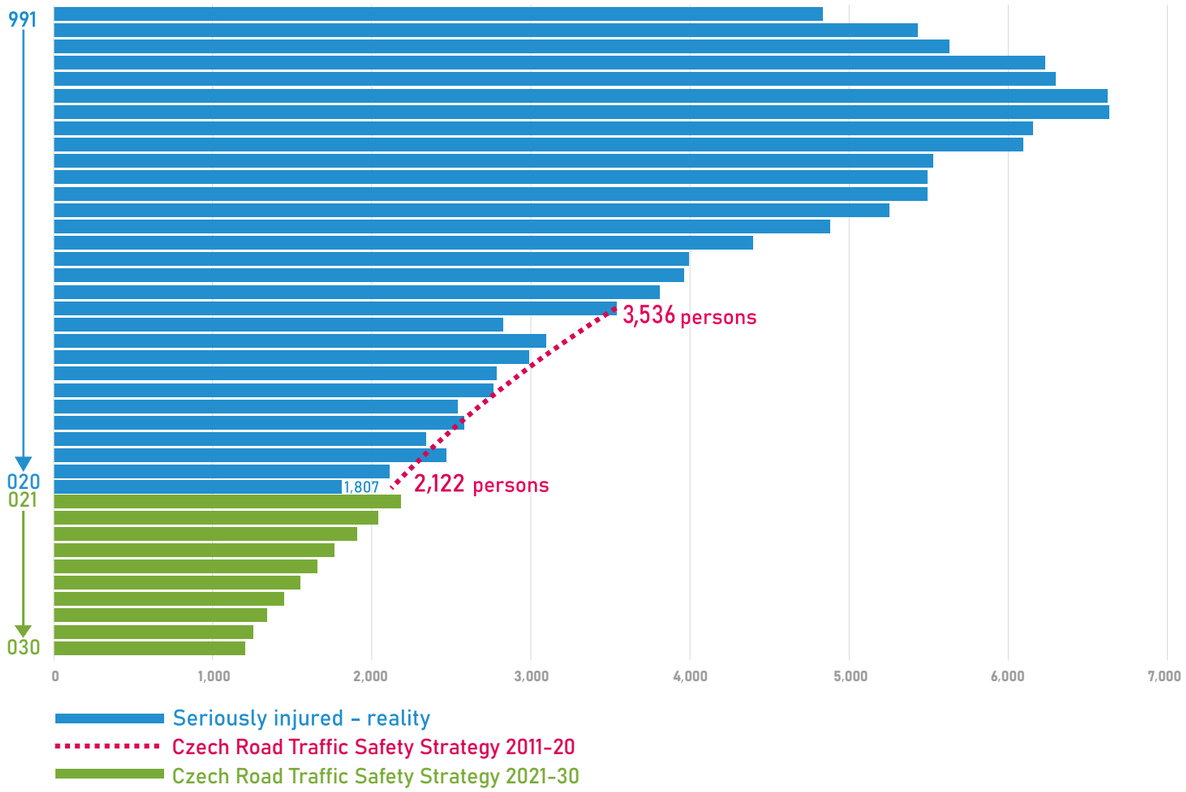
Historically, the lowest number of people (i.e., 460) were killed in 2020 as a result of road accidents in the Czech Republic. The graph above shows that even so, the strategic objective was not met. It is also clear **that the assumptions of Strategy 2011–20 for fatalities were exceeded in every year except 2013.**

For the number of fatalities in 2021–30, the Czech Republic has set a strategic goal of a reduction of 50%, which is the same as the EU and UN targets.

2.2.3 Trend for the Number of Seriously Injured

The second strategic goal which the Czech Republic set for 2011–20 was to reduce the serious injuries as a result of accidents to 60% of 2009 levels in 2020. **During that decade, 25,463 persons were seriously injured on roads in the Czech Republic**, while Strategy 2011–20 projected 26,382 seriously injured persons (i.e., 919 more). **Thus, the Strategy 2011–20 target for the number of seriously injured persons was met in 2020 by 3.5%.** Thus, the number of seriously injured persons was 4.3 times higher than the number of persons killed in the decade *(Note: this proportion*

TREND FOR THE NUMBER OF SERIOUSLY INJURED PERSONS AS A RESULT OF ROAD ACCIDENTS IN THE CZECH REPUBLIC



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was equal to four for decade 2001–10).

For the number of severe injuries in 2021–30, the Czech Republic has set a strategic goal of a reduction of 50%, which is the same as the EU target.

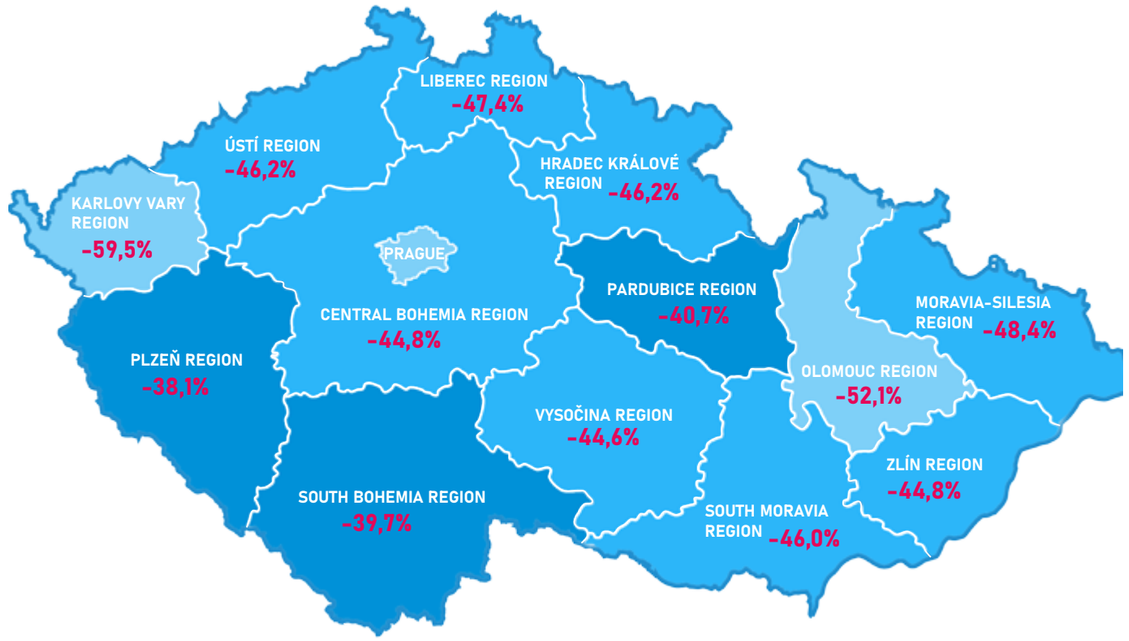
2.3 Regions

It is clear that the statistics for the number of persons killed in the Czech Republic largely corresponds to the trend for the EU (in relation to the set assumptions). However, it is important to note that the situation varied considerably from region to region.

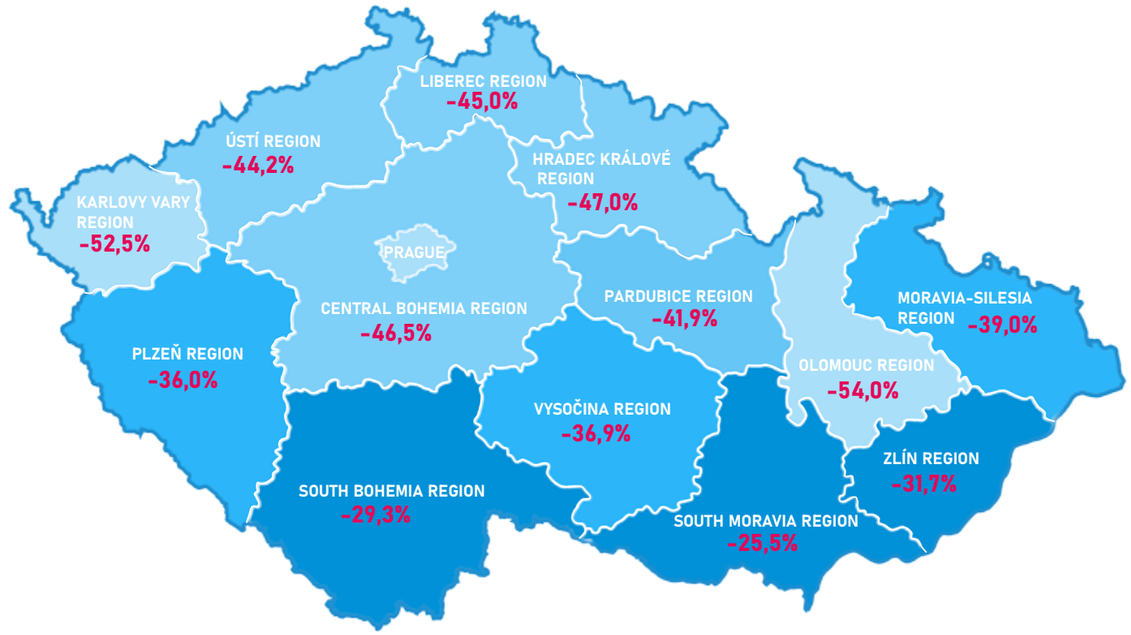
The previous decade (i.e., 2011–20) and the preceding decade (i.e., 2001–10) provide an illustrative comparison. Within the Czech Republic, there was a 45.8% decrease in the number of persons killed and a 41.6% decrease in the number of persons seriously injured. All the regions registered a decrease in both killed and seriously injured persons.

The most significant decrease in fatalities was registered in the Karlovy Vary Region (-59.5%), the Capital City of Prague (-52.6%), and in the Olomouc Region (-52.1%). The least satisfactory decre-

DIFFERENCE OF THE NUMBER OF KILLED PERSONS IN THE REGIONS OF THE CZECH REPUBLIC IN THE PERIODS 2011-2020 AND 2001-2010



DIFFERENCE OF THE NUMBER OF SERIOUSLY INJURED PERSONS IN THE REGIONS OF THE CZECH REPUBLIC IN THE PERIODS 2011-2020 AND 2001-2010



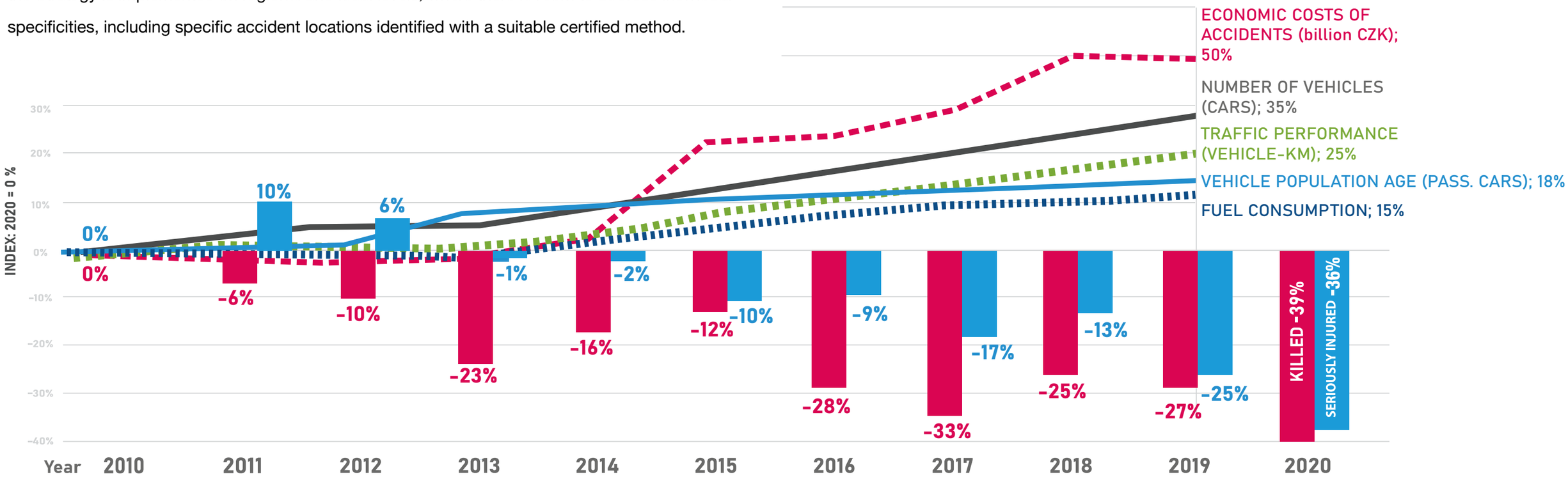
ase in fatalities was recorded in the Plzeň Region (-38.1%), the South Bohemia Region (-39.7%), and the Pardubice Region (-40.7%). The most significant decrease in seriously injured persons occurred in the Olomouc Region (-54.0%), the Karlovy Vary Region (-52.5%), and the Capital City of Prague (-51.0%), while the situation was less satisfactory in the South Moravia Region (-25.5%), the South Bohemia Region (-9.3%), and the Zlín Region (-31.7%).

