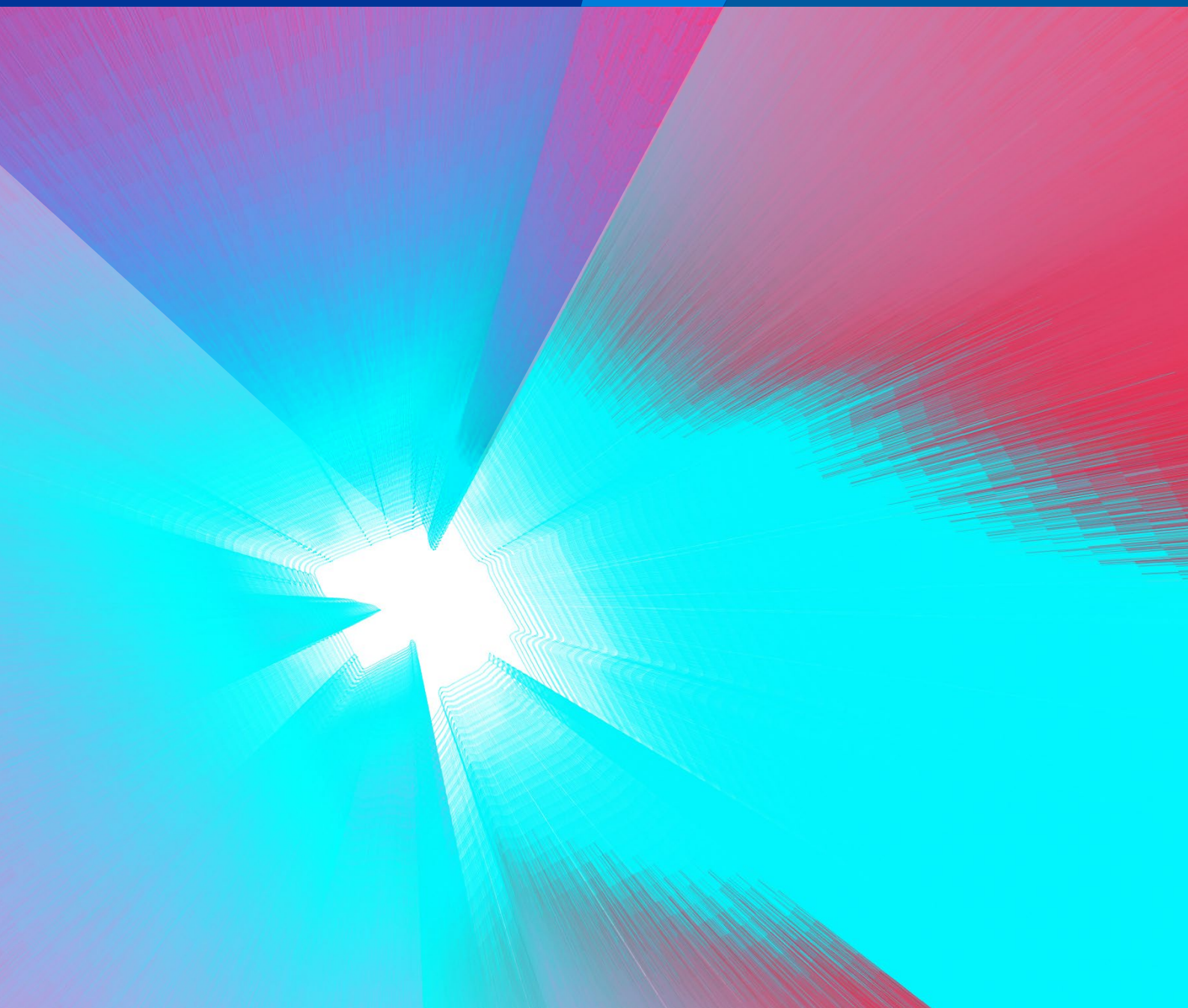


# **Facts and figures 2020**

The Helmholtz Associations' annual report



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## FACTS AND FIGURES 2020

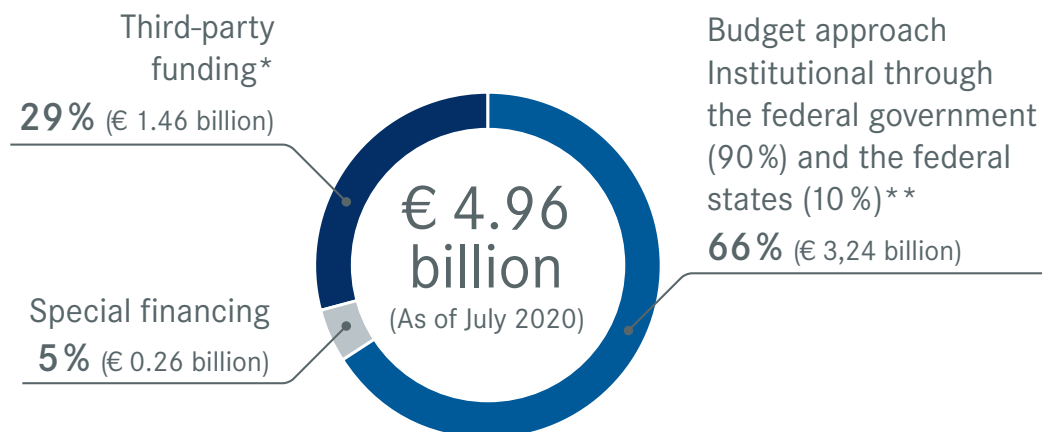
With more than around 43,000 employees at a total of 18 research centers and a total annual budget of 5 billion euros, Helmholtz is Germany's largest scientific organization. Here we summarize meaningful indicators that show Helmholtz's potential and performance.

This version serves as a compact printable PDF version of the online annual report at [www.helmholtz.de/annualreport20](http://www.helmholtz.de/annualreport20). Unless otherwise indicated, the figures refer to the reporting status of the year 2019.

### 1. BUDGET

The Helmholtz Association's annual budget is about 5 billion euros. Approximately 70 percent of the Association's funds is provided by Germany's federal and state governments at a ratio of 9 to 1. The Centers raise around 30 percent of the total budget themselves in the form of third-party funding.

