



cohesion
language and communicating



Hochschule
Bonn-Rhein-Sieg
University of Applied Sciences

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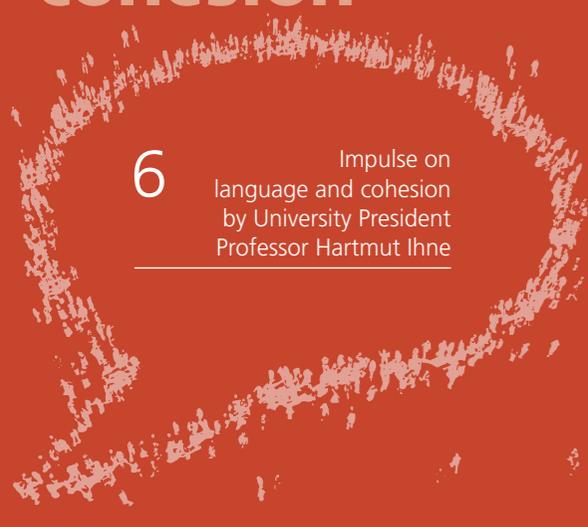


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**Hochschule
Bonn-Rhein-Sieg**
University of Applied Sciences

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How do stars communicate, and what can language tell us about social status?

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Impulse

Language and cohesion

Language is everywhere

We all use language, daily, hourly, every second. We speak to ourselves and to others. And we hear others speaking. We understand or do not understand what is said. Maybe we'll inquire. Language and speaking trigger ideas in us, arguments, feelings, approval, rejection, affection, love and hatred. It goes back and forth with language in our heads and between our heads. Between senders and receivers. We also see language, in e-mails, letters, documents, newspapers, books, on screens. We're surrounded by language. Language and speaking are part of us; we are part of language and speaking. Language gives us identity.

Language is diverse and blurred

Language and speaking are the results of historical developments. The variety of languages is vast and confusing. We distinguish between written language and spoken language. Linguistics speaks of 7,000 languages worldwide – not counting dialects. Some languages are threatening to disappear. New forms emerge. Youth languages, milieu languages, technical languages, computer languages, logical formal languages. Language is on the move. It differentiates itself.

“The most human thing that we have is language, and we have it in order to talk.”

Theodor Fontane, Poet

In addition, there are different comprehensive insights in the respective languages. I never know with certainty whether I understand the terms in a conversation as my counterpart does. Willard Van Orman Quine therefore speaks of a semantic uncertainty relation. This blurring is of a fundamental nature.

Language knows hermeneutic differences. This increases the diversity of the individual linguistic universes. What is said can be ambiguous, can be said from different perspectives and can be understood from different perspectives.

Language develops in phases according to its individual history. This also increases diversity. Piaget and others have shown that children don't usually pass through language phases that make it possible to understand abstract concepts, such as general ethical norms, until the age of twelve.

We comprehend reality through language

Everything we think and know about our inner and outer reality is filtered to us through language. Without words and concepts I cannot know about the world and its things. “Whereof one cannot speak, thereof one must be silent”, says the philosopher Ludwig Wittgenstein, and “The limits of my language mean the limits of my world”. Martin Heidegger says: “Language is the house of being”. Even the architect cannot understand the statics and technology of his house without speech. The philosopher Hannah Arendt specifies: “Everything exists for thinking for which language has a word. What language has no word for falls out of thought”.

Language makes an impact

Hannah Arendt also says: “Language connects and communicates thinking and acting. The limit of thought is the mute, with the mute view of the truth, the limit of action is mute violence”.

Language connects, language separates. More precisely: speaking, the way I use language, connects or separates people, societies and nature. Language is the central foundation of societies. It makes a particular impact in two areas:

Worldviews

On the one hand, it enables us to build up and exchange views of the world. Common ideas of and about reality connect. Social cohesion happens because and if people share a common collection of convictions. Convictions about what the common values and norms are, what people want to look at together, which forms of government are the most suitable, how exchange relations should play out among each other, and what significance culture and nature have as bases of life. This requires a common history – not only in the sense of a historically lived togetherness, but also a narrative that contains the meaning of communal and individual existence and reconciles them both.

“

Metaphors can kill.”