As stated earlier, the Czech Republic has set a strategic goal for the following decade to reduce the number of people killed and seriously injured in road traffic accidents by 50%. This goal is set in each of the individual regions. As the analysis of the consequences of accidents (above) shows, the situation in each region is different because each region has its own specific characteristics. For example, the Capital City of Prague has a long-standing record of a high proportion of serious accidents involving pedestrians, whereas elsewhere motorcyclists are more of a problem. The common causes of accidents can be also different in different regions. Therefore, it is important that the Strategy is implemented on regional and local levels, where there is room to address individual specificities, including specific accident locations identified with a suitable certified method.

2.4 Comparison of the Trends for the Consequences of Traffic Accidents with Selected Indicators

Between 2010 and 2019, there was a 50% increase in economic losses from traffic accidents, a 35% increase in the number of passenger vehicles on the roads, traffic performance has increased by a quarter, the national vehicle population has aged by 18%, and fuel consumption has increased by 15%. How these indicators affect fatalities and serious injuries due to traffic accidents is shown in the graph below.

COMPARISON OF THE RELATIVE TRENDS FOR THE SERIOUS CONSEQUENCES OF TRAFFIC ACCIDENTS WITH SELECTED INDICATORS



Note: Traffic on motorways and roads of Classes 2B and 3C.

Input data source: Police of the Czech Republic database; Ministry of Transport, Transport Research Centre, Road and Motorways Directory, Czech Association of Oil Industry and Commerce; Copyright© BESIP/CDV

3. Strategic Objectives

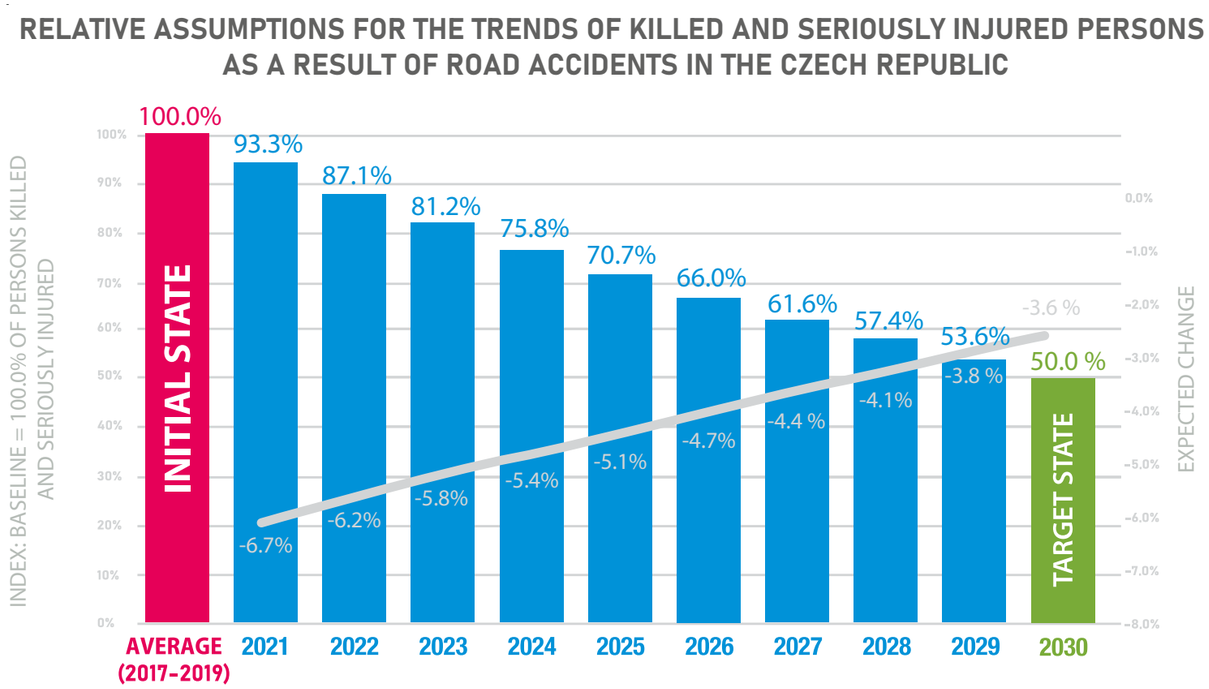
The strategic objectives for the decade of 2021–30 are to halve the number of people killed and the number of people seriously injured on the roads. The assumptions listed in the subsections below are preliminary and represent **the thresholds that need to be reached to achieve these targets** (i.e., the planned 50% reduction).

The strategic objectives are based on the Czech Republic's international commitments (i.e., the Valletta Declaration on Road Safety, the 74th UN General Assembly Resolution 'Improving Global Road Safety', and the EU Road Safety Policy Framework 2021–30). A wide range of indicators will be monitored. Based on their analysis, **priority areas of interest will be defined for each strategic pillar.** The priority areas are the ones where the greatest potential for reducing the number and severity of road accidents exists.

The diagram below is available in interactive form **here.**

3.1 Margins for Killed and Seriously Injured Persons

To achieve the strategic objectives, milestones are set for each year to monitor and manage road safety activities throughout the decade. Relative assumptions are set identically for both the trends in fatalities and the trends in serious injuries. See the chart below.



4. Strategic Pillars

STRATEGIC PILLARS	AREAS OF THE CZECH ROAD TRAFFIC SAFETY STRATEGY 2021-30 ACTION PLAN	
	Prioritised*	Other
TRAFFIC PARTICIPANTS	Speed	Inattentive driving; risk participants (repeat offenders); children and young people; ageing population; vulnerable participants; alcohol and other addictive substances; protective features
	Young drivers	
INFRASTRUCTURE	Removal of accident locations	Collisions with trees; level crossings; clear and predictable routes; traffic signs; Smart Cities and Cooperative Intelligent Transport Systems (C-ITS)
TECHNICAL CONDITIONS AND VEHICLES	Package of measures - advanced technology	Support for Advanced Driver Assistance System (ADAS) and automation; vehicles health; clean mobility
SYSTEM MEASURES	Effective supervision and law enforcement	Technical equipment; education; promotion of safe behaviour; post-accident care; quality data sources

**) with the greatest potential for reducing the number and severity of road accidents*

Areas of focus were based on the findings of the analytical documents (Annex 2 – available only in the Czech version of the Strategy). **Focus on the strategic pillars divides responsibility among the actors involved in the activities to achieve the strategic objectives.** The specific activities that will be in the centre of attention over the next two-year period are set out in the Action Plan (Annex 1 – available only in the Czech version of the Strategy).

4.1 Traffic Participants

Safe behaviour is a crucial factor in the system. Children as young as pre-school age learn the basics of safe behaviour from their parents and in school. This education continues through primary and secondary schools up to the time they obtain a driver's licence.

Educational opportunities for the public are limited and generally restricted to information and awareness campaigns. The key is, therefore, systematic and multi-stage traffic education: training children at an early age on children's traffic parks, a high-quality preparation for young adults in driving schools, and subsequent organic education of adults throughout the entire driving experience. The behaviour of road users, however, is not only influenced by driving skills, but also, to a significant degree, by their attitudes, values, awareness, health, fatigue, and emotional well-being. From a strategic point of view, **it is important to focus on changing public attitudes to enhance considerate behaviour, mutual respect among all traffic participants, and the protection of the most vulnerable ones, such as pedestrians and cyclists.** It is important to accent that these also include children, the elderly, women, parents with prams, carers, and people with mobility, orientation, and/or communication difficulties. From the point of view of strengthening gender

equality, it is important to break down stereotypes which, among other things, stigmatise women as bad drivers and reinforce or justify the aggressive driving style of men. These groups of road users should be emphasized also because of the expected development of micro-mobility (e.g., more compact and emission-free vehicles, such as bicycles, scooters, and their electric variants).

With a view to creating a safe system according to VISION ZERO, **emphasis must be placed on making people aware of how vulnerable they are on the roads.** During the decade of 2021–30 it is advisable to direct education and awareness programs in this way. Accepting our own responsibility is an important factor so that we can all reach our destination safely.

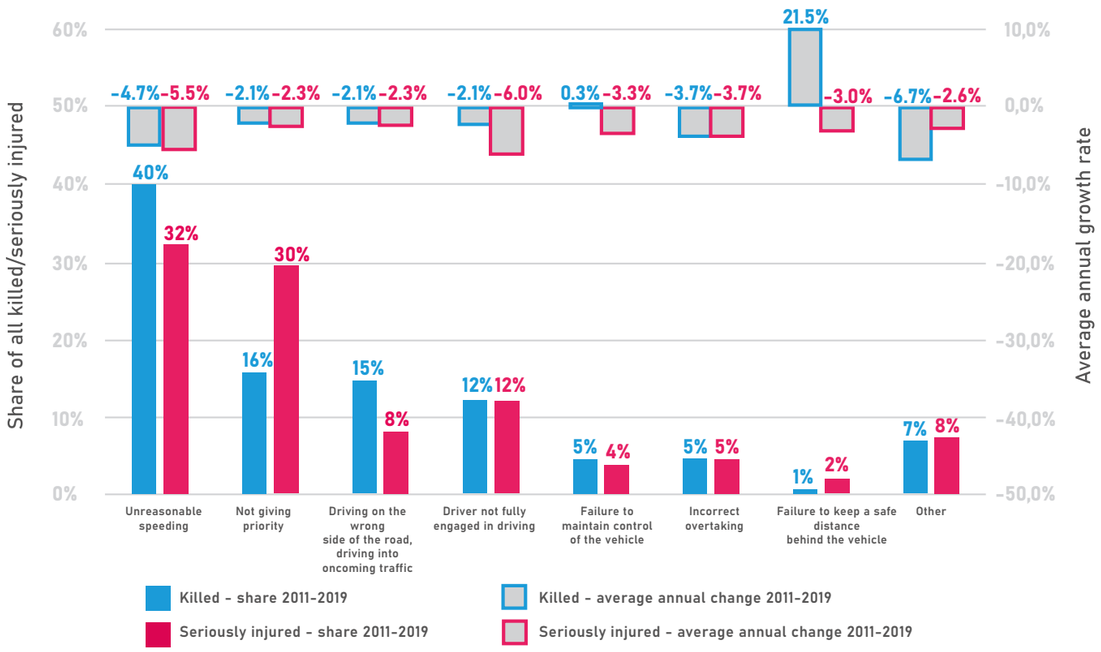
Prevention activities play an indispensable role in creating safe behaviour among traffic participants. **However, it is essential that prevention activities are complemented with effective, comprehensible, and enforceable legal standards, including appropriate and visible surveillance.** These systemic measures are described in Section 4.4.

4.1.1 Priority Area 1: Speed

Speeding was identified as the area with the highest potential to reduce the number of serious accidents, because **speed is one of the most important factors that increase the severity of traffic accidents.** The incorrect assessment of a situation is one of the most common contributory factors. Traffic accidents due to excessive speed are also linked to driver's inattention, inexperience, and alcohol intoxication. In general, the choice of speed can be influenced by several circumstances and factors, like the driver's perception, or the design of the road and its surroundings.

Between 2011 and 2019, excessive speed was responsible for 40% of deaths and 32% of serious injuries on the Czech roads. Even though this decade had the most significant year-on-year declines (-4.7% killed and -5.5% seriously injured), excessive speed was the most significant cause over the long term – see the chart below.