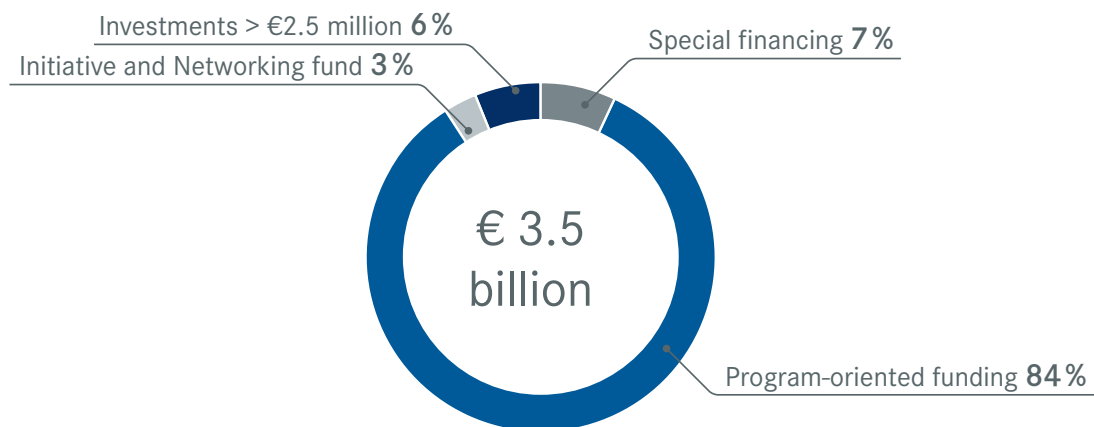
#### BUDGET INCLUDING THIRD-PARTY FUNDS



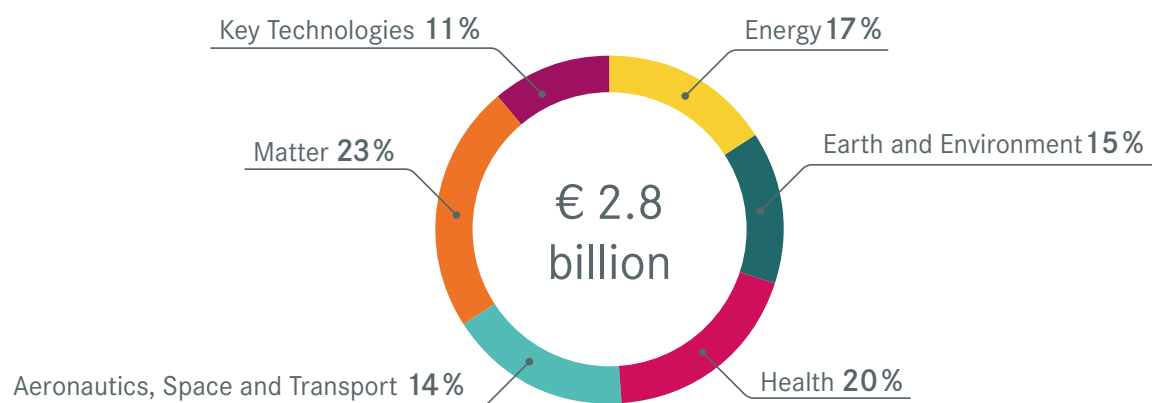
\* Including project sponsorships

\*\* As of 2016, the German federal government alone is financing the pact increase so that the federal government's share is over 90%.

## BASIC FUNDING BUDGET



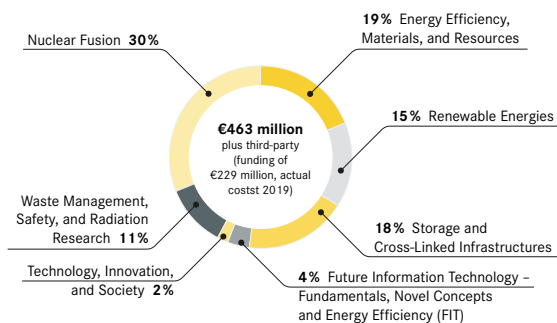
## DISTRIBUTION OF THE BUDGET ACROSS THE SIX RESEARCH FIELDS



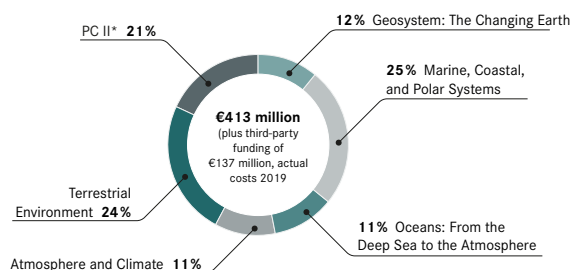
(Target costs 2020)

## DISTRIBUTION OF THE BUDGET ACROSS THE PROGRAMS OF THE SIX RESEARCH FIELDS

### Research Field Energy

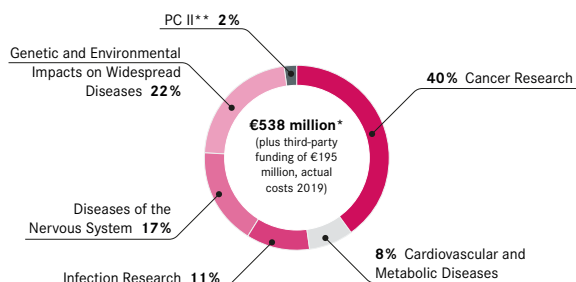


### Research Field Earth and Environment



\* MESI (GFZ), POLARSTERN, HEINCKE, Neumayer Station III (AWI); ALKOR, POSEIDON (GEOMAR)

