



In order to overcome the challenges described, the National Experimental Test Center for Unmanned Aircraft Systems is to play a central role as an enabler for future research and development in the field of new UAS technologies at DLR as well as for external partners. In this sense, the following topics are part of the DLR portfolio:

Test and Validation

Certification

Demonstration

Training

Services and Consulting



DLR at a glance

The German Aerospace Center (DLR) is the national aeronautics and space research centre of the Federal Republic of Germany. Its extensive research and development work in aeronautics, space, energy, transport, security and digitalisation is integrated into national and international cooperative ventures. In addition to its own research, as Germany's space agency, DLR has been given responsibility by the federal government for the planning and implementation of the German space programme. DLR is also the umbrella organisation for the nation's largest project management agency.

DLR has approximately 8200 employees at 25 locations in Germany: Cologne (headquarters), Augsburg, Berlin, Bonn, Braunschweig, Bremen, Bremerhaven, Cochstedt, Cottbus, Dresden, Goettingen, Hamburg, Hannover, Jena, Juelich, Lampoldshausen, Neustrelitz, Oberpfaffenhofen, Oldenburg, Rhein-Sieg-Kreis, Stade, Stuttgart, Trauen, Ulm and Weilheim. DLR also has offices in Brussels, Paris, Tokyo and Washington D.C.

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for Unmanned Aircraft Systems



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National Experimental Test Center for Unmanned Aircraft Systems

With the National Experimental Test Center for Unmanned Aircraft Systems, a novel test facility is to be established that combines the necessary skills and expertise, and which will allow the entities involved in the development of Unmanned Aircraft Systems (UAS) to work in an interdisciplinary manner. The test centre will thus serve as a cornerstone for the further development of UAS technologies and thereby play a pioneering role in the enhancement of scientific and economic progress in the field of UAS.

Increased complexity requires more cooperation

The use of UAS at a commercial scale and joint operations in airspace with manned aircraft poses new challenges for researchers, manufacturers, operators and legislators alike. In addition to the purely technical aspects, the integration of UAS into the airspace also gives rise to complex legal and procedural issues that must be investigated and redefined or regulated. In view of the complexity of the challenge, a compartmentalised approach to dealing with the individual components that make up the entire system (craft separately from air traffic, separately from legal regulation) is no longer sufficient. Hence, they need to be considered, tested, validated and certified conjointly. Since none of these issues can be understood and solved by manufacturers, users or legislators alone, collaboration and support from the research community is of increasing significance in terms of forming links for both technical and regulatory issues.

Enabler for a network of new testing methods and capabilities

While global research has, in the past, been limited to a manageable number of UAS tests, the rapid growth of the entire sector will also require significant increases in system testing to enable whole-system technology development. As a result, there is a need for new test methods and possibilities, which do not yet exist in the required form. Therefore, a network incorporating all future activities at the respective test fields needs to be established, within which the National Test Center will play a central and integrative role.

Through the National Experimental Test Center, DLR will pursue the following objectives:

- strengthening research for unmanned aircraft systems
- coordinate the network of nationwide test fields and reconcile the activities on an international level
- act as a driving force for the integration of UAS into the airspace and develop new concepts for unmanned aircraft systems by strengthening research at DLR (validation and qualification of new UAS technologies)
- support industry and the scientific community in technological areas and the verification process
- function as an incubator and enabler for start-ups and SMEs
- support government and public authorities in legislative and regulatory matters as well as issues of public interest (safety, noise, etc.)
- validate innovative aircraft concepts employing scaled demonstrators



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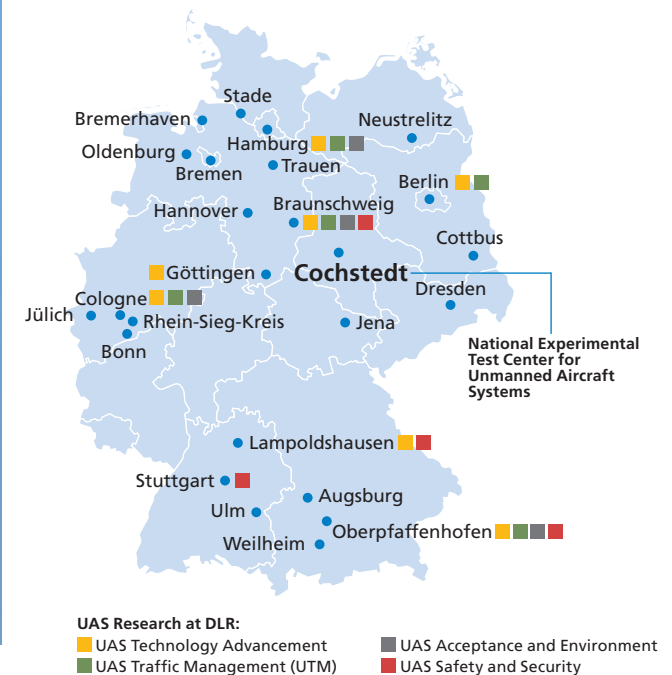
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Test center infrastructure

Airport infrastructure

- Airport with a tower, controlled air space and a securable safety zone
- Runway with a length of 2600 metres
- Safety equipment and a fire brigade
- Offices and meeting rooms
- Planned: Remote Tower, GBAS ground station, larger hangar facilities
- Access to other DLR research facilities



UAS-specific infrastructure (planned)

- Mission control centre
- UAS-Workshop (including prototyping capabilities)
- Data links (LTE/5G, VHF, WLAN, ad-hoc networks)
- GNSS as well as local systems for augmentation
- Laser- and radar-based precision location methods
- Storage facilities for lithium-ion batteries
- (Variable) test or obstacle course for testing in an urban environment
- (Mobile) take-off and landing platform