CAUSES OF SERIOUS ACCIDENTS CAUSED BY MOTOR VEHICLE DRIVERS



Input data source: Police of the Czech Republic database; Copyright© BESIP/CDV

The following actions are necessary to achieve the strategic speed objectives:

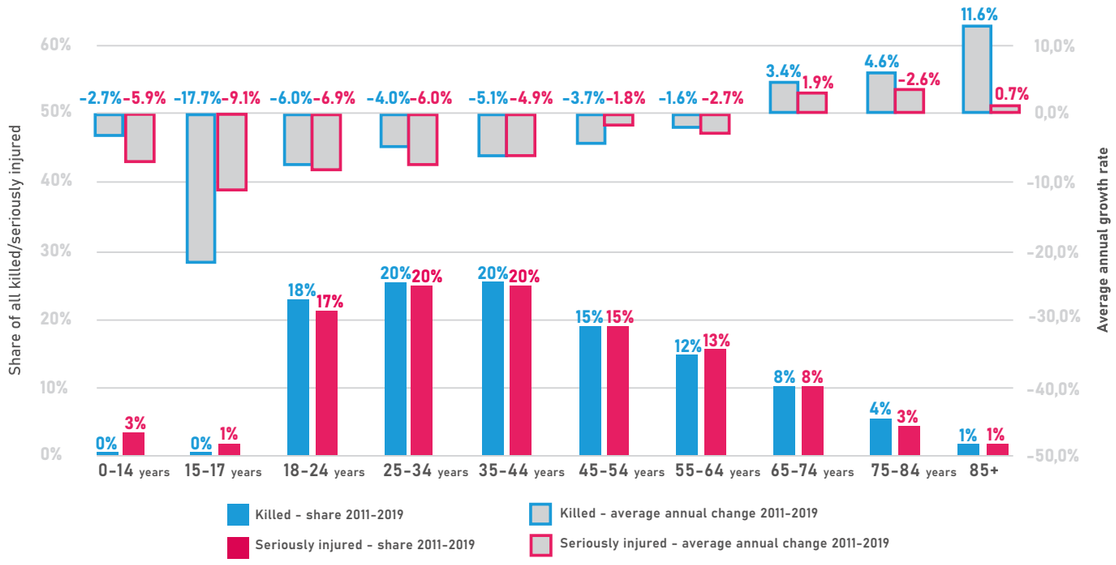
- Ensure effective and transparent enforcement of speed limits.
- Extend automated surveillance (i.e., section and profile measurements) at locations with the frequent presence of vulnerable road users or at risky locations (e.g., road closures).
- Increase the incentive to comply with speed limits through insurance benefits (i.e., use Intelligent Speed Adaptation – ISA – a system to encourage compliance with speed limits).
- Encourage educational and awareness-raising activities to improve the perception of speed limits and increase consideration.
- Introduce automated speed management systems (i.e., Intelligent Transport Systems – ITS) on congested roads.
- Eliminate locations where speed limit reductions occur (e.g., underpasses instead of crosswalks in rural areas, reconstruction of confusing intersections).

4.1.2 Priority Area 2: Young Drivers

Young drivers are at risk both because of their lack of driving experience and because they do not always behave responsibly, which is common at their developmental stage and influenced by their psychological and social development. In particular, males in this age group are more likely to have a tendency towards adrenaline-fuelled or aggressive driving. This is reflected in the factors contributing to accidents among drivers aged 18–24.

Lack of experience and aggressive driving leads to misunderstanding the traffic situation or misjudging the complexity of the road profile and the road condition (i.e., failure of identification is 43%). An In-Depth Accident Analysis (a department of Transport Research Centre whose scope of work is the investigation of both the vehicle-side and human-side factors that lead to accidents with severe injuries) also shows that the presence of fellow passengers of the same age group (i.e., friends, acquaintances) increases the risk of an accident.

CHANGE SERIOUS CONSEQUENCES OF ACCIDENTS ACCORDING TO THE AGE OF THE CULPRITS TO SERIOUS CONSEQUENCES OF ACCIDENTS ACCORDING TO THE AGE OF THE GUILTY PARTIES



Input data source: Police of the Czech Republic database; Copyright© BESIP/CDV

Between 2011 and 2019, motor vehicle drivers aged 18–24 caused 18% of deaths and 17% of serious injuries in road traffic accidents. Although the proportion of these outcomes is the highest over the long term (relative to the total number of drivers in that age group), this group saw the most significant year-on-year decline (-6.0% killed and -6.9% seriously injured).

The following activities need to be implemented in order to achieve the strategic objectives for young drivers:

- Reform the training and the proficiency test for applicants for driver's licences with emphasis on safe behaviour in real traffic situations, training to help anticipate danger, and the development of traffic sense.
- Limit the number of attempts to pass the driving test before requiring the repetition of the entire training program.
- Educate novice drivers in Advanced Driver Assistance Systems (ADAS) knowledge (i.e., outreach activities and training in driving schools).
- Strengthen the awareness and responsibility of future drivers in secondary schools.
- Include awareness-raising activities to reflect and decrease gender-stereotyped behaviour behind the wheel, especially potentially aggressive driving by young male drivers.

4.1.3 Related Areas

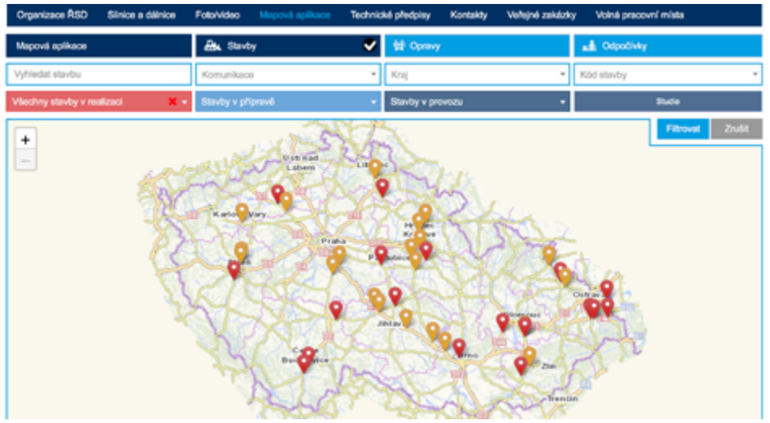
In addition to the priority areas, it is necessary to focus activities on other areas that influence the behaviour of road users. These areas include both factors and categories that significantly increase the risk of accidents with serious consequences and groups that require special attention because of their vulnerability:

- Inattentive driving.
- Risky drivers who repeat the most serious offences.
- Children and young people.
- The elderly population.
- Vulnerable users (e.g., pedestrians, cyclists, motorcyclists).
- Alcohol and other addictive substances.
- The use of protective equipment (e.g., restraint systems, child safety seats).

Regarding the developments in the transport and automotive industries, it is also necessary to focus on the following:

- Education of all road users about the safety features of the basic equipment available in newly manufactured vehicles, especially in relation to vulnerable road users.

MAP OF ROAD AND MOTORWAYS DIRECTORY PROJECTS



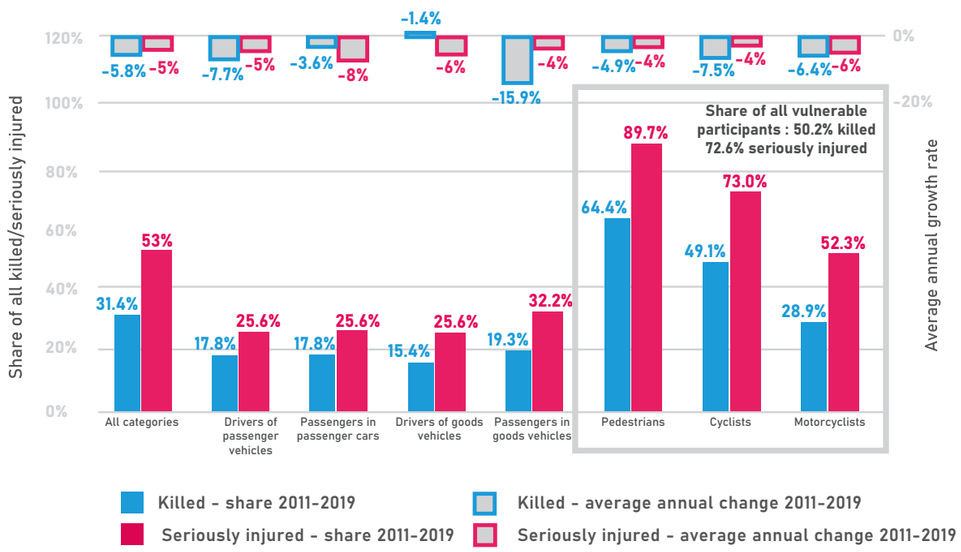
Input data source: www.rsd.cz

- Awareness-raising campaigns and elements of traffic education aimed at increasing awareness and acceptance for automated and autonomous vehicles and systems, outlining ethical traffic scenarios, and introducing the services and benefits that autonomous mobility provides to drivers and passengers.
- Activities to take into account the gender gap.

4.2 Infrastructure

The road infrastructure of the Czech Republic ranks among the leading countries in Europe in terms of network density. The total length of the country's road network is 55,769 km. However, the highway network accounts for only 1,276 km (2.3% of the total). The remaining is supplemented by 5,826 km of Class A roads (10.4%), 14,585 km of Class B roads (i.e., transport links between districts; 26.2%), and 34,081 km of Class C roads (i.e., connections between municipalities, and connections between larger roads; 61.1%). In addition, the road infrastructure has local roads (i.e., the street grid), and purpose roads (i.e., forest and field roads) with a total length of about 75,000 km.

CHANGE CONSEQUENCES OF DEATH AND SERIOUS ACCIDENTS IN MUNICIPALITIES BY CATEGORY OF DAMAGED BETWEEN 2011-2019 TO CONSEQUENCES OF DEATH AND SERIOUS ACCIDENTS IN MUNICIPALITIES BY CATEGORY OF ROAD USERS BETWEEN 2011-19



The highest number of persons were killed on Class A roads, followed by the Class B and Class C roads, respectively. The relative failure to hit the target in terms of fatalities (i.e., in the range of 15–17%) was observed on all road types in 2012–19. **In terms of the performance of Strategy 2011–20, local roads can be assessed as the worst: they accounted for 66% In terms of killed persons and 31% in terms of seriously injured persons.**

The development of urban roads (i.e., roads in the built-up area) **must be focused on the addition of infrastructure for non-motorised and public transport** according to the principles of sustainable development set forth in the European Methodology for Sustainable Mobility Plans [17], the Methodology for the Preparation of Sustainable Urban Mobility Plans for the Cities of the Czech Republic approved by the Ministry of the Interior, and the forthcoming document, Concept of Urban and Active Mobility (Note: it follows the National Strategy for the Development of Cycling Transport in the Czech Republic 2013–20, which is a methodological aid for the preparation of sustainable urban mobility plans for individual municipalities). In addition to the direct impacts on road safety, active mobility has many positive impacts on the health of the population.

Increasing the share of non-motorised transport in cities leads to the reduction of the number of motor vehicles, a reduction in speeds, and, as a result, the reduction of the number of serious traffic accidents. Between 2011 and 2019, 1,702 persons were killed (31.4% of all road traffic fatalities) and 12,534 were seriously injured (53.0%) in municipalities. Half of those killed and almost three quarters of those seriously injured were vulnerable road users, mainly pedestrians and cyclists.

According to the European Methodology for Sustainable Mobility Plans, ensuring the safety of vulnerable transport users is a critical challenge for changing transport behaviour.

