

The contribution of traffic law for traffic safety – on the threshold to automated driving



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Outline

1. Traffic safety in Germany – facts and figures
2. Towards „Vision Zero“
3. German traffic law
4. Partners in traffic safety work
5. Automated and autonomous driving

感谢你们今天邀请我来这里。



Traffic safety in Germany – facts and figures

- **54 million** people from **82.7 million** inhabitants in Germany have a driving licence
- **61.5 million** motor vehicles and trailers
- among these **4.2 million** motorcycles
- **672** motor vehicles/**1.000** people in Germany



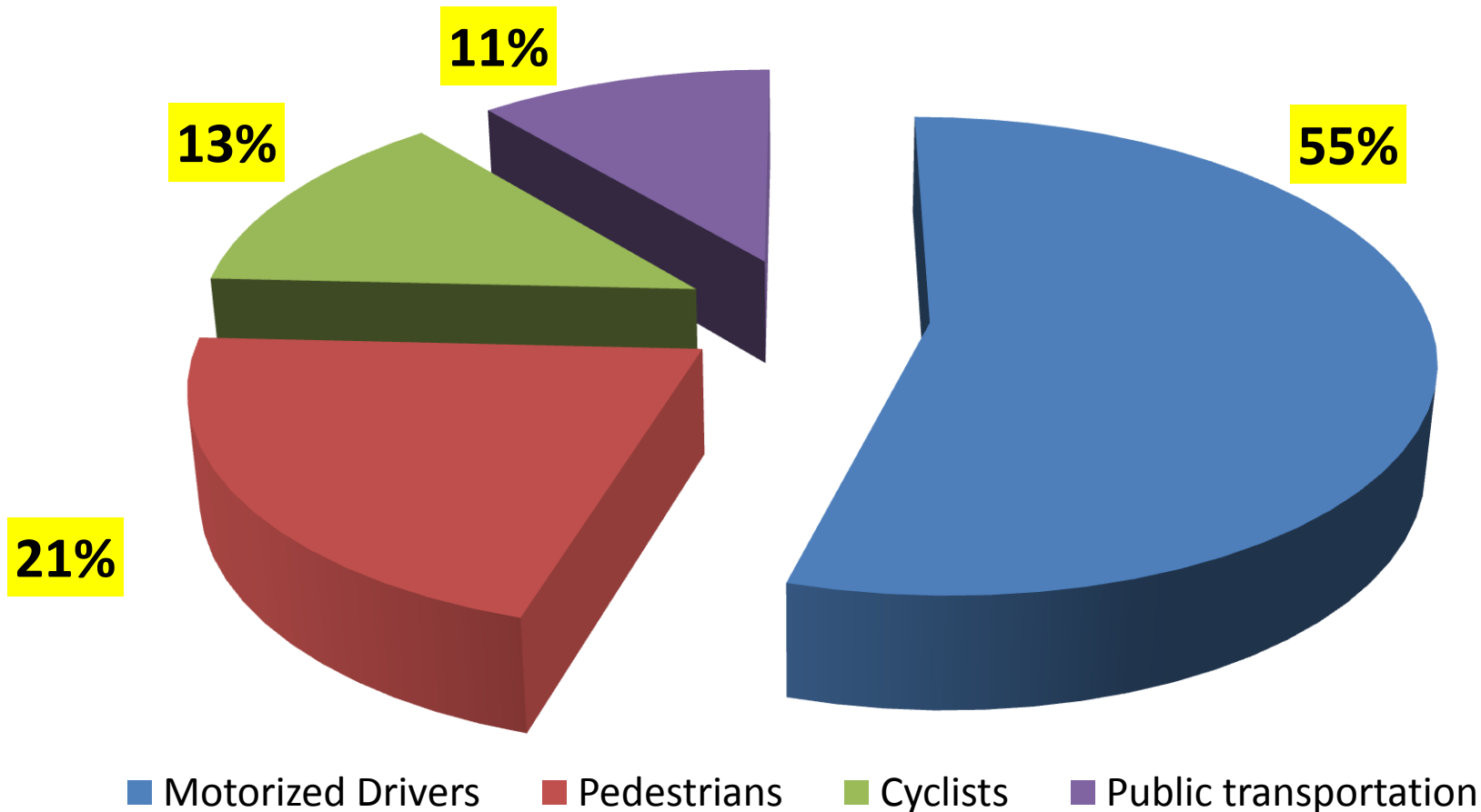
Traffic safety in Germany – facts and figures

**How do the people in
Germany take part in
public traffic on the
roads?**



Traffic safety in Germany – facts and figures

Modal split (2014)





