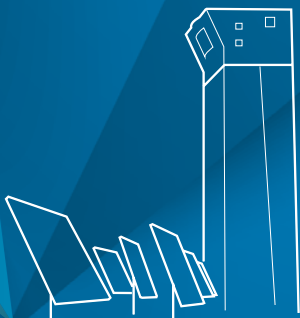
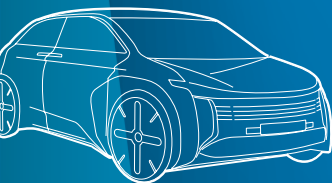


DLR at a glance



The German Aerospace Center (DLR)

DLR is the Federal Republic of Germany's research centre for aeronautics and space. We conduct research and development activities in the fields of aeronautics, space, energy, transport, security and digitalisation. The German Space Agency at DLR plans and implements the national space programme on behalf of the federal government. Two DLR project management agencies oversee funding programmes and support knowledge transfer.

Climate, mobility and technology are changing globally. DLR uses the expertise of its 55 research institutes and facilities to develop solutions to these challenges. Our 10,000 employees share a mission – to explore Earth and space and develop technologies for a sustainable future. In doing so, DLR contributes to strengthening Germany's position as a prime location for research and industry.

A wide-ranging portfolio

DLR's work is diverse and geared towards the needs of society. It focuses on research in the areas of mobility, energy, communications, security, digitalisation and, of course, aeronautics and space, which gave DLR its name 60 years ago.

Its mission thus comprises the exploration of Earth and the Solar System and research for protecting the environment. DLR's portfolio ranges from fundamental to applied research, and through to the development of the innovative products for tomorrow. In this way, DLR contributes the scientific and technical expertise that it has acquired to strengthening Germany as a location for industry and technology.

DLR also operates its own large-scale research facilities, some of which are unique. DLR uses these for its own projects, but also makes them available to customers and project partners. It also fosters the development of the next generation of researchers, provides expert advisory services to government, and is a driving force in the regions where its facilities are located.



-  **SPACE**
-  **ENERGY**
-  **GERMAN SPACE AGENCY AT DLR**
-  **AERONAUTICS**
-  **DIGITALISATION**
-  **DLR PROJECT MANAGEMENT AGENCY**
-  **TRANSPORT**
-  **SECURITY**



Economical and efficient flight

DLR is the largest aeronautics research institution in Europe. The air transport of the future will be environmentally friendly, quiet, safe and efficient. It connects people and markets, thus making an important contribution to the mobility needs of society.

DLR is developing solutions for innovative technology and processes in order to open up new prospects for aviation. Thanks to its know-how of the entire aviation system, DLR is presenting well-founded proposals for the next but one generation of aircraft. It is working together with industry on national guiding concepts and international programmes for the implementation of key technologies. Its aeronautics research aims to avoid pollutant emissions from aircraft, to develop unmanned aerial systems and to consistently digitalise aviation – from product development, through to virtual certification, manufacture and maintenance.

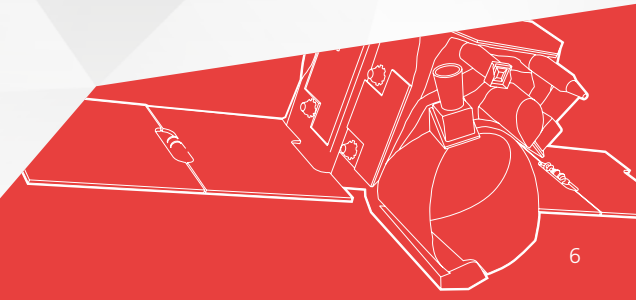
With its interdisciplinary research, DLR covers the entire air transport system – from individual components to the technical challenges of entire aircraft, through to the complex interplay of air transport.

High-tech for spaceflight – near and far from the Earth

DLR's space research contributes towards addressing societal challenges such as global change, secure communications, health and demographic change. Its research and development work covers all areas of technology and applications in spaceflight.