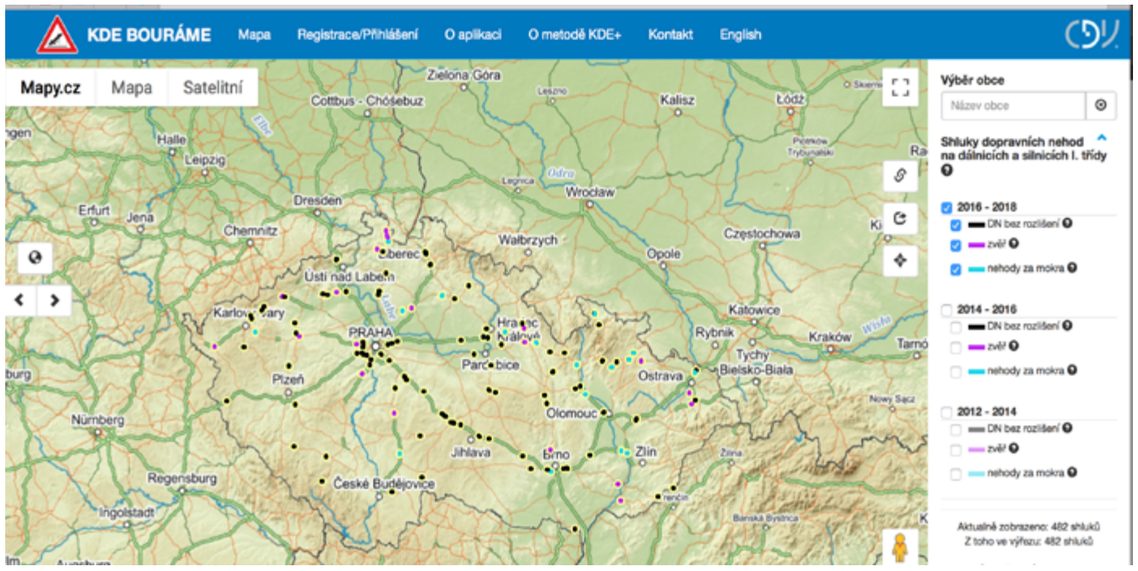
The construction of a cycling infrastructure, wider sidewalks, the expansion of pedestrian zones in city centres, calm zones in residential areas, and the enforcement of speed limits are all essential to the improvement of traffic safety in cities. In the coming period, here, as in other EU countries, cooperation with the non-profit sector should be a standard part of planning the cycling infrastructure, allowing for direct contact with the public in order to address its concerns.

Given the high proportion of motorised transport involved in serious accidents in which pedestrians and cyclists are killed or seriously injured, the orientation of cities towards the promotion of safe cycling and non-motorised transport is a trend that clearly contributes to improving the quality of life, including the creation of safer transport spaces. The safety of cyclists can be ensured primarily by the systematic building of infrastructure that allows them to be as separated as possible from motor vehicles and offers them an attractive pathway through the urban space.

Cycling must be included in urban planning from the initial studies so that it is not omitted in the development of urban infrastructure. It is also desirable to integrate safe cyclist- and pedestrian--movement solutions into project designs and to remove barriers for these groups of road users when reconstructing existing roads and constructing new rural roads (e.g., roads in the non-built-up area).

As far as the existing road network is concerned, **safe space for movement in towns and cities requires areas of so-called 'traffic calming'.** This needs to be implemented especially at road crossings through municipalities, in urban centres, and in residential areas. The key is the safe organisation of traffic space, not simply traffic signs. Specific tools for traffic calming are provided in the technical specifications. The conceptual approach to promoting cycling is defined in more detail in the Concept for Urban and Active Mobility 2021–30.

In addition to the road layout itself, the safe, considerate, and predictable behaviour of all road users – not only drivers of motor vehicles but also cyclists and pedestrians in equal measure – is a prerequisite for reducing accidents. Along with the increasing share of non-motorised transport in urban areas, it is essential that this group of road users follows the rules of the road and uses the roads in a legible and considerate manner. Preventive awareness-raising activities should focus on the safe sharing of road space by all the different categories of users (i.e., drivers, pedestrians, cyclists, and motorcyclists).



4.2.1 Priority Area 3: Removal of Trouble Spots

GPS has been used since 2007 to locate accidents so it is possible to use advanced statistical methods to identify trouble spots. These methods also allow for the ranking of sites according to their collective risk and to prioritise their removal.

For example, on the basis of the **KDE+ analysis** (http://kdeplus.cz/), a total of 8,227 clusters of accident sites were identified on Class A, B, and C roads. **Of the total number of accidents, more than 40% were contained in clusters that accounted for less than 3% of the overall road network.** It is evident that the removal of trouble spots would have significant potential to prevent the serious consequences of traffic accidents.

The KDE+ method became the basis for the software and GIS toolbox of the same name. The software, developed by the Transport Research Centre (abbreviated as 'CDV' in Czech), is currently used to identify accident sites in approximately 50 countries around the world, including Belgium, Croatia, Denmark, Estonia, Finland, France, Germany, Hungary, Israel, Lithuania, Norway, Poland, Slovakia, Slovenia, Spain, Sweden, the United States, and others.

The following activities are necessary to achieve the strategic objectives in this area:

- Transposition of the Directive 2019/1936 of the European Parliament and of the Council [18].
- Implementation of measures at trouble spots that are identified by an appropriate certified method.

- Establishment of a funding plan for the removal of potential accident sites.
- Implementation of measures at potential accident sites (especially construction sites).

4.2.2 Related Areas

Other steps are recommended to reduce the number of accidents and the risk of serious consequences of traffic accidents:

- Prevent collisions with trees.
- Develop sustainable urban mobility plans and implement measures to increase the share of non-motorised transport in cities.
- Expand the Czech highway network and the number of bypasses, especially on Class A roads.
- Increase security at level crossings.
- Implement construction and information services on the transport network to develop comprehensible and predictable routes.
- Standardise traffic signs (e.g., uniform speed limits at pedestrian crossings in rural areas, markings for locations of frequent/serious accidents).
- Implement the Smart Cities concept.
- Optimise lighting. Do not use excessive lights to avoid blinding road users and reduce spillage of light into adjacent space not intended for lighting.
- Implement Cooperative Intelligent Transport Systems (C-ITS) on the road and highway network of the country.
- Ensure 4G/5G mobile network coverage according to the conditions of the service provider for long-term service conditions.
- Use digital maps to identify risk locations, to analyse spatial data, and to evaluate accident--prevention measures.
- Physically separate motor traffic from other traffic on roads that have speed limits higher than 50 km/h (i.e., construction of bike paths as alternative routes for existing roads).
- Redesign the traffic area to be consistent with the required behaviour.
- Build new rest areas. Revitalise selected and closed rest areas.

The deployment of Cooperative Intelligent Transport Systems (C-ITS) in EU Member States is one of the European Commission's priorities to improve road safety and reduce accidents. According to the European Commission's Support Study for the Impact Assessment of C-ITS, MOVE/B4/2016-239, EU Member States will provide road users with reliable real-time information and warning messages through C-ITS services. The aim is to reduce accidents due to inattention or adverse weather conditions. In terms of the extent of the road network covered by C-ITS, the following areas/situations have been identified as key:

- When there is a high risk of collision with another vehicle (e.g., car, train, tram).
- When a vehicle of the integrated rescue system is approaching.
- When road works or maintenance is being carried out.
- When there is heavy braking of nearby vehicles in the direction of travel.
- When road parameters need to be adapted to real-world circumstances, including icy conditions, uneven road surfaces, sharp curves, and large gradients.
- When there is traffic congestion.

Thanks to the C-ITS elements, drivers will have timely information and warning messages about the situation they are approaching and to which they may have a very short reaction time, especially in severe weather conditions (i.e., heavy snowfall, rain downpour, ice). This will have a positive impact on reducing the number of accidents, deaths, and injuries.

After 2025, it is expected that the extent and coverage of the road network by C-ITS services in the Czech Republic and in other EU Member States will reach a sufficient level of use by road users such that the accident rate and road deaths in the EU will reduce by 4–6%.

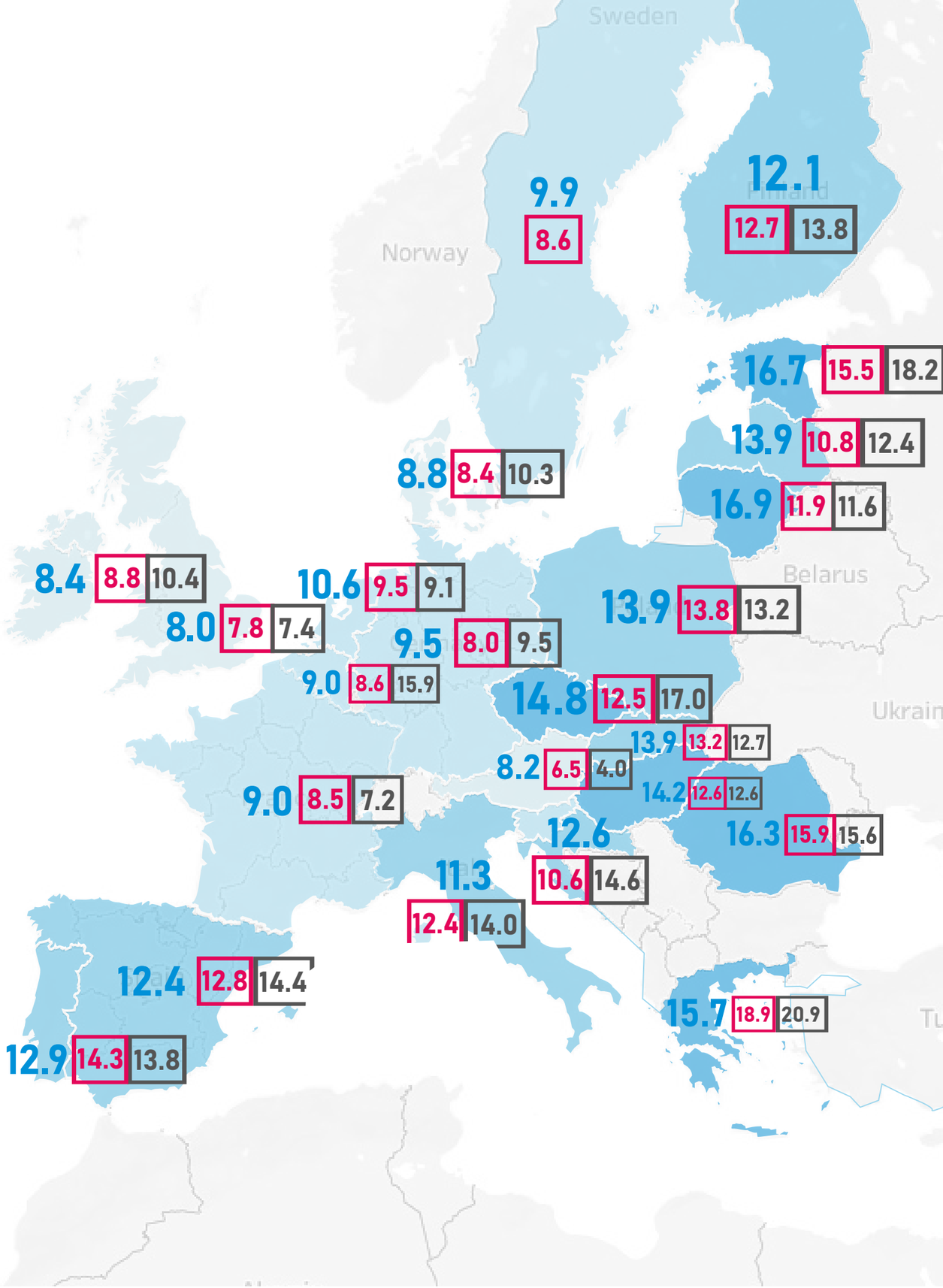
In the Czech Republic, pilot testing of the introduction of C-ITS has been conducted and, as part of the C-Roads Czech Republic project, sections of the highway and urban road network will be covered by the end of 2022. The results of this project will be used for the further development of C-ITS in the Czech Republic, with support from OPD 3 and IROP in the period 2021–27.

4.3 Vehicles and Technologies

The average age of passenger cars in the EU was 10.8 according to available data from 2018, while the Czech car population (with more than 6 million registered vehicles) was more than a third older with an average age of 14.8. In 2020, the average age of passenger cars had increased to 15.28. The import of used vehicles, more than 50% of which are over 10 years old, contributes significantly to this increase.

A comparison of the average age of the vehicle population in individual EU countries is available in the choropleth map at the right. In all countries that neighbour the Czech Republic, the average age of passenger cars was lower [14].