George Lakoff, Linguist



Prof. Dr. Hartmut Ihne
President of H-BRS

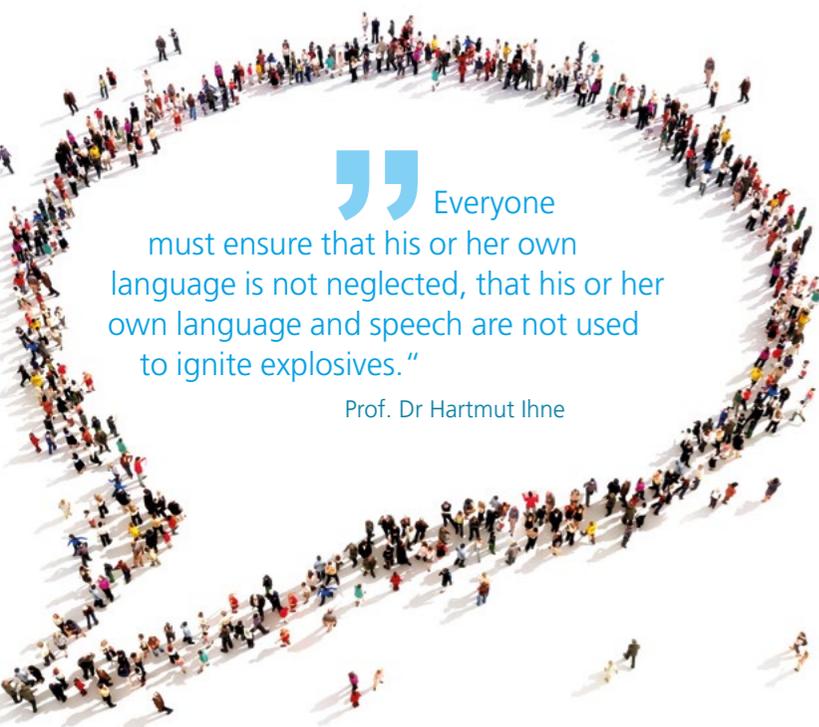
Atmospheres

On the other hand, language has subcutaneous, subliminal effects. It creates atmosphere in a society. Bude described this as the “feeling of the world”. Open societies and free democracies, in particular, depend on this atmosphere. Only if society's atmosphere is favourable to a political objective can majorities, as a rule, be won over.

Language can destroy cohesion

But this is also the greatest threat to democracy. Language and speaking can destroy cohesion. Language and speaking can be benevolent, approachable and connecting, but also misleading, hostile and divisive.

We are currently witnessing irritating, outrageous, and dangerous developments in parts of the political world and society that have much to do with language and speech. Something dark is dawning on the horizon of the world. Erratic presidential tweets, populist taboo breaks, senseless



“ Everyone must ensure that his or her own language is not neglected, that his or her own language and speech are not used to ignite explosives.”

Prof. Dr Hartmut Ihne

hate speech in social media, inhuman battle raps are concerning developments. Something destructive, barbaric is on the way. Too many people are listening, lowering the threshold of inhibition. Nihilistic negativity against everything. A brutal and brutalising language as a populist harbinger of a brutal world?

The path to free, democratic societies has been a long one. Respectful and clear language was the strongest means to this end.

Human rights and the state of the community

Language and speaking express the status of civilization in a community. The way we talk about ourselves and each other determines the cohesion of a society and its ability to survive.

After long historical birth pangs in standards of civility, we have agreed to think of ourselves as people beyond gender and ethnicity with equal dignity, to consider lies not as good but as reprehensible, to consider truthfulness not as uneconomical but as valuable, and to meet different concepts of life and culture with tolerance and respect. The human document that sets forth these moral implications is the Universal Declaration of Human Rights of 1948, based on the repulsive experiences of war, the recognition of its causes and the realisation that we as humanity only have a future if we are communicative, cooperative and inclusive. Only in this way can freedom, justice, democracy and prosperity be sustainably secured. We should read it again.

First and foremost, everyone must ensure that his or her own language is not neglected, that his or her own language and speech are not used to ignite explosives that threaten the cohesion of an open, free and democratic society. And where fundamental rights are in danger, the state must act resolutely.

Prof. Dr Hartmut Ihne

President of Hochschule Bonn-Rhein-Sieg – University of Applied Sciences



This quote from Humboldt should be savoured. Language is the key to everything: to the world around us and to an infinite world of thoughts in our heads. The invention of language is virtually the invention of teaching. Our species developed language so that we could pass on our experiences, i.e. our knowledge. All of our thinking is tied to language. We think in words and we use words to convey our thoughts to others.

