International Transport Forum | irtad Road Safety Data

GERMANY

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Germany recorded 2 719 road fatalities in 2020, a 10.7% decrease compared to 2019. Since 2000, road deaths have declined for all age groups. In 2021, the 2021-2030 Road Safety Programme was launched. It sets out Germany's road safety objectives over the next decade and includes key priorities for action and targets to reduce fatalities by 40% and serious injuries significantly by 2030.

Road safety management and strategy

The long-term progress in Germany's road safety performance is due to various changes in all fields of road safety. These include traffic safety-related behaviour and education, infrastructure and vehicle safety.

Responsibility for the organisation of road safety at the national level in Germany lies with the Federal Ministry of Transport and Digital Infrastructure. The federal ministry develops the national road safety strategy, including the national road safety action programme, and sets and monitors national targets.

Each of the 16 German federal states (*Bundesländer*) has its own Ministry of Transport. These can formulate road safety programmes independently and are usually responsible for improvements in road infrastructure in their state. Police forces are organised at the state level and enforcement of traffic laws is the responsibility of each federal state.

Germany: Quick facts

Population: 83.2 million
GDP per capita: USD 45 764
Registered motor vehicles: 58.2 million (without mopeds)
- cars: 82%
- goods vehicles: 9%
- motorcycles: 8%

Volume of traffic: +13.8% (2000-19)
Speed limits:
- urban roads: 50 km/h
- rural roads: 100 km/h
- motorways: 130 km/h (recommended)

Limits on Blood Alcohol Content:
- general drivers: 0.5 g/l
- drivers under 21: 0.0 g/l
- professional drivers who transport passengers or dangerous goods: 0.0 g/l
- novice drivers: 0.0 g/l

Road fatalities: 2 719
- pedestrians: 14%
- cyclists: 16%
- car occupants: 43%
- motorcyclists: 20%
- other: 7%

Road fatalities per 100 000 population: 3.3
Road fatalities per 10 000 vehicles: 0.5
Cost of road crashes: 0.9% of GDP

All data 2020 unless otherwise stated.

The 2011-20 federal road safety programme was launched in 2011. The principal aim of the programme was to enable safe, ecologically sensitive and sustainable mobility for all road users in Germany. It included a wide range of road safety measures addressing users, vehicles and infrastructure.

The target of having a fatality reduction of 40% compared to the 2011 level by 2020 has not been reached. The target was defined based on research regarding the expected

development of road safety until the year 2020. It was established taking into account the 50% reduction target of the European Commission and the current level of road safety in Germany. There were also specific targets in individual federal states. An actual reduction in road fatalities of 24% was achieved from 2011 to 2020.

The Federal Government's Road Safety Programme 2021-2030 is a follow-up to the 2011 Road Safety Programme, which expired at the end of 2020. It identifies the Federal Government's measures to improve road safety on German roads by 2030. It aims to reduce the annual number of fatalities by 40% and serious injuries significantly by 2030. With the "Road Safety Pack", the Federal Government, *Bundesländer* and local authorities have for the first time drawn up a joint strategy for road safety work in Germany. Using the motto "Safe mobility – everybody is responsible, everyone is involved", the strategy combines the efforts of all stakeholders.

The Federal Government sees itself as a key stakeholder, initiator and coordinator in this process. In its areas of responsibilities, the Federal Government's primary goals at the start of the decade include:

- Actively exploiting the potential of automated, autonomous and networked driving for better road safety.
- Advancing the improvement of road infrastructure for new and existing roads.
- Assigning a central role to improving road safety for cycling.

The report of the Federal Government on measures in the field of accident prevention in road traffic evaluates the previous two-year period. Starting from analysing road traffic accidents in the relevant reporting period, the diverse road safety activities are described and current road safety and research measures are presented. Furthermore, the report outlines national and international road safety policies. Every two years, this comprehensive account of ongoing activities in road safety is submitted to the German parliament.

Latest road safety measures

With the 2030 Climate Change Programme of the Federal Government, additional funding of EUR 900 million will be made available for cycling until 2023. With the current budget of around EUR 600 million, around EUR 1.5 billion will be made available to promote cycling and cycling infrastructure upgrades until 2023. Furthermore, additional funding will be provided to encourage and enhance pedestrian safety.

Legal preconditions to introduce 30 km/h zones on main roads inside urban areas have been lowered. Also, a new law on automated driving was adopted in 2017. The law is

primarily concerned with the legal equality of the human driver and the computer. As a result, highly and fully automated driving systems can take on driving in future.