Traffic safety in Germany – facts and figures

**How safe is public
traffic in Germany?**



Traffic safety in Germany – facts and figures

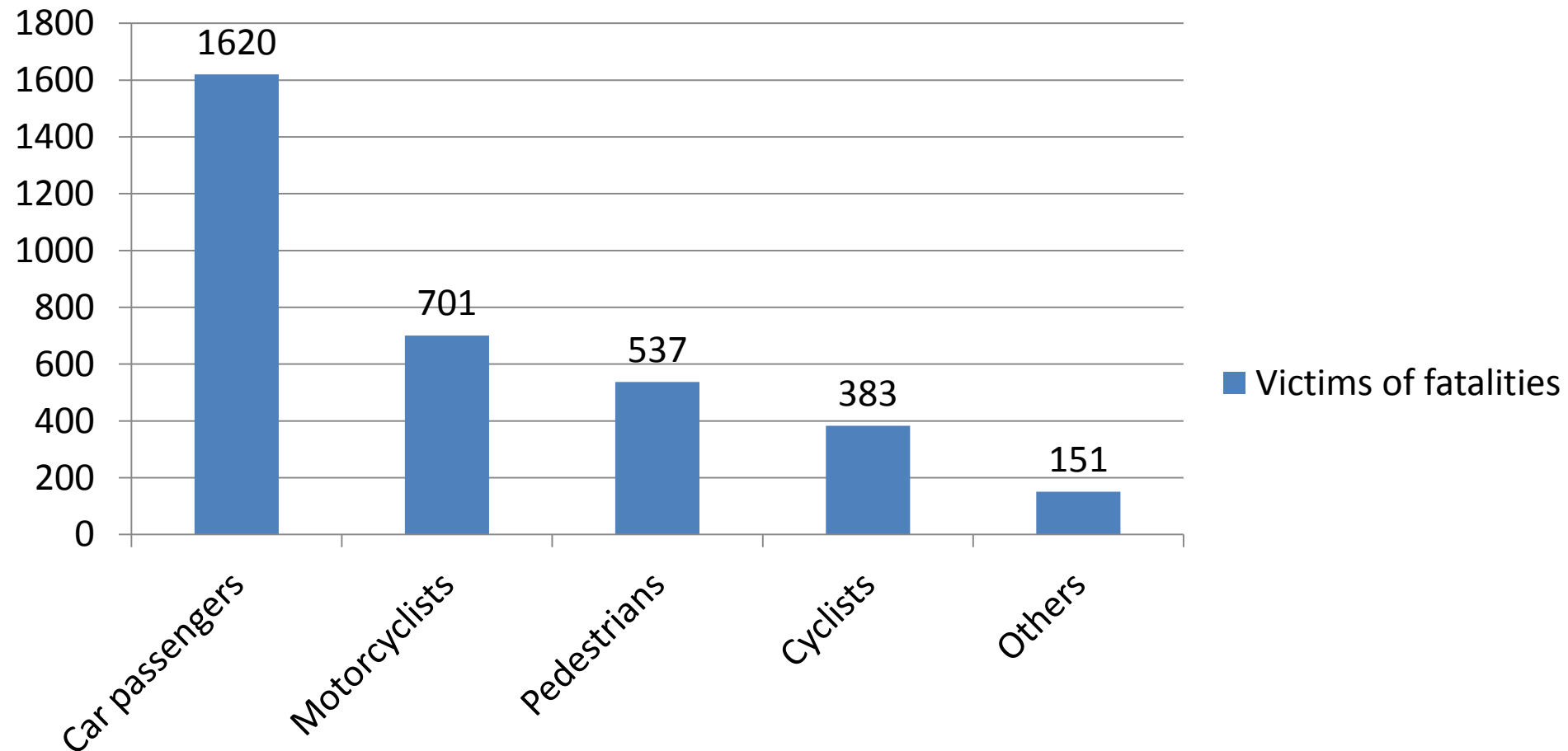
In Germany in 2015 we had ...

- **2.5 million** police reported accidents on the streets
- **4.5 million** insurance companies reported accidents
- **3.459 people died** in fatal crashes, among them **1.192** people died with the cause **of speeding**
- **366.448** people where **injured** in accidents



