

# DLR at a glance

### Research and technology

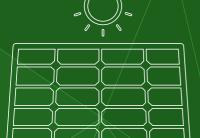
The German Aerospace Center (DLR) combines its research topics in a way that is unique in Germany and Europe. It makes pioneering contributions in the areas of aeronautics, space, energy, transport, security and digitalisation. With its scientific and technical expertise, DLR strengthens Germany's position as a scientific and economic location.

### **Space Administration**

DLR has been assigned the task of the German national space agency. Acting on behalf of the German Federal Government, the DLR Space Administration designs the German space programme and implements it in cooperation with national and international partners.

## **Project Management Agencies**

The DLR portfolio is complemented by the DLR Project Management Agency and the Project Management Agency for Aeronautics Research and Technology. These agencies support their clients with analyses and expertise, as well as in the planning, implementation and communication of funding programmes and other measures in research, education and innovation.

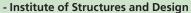


# 20 sites, 40 institutes and facilities, the Space Administration and **Project Management Agencies**

# Augsburg 🙋 🔀







- Institute of Composite Structures and Adaptive Systems

- Institute of Robotics and Mechatronics

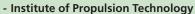
- Institute of System Dynamics and Control
- Institute of Test and Simulation for Gas Turbines

# Berlin 🙋 🔀 🔤 🔉









- Institute of Vehicle Concepts

- Remote Sensing **Technology Institute**
- Institute of Optical Sensor Systems
- Institute of Planetary Research
- Institute of Transport Research
- Institute of Transportation Systems
- DLR Project Management Agency

## Bonn 🚳



- Space Administration
- DLR Project Management Agency
- Project Management Agency for **Aeronautics Research and Technology**

# Braunschweig 🥝 🛪 👄 🕓









- Institute of Aerodynamics and Flow Technology
- Institute of Composite Structures and Adaptive Systems
- Institute of Flight Guidance
- Institute of Air Transport and Airport Research
- Institute of Flight Systems
- Institute of Transportation Systems
- Flight Experiments
- Simulation and Software Technology

## Bremen 🕝





- Remote Sensing Technology Institute
- Institute of Space Systems

## Bremerhaven (1)



- Institute for the Protection of Maritime Infrastructures

# Cologne 2





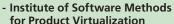




- Institute of Aerodynamics and Flow Technology
- Institute of Propulsion Technology
- Institute of Air Transport and **Airport Research**
- Institute of Aerospace Medicine
- Institute of Materials Physics in Space
- Institute of Solar Research
- Institute of Engineering Thermodynamics
- Institute of Materials Research
- Space Operations and **Astronaut Training**
- Simulation and Software Technology
- DLR Project Management Agency

## Dresden 😽





# Göttingen







- Institute of Aerodynamics and Flow Technology
- Institute of Aeroelasticity
- Institute of Propulsion Technology

# Hamburg 🥝 🔀 🚍







- Institute of Aerospace Medicine
- Institute of Air Transportation **Systems**
- Institute of Maintenance, Repair and Overhaul
- Institute of System Architectures in Aeronautics

# Jena





- Institute of Data Science

# Jülich

- Institute of Solar Research

## Lampoldshausen 🥝 🤫





- Institute of Space Propulsion
- Institute of Technical Physics

## Neustrelitz 4



- Institute of Communications and Navigation
- Remote Sensing Technology Institute
- German Remote Sensing Data Center

# Oberpfaffenhofen 🙋 🧭 🚭 🔇











- Microwaves and Radar Institute
- Institute of Communications and Navigation
- Remote Sensing Technology Institute
- Institute of Atmospheric Physics
- Institute of Robotics and Mechatronics
- Institute of System Dynamics and Control
- German Remote Sensing Data Center
- Flight Experiments
- Space Operations and Astronaut Training

# Oldenbura



- Institute of Networked Energy Systems





and Adaptive Systems



- Institute of Composite Structures

# Stuttgart 4





- Institute of Structures and Design
- Institute of Vehicle Concepts
- Institute of Solar Research
- Institute of Technical Physics
- Institute of Engineering Thermodynamics
- Institute of Combustion Technology

