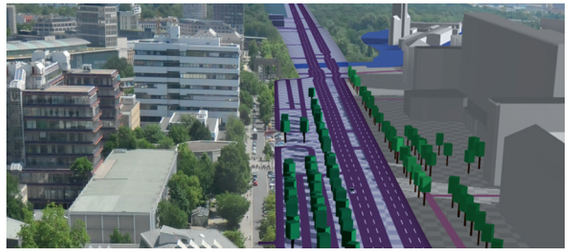


Combining this with other environmental and traffic data, such as weather conditions, environmental pollution and traffic volumes, results in safer realization of automated driving.

4. DATA OPTIMISATION AND PROVISION

During the development and validation of DIGINET-PS, large amounts of data need to be exchanged between vehicles and the intelligent infrastructure.

- The flexible network infrastructure facilitates intelligent flow management, which continuously ensures secure and reliable connection to the vehicles.
- Aggregation on the infrastructure side and the interim analysis of sensor data enable quick reduction in the amount of data that has to be transferred and minimize the time wasted when displaying the current vehicle status within the DIGINET-PS control centre.

This ensures that the autonomous vehicle can operate safely at all times.

5. NEW SERVICES AND APPLICATIONS

DIGINET-PS enables users of automated driving to get involved in its development. New apps show free parking spaces, convey users of the newly established “University-Shuttle” among buildings and facilitate surveys and experience reports.

6. OPEN TEST ENVIRONMENT

As an open test environment for testing other applications for automated and connected driving in cities, DIGINET-PS has been designed to meet current and future challenges in urban mobility. The project is carried out with the aid of continuous communication with other stakeholders and implementation partners.

Key partners

Implementation partners
Berliner Verkehrsbetriebe BVG, Cisco Systems GmbH, Fraunhofer IOSB, Hella Aglaia Mobile Vision GmbH, HERE Europe BV, IAV, Senatsverwaltung für Umwelt, Verkehr und Klimaschutz Berlin, TÜV NORD AG

Contact person
Prof. Dr. Sahin Albayrak, Technische Universität Berlin / DAI-Labor, Sekr. TEL 14, T 030 – 314 74001, info@diginet-ps.de | www.diginet-ps.de

Funding
The DIGINET-PS test field is funded by the Federal Ministry of Transport and Digital Infrastructure (BMVI) within the scope of the funding directive entitled ‘Automated and networked driving on digital test fields in Germany.’

Federal Ministry of Transport and Digital Infrastructure

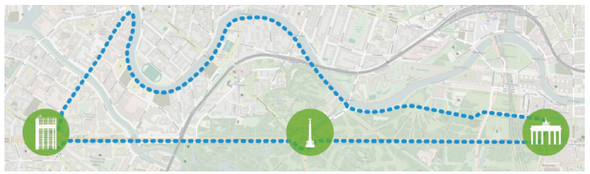
DIGINETPS

The digitally connected protocol route

Urban test field for automated and connected driving in Berlin

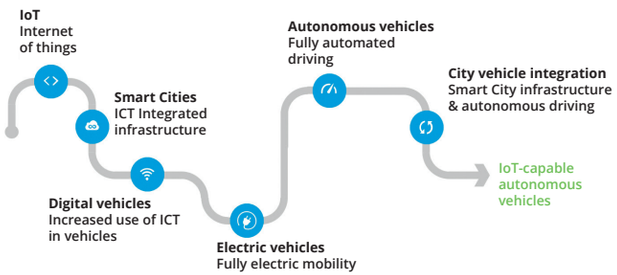
DIGINET-PS: THE DIGITALLY CONNECTED PROTOCOL ROUTE

DIGINET-PS develops and tests automated and connected driving under real-life conditions at the centre of Berlin. The urban test field set up along the *Strasse des 17. Juni* is open to research and industry to face the challenges of automated driving within mixed urban traffic situations.



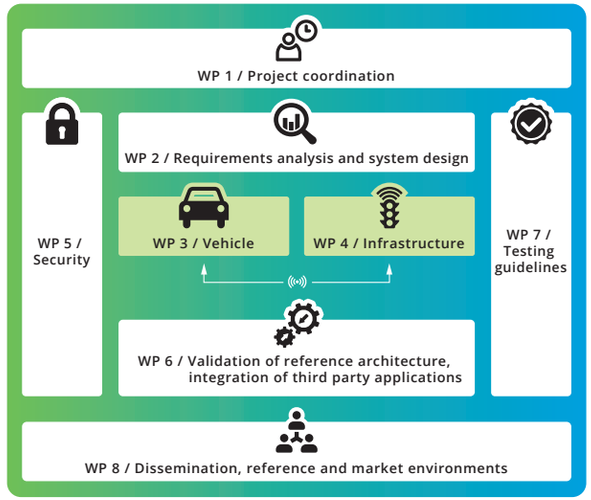
OBJECTIVES

- Development of a real digital infrastructure and a virtual test and validation environment for autonomous vehicles
- Establishment of an open and scalable platform for testing automated and connected driving
- Establishment of an ecosystem of key players who are working on the future of automated mobility and the collaborative development of new applications



CORE THEMES

DIGINET-PS is one of the first test fields in Germany operating in highly complex city traffic. The core elements of the project are the creation of a Smart City reference architecture, the development of the vehicle software as well as the integration and testing in a real environment.



Other challenges include the testing of complex applications, the secure exchange of data, the development of testing guidelines, the legal framework and networking with the research and market environments.

1. INTELLIGENT INFRASTRUCTURES

Smart City infrastructures form the basis for testing automated and connected driving functions. These encompass sensor technology that captures information on traffic and parking facilities, intelligent street lighting and traffic light systems as well as the connection of roadside communication infrastructure.

2. VEHICLE-TO-X COMMUNICATION TECHNOLOGY

Autonomous vehicles can make journeys more convenient, more efficient and safer by communicating with each other, with the infrastructure and with the central backend services. Communication methods include direct vehicle-to-X communication (ETSI ITS G5 standard) and the connection of intelligent road infrastructure via mobile communication technologies.

A connected vehicle will consequently know, for example, when a traffic light switches to green and can react quickly. The coordination of collective driving manoeuvres is also made possible by this interconnection, which can include driving in convoy and collectively stopping safely at traffic lights with minimum gaps.

3. TRAFFIC SAFETY

Autonomous vehicles continuously register their entire environment by using a large number of sensors. Cameras, radar and laser scanners register information 360 degrees around the vehicle. These provide highly accurate measurements of the distances of static and dynamic objects such as other vehicles, pedestrians and cyclists.

Information from the sensors is merged into a virtual environment model. The vehicle then evaluates the current situation and plans the next driving action accordingly. Cutting-edge methods such as artificial intelligence and machine learning are used. Training and validation data is collected and made available for this in DIGINET-PS.