Traffic safety in Germany – facts and figures

Victims of fatalities





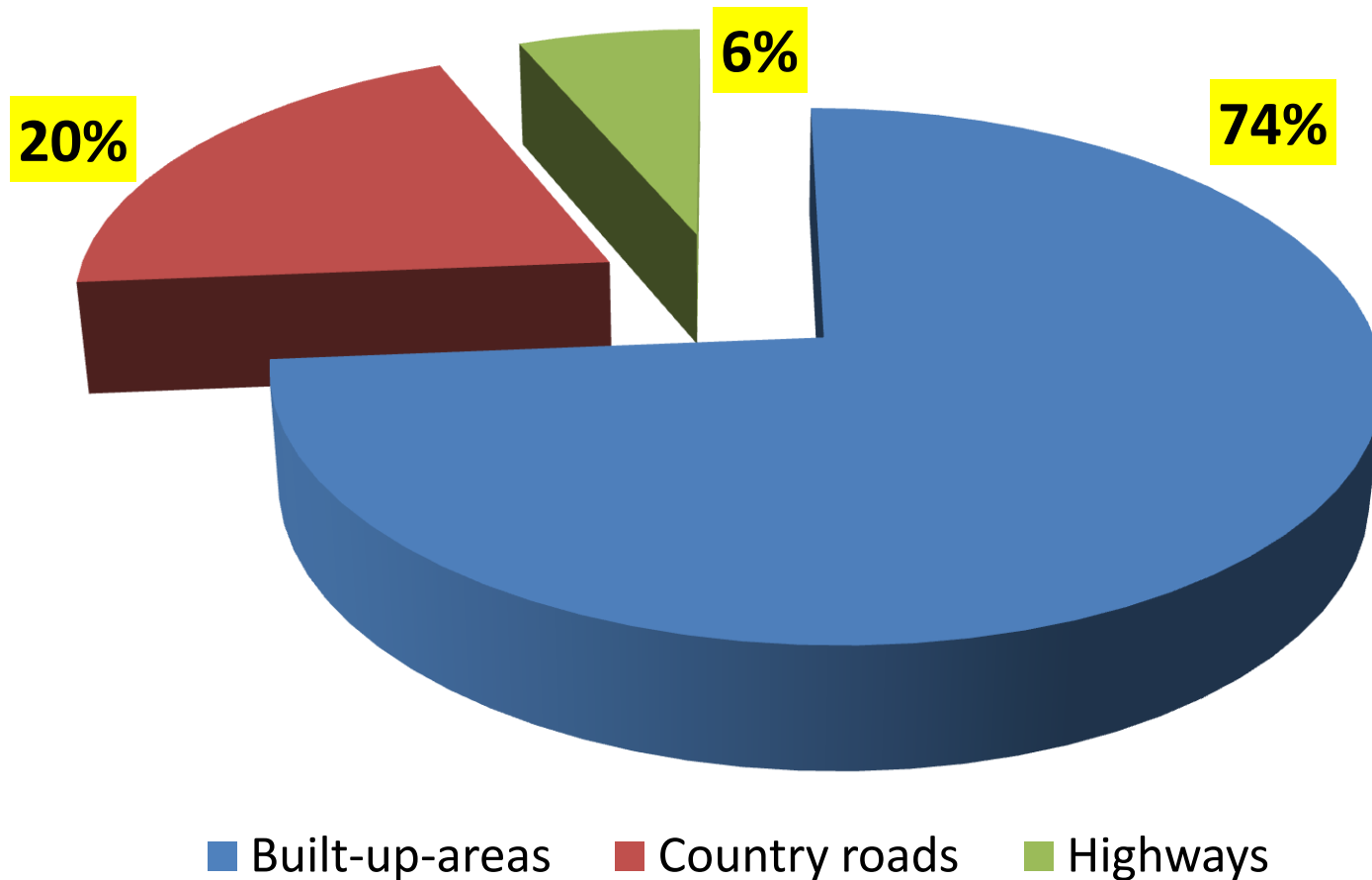
Traffic safety in Germany – facts and figures