# Trauen 🙋



- Institute of Propulsion Technology

# Weilheim 2

- Space Operations and Astronaut Training





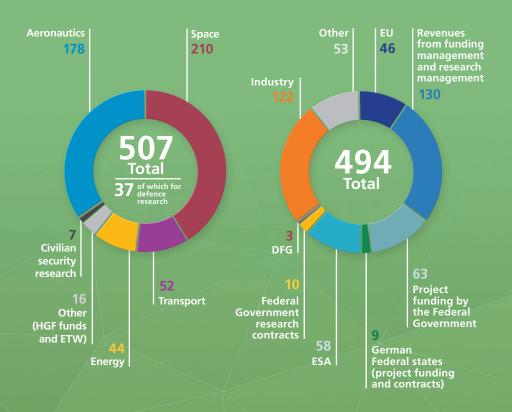






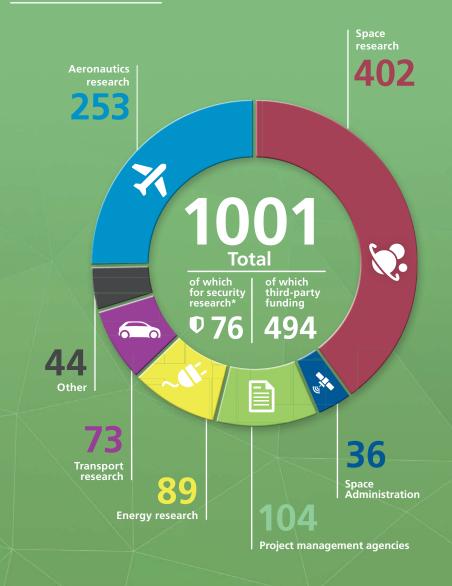
### **Institutional funding**

### Third-party funding by source



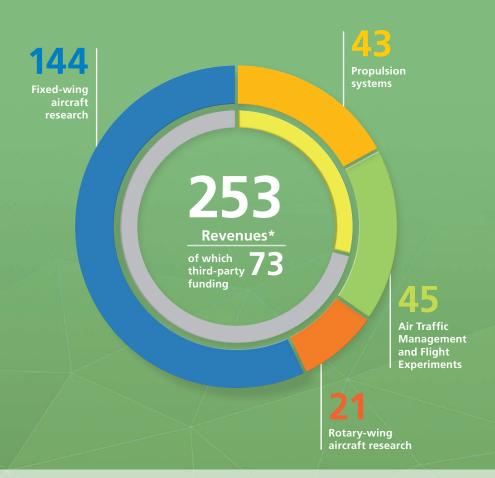
DLR's own research is financed up to 90 percent by funds provided by the German Federal Government, with the remaining 10 percent provided by the Federal States. In addition, DLR acquires funds from a variety of sources for its transfer and contract research. For example, it receives approximately 122 million euro from industrial contracts – an amount that testifies to the high quality and relevance of DLR's research and development activities. DLR also applies for national and European project funding. In addition, DLR operates as a service provider through the Project Management Agencies and the Space Administration, and generated revenues of 130 million euro in 2017.