Fines for several offences have been increased considerably, such as using smartphones or tablets while driving, blocking the emergency lane in case of an accident or non-observance of flashing lights and sirens on emergency vehicles.

January 2017, adults have been allowed to ride bicycles on footpaths if they accompany a cycling child. Before 2017, children up to eight years old had to use the footpath, whereas adults were prohibited from using it. Also, since January 2017, electric bikes with a top speed of less than 25 km/h have been permitted to use designated cycling lanes inside urban areas and all cycling lanes outside urban areas.

The long-standing road safety information campaign "Stop speeding" continued in 2019, focusing on helmet wearing. The posters show well-known models from the television show "Germany's next top model" wearing helmets with the title "Looks terrible but saves my life". In 2020, programmes aiming at specific target groups were revised and modernised. These include a programme for novice drivers ("*JUNG+SICHER+STARTKLAR*") and one for preschool-age children called "*Kind und Verkehr*", which is aimed at parents and is unique in Europe. Both programmes were expanded to include digital offerings.

Since June 2019, e-scooters with a maximum speed of up to 20 km/h have been allowed in road traffic in Germany. They may not be driven on footpaths and pedestrian zones but only on cycle paths or cycle lanes. If there are none available, e-scooters must be on the road. The minimum age of 14 years applies to all e-scooters. They must be insured, but there is no obligation to wear a helmet. Hoverboards and other small electric vehicles without steering and holding bars are not allowed in road traffic.

In 2018, the Federal Ministry of Transport and Digital Infrastructure launched an incentive programme to increase the market penetration of turn-off assistance systems in trucks. The ministry promotes the voluntary equipping and retrofitting of trucks and buses with turn-off assistance systems. The financial incentive concerns all commercial vehicles with a permissible total mass of more than 3.5 t and buses with more than nine seats (including driver's seats), purchased and operated in Germany and used for commercial, freelance, non-profit or public law activities. The budget for this programme was EUR 10 million in 2019 and 2020 each, and the incentive will run for five years.

Costs of road crashes

The Federal Highway Research Institute (*Bundesanstalt für Straßenwesen* [BASt]) calculates the cost of road crashes annually. The cost of road traffic crashes to Germany's national economy is based on the capital approach, which encompasses costs for personal injuries and damage to goods. Calculated costs include direct costs (medical treatment, vehicle repair/replacement), indirect costs (police services, legal system, insurance administration, replacement of employees), lost potential growth (including the shadow

economy), lost added value of housework and voluntary work, humanitarian costs and costs of travel time lost due to crashes on motorways.

Traffic crashes represent a high cost for German society. In 2020, costs for road accidents totalled EUR 31.5 billion (0.9% of GDP). Thus, these costs decreased by approximately 15% compared to 2019, presumably due to the Covid-19 pandemic. An estimation of costs of non-reported crashes is not considered in the calculation. To ensure that the methodology for updating the economic costs of traffic crashes is up-to-date, the model is revised at regular intervals. Such a revision was carried out in 2020. The most recent information on costs for road accidents in Germany can be downloaded from the website of the Federal Highway Research Institute (www.bast.de).

Safety performance indicators

Speed

Inappropriate speed was a factor in about 13.9% of injury crashes and 33.7% of fatal crashes in Germany in 2020. Speed is often cited as a factor in combination with other high-risk behaviour, such as drink driving.

Drink-driving

In 2020, alcohol was cited as a contributory factor in around 4.9% of all injury crashes and 5.8% of fatal crashes – one in every 17 killed. The number of alcohol-related crashes and alcohol-related fatalities has decreased continuously.

In Germany, driving with BAC over 0.5 g/l is punishable by a fine, licence suspension and possibly jail. In addition, drivers with a BAC between 0.3 g/l and 0.5 g/l can have their licence suspended if their driving ability is impaired. Since 2007, a zero BAC has been required for drivers under 21 and those in their probationary period as part of Germany's graduated licencing programme.

Drugs and driving

According to German law, driving under the influence of drugs is considered an offence. Drivers are considered under the influence of drugs if drugs are found in their blood, irrespective of the amount or concentration. This regulation refers to a selected list of drugs. Drugs used as medication and administered as intended are exempt.

In 2020, there were 2 393 reported drug-related crashes in Germany, causing 37 fatalities and 3 170 injuries. These figures had risen from the 2000 level when 1 015 drug-related crashes were reported. This increase may be related to increased drug use and better education among police agencies regarding detecting the influence of drugs.