**Where did police
reported accidents
happen?**



Traffic safety in Germany – facts and figures

Road types for accidents in 2015



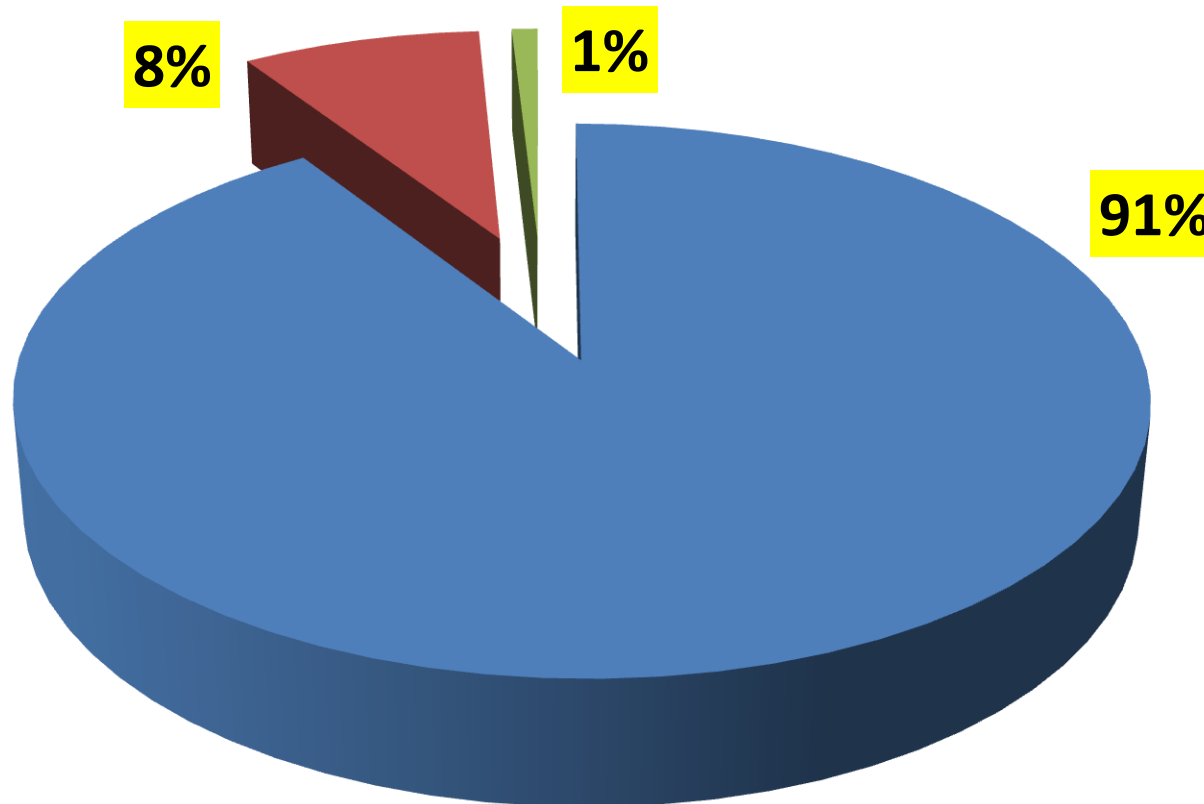


Traffic safety in Germany – facts and figures

**What are the top
causes for accidents
with injured people?**

Traffic safety in Germany – facts and figures

Causes for accidents with injured people in 2015



■ Driver errors

■ Bad conditions of streets

■ Failed car technology



Traffic safety in Germany – facts and figures

If driver errors cause 91 % of all accidents, should not police and public authorities spend 91 % of its work, to solve this problem?



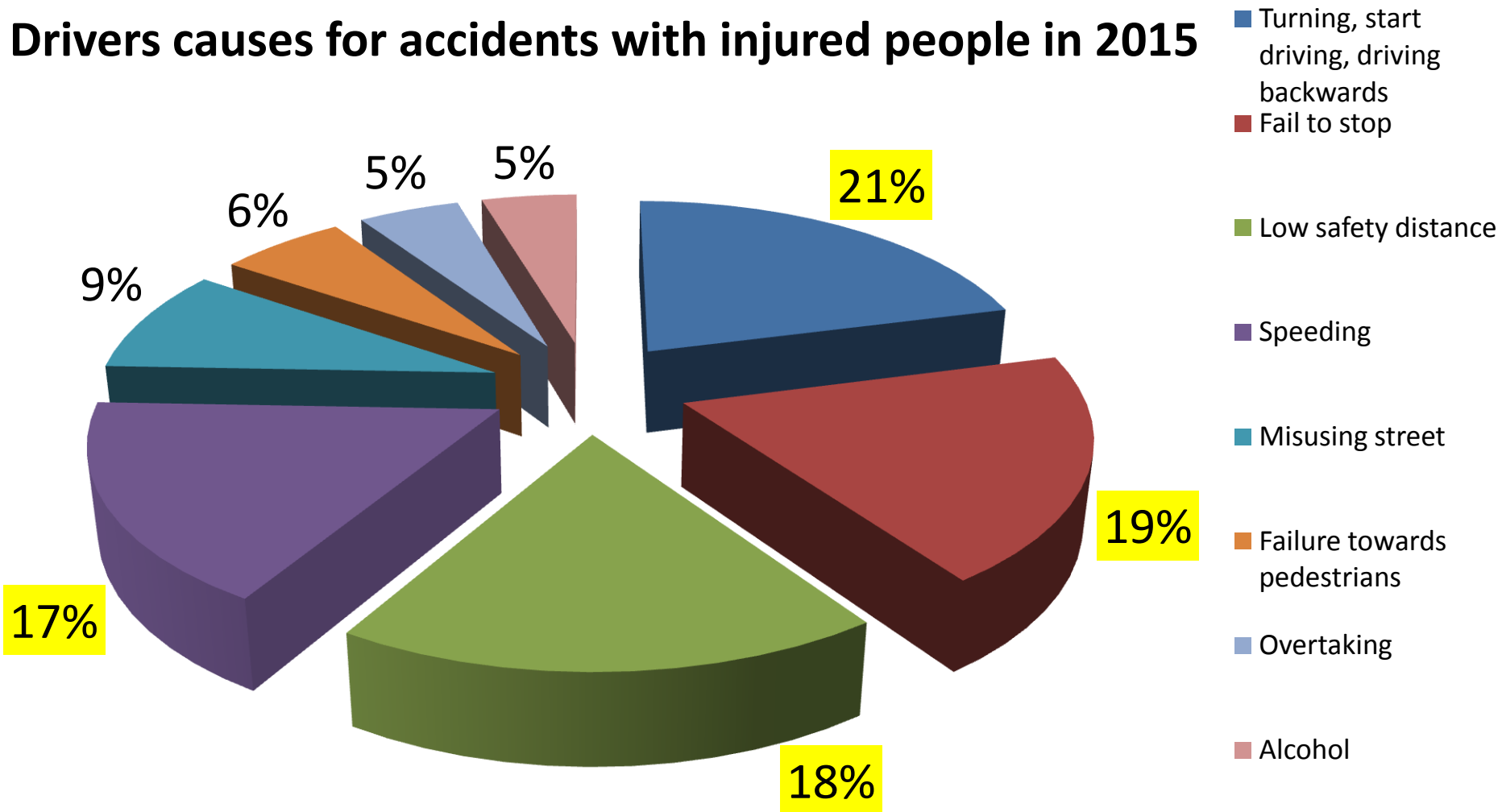
Traffic safety in Germany – facts and figures

**What kind of drivers
failures happened?**



Traffic safety in Germany – facts and figures

Drivers causes for accidents with injured people in 2015





Traffic safety in Germany – facts and figures

If low safety distance and speeding cause 35 % of all accidents, should not police and public authorities spend 35 % of its work, to solve these problems?