To this end, DLR develops spaceflight infrastructures and technologies. Its activities range from the development of new engines, through to the development and use of satellites and spacecraft. It is also working on new communications and navigation technologies. The aim of its research is to generate knowledge and technologies in the fields of climate research, environmental monitoring and disaster management. DLR's work also focuses on resource management and studies for the mobility of the future.

Through its space research, DLR is thus helping us to learn more about Earth's neighbouring bodies within the Solar System, with a view to deciphering the history and evolution of our planet and the Universe. The Space Research and Technology programme comprises Earth observation, communications and navigation, space exploration, research under space conditions, space transportation, robotics and technology for space systems.





Sustainable energy systems

DLR is developing sustainable energy systems for the future, making important contributions to a highly efficient energy supply in all societal and industrial areas of application, and thus plays a key role in the Energy Transition.

DLR is making key contributions towards a future energy system that does not require fossil fuels. It conducts research into efficient energy storage systems (thermal, electrical and chemical), wind and solar power plants, fuel cells, and environment-friendly gas turbines. Energy systems analysis rounds off the research with technology assessments and application scenarios.

It focuses specifically on optimal solar-thermal power-plant processes, efficient wind turbines and research into gas turbines of all sizes that are flexible in terms of loads and fuels. In addition, DLR researchers are working together across disciplines to develop next-generation heat and power storage systems. They are also international leaders in research into solar-thermal and electrochemical production, as well as the conversion and use of alternative fuels.



The mobility of the future

DLR conducts research into sustainable, future-oriented mobility. With its research and development work as well as studies, it occupies a leading position in the field of transport research – both nationally and internationally.

Transport research at DLR is based on a comprehensive understanding of mobility, the transport system and technology. As such, DLR's expertise is deployed in synergies. The main drivers of innovation are digitalisation for efficiency, security and service, on the one hand, and the coupling of the energy and transport sectors with the great potential of renewable energies, on the other. DLR's transport research focuses on technologies for vehicles, infrastructure and transport systems, while developing new mobility concepts that benefit both industry and society. The goals are to reduce congestion, delays, detours, pollution and accidents.



Technology for security

DLR's security research covers a wide range of areas, as most societal challenges – such as digitalisation, cybersecurity, mobility and the protection of critical infrastructures – are closely linked to this topic.

DLR is developing innovative organisational concepts and technologies for this purpose, as well as defence- and security-related action strategies, coordinating them with stakeholders in the economy, government and society. Multi- and interdisciplinary projects combine the core competencies of the established DLR aeronautics, space, energy and transport programmes. More than 25 DLR institutes and facilities contribute towards the development, testing and evaluation of technologies, systems and concepts, as well as to the analysis and evaluation capability of safety-relevant applications. DLR's defence, civil and maritime security research is oriented towards EU security and defence policy and takes into account internationally defined capability profiles for the purpose of protecting the population and ensuring peace. In doing so, it cooperates with key partners within Germany, in Europe and around the world to address security in its global dimension.

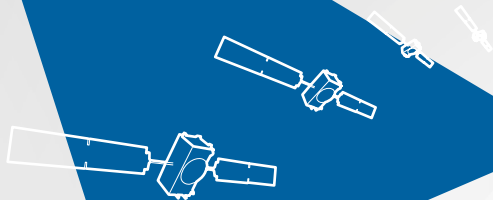
The world is becoming digital

DLR's cross-sectoral digitalisation area pools the expertise of its different research areas and supports the digital transformation of industry and society. For this purpose, it has expanded its portfolio with multi- and interdisciplinary projects.

'Digitalisation in the economy', for instance, involves using intelligent robotics in digitalised production and simulation processes for technical certification, as well as laser-based optical transmission of satellite data. In the field of 'Big and Smart Data / data science' the Big Data platform will make it possible to analyse large data sets from various sources.