Use of mobile phones while driving

In Germany, hand-held use of a mobile phone while driving is prohibited. Based on a concept developed by BASt, the use of smartphones by passenger car drivers will be assessed at regular intervals. Observations from the roadside do this. The first assessment was conducted in 2019 and found that 3% of passenger car drivers use their smartphones while driving, 2% type on their smartphone and have at least one hand off the steering wheel and the view off the road ahead and 1% speak on the phone, with around half of them hand-held. The methodology will be optimised for the next assessment, which will be done in 2022. Pedestrians and cyclists will then also be included.

Seat belt and helmet use

Seat belt use has been compulsory in Germany for front seats since 1976 and rear seats since 1984. Fines for not wearing seat belts were introduced in the mid-1980s and led to a sharp increase in seat belt use. In recent years, adult car occupants' seat belt wearing rates have been consistently high, at 98% in 2020.

Children under the age of 12 and less than 150 cm tall must be restrained in motor vehicles by an approved system suitable for the child’s height and weight.

All riders of powered two-wheelers on German roads must wear helmets. The helmet-wearing rate inside urban areas is high, at 98% for riders and almost 100% for passengers.

Helmets are not mandatory for cyclists (including electric cycles with pedal assistance up to 25 km/h).

Road safety data for Germany at a glance

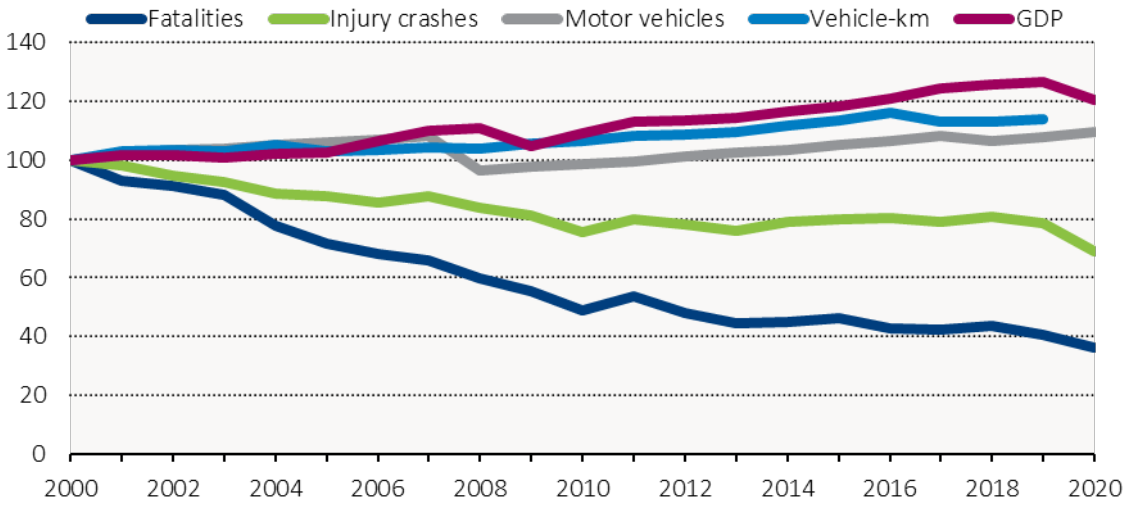
Table 1. Long-term road safety trends for Germany