Traffic safety in Germany – facts and figures

**What were the
reasons of drivers
failures?**

Traffic safety in Germany – facts and figures

The main reason of drivers failures newly is
Distraction

Distractions and Teen Driver Crashes



https://www.youtube.com/watch?v=SDWmwxQ_NnY&feature=youtu.be



Towards „Vision Zero“

**How can we fight
against driver errors?**



Towards „Vision Zero“

Education

Enforcement

Vision Zero

Engineering

Public relations



Towards „Vision Zero“

**What could be the
task for traffic law?**



Towards „Vision Zero“



We need well
prepared
people, who
make traffic law



Understandable
traffic law leads
to obey it





German traffic law

Level

1

**Constitutional Law for the
Federal Republic of Germany**

gives framework for ...

2

Federal Law

gives framework for ...

3

Federal Regulations

gives framework for ...

4

Public Administration Law



German traffic law

**What is the most
important traffic
law?**



German traffic law

Constitution Article 2

(2) Every person shall have the right to life
and physical integrity. ...



German traffic law

Article 2

- Life
- Physical integrity

State is responsible

- Protective work
- With his whole staff and all institutions



German traffic law

Most important is the **German Road Traffic Act (StVG)** with rules for ...

1. Driving licence,
2. Car licence,
3. Important traffic crimes and offences,
4. Demerit point system.



German traffic law

Checks and
balance law

Vehicle law (FZV)

Road users law
(StVO)



German traffic law

**What is necessary to
secure traffic safety?**



German traffic law

**We have to improve
the drivers!**

**Even against their
intention!**



German traffic law

Will fines be helpful?

Yes, but ...



German traffic law

- There are a lot of offenders on the streets of Germany. Nobody knows how many ...
- Offenders nowadays will expect only fines, which are around the lowest level in Europe.
- Higher **fines** could be helpful! But not alone ...
- Nearly all ministries of the interior in the German member states reduced it's police officers in the last decade massively and now facing the problem of a lack of police officers on the streets to stop offenders.
- More police officers are necessary!



German traffic law

Table: Penalties for speeding in built-up areas (passenger cars, other motor vehicles with a maximum permissible weight not exceeding 3.5 tonnes)

Speed limit exceeded by [kph]	Euros	Points	Suspension of driving licence [months]
Up to 10	15		
11 to 15	25		
16 to 20	35		
21 to 25	80	1	
26 to 30	100	1	
31 to 40	160	2	1
41 to 50	200	2	1
51 to 60	280	2	2
61 to 70	480	2	3
Over 70	680	2	3



German traffic law

Table: Traffic light offences

Offence	Euros	Points	Suspension of driving licence [months]
Failure to stop at a red traffic light	90	1	
Failure to stop a red traffic light, thereby	200	2	1
<ul style="list-style-type: none"> • endangering other road users or • damaging property 	240	2	1
Failure to stop at a traffic light that has been showing "red" for more than 1 second	200	2	1
Failure to stop at a traffic light that has been showing "red" for more than 1 second, thereby	320	2	1
<ul style="list-style-type: none"> • endangering other road users or • damaging property 	360	2	1



