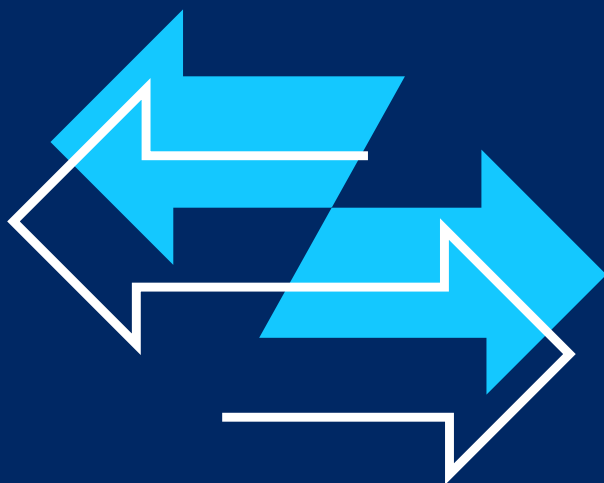


HELMHOLTZ

Shaping the world with cutting-edge research

Overview of the Helmholtz transfer strategy

2021



The real-life lab with a consulting office for building-integrated photovoltaics (BAIP) at HZB is an example of how the technology and knowledge acquired through research can be transferred to business and society.

Shaping the world with cutting-edge research

Overview of the Helmholtz transfer strategy

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Interested in learning more about transfer at Helmholtz?
Our transfer strategy is available in full at the following
link: www.helmholtz.de/en/transfer



Discover, understand, and implement:
Findings from research are the foundation
of our modern world. We ensure that
our knowledge is applied in industry and
society.

Why transfer?

We conduct research for the good of all - this is Helmholtz. As Germany's largest research organization, we work independently but on behalf of society. This is why our cutting-edge research focuses on questions that are of major relevance to society: How can we defeat widespread diseases? Where will we source our energy in the future? What transport concepts can keep us mobile while also protecting the climate? How will we achieve a digital transformation?

Our work aims to benefit people:
This is our key mission.

We pursue this goal by taking a very active approach to transferring knowledge and technologies to practical applications. We want our researchers' insights, ideas, and solutions to have an impact on society and business as rapidly as possible - whether in the form of innovative materials, new drugs, complex data systems, or high-caliber information services backed up by science.

Our proactive transfer approach

We make a basic distinction between two types of transfer: The **transfer of technology** primarily involves application-driven solutions derived from research and tapping economic potential. This is supported by the over 4,000 patent families available to us, which we strive to implement with partners from Germany and abroad. We cooperate with the industrial sector, SMEs, and start-ups and join forces with German, European, and global investors. Many of our Research Centers and scientists also set up their own companies.

The other type of transfer is **knowledge transfer**, where we offer practical advice and knowledge-based data. We provide tailored information to authorities and municipalities, associations and companies. But we also make ourselves available to the general public and other target groups with information services delivering in-depth expertise on topics as diverse as energy, the climate, and widespread diseases. We advise decision-makers on prestigious national and international committees, including the Intergovernmental Panel on Climate Change.

Clear communication is key to successful transfer. For example, our scientists have been in great demand throughout the Covid-19 pandemic as policymakers and the media seek an ongoing dialog with experts. Our expedition to the Arctic, MOSAiC, also attracted an especially high level of attention, with nonfiction books and textbooks, films, and an extensive social media campaign helping to educate large sections of society about the dramatic impact climate change is having in the Arctic.





Photo: Shutterstock.com/Valentin Valkov, edited by Cláudia Valentin, GFZ

E-learning on how remote sensing
can be used in agriculture



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Our transfer strategy

Our goal for the future is to make transfer an even more prominent aspect at Helmholtz. We use many different tools to achieve this, including driving the transfer of knowledge and technology with financial resources, forming even closer networks with national and international expert communities, and providing our employees with training specifically centered around startups and the transfer concept.

Each of our 18 Research Centers defines its own key focal points for the transfer process - based on their subject expertise and aligned with the Helmholtz Research Fields and programs. We see this as our key strength - because we conduct research on so many very different topics, we can offer solutions for numerous sectors. We monitor our transfer goals closely to ensure we are reaching our targets in terms of our work itself as well as from a financial perspective.

When necessary - and especially in exceptional circumstances and crisis situations - we take rapid steps to respond and make our specialist knowledge available to planners at the national, state, and municipal levels. When North Rhine-Westphalia was hit by devastating floods, for example, the Helmholtz Innovation Lab OPTSAL moved quickly to provide authorities and emergency services with images showing the situation on the ground. Our researchers were able to provide this assistance thanks to their newly developed camera drones that form a networked system. In 2020, immediately after the Covid-19 pandemic began, the Helmholtz Centre for Infection Research (HZI) provided a reliable system for tracing contacts of those infected with the virus who were at risk. The researchers at HZI achieved this by modifying a software solution they had originally developed for the Ebola epidemic in West Africa in the space of just a few weeks. Today, SORMAS is used by numerous health agencies in Germany.

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At the same time, it is also clear that even though Helmholtz offers strong capabilities and infrastructure in the area of basic research, most of our innovations are not achieved overnight. Such innovations often require persistence and staying power, precisely because the processes and problems we work on are extremely complex. We delve into the minutest details of these processes and problems - while constantly keeping an eye out for the moment a practical application arises. This approach is in step with our “transfer welcome” mindset.