AVERAGE AGE OF THE VEHICLE POPULATION (2018)	EUROPEAN UNION	CZECH REPUBLIC		
		YEARS	DIFFERENCE	
Passenger cars	10.8	14.8	**4.0**	*37.0 %*
Light goods vehicles (up to 3.5 t)	10.9	12.5	**1.6**	*14.7 %*
Heavy goods vehicles (over 3.5 t)	12.4	17.0	**4.6**	*37.1%*
Buses (over 3.5 t)	11.4	14.5	**3.1**	*27.2%*



4.3.1 Priority Area 4: Action Package – Advanced Technologies

EU Member States have approved a list of safety measures that will be mandatory for vehicles from 6 July 2022 [15]. These advanced technologies will help to prevent the consequences of traffic accidents on life and limb. They will become standard on all new vehicles; currently they are only available on some models and mostly as an option. The introduction of these measures could represent the biggest advance in road safety in Europe since the introduction of the seat belt.

The measures include:

- **Advanced Emergency Braking Systems** for passenger cars. This is a system that can automatically detect a potential collision and activate the vehicle's braking system to slow the vehicle to avoid or mitigate a collision.
- Installation of **alcohol immobilisers** in cars, vans, trucks, and buses. This is a standardised interface that facilitates the subsequent installation of alcohol immobilisers in motor vehicles.
- **Alerts about driver drowsiness and lack of attention** in cars, vans, trucks, and buses. This is a system that assesses the driver's attention by analysing the vehicle systems and alerts the driver when necessary.
- Advanced **driver distraction alerts** for cars, vans, trucks, and buses. This is a system capable of assisting the driver to pay attention to the traffic situation and alerting them when they are distracted.
- **Event data recorder** for passenger cars and vans. The sole purpose of this system is to record and store critical parameters and information related to the vehicle shortly before, during, and immediately after a collision.
- **Emergency braking signal** for passenger cars, vans, trucks, and buses. This is a rear-light function that indicates to other road users behind the vehicle that a large deceleration force has been applied to the vehicle in relation to the prevailing road conditions.
- **Enhanced seat belts** to cover the full width of the frontal occupants in cars and vans, which has shown to provide extra protection in impact test.
- **Additional safety glass** for cars and vans in the case of head-on impact with a pedestrian or cyclist.
- **Intelligent speed control** for cars, vans, and buses. This is a system that helps the driver maintain a speed that is appropriate for the road conditions by providing specific and appropriate feedback.
- **Lane Departure Warning System** for cars and vans. This is a system that warns the driver that the vehicle is drifting out of its lane.
- **Occupant protection in the case of a side impact** in cars and vans.
- **Reversing camera** or **detection system** for cars, vans, trucks, and buses.
- **Tyre pressure monitoring system** for vans and buses. This is a system that evaluates tyre pressure and fluctuations and transmits the relevant information to the user while driving.
- **Detection and warning of vulnerable road users to the front and sides of the vehicle** for trucks and buses.
- **Improvement to the direct view from the driver's position of vulnerable road users** for trucks and buses.

These measures are part of the so-called **Third Mobility Package**, which includes new standards for safer vehicles, updated rules for safe road infrastructure, and a strategy for autonomous transport. The progressive deployment of automated and autonomous vehicles in operation, while complying with all safety requirements for their users and other road users, has a great potential to contribute to the reduction of accidents and their consequences. In the medium term, autonomous mobility represents an important trend in transportation. It will be further developed at the European and national levels, with emphasis on improving the safety of traffic and its users.

It should be stressed that the proper functioning of these systems is closely linked to the technical condition of the roads, including adequate maintenance, and precise horizontal and vertical road markings. Otherwise, the function of these systems may be counterproductive.

4.3.2 Related Areas

It is necessary to provide other elements for vehicles, including:

- A link between clean mobility development and safety.
- The promotion and deployment of Advanced Driver Assistance Systems (ADAS) as part of insurance bonuses.

- Research on vehicle-safety features.

v Adequate conditions for comprehensive accident investigation through In-Depth Accident Analysis.

- Research and development for automation and alternative fuels in relation to road safety.
- Promotion for the renewal of the vehicle population (or the reduction of the average age of the vehicle population).
- Regular checks for the technical condition of vehicles.

4.4 Systemic Measures

The obligations of a road user are defined in Act No. 361/2000 Coll., on Road Traffic, as amended. Another important act is Act No. 247/2000 Coll., on The Acquisition and Improvement of Professional Competence to Drive Motor Vehicles and on Amendments to Certain Acts, as amended. Both the principles and the penalties for breaching them must reflect the situation in society, so it is important to revise and update these laws and other related decrees.

In real traffic, compliance with the rules of the road is mainly supervised by the police and municipal authorities. **A high level of supervision for road traffic is crucial for reducing the number of traffic accidents.**

4.4.1 Priority Area 5: Effective Surveillance and Enforcement

Enforcement is one of a set of measures to improve road safety. Unfortunately, there are not enough studies in the Czech environment that focus on the effectiveness of enforcement; therefore, the following information comes from international meta-analyses (i.e., a statistical synthesis of the results of multiple studies). Most studies have focused on speeding and driving under the influence of alcohol or drugs, and most of them were conducted in the United States.

- **A positive effect was found for speed enforcement, especially when speed was measured automatically** (a 16% reduction in the number of accidents, especially the fatal ones).
- **Checks for drivers who were under the influence of alcohol or other substances were also effective** (about a 15–20% reduction in accidents).
- **Enforcement of seat belt use was very effective** (an increase in seat belt use was up 20%).

It is necessary to focus on the following actions to achieve the strategic objectives:

- Increase visible policing with a focus on speed control, alcohol and substance abuse, unsafe passing, distracted driving, pedestrian safety, cyclist and motorcyclist behaviour, and the use of seatbelt restraints.
- Increase enforcement for outstanding fines for traffic offences.
- Increase the number of unmanned automated technical devices to document and deal with serious traffic offences.
- Introduce electronic warrant blocks to make enforcement more efficient and transparent.

4.4.2 Related Areas

In addition to supervision and law enforcement, it is necessary to focus on other systemic aspects that contribute to the fulfilment of the Strategy's objectives:

- The quality and quantity of technical equipment.
- The improvement of post-accident care.
- The implementation of the Strategy activities by the different and co-interested entities.
- Records for all of the data on persons with serious injuries caused by traffic accidents in the information system of the Ministry of Health, according to the MAIS3+ classification, and subsequent transmission of these data in electronic form to the Police of the Czech Republic for the purpose of keeping records of traffic accidents and the possibility of international data comparison. This would make the extent of injuries according to MAIS3+ available to the Road and Motorway Directorate for the purpose of detailed traffic accident statistics.
- Research contributing to the improvement of road safety.
- Ensuring data sources for identifying relationships within safety indicators and research.
- The quality and quantity of technical equipment for road surveillance.
- Functional coordination of road safety activities according to the priorities set, including their funding.

5. Key Performance Indicators (KPIs)

The analysis of Key Performance Indicators provides insights into the behaviour of road users and the impact of infrastructure and vehicles on road safety (which is the focus of the European KPIs) and the causes of accidents and the guilty parties (which is an additional focus in the Czech Republic).

5.1 Europe

The EU has defined eight Key Performance Indicators (KPIs) for the decade of 2021–30 [13], which are to be assessed in all Member States.

5.1.1 Speed

Approximately one-third of fatal accidents include excessive or high speeds. Research shows that the risk of a traffic accident is 12.8 times higher when the speed limit is exceeded. Higher speeds are also associated with a higher risk of serious injury. Based on research, the ETSC has calculated that **if the average speed on all European roads was reduced by 1 km/h, the number of deaths would be reduced by more than 2,200.** As the output of an In-Depth Accident Analysis shows, speeding is one of the most frequent causes for accidents that involve aggressive (and adrenaline or predatory) drivers. Drivers who regularly tend to speed are also more likely to break other road rules.

Objective observations will be used to monitor the level of compliance with speed limits, given the differences between speed limits in different Member States.

Defined KPI: Percentage of vehicles not exceeding the speed limit.

5.1.2 Seat Belts

The use of seat belts and child restraints is an essential element of passive safety. A significant proportion of seriously injured accident victims did not use or did not correctly use a seat belt or child restraint. Based on data from the European CARE database, it can be estimated that the use of seat belts and child restraints would save approximately 5,700 lives per year in the EU. **The In-Depth Accident Analysis database shows that non-use of seat belts is influenced by gender** (i.e., men are more likely to not use a seat belt), **alcohol consumption** (i.e., alcohol reduces the willingness to use a seat belt), **time of day** (i.e., non-use is more frequent at night), **negative role models** (whether the driver or the other passengers use a seat belt), and **position in the vehicle** (i.e., rear passengers are more likely to not use a seat belt). Last but not least, unrestrained rear passengers endanger not only themselves but also other passengers.

Defined KPI: Percentage of vehicle occupants who correctly use a seat belt or child restraint.

5.1.3 Safety Equipment

The use of motorcycle helmets and bicycle helmets is often cited as an essential element of passive protection. **Their use can greatly reduce the risk of fatal injury.** Increasing the percentage of helmet use by motorcyclists to 100% would save 206 motorcyclist lives per year in the EU. The positive impact of bicycle helmets has also been demonstrated, indicating that the use of helmets can bring up to a 65% reduction in fatal injuries and a 69% reduction in serious injuries. As shown by an In-Depth Accident Analysis, a cyclist wearing a helmet sustained a head injury in only 27% of the cases. Otherwise, head injuries occurred in more than half of the cases.

Defined KPI: Percentage of motorcycle and bicycle riders wearing a protective helmet.

5.1.4 Alcohol

Given the limitations of data collection and the variability in testing methods used in different EU countries, this KPI is defined for alcohol but not for drugs. Drivers under the influence of alcohol are more likely to engage in risky behaviour and to violate road traffic rules. An In-Depth Accident Analysis also shows that a driver is four times more likely not to wear a seat belt if alcohol is detected.

Drink-driving is one of the major factors contributing to the occurrence of serious traffic accidents. It is estimated that alcohol accounts for 25% of all road deaths in the EU. The preferred method of data collection is a random blood-alcohol-level test.

Defined KPI: Percentage of drivers who do not exceed the legal blood alcohol content (BAC) limit.

5.1.5 Distraction

Driver distraction is a considerable risk factor in terms of traffic accident rate. As shown by an In-Depth Accident Analysis, distraction is the most common cause of drivers' inattentive driving. Similarly, international studies indicate that **distraction is a contributing factor in approximately 20% of road accidents** *(Note: there is a range of 10–30% due to different methodologies in different countries and different baseline data)*. Drivers' attention is affected not only by mobile phones but also by electronic systems integrated into vehicles. To eliminate these risks, measures at the technical level are being introduced (e.g., equipping vehicles with systems to detect driver's fatigue and distraction).

The findings of an In-Depth Accident Analysis show that drivers with higher annual mileage are more likely to use a mobile phone while driving and that the tendency to use a mobile device during normal driving decreases with older age. The findings also convey that the typical driver using a mobile phone while driving rates their driving skills as excellent, and hence tends to take more risks.

Given the increasing use of mobile devices, especially smartphones and texting applications, the use of mobile phones has been proposed as a KPI to indicate driver distraction. Research shows that the risk of an accident increases 12.2 times when the driver dials a phone number and 6.1 times when texting.

Defined KPI: Percentage of drivers who do not use mobile devices while driving.

5.1.6 Safety of Vehicles

The EU has had a major influence on the improvement of vehicle safety in recent decades through regulations (i.e., General Safety Regulation, Pedestrian Safety Regulation) that contain mandatory safety requirements for vehicles sold within the EU. Innovations in vehicle technology can help to reduce the severity of accidents (i.e., passive safety features, such as seat belts and airbags), and the likelihood of a crash (i.e., active safety features, such as automatic emergency braking). However, despite progressing vehicle safety, manufacturers should be further encouraged to continue to develop and meet safety standards, particularly those tested by the Euro NCAP assessment. **Research shows that a five-star vehicle is 68% less likely to cause a fatality and 23% less likely to cause a serious injury than a two-star vehicle.** Regular roadworthiness checks are also essential.

Under the new EU Regulation on the extension of mandatory vehicle equipment to include advanced safety assistance features (such as ISA, emergency lane keeping), it is estimated that 7,300 lives will be saved and 38,900 serious injuries will be avoided in EU Member States. All new vehicles will also have to be equipped with an Event Data Recorder (EDR).