German traffic law

**New enforcement
technic could be
helpful!**

**Against speeding
Against low distance**

German traffic law



**Section Control
stationary:**

**Average speed
monitoring
from fixed sites**

German traffic law



**Low distance
monitoring mobile:**

**Safety distance
monitoring system
from different sites**

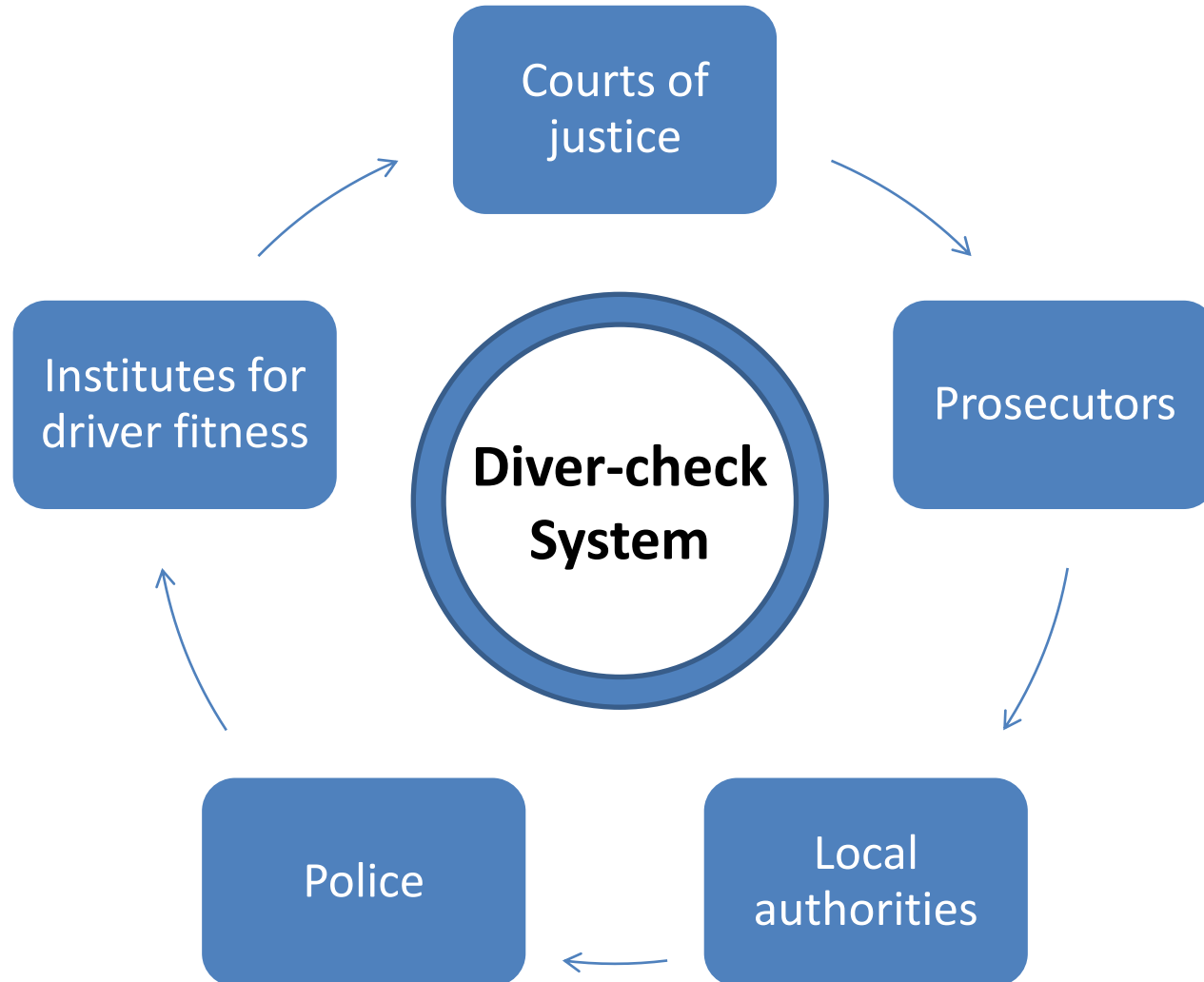


German traffic law

**What other
instruments could be
helpful?**



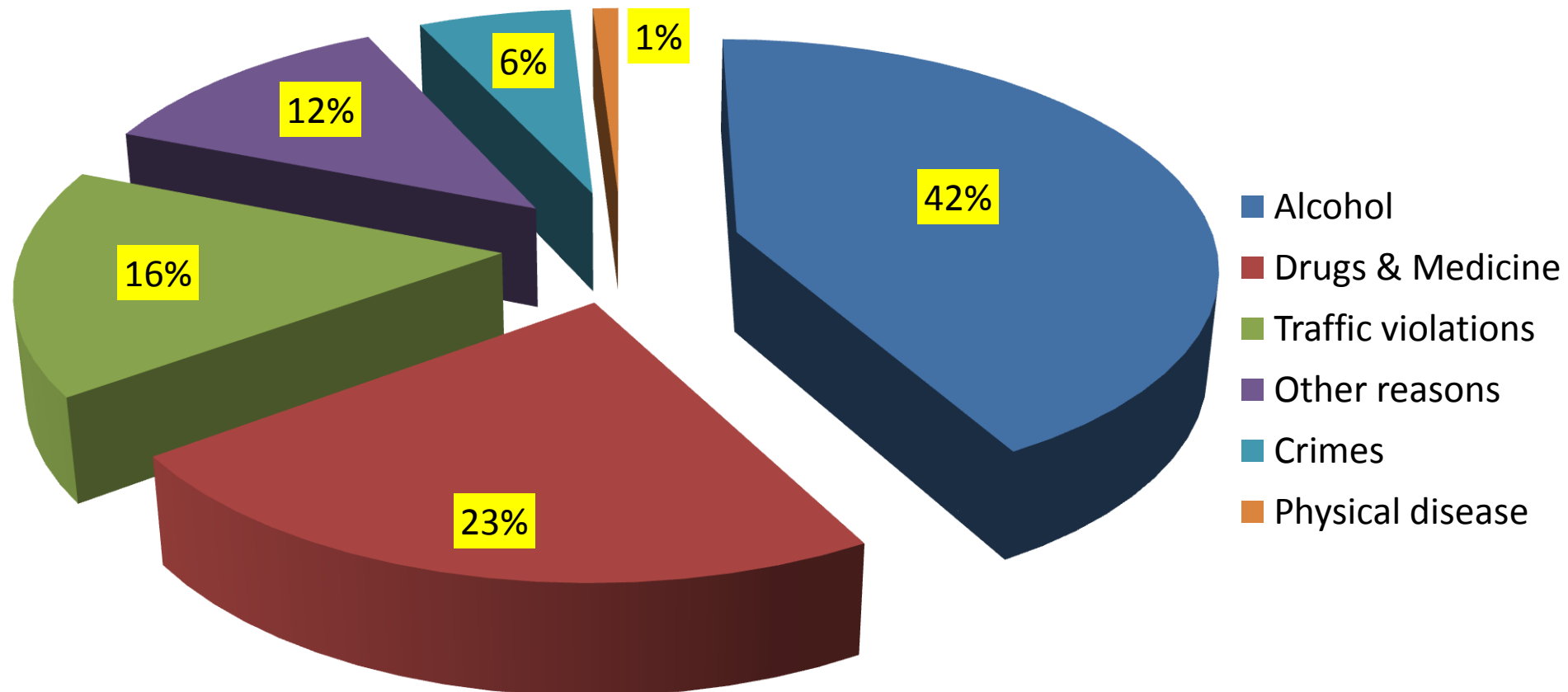