This same approach enables us to translate findings from our research into innovative, practical ideas time and time again. But we also go to great lengths to define the needs of users, whether they are people affected by diseases, industrial partners, or authorities. We develop appropriate solutions - wherever possible - that are aligned with the users’ requirements. To this end, we take active steps to involve representatives from business and society in advisory bodies, evaluations, and the awarding of contracts.



Photo: G. Otto GSI Helmholtzzentrum für Schwerionenforschung GmbH

Fostering a culture of transfer

All our Research Centers are equipped with the expertise and resources required for the transfer of knowledge and technology. We continue to enhance this potential - in financial terms as well as from personnel, technical, and spatial perspectives.

Financial support

We finance transfer projects at very different stages of maturity and have various budgets at our disposal that are appropriate for these stages. In the field of medicine, for example, we specifically prepare for the phase in which a new drug undergoes clinical trials to prove its tolerability and efficacy - a phase that often presents numerous risks. Our Helmholtz Enterprise program supports spin-offs during the stage where they become independent for a period of up to two years. We also co-finance projects that we implement with industrial partners such as BASF, Siemens, Bosch, and Sartorius. Our ongoing projects receive funding in amounts ranging from 100,000 to 4.5 million euros. Strategic partnerships with companies have a special role to play in this context.

In addition, the President of Helmholtz provides targeted support for transfers through his Initiative and Networking Fund, in which a third of the budget is currently allocated to transfer projects. Many of our Centers reward inventions created by their employees.

Staff training

We encourage our employees to think in terms of transfer. This includes corresponding training for our managers at the Helmholtz Academy. We reach out to young researchers through our graduate schools and career development centers and have

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established an entrepreneurship education approach that aims to motivate them to work on spin-offs, patent applications, and transfer-oriented research and development early in their careers. The program is designed for doctoral candidates and postgrads.

Our Spin-off Academy networks our spin-offs. Young companies launched at our Research Centers come together here to exchange experiences, book workshops and coaching sessions, and use digital tools and event formats to find supporters. We are also increasingly pursuing these activities with our partner country Israel.

Creating ideas workshops

We give ideas a place to grow. At the 16 Helmholtz Innovation Labs, our researchers collaborate closely with companies from related sectors. We make spaces, laboratories, and test facilities available with the goal of bringing innovative technologies and solutions to market maturity with our business partners. For example, the ZEISS Innovation Hub @ KIT started in 2020 in Karlsruhe, creating a place for innovative cutting-edge technologies - from highly sensitive sensors, to medical robots, through to nano structures. We have already provided this type of workshops with 29 million euros in funding since 2016. Networks of innovative companies take up residence in direct proximity to our prestigious Research Centers and test facilities, for example close to DESY in Hamburg and the Helmholtz Center for Information Security - CISPA in Saarbrücken.

We also host our Research Days to give interested companies the opportunity to get to know our scientists better. At these events, the experts present relevant research projects and discuss potential cooperation projects or licensing agreements.

Our innovation management units

From the idea, to startup funding, to market launch - our innovation management units support employees who are eager to apply their knowledge in practice. The advisors at these units are experts in the respective Research Fields and areas of application and are there to support transfer projects through every phase.

These transfer hubs are also available to interested parties from business and society. Employees here provide information on research projects with relevance for transfer, appropriate test facilities, and various cooperation models. They also inquire about the practical requirements and integrate these into the research.

Each of our Research Centers offers a point of contact of this type for any questions relating to transfer. They bring prospective founders together, provide information on financing models, offer advice on patents, and organize coaching sessions. Get in touch with us - together we turn ideas into practical applications.



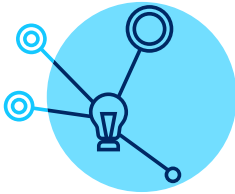
Contact:

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QR code to "Transfer points at the Centers"

www.helmholtz.de/en/transfer

Transfer facts and figures



254
Spin-offs

were launched from 2005 to 2020 on the basis of initiatives at Helmholtz. These spin-offs were founded via formal agreements with the Centers (usage, license, and/or participation agreements under company law). An average of 94.5 percent of these companies continue to exist 36 months after their founding.



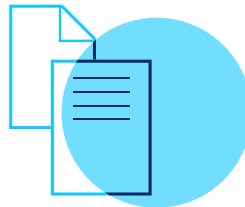
16
Innovation Labs

for collaboration with businesses. The labs generated revenues of 14.67 million euros in 2020 alone thanks to research and development with businesses.



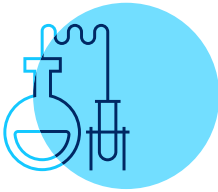
>4,000
patent families

and a total of over 13,000 property rights are included in the patent portfolio of the Helmholtz Centers.



>300
publications

with relevance to standards have been written by Helmholtz researchers, with ISO standards and comparable ISO documents taking these publications as their basis.



32 laboratories for school students

are set up at 15 Helmholtz Centers. The DLR alone reaches over 10,000 school students with its offers every year. The AWI has recorded over 100,000 visits per month on the web app it created about the MOSAiC expedition for school students.



53 projects

in all have received funding from the Helmholtz Validation Fund since 2011, including more than ten that received about 2 million euros each.



>2,3 million euros in funding

are provided by Helmholtz each year for innovation funds at 16 Helmholtz Centers.

www.helmholtz.de/en