

Lernaufgabe zum Thema „Innovative Verkehrskonzepte am Beispiel autonomer Fahrzeuge“

Introduction: The race to lead autonomous vehicle development has begun. New digital technologies are driving demand for *smart connected products*¹ like self-driving cars. Forecasts predict many trillions of dollars of economic activity from new and existing automakers, *shared mobility services*², and an increasingly varied auto supply chain over the next few decades. Thus autonomous driving is one of the key concepts of future mobility. Especially electric vehicle producers like US based *Tesla* or less known Chinese *Pony.ai*, a company backed by Toyota, own fleets of robotaxis in US, Japan and China.

You can already *summon*³ these taxis on Android and iOS in Irvine, California or bigger Chinese cities. All fleets have accumulated millions of miles already in road testing and will change not only our way of moving but also our perception of mobility itself.

The following tasks will introduce you to this exciting topic. **Have fun!** 😊

Annotation:

1 (über das Internet) vernetzte Systeme, 2 carsharing – Dienste, 3 anfordern, bestellen, rufen

M 1



Source: <https://www.plm.automation.siemens.com/global/de/industries/automotive-transportation/autonomous-vehicles.html>

Tasks (work in groups of three or four students):

1. Describe picture **M 1** and name at least five differences to the conventional (use of) cars.

M 2

Intelligent Autonomous Vehicle (AV) Development

At the heart of self-driving vehicles resides powerful embedded software, chips, and electronics. These vehicles will rely heavily on artificial intelligence, and as a result, they will require extensive testing, verification, and validation.

Being highly complex machines, AVs will involve cross-domain engineering from integrated circuit design to city infrastructure and vehicle deployment. To tackle this complexity and facilitate validation, an integrated solution of simulation, testing, virtual validation, and engineering is required.

Source: Refer to M 1

2. a) Try to figure out the information given in M 2. Use Your device (tablet or smartphone).
b) Discuss within your partners, in how far auto repair shops, driving schools etc. will have to adapt considering the mentioned changes. **M 2** will help you to get some ideas!
Use table **M 3** to note down your results.

M 3

auto repair shops	
--------------------------	--

driving schools	
car factories	
police	

M 3 Uber's self-driving operator charged over fatal crash

The back-up driver of an Uber self-driving car that killed a pedestrian has been charged with negligent homicide.

Elaine Herzberg, aged 49, was hit by the car as she wheeled a bicycle across the road in Tempe, Arizona, in 2018.

Investigators said the car's safety driver, Rafael Vasquez, had been streaming an episode of the television show “*The Voice*” at the time.

Ms Vasquez pleaded not guilty, and was released to await trial.

Uber will not face criminal charges, after a decision last year that there was "no basis for criminal liability" for the corporation.

Source: BBC News from 16 September 2020 under <https://www.bbc.com/news/technology-54175359>

4. a) friend of yours doesn't speak English. He discovered the article **M 3** on BBC and would like to know what it is talking about. Try to give a short summary in German.

b) Describe the **ethical problem** that is involved in self-driving vehicle technology.

5. Analyse film M 5 (change your perception) and comment on the issue that future mobility needs us **to change our perception**.