DLR is also looking for new diagnostic methods for the safe operation of complex systems, and is working on the topic of cybersecurity for autonomous and networked aerospace systems. In the area of intelligent mobility, the goal of the work is an automated and networked overall transport system as well as the logical derivation and linking of geodata for a digital atlas.





Space activities of the German Federal Government

Working as a space agency on behalf of Germany's Federal Government, DLR is responsible for the planning and implementation of the German space programme. The German Space Agency at DLR integrates all of Germany's space activities at a national and European level.

These include the national space programme, DLR's space research and development programme, as well as German contributions towards the European Space Agency (ESA) and the European Organisation for the Exploitation of Meteorological Satellites (EUMETSAT). Some 1.1 billion euro is invested every year, of which two-thirds is allocated to German contributions to ESA programmes, such as those taking place on the International Space Station, the European Galileo navigation system and Earth observation programmes like Copernicus.

Around one third is earmarked for German space projects. This ensures cutting-edge research and technology 'made in Germany', while creating jobs and high-tech expertise within Germany. The Federal Government's space strategy is based on scientific excellence, technology expertise and a clear market orientation. The German Space Agency at DLR also represents the Federal Government in international committees.

DLR as a project management agency

The DLR Project Management Agency and the Project Management Agency for Aeronautics Research and Technology complement DLR's portfolio as an internationally recognised research institution and are important service providers for the German research, innovation and education system.

The DLR Project Management Agency offers a range of consulting and support services, including cooperation at the European and international levels. Its clients are primarily state and federal public-sector bodies, most notably the German government, but also educational institutions, foundations and industry associations, as well as the European Commission. With more than 1000 employees, it is one of the largest project management agencies in Germany.

The Project Management Agency for Aeronautics Research and Technology supports the German Federal Ministry for Economic Affairs and Energy and the federal states of Bavaria, Brandenburg, Hamburg and Lower Saxony in the implementation of their aeronautical research programmes. In addition, it acts as a national contact point for aviation research within the EU Framework Programme Horizon 2020.



Space for cutting-edge research and vocational training

DLR is a leading employer in the 'MINT' sector (Mathematics, Informatics, Natural Sciences and Technology). It supports pioneering work in its key areas of study, while providing a space for cutting-edge research.

DLR is regarded as an attractive employer and a desirable place to work for young and seasoned scientists alike in the fields of engineering, natural sciences, computer science and mathematics.

Every year, at DLR

- approximately 350 scientists are recruited
- approximately 700 research and thesis papers are drafted,
- approximately 400 interns are mentored.

In addition, DLR supervises more than 950 doctoral theses and publishes approximately 360 vacancies on its job portal annually.

DLR grants apprenticeships to around 75 young people every year, and had a total of 242 trainees at the end of 2018. They learn a profession across 12 sectors, including office managers, systems electronic engineers, industry mechanics and precision engineers, technical product designers, mechatronics technicians, chefs and photographers. DLR also offers six dual degree programmes.



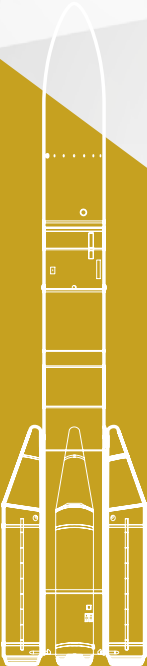
Open doors for young scientists

You are never too young to start investigating fascinating research topics. The DLR Campus concept for young talent combines diverse lines of action – from schools, to initiatives for students and programmes for doctoral students.

Of these, DLR_School_Labs is the flagship project: the 13 labs for school children – some of them based at the DLR sites themselves and others at universities – draw in around 40,000 pupils every year. The core element involves conducting their own experiments, which are always related to current DLR research.