Defined KPI: Percentage of new passenger cars with a Euro NCAP safety rating at or above a predetermined threshold.

Given the fact that Euro NCAP ratings are not available for some vehicles, a **complementary KPI** based on the age of the vehicle population and the roadworthiness of the vehicles will also be monitored. As evidenced by the In-Depth Accident Analysis database, vehicle age negatively affects the likelihood of a serious injury in a road accident. As the age of the vehicle increases, so does the formation of corrosion (both surface corrosion and the corrosion of the supporting body parts) and the associated probability of the deformation of the vehicle interior during a crash.

5.1.7 Infrastructure

The layout of the road and its surroundings are a key element of road safety. The In-Depth Accident Analysis accident causation model demonstrates that inappropriate road-space design is a contributory factor in approximately 30% of accidents. **Well-designed and properly maintained roads can reduce the likelihood of accidents. 'Forgiving' roads can minimize the risk of serious consequences from driver error.**

Only systematic risk mapping and safety assessment (i.e., proactive assessments in addition to the traditional reactive analysis of high crash concentration locations) can provide useful tools for assessing the quality of road network safety and suggest targeted investment for traffic infrastructure. The revision of the rules for the design of traffic space will also lead to the preparation for the increased automation of vehicles (e.g., the specification for the design of road signs, including their location, visibility, and reflectivity). These factors are important for the functioning of some vehicle assistance systems, like a lane-keeping assistant and ISA. According to the European Commission, the new rules have the potential to save up to 3,200 lives and prevent 20,700 serious injuries by 2030.

The purpose of the infrastructure KPI is to provide a quantified expression of the safety of the road network, regardless of the user behaviour or vehicle technology. Before the introduction of the safety assessment of the entire road network (which is required by Directive 2019/1936 of the European Parliament and of the Council), and, in the absence of a common assessment methodology, it is still difficult to define an indicator. Therefore, a simplified KPI will be used for the evaluation. Efforts will be made to further develop the defined indicator for an infrastructure safety assessment.

Defined KPI: Percentage of distance travelled on roads with a safety rating above an agreed threshold.

5.1.8 Post-accident Care

Post-accident care and trauma management involves the initial treatment at the accident site and ensuing treatment during and after transport. The European Commission (2018) reports that **approximately 50% of deaths occur within minutes of the accident, either at the scene or during transport to hospital. For 15% of hospitalised patients, death occurs within four hours of the accident; 35% die after the four-hour mark.** Effective post-accident care, including rapid transport by qualified personnel, reduces the consequences of injury. The time from the accident to the time of medical treatment, along with the quality of that treatment, is crucial for minimizing the consequences. The systematic training of rescue teams can significantly reduce the time to extricate accident participants from the vehicle. In this context, the European Commission is also monitoring the effects of the introduction of the e-Call system.

Defined KPI: The time elapsed in minutes and seconds between an emergency call after an accident with injuries and the arrival of emergency services at the scene.

5.2 Czech Republic

Based on information from the implementation of Strategy 2011–20 and other priority areas of road safety both at the EU level and the Czech Republic level, broader key indicators have been identified to be monitored in the Czech Republic for the decade of 2021–30. They are divided into five basic groups and further subdivided into individual subgroups. All key indicators will be monitored, inter alia, for a reduction of 50% in both road traffic deaths and serious injuries by 2030, as is the case for the strategic objectives. The strategic objectives as well as key indicators will also be monitored by gender, in line with the conclusions of the CDV project 'Women in Transport' [16]. The collection and sorting of information by gender will be ensured for all indicators where technically feasible. Detailed information on this issue is included in Annex 2 – Analytical Background of Key Indicators (available in the Czech version of the Strategy).

CZECH ROAD TRAFFIC SAFETY STRATEGY 2021-30 KEY INDICATORS

						National Databases					International Databases			
						IN-DEPTH ANALYSIS	KPI	SCIENCE AND RESEARCH	POINT SYSTEM	POLICE	IRTAD	ETSC	CARE	ESRA**
CAUSES AND GUILTY PARTIES	Main causes of accidents caused by motor vehicle drivers	Speeding			1	YES	YES	YES	YES	YES		YES		YES *(1)*
		Not giving priority			2	YES	YES *(2)*	YES	YES	YES				
		Driving on the wrong side of road, driving into oncoming traffic			3	YES		YES	YES	YES				
		Failure to control the vehicle			4	YES				YES				YES *(1)*
		Driver not fully engaged in driving			5	YES				YES				
		Incorrect overtaking			6	YES		YES	YES	YES				
		Failure to keep a safe distance behind the vehicle			7	YES	YES			YES				
	Categories of road users	Drivers of passenger vehicles			8	YES		YES	YES	YES		YES		
		Truck drivers			9	YES			YES	YES		YES		
		Vulnerable participants		Motorcycle drivers	10	YES		YES	YES	YES				
				Cyclists	11	YES		YES		YES		YES		
				Pedestrians	12	YES		YES		YES		YES		
	Age and driving experience				13	YES		YES		YES			YES	
	Alcohol and other addictive substances				14	YES		YES	YES	YES			YES	YES *(1)*
	Other foreign nationals				15	YES			YES	YES			YES	
	Vehicle registration (private vs. company)				16	YES				YES				
	Driving the guilty party away from the scene of the accident				17	YES		YES	YES	YES				
DAMAGE	Categories of road users	Drivers and passengers (seat belts)			18	YES	YES	YES	YES	YES	YES****		YES*	YES
		Vulnerable participants	Motorcyclists (general + speed)		19	YES		YES		YES			YES*	YES
			Cyclists (in general + ...)	Helmets	20	YES	YES	YES		YES	YES*		YES*	YES
				Alcohol	21	YES		YES		YES	YES*		YES*	YES
				Electrocycles	22	YES		YES			YES*			YES
			Pedestrians (general + visibility)		23	YES		YES	YES	YES	YES*		YES*	YES
	Age				24	YES		YES		YES	YES	YES	YES	YES
INFRA-STRUCTURE	Urban road/Rural road				25	YES	YES	YES	YES	YES	YES	YES	YES	
	Road type				26	YES		YES	YES	YES	YES		YES	
	Direction circumstances				27	YES		YES		YES	YES			
	Collision with a tree				28	YES		YES		YES				
	Railway crossings				29	YES		YES	YES	YES			YES	
VEHICLES	Category, type, type of drive, age, degree of automation***, etc.				30	YES				YES	YES*****	YES	YES	
BEHAVIOUR	Using mobile phone				31	YES	YES		YES			YES		YES
	Exceeding the maximum speed limit				32		YES *(3)*		YES			YES		YES
	Vehicle spacing				33		YES *(3)*							

Note Priority = to be monitored analytically in the monthly information
** general data on vulnerable participants only*
*** fatigue and automated/autonomous vehicles issues in addition to the above*
**** automation levels according to SAE J3016*

***** separately - both the total number of drivers and passengers killed and the % of seat belt use by drivers and passengers when driving in general*
****** vehicle categories only*
(1) only respondents' views on the importance of those factors (2) in 2019 to Stop, give way!
(3) to evaluate speeds and distances of vehicles up to 3.5 t

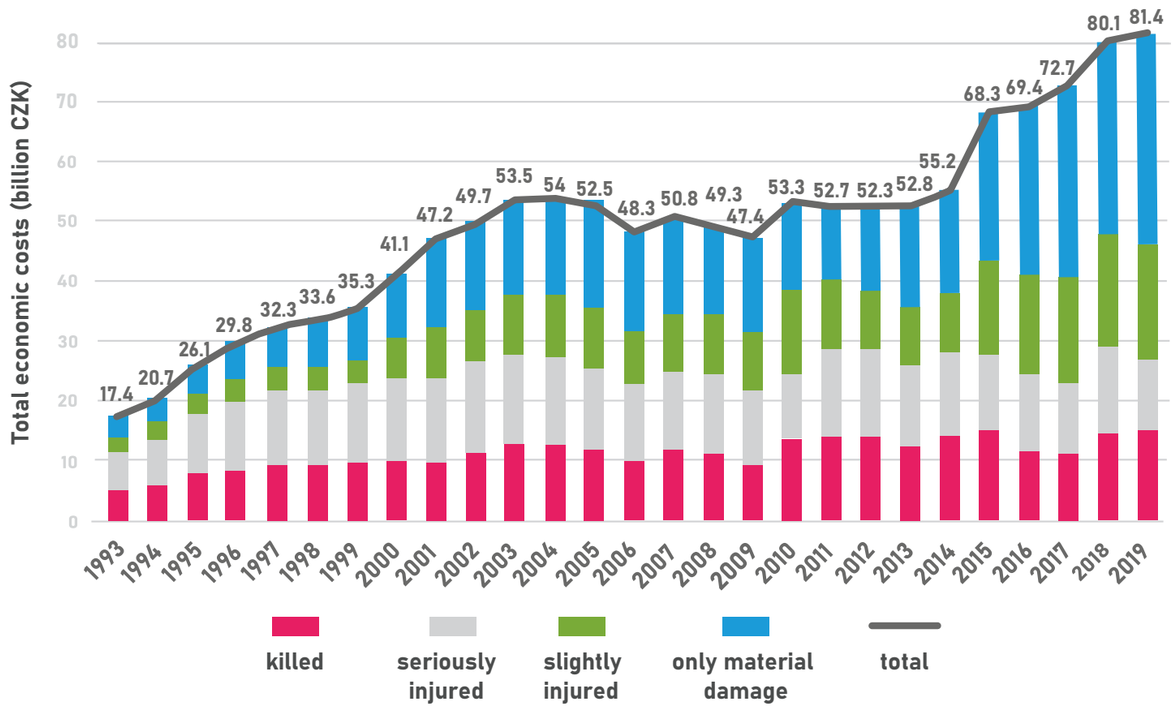
6. Economic Aspects

The economic context of traffic accidents must be seen at two levels. The primary fact is that, in addition to the social impact, **traffic accidents bring high socio-economic costs to the whole society because their consequences impact both the expenditure and the revenue of the state budget.** If there is a society-wide demand to reduce these socio-economic costs, it would be **necessary to invest adequately and to an appropriate extent in the safety measures that will reduce the risk of accidents and their consequences.**

6.1 Traffic Accident Costs

Traffic accident costs have a major impact on both the guilty parties and the accident victims and, to a significant extent, on the state and insurance companies. The trend for costs since the establishment of the independent Czech Republic is shown in the following graph. **In the last two years these costs have reached CZK 80 billion annually.**

DEVELOPMENT OF TRENDS FOR SOCIO-ECONOMIC COSTS AS A RESULT OF ROAD ACCIDENTS IN THE CZECH REPUBLIC BETWEEN 1993 AND 2019



Input data source: CDV calculation; Copyright© BESIP/CDV

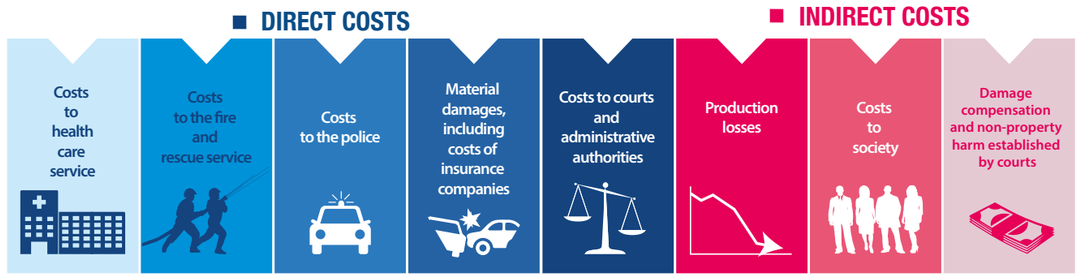
The amount of unit costs for road traffic accidents for 2019 is shown in the following table in the column 'Costs per person (accident)'. In addition to these figures, the table shows the total number of persons killed and injured, as well as the total number of accidents with only material damage. Multiplying these figures by the unit costs gives **the total amount of road accident costs, which amounts to CZK 81.4 billion.** This represents 1.4% of the 2019 Gross Domestic Product in the Czech Republic.