## Total budget







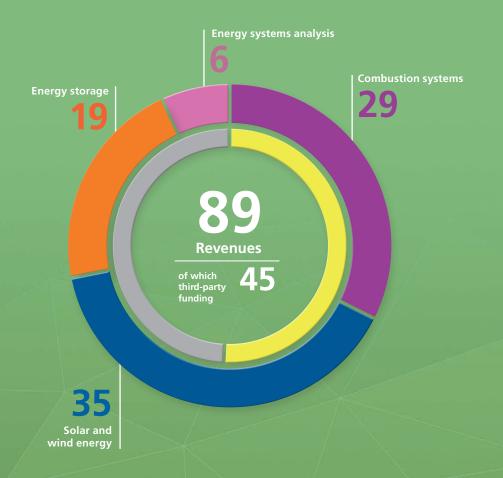


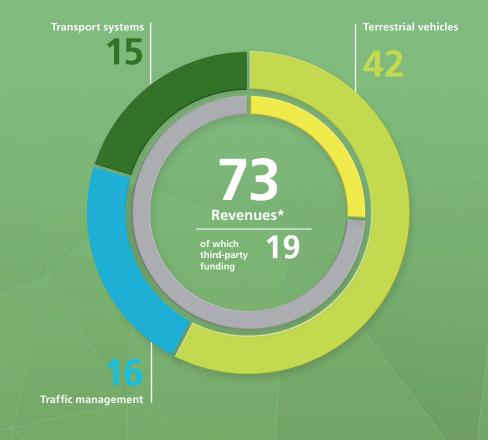
In the area of aeronautics research, DLR is facing the challenge of making the fast-growing air transport sector efficient, safe and environment friendly. Among other issues, DLR scientists are conducting research into the digitalisation of aviation, electric flight and unmanned air transport. Drawing on the scientific excellence of its institutes, its research infrastructure, and Europe's largest fleet of civilian research aircraft, DLR is in a position to consider air transport systems from a holistic perspective and hence to strengthen the competitiveness of the national and European aviation industry.



Space research has penetrated many areas of our daily lives. DLR space research activities focus on climate change, digitalisation, as well as new communications and navigation technologies. It covers the entire system chain – from launcher engines to payloads on Mars, and from the development of scientific and technological fundamentals through to their application in space and on Earth. Research is focused on addressing various societal challenges and aims to achieve the maximum benefits for society.







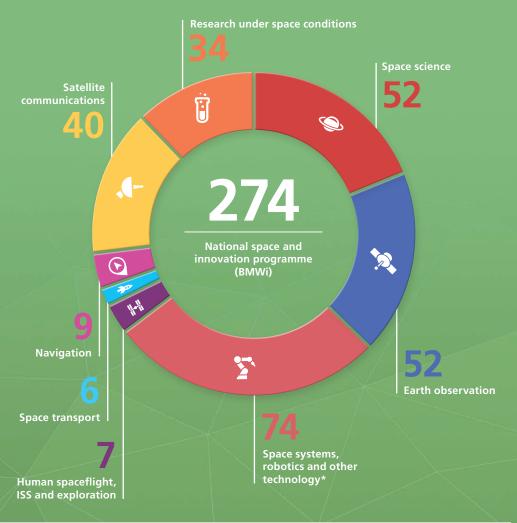
In Germany and the world over, work is being carried out on converting energy systems into climate-friendly, low-risk energy sources, alongside the development of highly efficient exploitation technologies. For this, DLR's energy research provides technological possibilities and contextual knowledge through systems analysis. The work mainly targets sustainable and controllable power generation along two paths. On the one hand, through the use of fluctuating renewable energy sources in conjunction with storage systems, and on the other hand, through the use of low-carbon-dioxide or carbon-dioxide-free fuels in efficient energy converters.

Realising sustainable mobility in a balance of interests between the economy, society and the environment is the driving force behind DLR's transport research. It addresses the key challenges facing future mobility on the ground: efficiency, emissions and safety. In particular, the possibilities afforded by digitalisation are being harnessed to devise solutions that will allow greater automation, the targeted development and use of new data sources, intensive networking of transport modes, and a comprehensive approach to transport interdependencies.

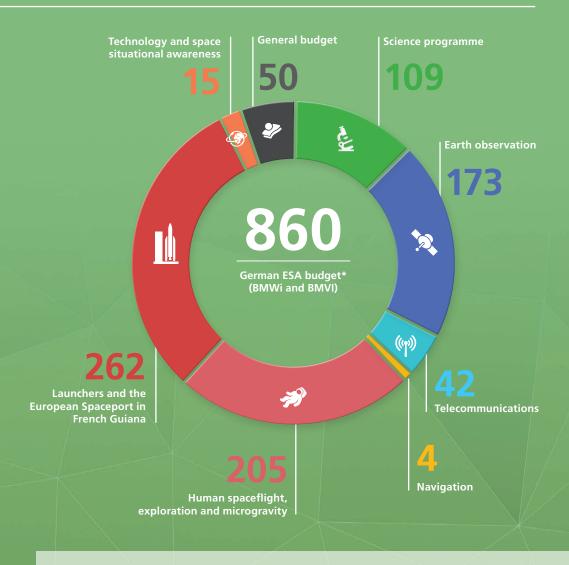
Data in million euro Year of reference: 2017 \*Including the cross-sectoral field of security research