If we want to go out into the world and learn from it, then we have to learn to understand its language, be it English or French – or the language of science.

Only after someone is completely “at home” in this technical language, when its use has become second nature, does the feeling of belonging to and participating in this world arise. In this sense, language competence is a fundamental component of professional success.

study

Language is the key to the world

Good teaching promotes both an understanding of interrelationships and the ability to communicate with one another. We find many positive examples of this in the following pages: the Language Centre’s Writing Centre develops students’ abilities to express themselves in science, the Tutoring School teaches communication and didactic skills, and in his Master’s course, Karl Kirschner, visiting professor from America, promotes not only methodical approaches but also a cosmopolitan worldview. To improve understanding, Stefan Freitag, Klaus Lehmann and Daniel Fine use new digital methods, and in the CSR & NGO Management course, students simulate a UN peacekeeping mission.

Last but not least, our three new Bachelor’s degree programmes, International Business, Sustainable Social Policy, and Sustainable Engineering, promote an understanding of larger contexts and overarching issues.

Many thanks to all staff members – whether mentioned in this annual report or not – whose dedicated teaching contributes to the success of our students and hands them the key to the world!

Prof. Dr Iris Groß

Vice President Teaching, Learning and Further Education

Learning what matters

Writing groups at the Language Centre help students and tutors



Scientific writing differs significantly from writing tasks at school and must be learned at university.

This is a process that the Writing Centre German and the Writing Centre English at the H-BRS Language Centre support through workshops and individual advice. Since 2017, a new service has been added at the Language Centre, and for good reason: “Students often came to consultation hours with completely formulated texts – a workload that we were unable to attend to in the scope of individual consultation”, says Gabriele Menne-El.Sawy, Head of German Language Courses and the Writing Centre German, “which is why we set up writing groups”.

In the groups, the focus is on writing methods. “In the weekly sessions, the students work on their texts independently”, says Jill Yates-Wolff, Head of General English and the Writing Centre, who has been offering the writing groups in Sankt Augustin in English too since January 2018. “At the same time, writing coaches are present to help with any problems.” Anyone, whether native or

foreign language speaker, can come without making an appointment and ask specific questions, says Yates-Wolff. “Questions often don’t crop up until the writing process has begun.”

Learning teaching

The tutors, often students at H-BRS themselves, also receive support at the Language Centre. Since 2017, they have been polishing their methodological and didactic knowledge in training courses. In addition, at the beginning of the semester all new tutors from the departments come together to work out the basics of their teaching activities. “Self-perception and expectations of the tutoring activities are just as much a part of the programme as teaching approaches, implementation and methodology”, says Gabriele Menne-El.Sawy, who developed the concept and carries out the training together with Jill Yates-Wolff. At the end of the semester, all tutors, as well as candidates from the previous semester, meet for feedback. “The aim is to gradually create a tutor network”, says Yates-Wolff. “Cross-departmental exchange is very valuable to everyone involved.”

More information

 [Writing Centre German
www.h-brs.de/spz/schreibwerkstatt-deutsch](http://www.h-brs.de/spz/schreibwerkstatt-deutsch)

 [Writing Centre English
www.h-brs.de/en/spz/writing-centre-english](http://www.h-brs.de/en/spz/writing-centre-english)

Important teaching support: At the Language Centre tutors acquire know-how in methodology and didactics.

From St. Joseph to Sankt Augustin

Dr Karl N. Kirschner, an American, is the first holder of the International Chair

Karl Kirschner understands how to approach cross-disciplinary work. As a graduate of a liberal arts college with a focus on Bachelor’s degrees in the humanities, he dared to take the leap into computer chemistry, a subject at the interface of natural sciences and computer science. The balancing act between the departments continues to this day: Kirschner works at H-BRS for the Department of Computer Science and since 2017 also for the EMT Department in the newly established International Chair. The chair gives foreign lecturers the opportunity to contribute to the curriculum for one year with English-language courses and an international perspective.

Crossing the big pond was just as easy for Kirschner as building bridges between the disciplines. In 2007, the American followed his future wife – a German he met at Hamilton College in New York – to her home country. After holding positions at the Max Planck Institute for Molecular Physiology in Dortmund and the Fraunhofer Institute for Algorithms and Scientific Computing, he became a research assistant at H-BRS. “At first I only conducted research, but thanks to the International Chair I’m teaching now, too”, says Kirschner. This is a great enrichment. “I can set my own teaching focuses, and I enjoy and value the direct contact with students.”