German traffic law





German traffic law

Medical-psychological Test-System 2014





Partners in traffic safety work

**Are there some more
instruments, which
could be helpful?**

Partners in traffic safety work

We need strong partners in the field of traffic safety like ...

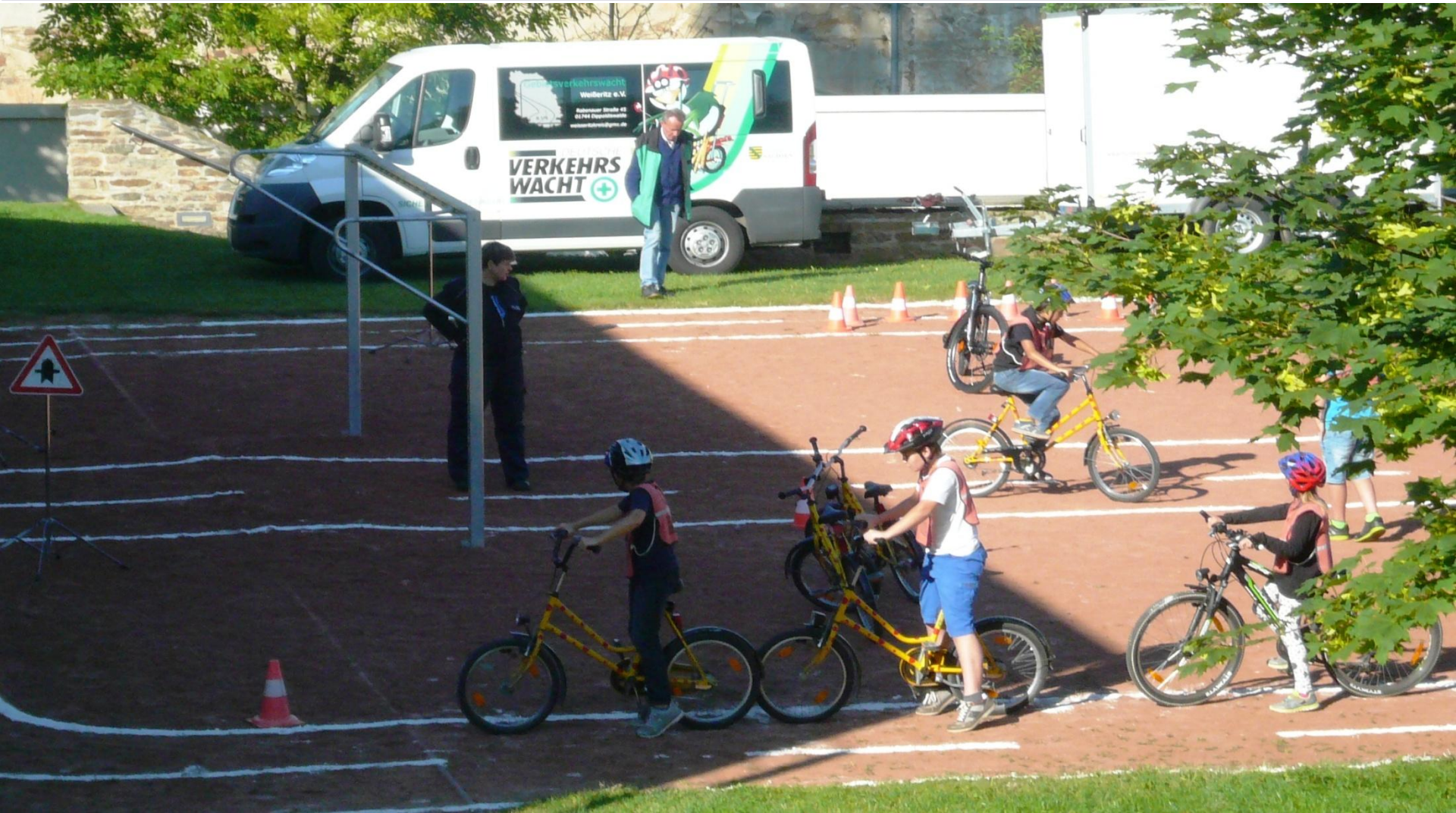
1. German Association for Prevention of Road Accidents (DVW)
2. German Road Safety Council (DVR)
3. European Traffic Police Network (TISPOL) etc.