# Space Administration \_\_\_\_







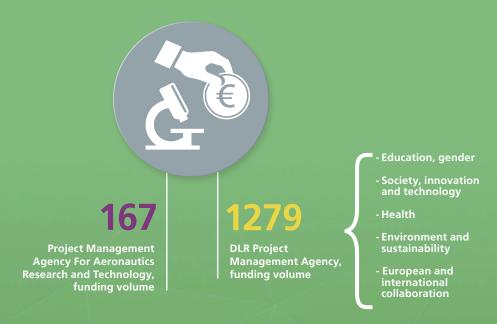


principal client of the Space Administration is the German Federal Ministry for Economic Affairs and Energy; other clients include the Federal Ministry of Transport and Digital Infrastructure and the Federal Ministry of Defence.

# **Project management agencies**







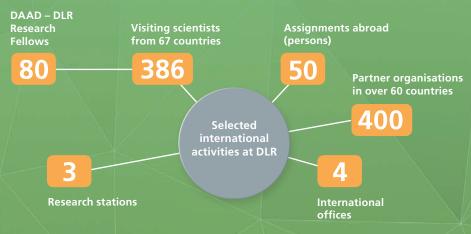
Project management agencies provide vital services for German research, innovation and education. They support their clients with analyses and expertise, as well as in the planning, implementation and communication of funding programmes and other measures.

The DLR Project Management Agency offers a wide range of consulting and support services, including European and international cooperation. Its principal clients are the German Federal Government, together with federal state authorities, but it also services educational institutions, foundations and associations, as well as the European Commission. It is one of the largest project management agencies in Germany.

The Project Management Agency for Aeronautics Research and Technology assists the German Federal Ministry for Economic Affairs and Energy and the German states of Bavaria, Brandenburg, Hamburg and Lower Saxony in implementing their aeronautics research programmes. It also serves as the national point of contact for aeronautics research within the Horizon 2020 EU Research and Innovation framework programme.

# International cooperation in research





In order to overcome global challenges, solutions must be developed at an international level. DLR institutes work with universities, research institutions, public authorities, industry partners and stakeholders worldwide to address futureoriented topics and to develop adequate innovative solutions. In addition, DLR has been involved in research and exchange projects for many years.

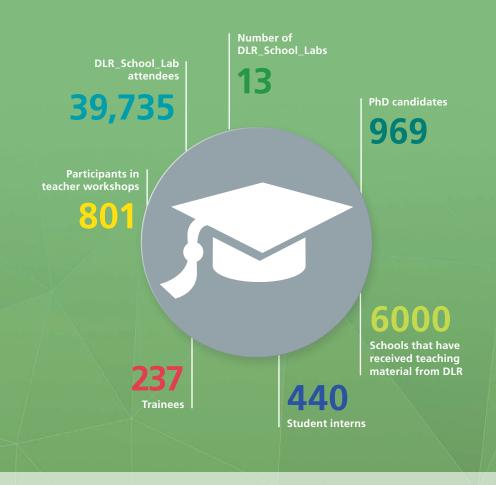






DLR's outstanding performance is made possible by its extremely qualified and highly motivated employees, who are all given the opportunity to develop themselves further at DLR. Equal opportunities are a primary concern. By maintaining flexible working hours, part-time arrangements and special support measures, we ensure that our employees can achieve a positive work-life balance.

Average age: 40 years



DLR promotes young scientists through its integrated concept called DLR\_Campus. It ranges from activities for schools to degree-related initiatives that go all the way to the doctorate level. For instance, sometimes in tandem with partner universities, DLR runs 12 student laboratories in which young people are invited to experience the 'fascination of research'. There are also school competitions, an online youth portal and much more. Students can take part in summer schools or flight campaigns, and complete internships at DLR. A first-class qualification programme is available to doctoral students.