							2020 % change over			
	1991	2000	2010	2018	2019	2020	*2019*	*2010*	*2000*	*1991*
Reported safety data										
Fatalities	11 300	7 503	3 648	3 275	3 046	2 719	-10.7	-25.5	-63.8	-75.9
Injury crashes	385 147	382 949	288 297	308 721	300 143	264 499	-11.9	-8.3	-30.9	-31.3
Injured persons hospitalised	131 093	102 416	62 620	67 967	65 244	58 005	-11.1	-7.4	-43.4	-55.8
Deaths per 100 000 population	14.2	9.1	4.5	4.0	3.7	3.3	-10.9	-26.7	-64.2	-76.9
Deaths per 10 000 registered vehicles	2.5	1.4	0.7	..	..	..	..	..	..	..
Deaths per billion vehicle kilometres	19.7	11.3	5.2	4.4	4.0	..	..	..	..	..
Fatalities by road user										
Pedestrians	1 918	993	476	458	417	376	-9.8	-21.0	-62.1	-80.4
Cyclists	925	659	381	445	445	426	-4.3	11.8	-35.4	-53.9
Moped riders	243	157	74	78	63	53	-15.9	-28.4	-66.2	-78.2
Motorcyclists	992	945	635	619	542	499	-7.9	-21.4	-47.2	-49.7
Passenger car occupants	6 801	4 396	1 840	1 424	1 364	1 170	-14.2	-36.4	-73.4	-82.8
Other road users	421	353	242	251	215	195	-9.3	-19.4	-44.8	-53.7
Fatalities by age group										
0-14 years	511	240	104	79	55	48	-12.7	-53.8	-80.0	-90.6
15-17 years	415	336	101	77	66	64	-3.0	-36.6	-81.0	-84.6
18-20 years	1 204	933	327	165	189	157	-16.9	-52.0	-83.2	-87.0
21-24 years	1 545	803	363	204	174	169	-2.9	-53.4	-79.0	-89.1
25-64 years	5 754	3 874	1 842	1 698	1 524	1 386	-9.1	-24.8	-64.2	-75.9
65-74 years	..	629	395	369	347	297	-14.4	-24.8	-52.8	..
≥ 75 years	..	682	515	676	690	597	-13.5	15.9	-12.5	..
Fatalities by road type										
Urban roads	3 349	1 829	1 011	984	932	810	-13.1	-19.9	-55.7	-75.8
Rural roads	6 399	4 767	2 207	1 867	1 758	1 592	-9.4	-27.9	-66.6	-75.1
Motorw ays	1 552	907	430	424	356	317	-11.0	-26.3	-65.0	-79.6
Traffic data										
Vehicle kilometres (millions)	574 100	663 302	704 800	751 100	755 000	..	..	..	..	..
Registered vehicles (thousands)	44 925	53 106	52 289	56 459	57 305	58 158	1.5	11.2	9.5	29.5
Registered vehicles per 1 000 population	563.3	646.3	639.2	681.9	690.3	699.3	1.3	9.4	8.2	24.1

Note: registered vehicles do not include mopeds.

Figure 1. Evolution of road fatalities, injury crashes, motorisation, traffic and GDP in Germany, 2000-20

Index 2000 = 100



Note: registered vehicles do not include mopeds.

Figure 2. Road fatalities per 100 000 inhabitants in Germany in comparison with IRTAD countries, 2020