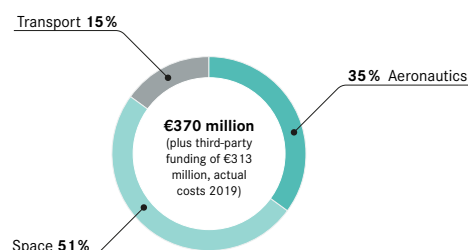
### Research Field Health



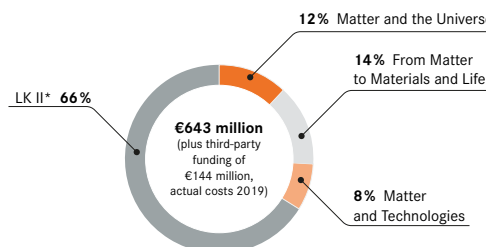
\* Including funds of €96 million for the Helmholtz share of the German Centres for Health Research, the Berlin Institute of Health (BIH), and the expansion of the National Center for Tumor Diseases (NCT)

\*\*German National Cohort (DKFZ, HMGU, HZI, MDC)

### Research Field Aeronautics, Space and Transport

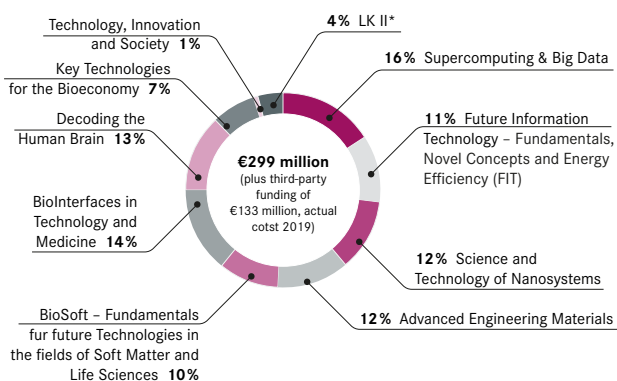


### Research Field Matter



\* FLASH, PETRA III, TIER II, XFEL (DESY); JCNS (FZJ); FAIR (GSI); BER II, BESSY II (HZB); ELBE, HLD, IBC (HZDR); GEMS (HZG); GridKa (KIT)

### Research Field Key Technologies

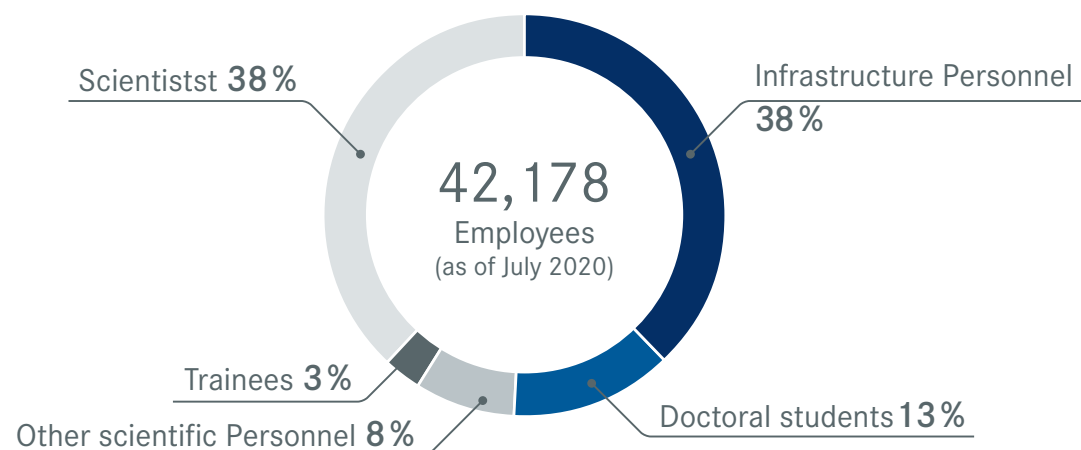


\* KNMF (KIT)