Learning good scientific practice

One of his focuses is the seminar “Advanced Research Strategies and Dissemination”. “Courses on research methodology were being held in all departments except EMT”, Kirschner recounts. Among other topics, his seminar deals with how to quote correctly, find important articles, visualise data properly, work with the software package Scientific Python, design posters, and deal with ethical issues. “When students follow good scientific practice, this has a positive impact on the research profile of the university.”

As an American and thanks to his experiences at a liberal arts college, the holder of the International Chair looks at things differently. “My background influences my choice of topics and how I deal with them. In the course Technikjournal (Technology Magazine), I introduce a different perspective from those of my German colleagues”, he explains. “I hope that helps the students become a little more cosmopolitan.”

 [Links
www.h-brs.de/emt/ringvorlesung-technik-und-umweltethik](http://www.h-brs.de/emt/ringvorlesung-technik-und-umweltethik)
www.h-brs.de/hochschulinnovationspreis

As holder of the International Chair, Dr Karl Kirschner builds bridges between the disciplines and contributes an international perspective to teaching.



20th Anniversary Department of Natural Sciences

In 1997, Hochschule Bonn-Rhein-Sieg became one of the first universities of applied sciences in Germany to establish a department of natural sciences. Today, the Department of Natural Sciences (AnNa) at the Rheinbach Campus offers three Bachelor's and three Master's programmes, two of which are in English. Students in chemistry, biology, materials science and forensic sciences have access to modern laboratories and conduct a wide range of research activities. The department celebrated its anniversary with a Natural Science Slam and a Campus Rally. Congratulations, AnNa!

New in the programme: Three Bachelor's

Programmes in Management Sciences, Engineering and Social Policy launched

The new Bachelor's programmes at H-BRS take in the bigger picture while at the same time enabling students to specialise, preparing them for in-depth Master's programmes or entry into professional life.

International Business (BSc)

The economy is internationally networked. People who want to play an active role in shaping it need sound knowledge – this is what the Bachelor's programme International Business offers. Based on current theoretical concepts, students learn to analyse the global economy and meet challenges in marketing, accounting or human resources management. The required depth is provided by the main subjects Business-to-Business Marketing, Management Accounting and International Management. In addition, graduates are linguistically prepared for the international job market. From the second to the fourth semester, they lay the foundation for or deepen their knowledge in Spanish, French, Mandarin or German.

 [More
www.h-brs.de/en/wiwi/international-business](http://www.h-brs.de/en/wiwi/international-business)

Sustainable Engineering (BEng)

Demands on engineers change at least as quickly as the business world. Sustainability is the word of the day. This also applies to the social, economic and ecological consequences of engineering activities. The Bachelor's degree programme in Sustainable Engineering shows how resource-friendly technological solutions can be achieved.

In addition to basic engineering and natural sciences, courses on renewable energies, life cycle assessment or energy-efficient residential buildings create an understanding of sustainability. Project weeks, laboratory internships during which ecology assessments are prepared, and a 20-week practical semester in a company guarantee a close relation to practice.

 [More
www.h-brs.de/en/emt/sustainable-engineering](http://www.h-brs.de/en/emt/sustainable-engineering)

Sustainable Social Policy (BA)

Sustainability not only counts when dealing with natural resources but also with human capital. Growing poverty, unequal educational opportunities and social injustice prevent a society from realising its potential. To counteract this, H-BRS trains future experts in sustainable social policy. After an introduction to sociology, economics, political science, law and communication studies, students can focus on business, society or communication. Interdisciplinary access to the topic is provided through cooperation with the University of Bonn (Institute of Political Science and Sociology) and the University of Cologne (Chair of Social Policy and Methods of Qualitative Social Research, Seminar for Cooperative Studies).

 [More
www.h-brs.de/en/sv/nachhaltige-sozialpolitik-en](http://www.h-brs.de/en/sv/nachhaltige-sozialpolitik-en)

Fictional country with real problems

CSR & NGO-Management – students simulate UN peacekeeping mission

Kolpoto is torn by civil war. Refugees, war crimes and the development of infrastructure are the main challenges facing the country, and the United Nations has offered support. The catch: Kolpoto is fictitious and the UN mission part of a two-week simulation at the German Armed Forces Command and Staff College in Hamburg. Originally offered as part of the general staff training for officers, the seminar was opened to civilians in 2016. This includes students in the MBA programme CSR & NGO Management at H-BRS. "The UN is not an NGO, but when it comes to work in crisis countries, there are overlaps", says Max Bolz, administrative director of the programme. "Peacekeeping missions today follow a multidimensional approach. Military and civilian organisations work together, so it makes sense to cooperate beforehand."