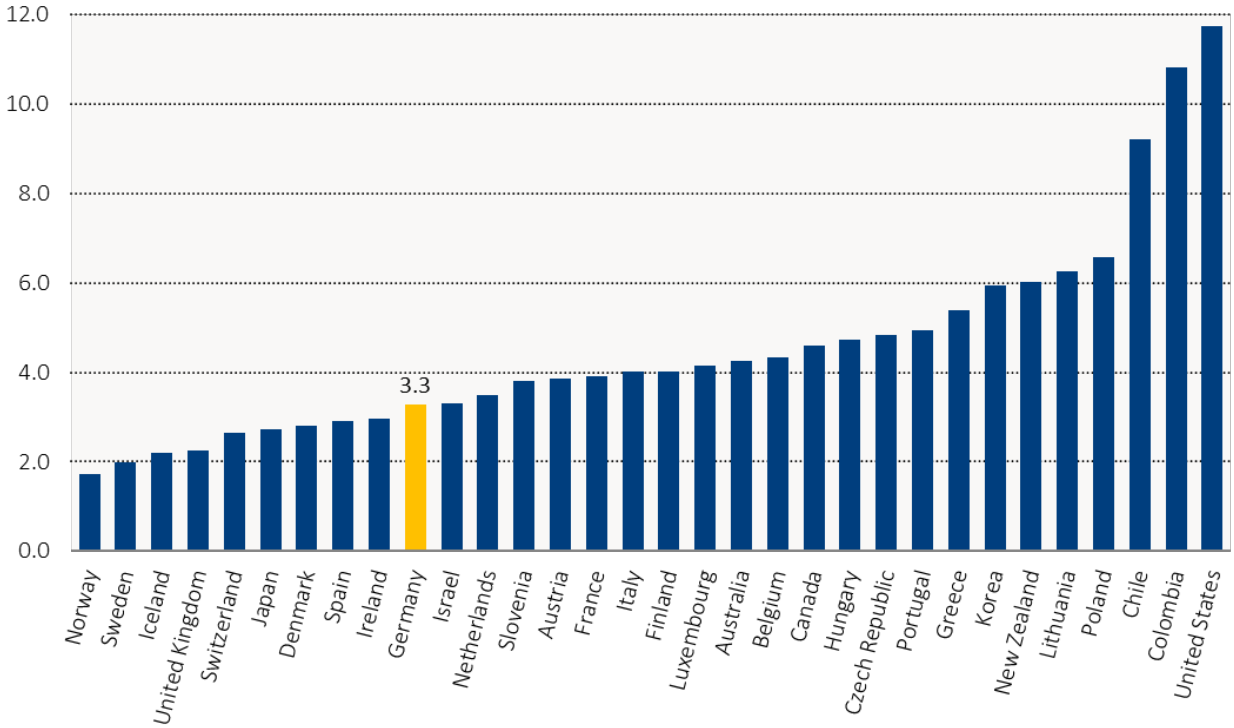
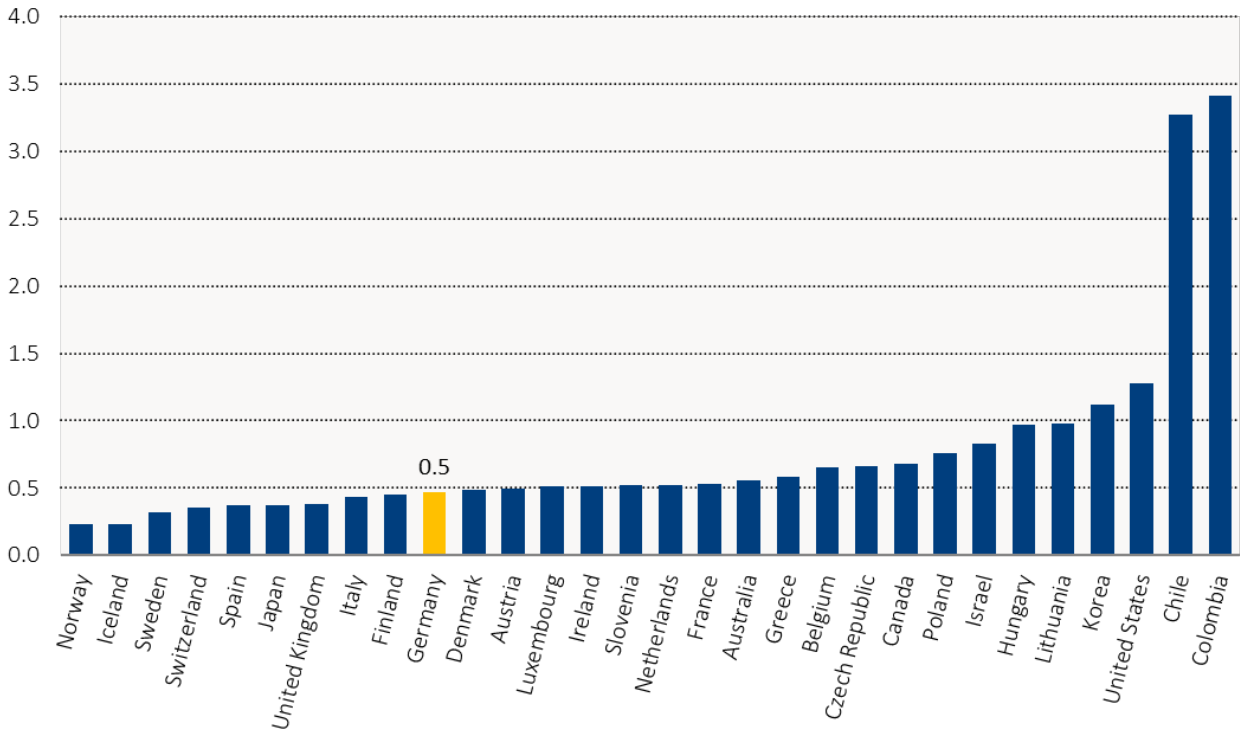


Figure 3. Road fatalities per 10 000 vehicles in Germany in comparison with IRTAD countries, 2020



Note: in Belgium, Denmark, Germany and Hungary registered vehicles do not include mopeds.

Figure 4. Road fatalities per billion vehicle-kilometres in Germany in comparison with IRTAD countries, 2019