## 2. STAFF

The extremely talented and committed employees at Helmholtz are the most valuable resource for the research conducted here. 42,178 employees worked at the 19 Helmholtz centers in 2020. (As of July 2020)

### EMPLOYEES

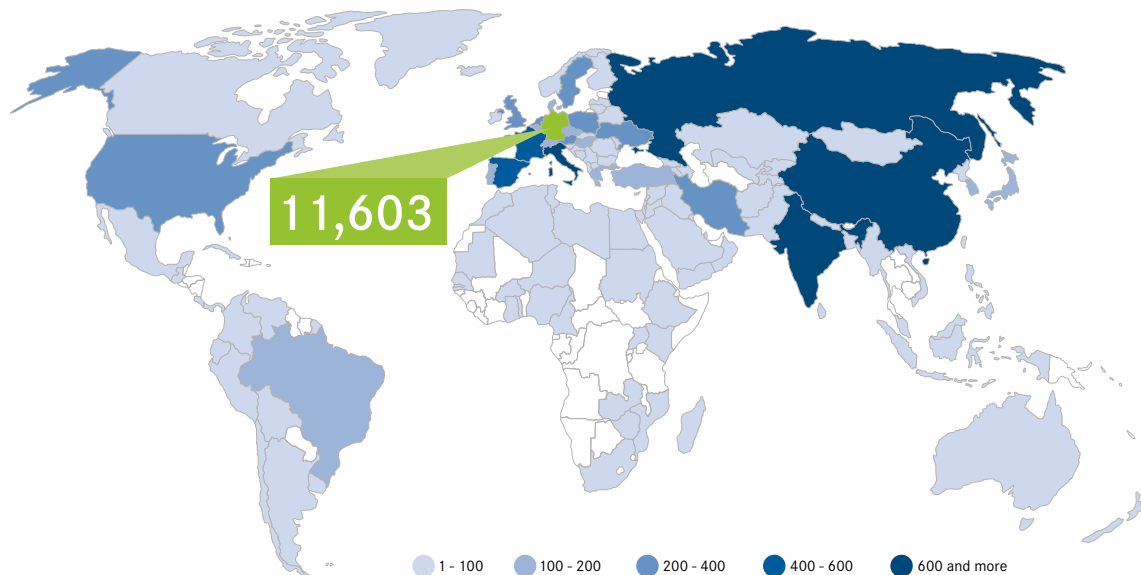


### RESEARCH INFRASTRUCTURES FOR SCIENTISTS FROM ALL OVER THE WORLD

Helmholtz aims to provide science with access to unique research infrastructures. The design, construction, and operation of large-scale and often unique scientific infrastructure is a key aspect of the Helmholtz mission. The research facilities are exemplary for the cooperation with German as well as foreign universities and research institutions.

On average, the large-scale devices at the Helmholtz Centers were available on 96,5 percent of the total operating time in 2019. The national and international scientific community (external researchers) accounted for a majority of the research infrastructure's use, at 69.1 percent. By providing this service, Helmholtz plays an essential role in this area of the scientific system. In 2019, 11.603 internal and external researchers from more than 130 nations used the research opportunities offered by the Helmholtz Centers. This corresponds to an increase of 7,4 percent over the previous year.