TOTAL TRAFFIC ACCIDENT COSTS IN 2019			
COST VOLUME	NUMBER OF PERSONS (ACCIDENTS)	COST PER PERSON (ACCIDENT) IN CZK	TOTAL COSTS (THOUS. CZK)
ON HUMAN LIVES (killed within 30 days of the accident)	617	25,041,000	**14,450,000**
from serious injuries	2,061	5,567,000	**11,474,000**
from slight injuries	23,914	809,000	**19,346,000**
from accidents with only material damage	86,766	405,000	**35,140,000**
TOTAL COSTS IN 2019: CZK 81.41 BILL. CZK (= 3.17 BILL. EUR)			

In 2019, there was an increase in total costs for all types of accidents (except serious injuries) despite a very slight decrease in the number of persons killed and injured compared to 2018. This was mainly due to an increase in unit costs owing to inflation. However, there was also a slight increase in the number of accidents registered by the police in 2019.

The total includes the cost of medical care for the road accident participants; the work of police officers, firefighters, judges, and other government employees; the cost to insurance companies; and any compensation to the accident victims. The detailed breakdown is shown in the diagram below.

BREAKDOWN FOR THE CALCULATION OF SOCIO-ECONOMIC COSTS



Input data source: Updated Methodology for calculating costs from road accidents, CDV

6.2 Financing for the Action Plan

In the Czech Republic, the improvement of road safety is financed through the budgets of the entities responsible for the implementation of specific measures in specific areas. Thus, the issue of safety appears in the supported projects as a complementary element in the construction of road infrastructure, technological innovation, support for education, and many other projects directly or indirectly related. Consequently, there is no specific funding source allocated to concentrate the funds that would subsequently be earmarked for the purpose of implementing the Strategy's objectives. The creation of such a specific funding source would represent a rather significant interference with the current functioning mechanism for the allocation of public funds. Generally speaking, the number of resources spent on raising the level of security depends on the political support and the importance of the issue at national and international levels. The European Commission has declared its support to Member States in this respect by increasing the allocation of its resources, while at the national level the Strategy is submitted for approval by the Government of the Czech Republic.

6.2.1 Promoting Safety Improvement Intentions in Development Programmes

Each of the public administration sectors has a strategy for the medium and long terms. **To support the objectives of the Strategy, it is necessary for the responsible entities and institutions to emphasize the issue of improving the importance of road safety within these programmes.** This is particularly the case for the tasks of the Strategy on which these entities cooperate and for those who are responsible for the Strategy implementation. The inclusion of these areas creates the conditions for increased internal support at the level of the concerned entity or institution. In both the public and the private sphere, this form of support can be illustrated by the international initiative of the European Road Safety Charter, which brings together institutions and private actors in a joint effort to reduce road accidents.

6.2.2 Improving Safety as One of the Project Assessment Criteria

In the case of the relation between the issue of improving safety with the other strategic objectives in the development and strategic materials, it is necessary to select and prioritise the proposed projects. A way to ensure this design competitiveness is to **include road safety as one of the evaluation criteria**. In this context, it is worth pointing out that the synergies with the main development projects are under evaluation. All infrastructure projects co-financed by the State Fund for Transport Infrastructure require the preparation of a safety inspection (for the existing roads) and a safety audit (for the proposed road conditions).

6.2.3 Selection of Measures in Terms of Value for Money

While the above-mentioned areas aim to support road safety projects and proposals, in general, the intention of this measure is to select the solution that will provide the greatest value for the cost. **The concept of value for money (VFM) is based on the desire for the efficient spending of funds.** In the context of infrastructure and other transport investment projects, this is primarily public resources (i.e., funds from the state budget, funds from the budgets of regional governments). In the case of projects co-financed through financial instruments and EU funds, these are not public but European funds. The principle of VFM should be applied through the assessment tools used at the different levels of detail throughout the project appraisal process, starting with priority issues and ending with an inventory of the transport problems and the transport needs at national, regional, and local levels.

6.2.4 EU Financial Instruments

The European Commission supports the achievement of the strategic objectives for the period of 2021–30 through several financial instruments. Projects to improve road infrastructure safety will be funded by the European Regional Development Fund (ERDF), the Cohesion Fund, and the Connecting Europe Facility (CEF).

The EC also supports the collection and analysis of safety indicators and the methodological preparation and implementation of road safety strategies based on the 'Safe System' principle (i.e., EU Research and Innovation Framework Programme Horizon Europe).

The European Investment Bank (EIB) has declared its support for the EU and UN strategic objectives to reduce the number of deaths by 50% from 2020 to 2030. EIB financial support will focus on the creation of a safe, accessible, and sustainable transport system, and improve road safety, with particular attention to the needs of vulnerable users.

An important part of the methodological support offered by the Ministry of Transport to municipalities and regions while preparing local and regional road safety strategies will be a provision of detailed information about available EU financial instruments. These financial instruments are relevant because activities to improve road safety can be financed through these sources.

6.2.5 Domestic Financial Resources

The basic balance of the annual financial security of road safety improvement measures in 2019 was as follows:

- **Road Safety Department** – approximately CZK 23.5 million.
- **Road Transport Service Centre** to support prevention activities in the regions and to co-fund the activities of the Regional Coordinator of Road Safety – approximately CZK 45.5 million.
- **State Fund for Transport Infrastructure:**
  - Safety improvements, barrier-free pavement modifications – approximately CZK 460 million.
  - Bike paths and bike lanes – approximately CZK 200 million.
  - Safety for Class 2 and Class 3 roads – approximately CZK 100 million.
- **Damage Prevention Fund,** Section 23a, Art. 3, Lett. c) and d) of Act No. 168/1999 Coll. for The Implementation of Preventive Projects That Focus on Road Safety – approximately CZK 142.5 million. (Note: the total collection to the Fund is CZK 688 million.)
- **Regions and municipalities** contribute mainly to the preventive activities provided by the Regional Coordinator of Road Safety – approximately CZK 8.5 million.
- **Total: approximately CZK 980 million (i.e., 1.2% of the economic losses from traffic accidents).**

The Ministry of the Interior uses the state budget to finance the staffing of supervision, traffic management, traffic accident investigation, traffic engineering activities, and other activities. It also spends funds on the material and technical support of surveillance activities and traffic-accident resolutions (i.e., radar speed guns, breath alcohol analysers including disposable mouthpieces, indicative one-off tests for detecting the use of narcotic drugs and psychotropic substances, vehicles for surveillance or traffic accident investigation including equipment, and others). In 2019, material and technical security was delivered for CZK 185,587,317, of which CZK 69,132,900 was covered by the Damage Prevention Fund. In addition, in 2019, the police spent a total of CZK 1,4 41,901 on preventive activities in the field of road safety. One project, focused on driving under the influence of alcohol and other addictive substances, was supported by the Programme of the Ministry of the Interior as part of crime prevention for a total amount of CZK 49,000. The Ministry of the Interior is also involved in funding safety research, including projects related to road safety.

The municipalities use their own resources to finance the operation of the police and municipal authorities, which participate in the supervision of road safety and traffic flow to the extent provided by the Municipal Police Act or a special law. In addition, an unspecified amount of funding related to the construction, reconstruction, and repair of the road network, which to some extent also contributes to improving safety, must be considered. However, these funds are not primarily allocated to safety improvements; only a small number of them had been a subject to a safety audit. There are also cases in which, on the contrary, the reconstructed sections result in an increase in accidents due to higher driving speeds.

The costs of implementing the Strategy will result from the measures specified in the Action Plan, which also allocates the responsibilities of individual entities.

7. Regular Evaluation of the Strategy

Both conceptual and operational evaluations will be published on the website of the Road Safety Department of the Ministry of Transport.

7.1 Conceptual Evaluation

The drafting of the biennial Action Plan will:

- Evaluate the implementation of the Action Plan for the period of 2021–22 and draft an Action Plan for the period of 2023–24 that will be submitted to the Government for discussion by 31 January 2023. A similar process will be followed in the subsequent odd-numbered years until 2031.
- Provide information on the implementation of the strategic objectives and key performance indicators of the Strategy, which is to be submitted to the Government annually by 30 June.

All responsible and cooperating entities are obliged to submit a draft of the measures of the Action Plan for the period 2023–24 by 30 June 2022 (Note that a similar procedure will be followed in the years until 2031). In addition, the entities mentioned above are obliged to report the status of the implementation of the measures of the Action Plan to the Road Safety Department of the Ministry of Transport by 30 November 2022.

Detailed annual information on the implementation of the Strategy will include an evaluation of both fatal accident consequences in the individual European countries and an analysis of the strategic objectives and all KPIs in the Czech Republic.

In addition to the activities listed in the Action Plan, the following areas will be essential for the implementation of the Strategy:

- Preparation of the supporting analyses; traffic accident losses; recommendations to improve road safety based on findings from In-Depth Accident Analyses. This activity will be provided by the Ministry of Transport, in cooperation with CDV.
- Analytical services over digital spatial data within the Ministry of Transport. This activity will be provided by the Ministry mentioned above in cooperation with the Ministry of Interior, the Police of the Czech Republic, and CDV.
- Research on indirect road safety indicators and its consideration in educational campaigns. This is a key part for providing KPIs for the Czech Republic and other safety indicators at the national level. This activity will be provided by the Ministry of Transport in cooperation with CDV, the Ministry of Health, and the Police of the Czech Republic.
- Evaluation of the penalty point system from the point of view of drivers and from the point of view of traffic and criminal offences; evaluation of its effectiveness in relation to accident rates; a proposal for possible adjustments to the penalty point system. This activity will be provided by the Ministry of Transport in cooperation with CDV, and the Police of the Czech Republic.
- Transmission of detailed anonymised statistical data from insurance companies to the Ministry of Transport for the processes maintained by the Road Safety Department, meant to be an analogy to the data of the Police of the Czech Republic. This activity will be provided by the Czech Insurance Office in cooperation with the Ministry of Transport.
- Participation in European road safety organisations and transfer of know-how (e.g., IRTAD, FERSI, ETSC, ERS Charter, CEDR, CARE, HUMANIST, IGLAD, and others). This activity will be provided by CDV.
- Inclusion of international activities on road safety issues in national plans (e.g., UN Global Road Safety Awareness Week, EU Road Safety Day, Roadpol Safety Days, World Day of Remembrance for Road Traffic Victims). This activity will be provided by the Ministry of Transport in cooperation with members of the Czech Government Council for Road Safety.

- Implementation of road safety auditor examinations at least once a year. This activity will be provided by the Ministry of Transport.
- Research on driving automation in relation to road safety. This activity will be provided by the Ministry of Transport in cooperation with CDV, Automotive Industry Association / Association of Automobile Importers.

7.2 Operational Evaluation

Monthly reports will assess the strategic objectives and the priority KPIs at both national and regional levels. This is a basic analytical overview from the data provided by the Police of the Czech Republic and other available sources (e.g., indirect road safety indicators, In-Depth Accident Analyses). This overview will be provided to the Road Safety Department and further distributed to all responsible entities and the Regional Coordinators of Road Safety.

In addition to the strategic objectives, the following selected key indicators will be monitored monthly:

- Unreasonable speed; not full engagement of the driver in driving the vehicle.
- Vulnerable road users (i.e., pedestrians, cyclists with/without helmets, motorcyclists).
- Guilty parties (i.e., young drivers, car/truck drivers, drivers under the influence of alcohol and/or other addictive substances), culpability by gender.
- Consequences of age (i.e., youth, ageing population) and gender.
- Seat belts.
- Collisions with trees.

8. Final Summaries

The strategic objectives for the decade of 2021–30 are to reduce the number of persons killed and to reduce the number of persons seriously injured on roads due to traffic accidents by half (i.e., 50% less in 2030 compared to the average of 2017–19). The objectives are based on the international commitments of the Czech Republic. Consistent implementation of the measures listed in the Action Plan and other activities included in the Strategy are crucial for the fulfilment of these objectives.