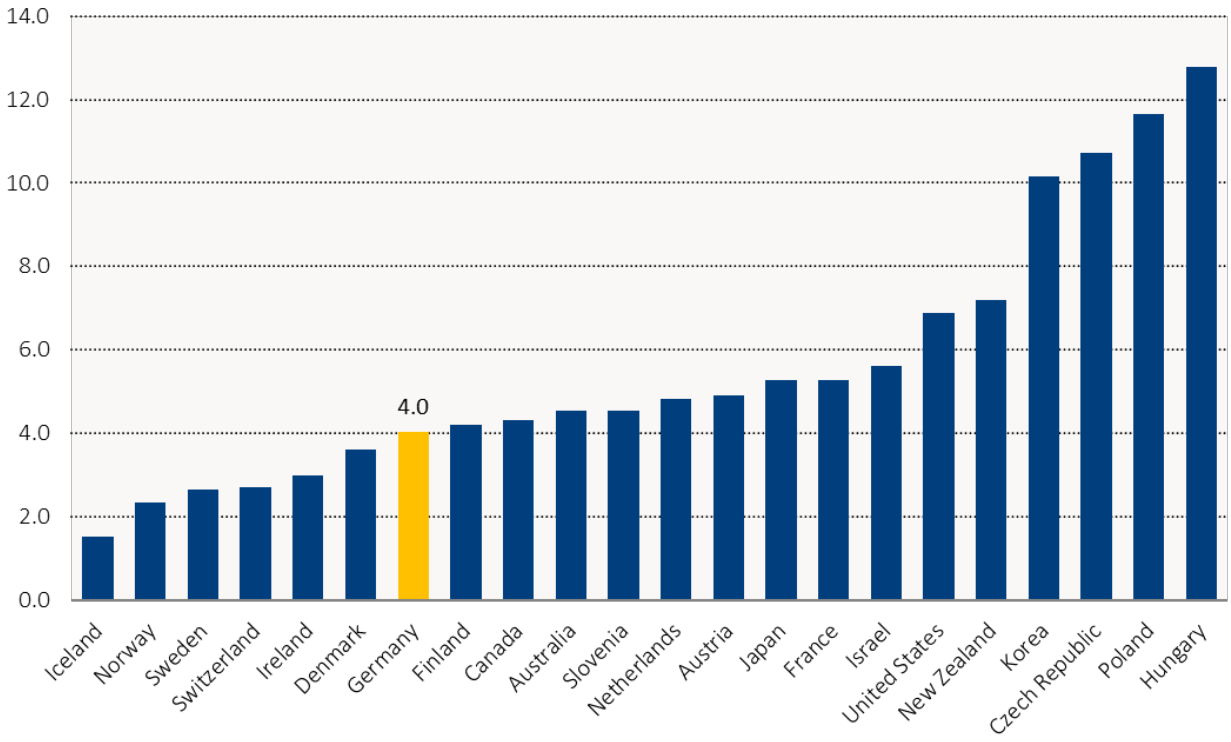


Figure 5. Evolution of road fatalities in Germany by user category, age group and road type, 2010-20