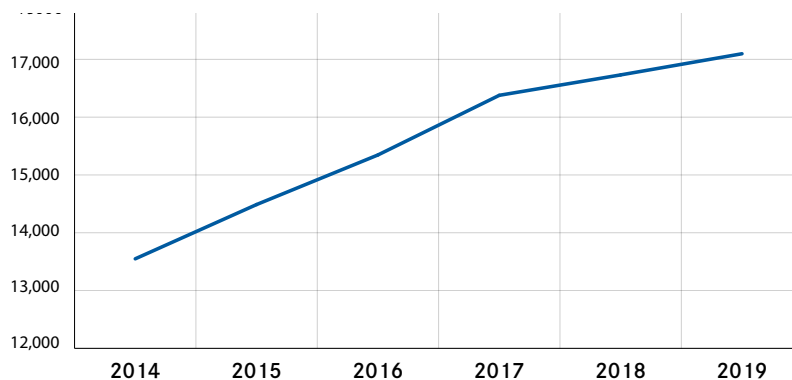
## FOREIGN SCIENTISTS AND VISITING SCIENTISTS AT HELMHOLTZ IN 2019



## 3. SCIENTIFIC PERFORMANCE

Publications are a key measure of scientific productivity, and Helmholtz once again recorded clear growth in this area. In 2019, a total of 17,097 papers were published in ISI or Scopus-indexed scientific journals. The number of publications thus grew by 2.2 percent over the previous year and by a total of 26,2 percent in the last five years. In a comparison of the periods 2009-2012 and 2013-2016, the share increased from 10.9 percent to 12.7 percent. Helmholtz is thus continuously increasing its share of Germany-wide publication volume and is at the top of the list of non-university research organizations.

## ISI OR SCOPUS-INDEXED PUBLICATIONS



A good measure of the quality of research findings is the number of times they are published in prestigious journals. The Nature Publishing Group releases a ranking of the top 200 research organizations worldwide. The “Nature Index” is based on publications in 82 journals that are independently selected as the most important by two panels of scientists from the fields of physics, chemistry, environmental science, and the life sciences. Helmholtz has ranked among the top ten international institutions for years. The table shows the Nature Index for the period July 1, 2019 to June 30, 2020.

## NATURE INDEX 2019/20

1	Chinese Academy of Sciences (CAS), China	1.805
2	Harvard University, USA	925
3	Max-Planck-Gesellschaft, Germany	765
4	French National Centre for Scientific Research (CNRS), France	723
5	Stanford University (SU), USA	646
6	Massachusetts Institute of Technology (MIT), USA	560
7	Helmholtz Association, Germany	486
8	University of Science and Technology of China (USTC), China	456
9	University of Oxford, United Kingdom (UK)	454
10	Peking University (PKU), China	438

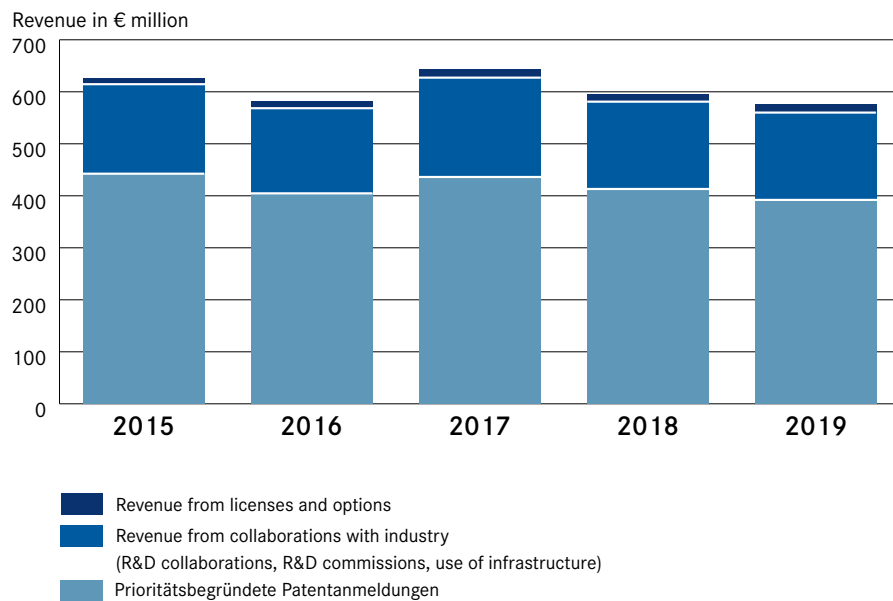
\* Fractional Count = figure taking into account the percentage of authors from the respective institution and the number of affiliated institutions per article. The calculation assumes that all authors contributed equally to the article, and their sum is 1.0 per article. Count of publications from July 1, 2019 to June 30, 2020.