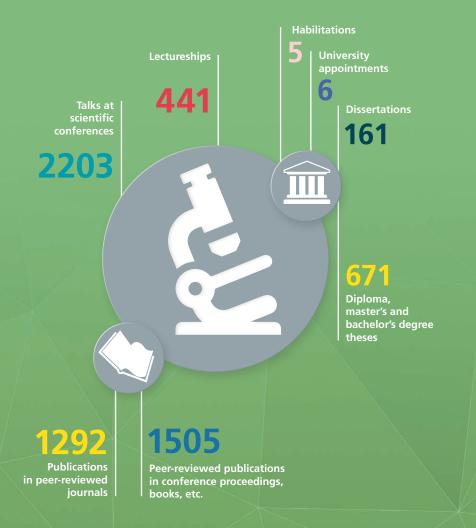


# **Scientific indicators**





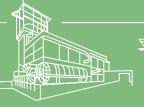
DLR supports cross-industry and demand-oriented knowledge and technology transfer in order to promote the exploitation of research and development results in industrial applications. DLR Technology Marketing represents the interface between research and industry, between the product idea and the market. It is a point of contact for innovation-oriented companies and creates an uninterrupted innovation chain – from the idea through to the final product. Innovation ecosystems – in terms of successful innovation networks – foster the development of new products, services and processes in the economic market.



The number of scientific results reported in publications, talks or lectures is an indicator of research performance. Over the last five years, DLR scientists have more than doubled their number of peer-reviewed publications. The number of university teaching positions also rose to a new record level in 2017.



Research vehicles and platforms



Test facilities for energy storage



Aircraft



High-performance computing infrastructure



Wind tunnels



Test tracks



Facilities for materials science and design research



Test rigs



Research power plants



Receiving stations and control centres



Simulators and systems analysis laboratories



Medical infrastructure

# Large-scale research facilities





DLR operates a large number of major research facilities in order to tackle the challenges faced by aeronautics, space, energy and transport, as well as the cross-sectoral fields of security and digitalisation. With this research infrastructure, DLR is able to address overlapping topics such as mobility, energy efficiency and storage, as well as materials science and noise reduction in a unique way, which can also be applied to industry. With its processing and data storage systems – and in future the facilities of the seven new institutes – DLR is taking into account the topics of the future, such as the virtual product, Big Data and simulation.

# Locations

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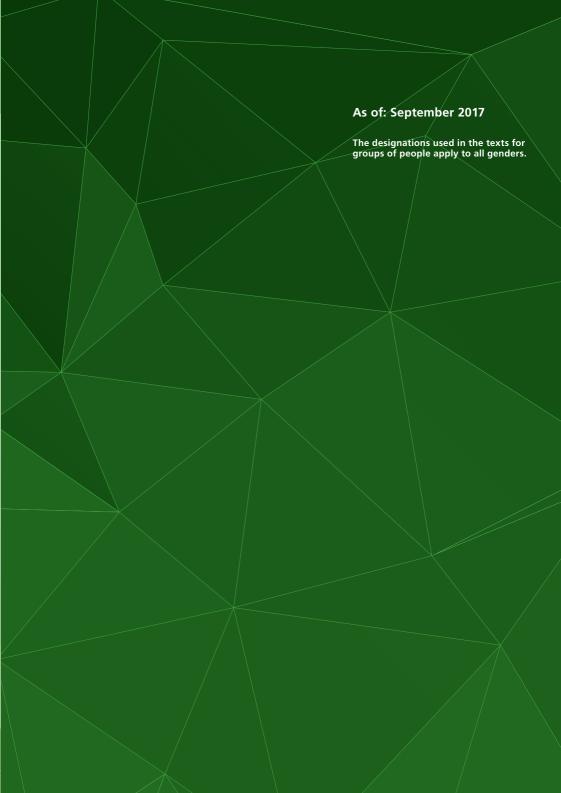
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