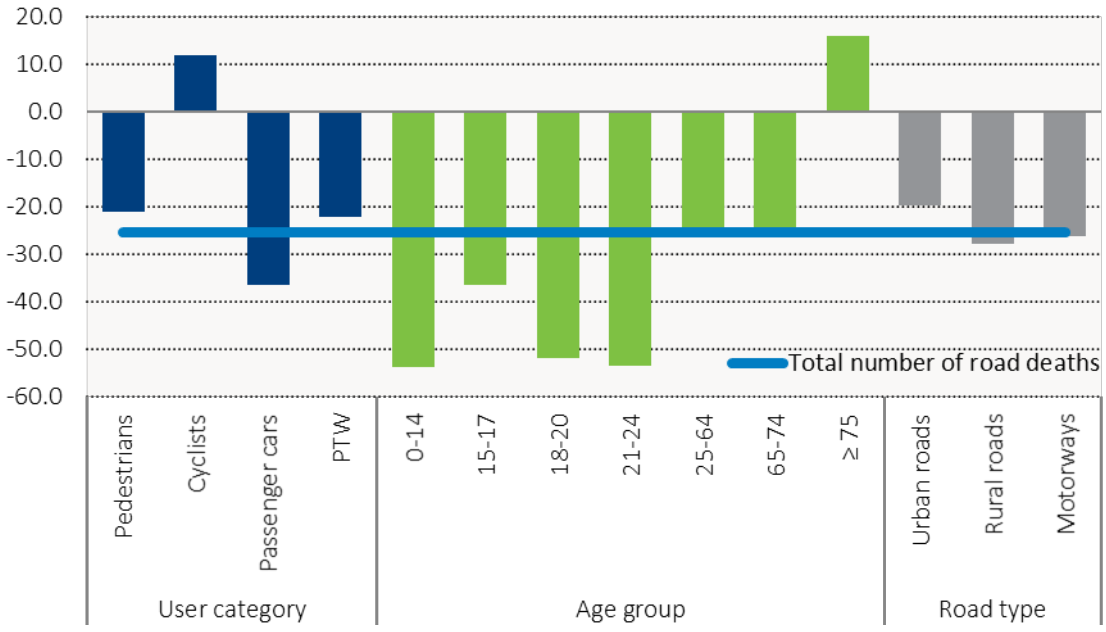


Figure 6. Road fatalities in Germany by user category, 2020

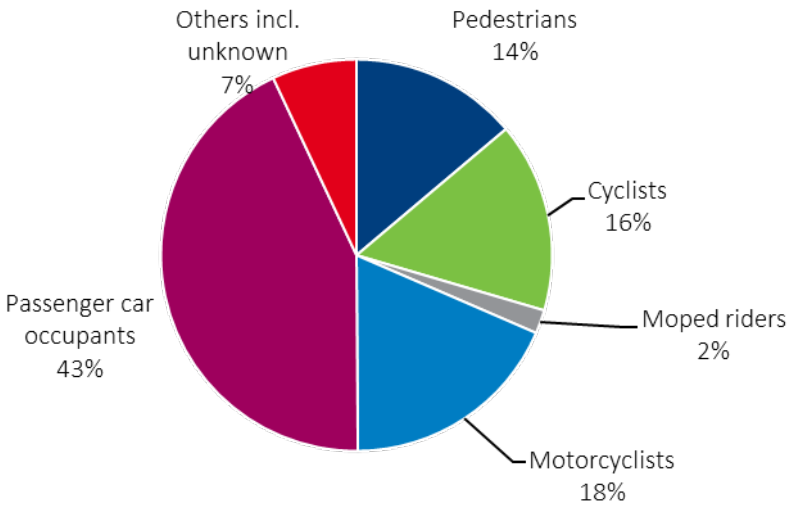


Figure 7. Road fatalities in Germany by road type, 2020

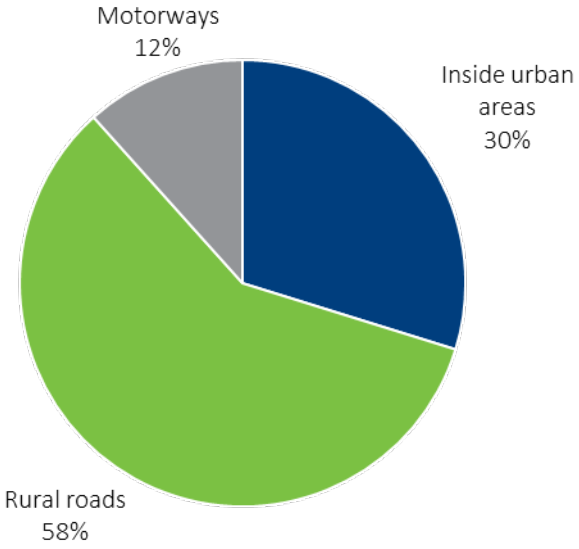


Figure 8. Road fatality rate in Germany by user category and age group, 2020

Rate per 100 000 population in the same age group

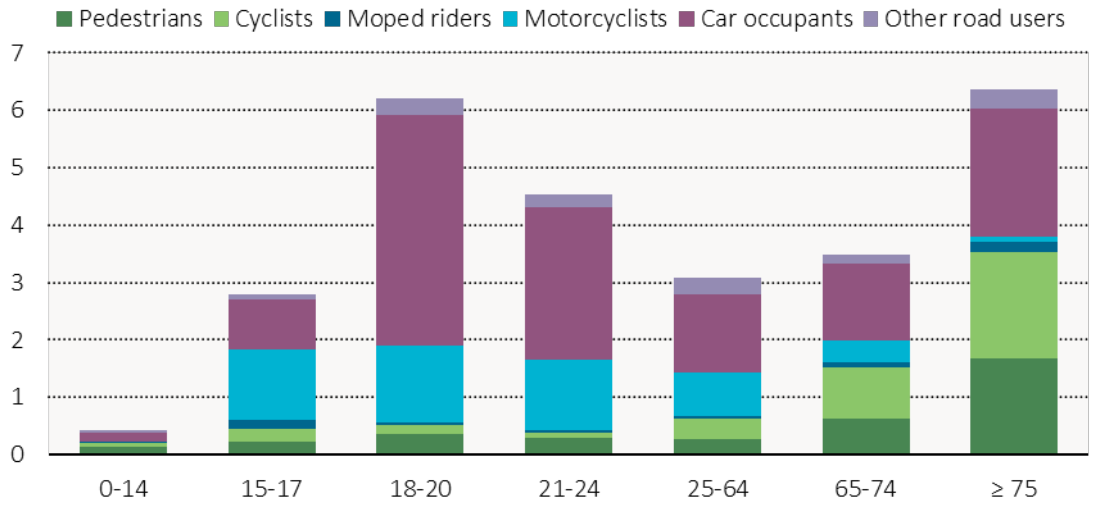


Table 2. Cost of road crashes in Germany, 2020

	Unit Cost (EUR)	Total (EUR)
Fatalities	1 219 396	3.32 billion
Serious injuries	119 788	6.97 billion
Slight injuries	5 391	1.50 billion
Property damage costs	NA	19.68 billion
Total		**31.47 billion**
Total as % of GDP		**0.9%**