## TRANSFER

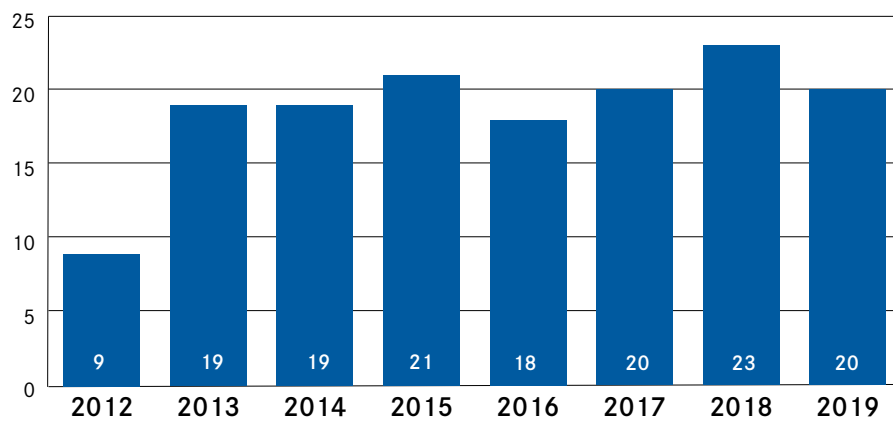
Helmholtz researchers significantly boost Germany's innovative capacity by disseminating knowledge and converting economically valuable results into entrepreneurial endeavors. Accordingly, Helmholtz places an increasing focus on the transfer of knowledge and technology. In the department of transfer and innovation, we work together with the transfer offices of the centers to promote the exchange between science, industry and society through networks, targeted transfer support programs and the development of joint partnerships. Over the last few years, a variety of new instruments and platforms have been established to promote these aims, including the Helmholtz Validation Fund, the Helmholtz Innovation Labs, and the Innovation Funds of the Helmholtz Centers. Income from business collaborations in 2019 is almost on a par with the previous year. The number of patent applications is largely constant at 391. The number of spin-offs is also stable at 20.



## TECHNOLOGY TRANSFER: REVENUES



## RESEARCH SPIN-OFFS



## 4. TALENT PROMOTION

### NATIONAL COLLABORATION

Scientific excellence requires the best minds—and large-scale collaborative research depends on partnerships with the most effective research institutions in the scientific system. Helmholtz achieves both of these objectives through joint appointments, among other activities. With 686 joint appointments, the number has risen strongly in recent years. In addition, participation in programs of the German Research Foundation (DFG) and the Excellence Initiative demonstrate the extent of national networking in the science system. Helmholtz Centres have been established partners of universities in all funding lines of the Excellence Initiative since 2006. In 2019, Helmholtz was involved in (well over a third of all graduate schools (38 percent) and) almost half of all excellence clusters (44 percent), as well as three-quarters (73 percent) of all future concepts.