The H-BRS students have often already gained experience in NGOs or in humanitarian aid, but the simulation is new territory. "Everyone gets a reader with crib sheet style information – from UNO abbreviations through the meaning and basics of peacekeeping operations to facts about Kolpoto", says Bolz. "With this background knowledge you can delve deeply into the topic during the seminar."

From military cooperation to logistics

In the first week, the focus is on theory. UN staff and other experts offer insights into their experiences. In the second week, the knowledge acquired is applied to a specific crisis situation. The planning staff members are supported by mentors, former Deputy UN Secretaries General. "You quickly realise that theory and practice don't always fit together seamlessly", says Max Bolz. Each country faces its



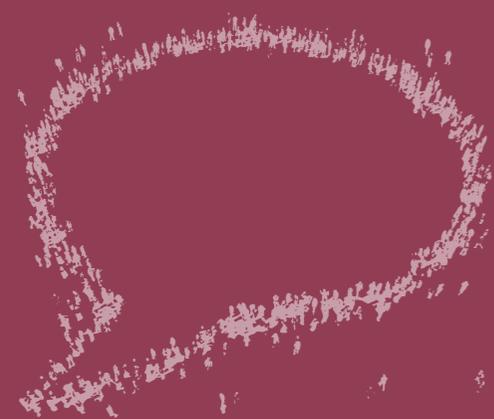
own challenges, and Kolpoto is no exception. If the task is to supply people with food, multiple factors must be considered. How many calories does an adult need per day? Which delivery routes are safe? How can food be transported? "Even if you're exclusively responsible for logistics, you have to keep an eye on the other issues", says Bolz. Just like in real life.

 [Full report on Seminar 2017
www.h-brs.de/en/wiwi/un-peacekeeping-seminar-2017-hamburg](http://www.h-brs.de/en/wiwi/un-peacekeeping-seminar-2017-hamburg)

Captivated audience at the German Armed Forces Leadership Academy: Simulations train understanding of multidimensional solutions in conflict situations.

cohesion

language and communicating



“What might have divided another student body actually united us”, says Henry Murphy. The Deputy Chair of the AnNa Student Council is alluding to the fact that everything is conducted in English. “We have a lot of international students who don’t speak German well. This way, we get everyone on board.”

The student council is active: film evenings, barbecues at the lake, spring or summer party – there is always an occasion for the department’s students to celebrate or get together. “But the biggest project is the student council itself”, says Sarah Brettschneider. “In addition to our studies, we invest a lot of time and effort in this work”, adds Chair Mara Neuerburg. The student council advises students on questions and problems, sells lab coats and holds practice exams. “We also sit down together every week to discuss topics or plan the next event”, says Neuerburg. All this, despite the fact that the degree programmes of all “AnNas” are very intensive. “We take our time and value personal communication”, says the chair. That makes an impact. “Regular meetings strengthen our community.”

The Department of Natural Sciences (AnNa) Student Council

is a closely-knit international community



Comprehension equals good test results

Digital teaching methods are gaining ground

Wikis and blogs, communication tools and clicker systems for voting with mobile phones in the lecture hall – the