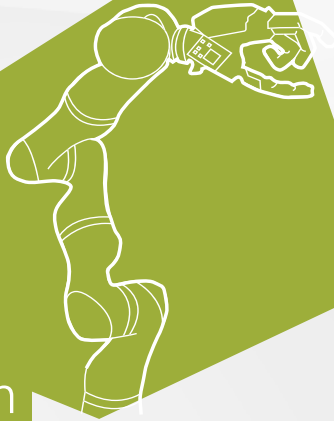
This is complemented by career-oriented internships, educational materials (which are periodically sent to thousands of schools) and the DLR youth portal DLR_next, together with its associated social media channel, inter-school competitions and much more. In the field of academia, DLR institutes offer the opportunity for student internships and final theses, along with idea contests, the DLR_Summer_Schools and other projects organised by DLR institutes or the DLR Space Administration.

Finally, through its DLR_Graduate_Program, DLR offers a cross-disciplinary graduate programme that equips young scientists with a top-class skills profile.





Green light for innovation



Innovation2gether – driving collaborative innovation with our institutes and cooperation partners from industry. This is the maxim of DLR Technology Marketing.

DLR Technology Marketing is the contact point for innovative companies of all sizes. It serves as a bridge between research and industry, and between the product idea, innovation and the market. DLR Technology Marketing shapes the process and sees it all the way through – from the initial idea to the successful market launch, while supporting the development of product-oriented technology at DLR. Particularly, it invests in innovative projects in order to strengthen technology transfer. These projects are carried out jointly with industry, particularly small and medium-sized enterprises (SMEs), as well as with other research institutions. By working with DLR, companies gain access to unique skills and technology that can unlock competitive advantages, giving them a head start and help in securing industrial property rights.

In addition, DLR supports its spin-off companies with tasks such as developing business models and looking for market-relevant applications. In some cases, they may be able to provide partnership participation and co-investment.

Large-scale facilities for DLR research and partners

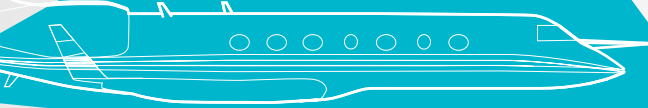
DLR operates numerous large-scale research facilities. These include rocket test stands, wind tunnels, engine and combustion chamber test benches, a solar furnace, plasma spraying units, a vehicle roller rig and driving simulators, as well as facilities for materials testing and laser research.

DLR also has access to Europe's largest test facility for concentrating solar technology – the Plataforma Solar de Almería, in southern Spain – and runs the solar tower at the test power plant in Jülich.

These 184 large-scale facilities allow researchers to study complex topics relating to aeronautics, space, energy, transport and security. These include issues relating to mobility, energy efficiency and storage, as well as materials and noise research.

The facilities not only accommodate their own projects, but are also accessible to customers and partners. Among other things, they research, simulate and test phenomena such as the flight and flow behaviour of large aircraft and spacecraft, new possibilities for energy use and storage, the navigation of aerial systems and traffic management, as well as subjects, such as the effects of microgravity on the human body.





A unique aircraft fleet

With 13 aircraft and helicopters, DLR is currently the operator of the largest civilian research aircraft fleet in Europe. This allows it to take on almost any mission, whether for its own institutes or for external clients.

The fleet is stationed at two locations. In Braunschweig, modified aircraft are themselves the subject of the research. They are used for flight tests, as well as materials and noise research.

Aircraft used as measuring and sensor platforms for atmospheric, climate and environmental research take off from Oberpfaffenhofen. Transport and security issues are addressed at both locations. As a result, DLR has the prerequisites for scientific services within its own research, as well as for national and international institutions, public authorities and industry.


In total, more than 100 technicians, engineers and pilots are responsible for the aircraft and helicopters; they all have highly specialised knowledge even reaching the level of a test pilot's licence. They take part in regular simulator training and can rehearse specific flying situations and flight conditions. There are numerous flight missions on the flight books every year. The flight tests take place over water, ice and land areas – from Greenland and Spitsbergen, over the equator, and through to the Antarctic.

Stay tuned

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 @DLR_en

 @DLRen

 @germanaerospacecenter



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