### JOINT APPOINTMENTS

	2014	2015	2016	2017	2018	2019
<b>Joint appointments with universities, (W2 and W3)</b>	554	609	644	633	653	686

### DFG

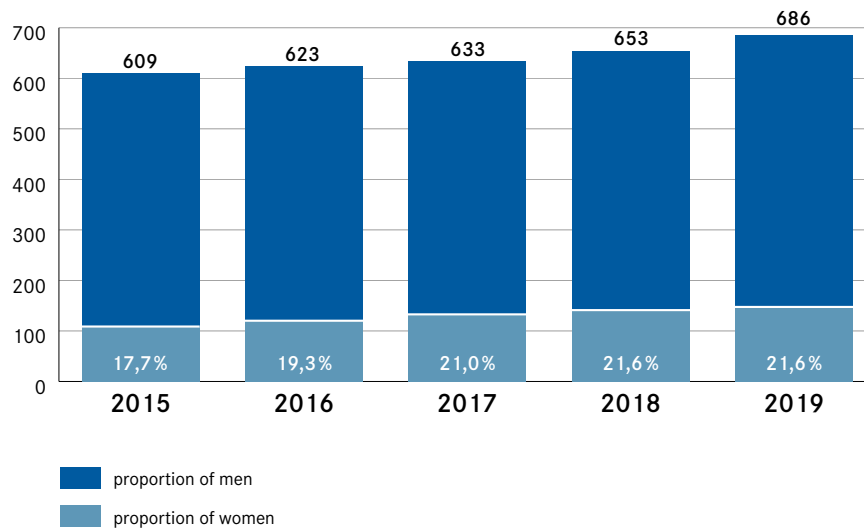
Number in the year	2014	2015	2016	2017	2018	2019
<b>Research Centers</b>	1	1	1	1	1	1
<b>Collaborative Research Centers</b>	62	65	69	74	91	87
<b>Priority Programs</b>	42	44	51	52	56	56
<b>Research Units</b>	55	49	46	41	37	43

In certain programs, Helmholtz researchers can obtain funding from the DFG. In such cases the Helmholtz Centers serve as important strategic partners to universities when applications are submitted to the DFG — especially for structural initiatives.

### EQUAL OPPORTUNITIES

Improving equal opportunities is a key priority at Helmholtz. This aspect is firmly rooted in the Helmholtz mission and is an integral part of the talent management. It is a topic that is systematically integrated into all of our programs and activities. The striking effects of this approach can be seen in the staffing of W3 professorships, for example. The proportion of women among new appointments was 22 percent in 2019. Furthermore, the proportion of women in jointly appointed W2/W3 professorships has risen steadily in recent years to 21.6 percent in 2019.

## NEW W2/W3 APPOINTMENTS



## TALENT MANAGEMENT

Fostering the development of young scientists is central to securing both the Helmholtz Association's future and the viability of Germany as a center of research and science. It is therefore part of the Helmholtz mission. In the first two periods of the Joint Initiative for Innovation and Research, Helmholtz developed numerous overarching funding instruments within the framework of the Initiative and Networking Fund. It also supported these instruments with substantial funding from the Joint Initiative, in addition to advancing the careers of young scientists at the Helmholtz Centers. The instruments have evolved into a comprehensive strategic talent management system that offers attractive conditions to the best young researchers at every stage of their careers:

- Doctoral training at graduate schools and colleges
- Postdoc programs providing funding immediately upon completion of PhDs
- Helmholtz Young Investigator Groups for top international talent
- W2/W3 program for recruiting and supporting young female scientists
- Recruiting initiative to attract internationally renowned researchers for the Helmholtz Centers.

## DOCTORAL DEGREES

	2014	2015	2016	2017	2018	2019
<b>Number of supervised doctoral candidates*</b>	7,446	8,044	8,054	8,456	8,587	8,785
<b>Number of doctoral candidates employed</b>	5,296	5,414	5,105	5,076	5,257	5,668
<b>Number of completed doctoral degrees</b>	1,059	1,280	1,249	1,257	1,174	1,142

\*Including candidates who use the Helmholtz Association's research infrastructure.

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**Diagrams**

Helmholtz-Gemeinschaft