Stefan Freitag, Lecturer with Special Responsibilities

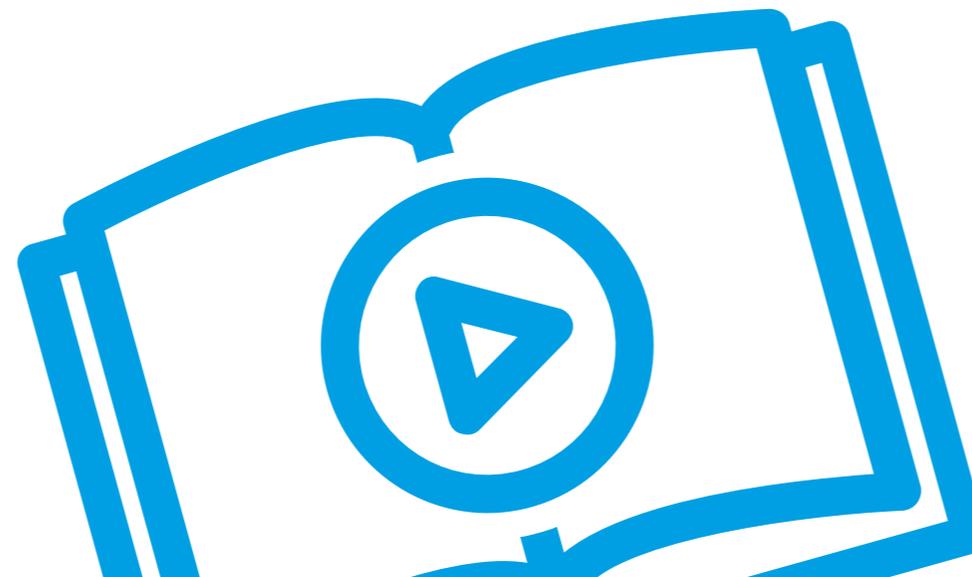
possibilities for digitalising teaching are endless. At H-BRS, too, more and more instructors are finding new ways to impart their knowledge. One of these is Stefan Freitag, Lecturer with Special Responsibilities in the Department of Management

Sciences. In his courses Business Mathematics for repeaters and Accounting Basics, he uses videos to supplement conventional methods. But instead of using material that already exists, he prefers to produce it himself. “My own formats are better suited to the needs of the students in my courses”, says Freitag. “That’s why the videos are a success.”

More learning success – higher scores on tests

There is another reason for the positive response. The videos are not just recordings of the lectures but rather preparations for them. “Students watch a recording beforehand, on the topic of curve sketching, for instance”, Freitag explains. “In it I demonstrate step by step how to proceed. We then have time for discussion and, most importantly, practice during the class period.” The result: students are more motivated, enjoy learning more – and perform better on the final exam.

Freitag is a proponent of what is known as the flipped classroom concept. “I can slip into the students’ perspective and solve the specific problems they have in understanding mathematics”, he says. “Frontal teaching is not very attractive, neither to the students nor to me as a lecturer.” Nevertheless, the qualified vocational instructor is the only one at the Department of Management Sciences who designs his course completely in line with the new method. That will soon change. Interested instructors are being supported by the e-learning team of the H-BRS library and the video laboratory. In fact, it does not require an exorbitant amount of effort, believes Freitag. “It’s no longer difficult to produce videos nowadays. Plus, the visual quality of the images is not very important – students simply appreciate it when lecturers apply new methods like these.”



Digitalisation in the lab

Professor Klaus Lehmann from the Department of Natural Sciences shares this impression. As part of the Pro-MINT-us project “eLab”, he started a model experiment together with research assistant Daniel Fine in the practical course Organic Chemistry. “We’re both heavily involved in laboratory training and wanted to transfer e-learning to this area”, says Lehmann. Since April 2017, a large touchscreen and several tablets have been added to the laboratory. “We’ve set up a virtual classroom and are testing its possibilities in the lab”, explains Fine. “In addition to the practical exercises, there are always phases in which the students solve practical tasks on the tablets and present the results in the plenum.”

The touchscreen also offers the possibility of discussing experiment set-ups or aspects of laboratory safety – including access to online databases. Not only does this lead to a better understanding of laboratory techniques but also more in-depth communication. “Working in the lab is always a social event”, says Lehmann. The eLab will therefore explore the possibilities of e-learning elements in order to increase interaction among the students. “The aim is to create a better understanding of what is being done and make the connection between lab and lecture clearer.”

This works. “Most students are happy that we try out so much in the laboratory”, says Lehmann. A great success is the digitalisation of the pre-test, in which students can now demonstrate their prior knowledge electronically before the laboratory phase. “This has a positive effect on the learning atmosphere because there’s no need to check preparation in the lab”, says Lehmann. “Now we can focus even more on the content.”

Opportunities to expand are currently being discussed: wireless cameras for laboratory participants to take photos of their experimental procedures, mobile phones that can be linked to the screen via “bring your own device” access and used as voting tools for anonymous learning-status surveys, the integration of learning videos or the remote evaluation of resulting measurements. “The project is far from finished”, notes Lehmann. “In a small eLab team we’re constantly discussing new possibilities – and the students can and should be part of that.”