8.1 Critical Conditions for Achieving Strategic Objectives

8.1.1 Effective Legislation and Law Enforcement

In 2020, the Government submitted two key legislative proposals to the Chamber of Deputies: (A) an amendment to Act No. 361/2000 Coll., on Road Traffic; and (B) an amendment to Act No. 273/2008 Coll., on the Police of the Czech Republic, and to Act No. 17/2012 Coll., on the Customs Administration of the Czech Republic. The amendment to the Road Traffic Act contains significant changes aimed at improving road safety, including:

- stricter administrative penalties,
- establishment of penalties that match the seriousness of offences,
- strengthening the possibility to resolve an offence by the police right on the spot,
- immediate temporary expulsion from driving of drivers who lack the basic prerequisites, and a specific approach to the riskiest group of road users (i.e., novice drivers) by introducing the so-called ‘driving licence on probation’ status.

The amendment to the Act on the Police of the Czech Republic and Customs Administration contains tools (e.g., the possibility to retain the vehicle registration plate in case of an unpaid fine) that will effectively increase the enforceability of fines for offences under the Road Traffic Act, the Road Transport Act, and the Road Act.

Both legislative proposals represent a key condition for the implementation of the priority area of the Strategy, namely effective supervision and enforcement. These activities were not included in the Action Plan of the Strategy for the period 2021–22 because they were submitted by the Government to Parliament in the previous period. However, if these legislative proposals, for which the legislative process had not been completed at the time of the adoption

of the Strategy, do not come into force in 2021, it will be necessary to resubmit them in a form that includes key elements aimed at improving road safety.

8.1.2 Czech Government Council for Road Safety

The Council of the Government of the Czech Republic for Road Safety (hereinafter referred to as 'the Council') is chaired by the Minister of Transport. The secretary of the Council is the head of the Road Safety Department of the Ministry of Transport, and it is attended by representatives of the following:

- Ministry of the Interior,
- Ministry of Health,
- Ministry of Education, Youth, and Sports,
- Ministry of Finance,
- Ministry of Defence,
- Police of the Czech Republic,
- Association of Regions of the Czech Republic,
- Association of Towns and Municipalities of the Czech Republic,
- Association of the Automotive Industry,
- Association of Automobile Importers,
- Czech Insurance Office,
- Transport Research Centre, a public research institution,
- Road and Motorway Directorate.

Up-to-date information is available at https://ibesip.cz/. **The Council must play a significant role in supporting the Strategy and the delivery of the Action Plan.**

8.1.3 Public Support

Public attitudes towards the traffic situation must be focused on greater responsibility and consideration. Cooperation with the non-profit sector and the media should be developed in this spirit. The members of the institutions represented in the Council should communicate this message in a unified manner.

Safety measures must meet the additional needs of the population, particularly in cities where the development of road safety is closely linked to the preference for non-motorised transport because it creates a safer and more valuable space for residents. These principles are common at European and national levels, and they are also presented by the World Health Organization (WHO).

8.1.4 Horizontal and Vertical Cooperation

The issue of safety extends to other areas of the strategic development of the Czech Republic. When creating and updating strategic documents, it is necessary to emphasize road safety and to make decisions based on 'best knowledge' and not only on 'best practice'.

A lot of activities within the Action Plan require the cooperation of several ministries and other entities. For this reason, it is necessary that the Council be a functional body that meets several times a year and establishes committees or working groups to address the topical issues. At the same time, it supervises their work and puts the results into practice. The Council's tasks may arise from the analysis of road safety indicators, or they may arise from EU policies.

The Strategy sets the basic framework; however, given the traffic capacity and the length of roads managed by regions and municipalities, it is essential to systematically improve road safety at the regional and local levels. For this reason, the Strategy supports the development of regional and local road traffic safety strategies.

8.1.5 Surveillance by the Police of the Czech Republic

Based on foreign experience, **visible police surveillance is an element that significantly influences road safety.** For this reason, it is necessary to continue efforts to increase visible surveillance in the Czech Republic. From the point of view of the effectiveness of preventive activities, it is essential that they are also linked to visible surveillance. **In places where there is a high proportion of vulnerable road users (e.g., roads through villages), it is advisable to install speed-measuring equipment to increase compliance with the speed limit 24 hours a day.**

8.1.6 Road Design

To create a safe traffic environment more quickly, it is **necessary to educate the professional public** (i.e., authorised engineers, road administration staff, traffic police officers) **on the issue of creating a safe traffic space.** In the Czech Republic, this possibility is still very limited. It is necessary to support activities that lead to an increase in the number of professionals with the ability to detect, correct, or, preferably, prevent safety deficiencies.

8.1.7 International Comparison and Cooperation

International comparison and cooperation within the EU are important for assessing the success of achieving the strategic objectives. This involves **the transfer of experience, know-how, and accident statistics** (i.e., OECD/IRTAD, CARE, ETSC, ESRA). The cooperation also includes the development of uniform methodologies for the identification of basic safety indicators and their comparison in relation to accident data.

The Ministry of Transport, through the Road Safety Department, regularly participates in the EU High Level Working Group on Road Safety. The CDV is significantly involved in international scientific--research cooperation, and it is also a member of many international institutions and associations, such as ASCE, ASTM, ECTRI, ELCF, ELITE, ERTRAC, ETSC, FEHRL, FERSI, FGSV, HUMANIST VCE, ICADTS, ICTCT, POLIS, SAE, THE PEP, and TRB. The Police of the Czech Republic is a member of Roadpol.

8.2 Coherence with Strategic Documents

Road safety must be approached comprehensively; therefore, this issue is also reflected in other strategic documents of the Government of the Czech Republic. Selected examples are mentioned in the subsections below.

8.2.1 Innovation Strategy of the Czech Republic, 2019–30

The Strategic Framework Plan, which predetermines government policy in the fields of research, development, and innovation, should help the Czech Republic become one of the most innovative countries in Europe within the next 12 years. One of the nine pillars is **The Mobility and the Development Environment**, which defines the objectives and the tools to achieve them. In relation to the Strategy, the key steps are the completion of the transport infrastructure backbone network, smart mobility for the transport of people and goods, the building of a sufficiently robust network of transport communication systems, the integration of data into the National Transport Information Centre, the preparation for the wide-spread deployment of alternatively powered cars in real traffic, and the enabling of the operation of autonomous and automated vehicles.

8.2.2 Action Plan for the Future of the Automotive Industry

The *Action Plan for the Future of the Automotive Industry* **focuses on three areas: electromobility, autonomous vehicles, and digitalisation.** A total of 25 actions have been proposed in the roadmap, mainly concerning infrastructure for zero-emission vehicles, the standardization and legal aspects of automated driving, high-speed internet, digital and mobile services, and research and development for the automotive industry. To achieve the objectives, it will be necessary to adapt the relevant grant titles to support science, research, and innovation, and to ensure a change in the educational system.

8.2.3 Autonomous Driving Action Plan

The Autonomous Driving Action Plan defines specific measures to be implemented for each area. **It comprehensively summarises the current and future development of autonomous vehicles and sets out the needs to be met to put these vehicles into operation in the future.** This includes changes to legislation, changes to transport and technical infrastructure, support for research and development, the contemplation of ethical issues, support for education in autonomous technology, and overall public awareness of autonomous-vehicle development.

8.2.4 Action Plan for Intelligent Transport System (ITS) Development in the Czech Republic

The global objective of the *Action Plan for ITS Development* in the Czech Republic is **to permanently increase the efficiency of the domestic transport system.** Specifically, it aims to increase the safety and fluidity of traffic; to coordinate, synchronize, and optimize the transport of passengers and shipments across the network of individual modes of transport; and to reduce the environmental impact of transport and thereby help improve the quality of life for all residents.

8.2.5 Development of Traffic Infrastructure by 2050

The Development of Traffic Infrastructure by 2050 document is aimed at creating the conditions for further economic development within the Czech Republic and its regions. It is based on the results of a working group of experts, who formulated a proposal for a traffic solution. This proposal was designated especially for the highway network but also considered the context of the road and rail networks by 2050, including expected trends in traffic development and modern technologies. The draft solution for the development of the highway infrastructure will serve as one of the baselines for updating the Czech Government's strategies for the transport sector.

8.2.6 Freight Transport Concept for 2017–23 with a View to 2030

The strategic document *Freight Transport Concept for 2017–23 with a View to 2030* **aims**

to meet transportation demand with minimal impact on public health, the environment, and climate change. The ability to meet transportation demand must not be a limiting factor for economic growth. On the other hand, the organisation of production and distribution must consider the cost of transport, including external costs, and it must come up with logistical solutions that reduce the unnecessary transport of goods. It is, therefore, a question of economic growth outstripping total transport needs.

8.2.7 National Clean Mobility Action Plan

The aim of the *National Clean Mobility Action Plan* is **to create a sufficiently favourable environment for the wider application of selected alternative fuels.** It pushes the transport sector in the Czech Republic to achieve conditions comparable to other developed countries of the European Union so that, in the long term (i.e., the period after 2030), electromobility is perceived as a standard technology, natural gas is a standard fuel, and hydrogen technology has, at least, moved from the research/development phase to where the electromobility is currently (i.e., in the medium and long term, certain basic measures for the development of this technology should be implemented).

8.2.8. Transport Policy of the Czech Republic for 2014–20 with a View to 2050

The main objective of the *Transport Policy of the Czech Republic for 2014–20* with a View to 2050 **is to create conditions for the development of a quality transportation system** based on the use of the technical-economic-technological characteristics of individual modes of transport, and the principles of competition regarding its economic, social, and environmental impacts.

8.2.9. Others

Other documents that must be taken into account are as follows:

- *Operational Programme Transport 2021–27.*
- *National Space Plan 2020–25.*
- *Operational Programme under the Investment for Growth and Jobs Objective 2014–20, eligible from 2014 to 2023.*
- *Transport Plan for the Territory Served by National Trains for the period 2017–21.*
- *Action plans to reduce traffic noise.*
- *A Vision for the Development of the Automotive Sector.*
- *Concept of Research, Development, and Innovation in the Transport Area until 2030.*
- *Regional Development Strategy 2021+.*
- *Strategic Framework of the Czech Republic 2030.*

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List of Acronyms

ACEA	European Automobile Manufacturers' Association
ADAS	Advanced Driver Assistance Systems
ASCE	American Society of Civil Engineers
ASTM	American Society for Testing and Materials
BAC	Blood Alcohol Content
CARE	Community Database on Accidents on the Roads in Europe
CDV	Transport Research Centre, a public research institution
CEDR	Conference of European Directors of Roads
CEF	Connecting European Facility
C-ITS	Cooperative ITS
CZK	Czech Crown
e-CALL	Automatic Emergency Call System for Road Transport
EC	European Commission
ECTRI	European Conference of Transport Research Institutes
EDR	Event Data Recorder
EIB	European Investment Bank
ELCF	European Level Crossing Forum
ELITE	European Logistics Infrastructure and Transport Expertise Network
ERDF	European Regional Development Fund
ERS	European Road Safety Charter
ETSC	European Transport Safety Council
EU	European Union
Euro NCAP	European New Car Assessment Programme
ERTRAC	European Road Transport Research Advisory Council
ESRA	E Survey of Road User's Attitudes
FEHRL	Forum of European National Highway Research Laboratories
FERSI	Forum of European Road Safety Research Institutes
FGSV	Forschungsgesellschaft für Straßen- und Verkehrswesen
GIS	Geographic Information System
GPS	Global Positioning System
ICADTS	International Council on Alcohol, Drugs and Traffic Safety
ICTCT	International Cooperation on Theories and Concepts in Traffic Safety
IROP	Integrated Regional Operational Programme
IRTAD	International Road Traffic Accident Database
ISA	Intelligent Speed Adaptation
ITS	Intelligent Transport Systems
KDE+	Kernel Density Estimation +
KPI	Key Performance Indicator
MAIS	Maximum Abbreviated Injury Scale
OECD	Organisation for Economic Cooperation and Development
OPD	Operational Programme Transport
POLIS	European Cities and Regions Networking for New Transport Solutions
SAE	Society of Automotive Engineers
THE PEP	Transport, Health and Environment Pan-European Programme
TRB	Transportation Research Board
UN	United Nations
VCE	Virtual Centre of Excellence
VFM	Value for money
WHO	World Health Organization

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Attachments

Annex 1: Action Plan for period 2021-22

Available only in the Czech version of the Strategy.

Annex 2: Analytical Background of Key ndicators

Available only in the Czech version of the Strategy.

Road Safety Department
Ministry of Transport
1222/12 nábřeží Ludvíka Svobody
110 15 Prague 1