Table 3. Seat belt and helmet wearing rates
Percentages

	2000	2010	2020
Front seats			
Driver	94	98	98
Passenger (front seat)	95	98	98
Urban roads (driver)	90	97	96
Rural roads (driver)	95	98	99
Motorways (driver)	98	99	99
Rear seats			
General	82	97	98.5
Children up to 5 years inside urban areas (use of child restraint)	..	92	96
Helmet			
Riders of motorised two-wheelers	..	..	97.6
Passengers of motorised two-wheelers	..	..	99.5

Research and resources

Publications

Funk, W. et al. (2021), *Frequency of smartphone use among cyclists and pedestrians – concept for a regular survey*, BASt report M312, https://www.bast.de/DE/Publikationen/Berichte/unterreihe-m/2022-2021/m312.html?nn=1829138.

Niestegge, M. et al (2022), *Pilot test of the turning right of cyclists on red*, BASt report V355, https://www.bast.de/DE/Publikationen/Berichte/unterreihe-v/2022-2021/v355.html?nn=1830074.

Platho, C. et al. (2021), *Analysis of the characteristics and accident occurrence of pedelec riders*, BASt report M313, https://www.bast.de/DE/Publikationen/Berichte/unterreihe-m/2022-2021/m313.html?nn=1829138.

Schaarschmidt, E. et al. (2021), *Fundamentals of communication between automated vehicles and road users*, BASt report F138, https://www.bast.de/DE/Publikationen/Berichte/unterreihe-f/2022-2021/f138.html?nn=1830878.

Straßgütl, L., Sander, D. (2021), *The impact of Advanced Emergency Braking Systems on the development of rear-end collisions of trucks on German motorways*, BASt report F139, https://www.bast.de/DE/Publikationen/Berichte/unterreihe-f/2022-2021/f139.html?nn=1830878.

Schwietering, C. et al. (2021), *Opportunities in traffic management systems through vehicle-infrastructure communication*, BASt report V347, https://www.bast.de/DE/Publikationen/Berichte/unterreihe-v/2022-2021/v347.html?nn=1830074.

Websites

Federal Ministry of Transport and Digital Infrastructure: https://www.bmvi.de/EN/Home/home.html.

Road Safety Programme 2021-2030: https://www.bmvi.de/SharedDocs/EN/Articles/StV/Roadtraffic/road-safety-challenge-for-society.html.

Federal Highway Research Institute (BASt): https://www.bast.de/BASt_2017/EN/Home/home_node.html.

German Federal Statistical Office's accident statistic reports: https://www.destatis.de/EN/FactsFigures/EconomicSectors/TransportTraffic/TrafficAccidents/TrafficAccidents.html.

German Road Safety Council e.V.: https://www.dvr.de/.

Library of the Federal Highway Research Institute: https://www.bast.de/BASt_2017/EN/Publications/Reports/reports_node.html.

Definition, methodology, data collection

German crash data is collected by the police agencies of the different federal states and then consolidated at the federal level. Data in this section correspond to the consolidated set of German police data.

As the police collect the crash data, only accidents known to the police are registered. For fatalities, the reporting rate is estimated to be nearly 100%. No information is available on the percentage of crash injuries that are not reported.

The following definitions are used in the collection of German crash data:

- Road fatality: a person who has died immediately or within 30 days of a crash.
- Injury crash: a road crash resulting in at least one injured or killed person.
- Seriously injured: any person immediately taken to hospital after a road crash for inpatient treatment lasting at least 24 hours.
- Slightly injured: any other person injured in a road crash.

According to directives from the European High-Level Group on Road Safety, all European Union member states are requested to estimate their number of critically injured persons. These are defined as crash victims with injuries rated as Maximum Abbreviated

Injury Scale of three or more (MAIS3+) from 2014 onwards. In Germany, the number of MAIS3+ is extrapolated from the German In-Depth Accident Study (GIDAS) data.