Deutscher
Verkehrssicherheitsrat



Partners in traffic safety work – volunteers





Automated and autonomous driving

Two road safety-related issues are in the center of public attention:

1. Possible benefits of automated functions in vehicles and ...
2. Possible risks of Distraction as a result of using Cell-phones or tablets while driving or walking.

Automated and autonomous driving

Between chances ...



<https://www.youtube.com/watch?v=CqSDWoAhvLU>

and risks ...



The dashboard of a BMW with its ConnectedDrive.

© BMW

and better shown risks ...



The dashboard of a Tesla Model S with its Autopilot.

© David Paul Morris/Bloomberg



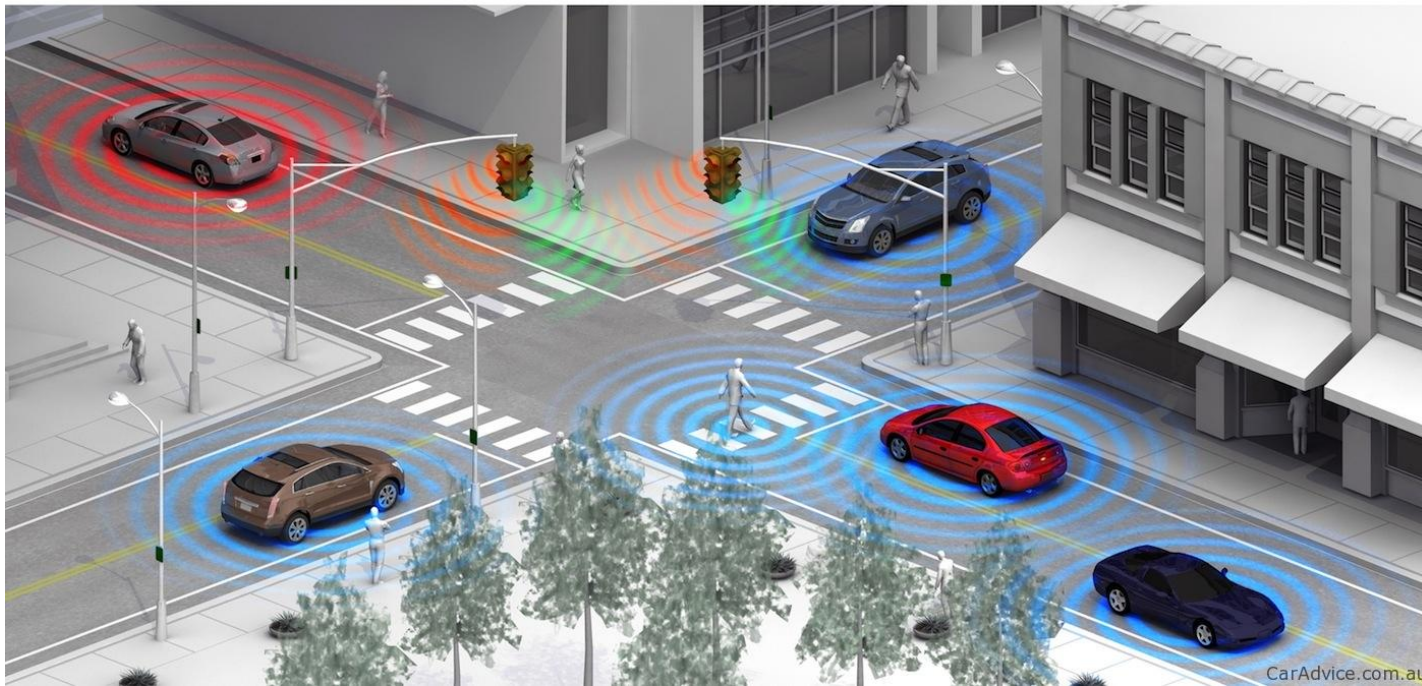
Unsolved problems of autonomous driving ...

1. Who is responsible in case of an accident?
 - a) The building factory?
 - b) The software engineer?
 - c) The owner of the car?
 - d) The driver, who put his hands of the steering wheel?

This could be a look into the future ...



GM ACTIVE SAFETY TECHNOLOGIES: BUILDING BLOCKS FOR AUTONOMOUS DRIVING





Do you have any questions?

Nobody is perfect, ...
not even in road traffic!
So let's work together,
to improve traffic safety ...
... all over the world.



感谢大家倾听我的发言。



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