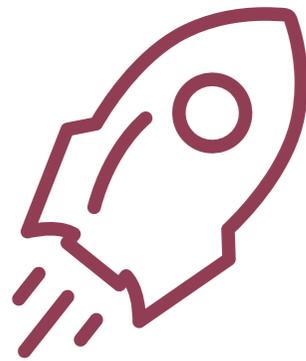
“Donate your deposit”

“Sei keine Flasche – Steck’s nicht in die eigene Tasche.” This slogan encourages students to bring their deposit bottles to a special collection bin, thereby donating their deposit money to a good cause. Five students from the Department of Management Sciences developed the initiative with the support of Professor Christoph Zacharias. The collection bin stands in front of the student canteen at the Sankt Augustin Campus. The initiative has met with active support. The donated deposit money goes to a dating agency for people with disabilities, offered by the Bonn association “Der Karren”.

First year shows great success

Career Service: from job fair to individual counselling

A successful Company Day 2017 with 120 businesses setting up exhibits, a very good response to the university's new job portal, well-attended seminars on all aspects of career entry, and plenty of individual counselling – this is the result of a single year of Career Service. The open hours consultation with direct personal contact is extremely important to Alexandra Lopes da Silva, Head of the Career Service. Twice a week she advises students, and the results are impressive. "Many counselling sessions ultimately lead to an employment contract", says Lopes. Take Joshua Rötthig for example. The Business Management student applied to Teqcycle Solutions GmbH as a working student in business development. "Thanks to the advice, I came to my interview relaxed and confident", he says. "The information material you get during the consultation is great, but the personal commitment of the Career Service staff is truly outstanding."



Finding the right partner

The Career Service is also the right place for those who don't yet know where their career paths are heading. In talks with the students, Lopes develops a plan that is tailored to each individual. "Interests and competencies are the starting block", she explains. "This often results in finding paths in industries that would not have originally been considered."

Students and employers are also brought together through the event series Careers on Campus ("Karriere am Campus"). In exclusive workshops, company representatives explain what is most important when starting a career. "It's crucial for companies to be present on campus", says Lopes. The perfect opportunity comes on Company Day ("Unternehmenstag"), which is coordinated by the Career Service. "We could easily have found 200 companies for the job fair, but with 120 exhibits in 2017, we've already reached our spatial limitations", says Lopes.

In order to provide as many companies as possible with a platform, the university launched a new online job portal in 2017. From jobs for student trainees and practical semesters to final theses and direct job entry, the exchange offers contacts to industry. "New offers go online every day", says Alexandra Lopes. Both companies and students benefit.

 [Link
www.h-brs.de/en/careerservice](http://www.h-brs.de/en/careerservice)

 [H-BRS job portal
www.stellenwerk-bonn-rhein-sieg.de](http://www.stellenwerk-bonn-rhein-sieg.de)



research

Research shapes economy and society



What is the mission of research? Is there even a mission for research? And does research need a mission? Many scientists

would say no. Nevertheless, research fulfils an important purpose in our society. It is the engine that can drive the development of a society forward. Technologically, it leads to innovations that further develop the economy; sociologically, it analyses the basis of our coexistence and can make a significant contribution to improving living conditions. Research always makes an impact on society, whether this is intended or not. The cohesion of a society is heavily dependent on economic and social conditions, which are also shaped by research.

As a society, we need research, and as a university we represent the interface between the two. We train students based on the latest research findings, and they transfer this knowledge to society. Through well-structured relationships between our university and business, we learn to understand the challenges facing companies and how we in science can contribute to overcoming them.

As a university of applied sciences, fulfilling our function as an interface is part of our self-concept. By opening a Centre for Applied Research, H-BRS is shaping this task and approaching the economy to conduct research together with companies and develop innovative solutions. The first projects were selected in 2018.

Sometimes months pass between research result and innovation, sometimes years or decades. The length of time this process will take cannot usually be predicted. What always remains true is that curiosity is a prerequisite for social progress and research at all levels is important for our social cohesion.

Prof. Dr Margit Geißler

Vice President Research and Young Academics

Research focus health

Scientists at the International Centre for Sustainable Development conduct research in international alliances to improve global health

Electron microscope

High-resolution insights for research: the new field emission electron microscope with computer tomography system enables non-destructive, spatially resolved, spectroscopic 3D examination of substances for materials such as ceramics and polymers, superconducting materials and sensors. It supports ongoing research projects of the Department of Natural Sciences and the institutes at the Rheinbach Campus and promotes cooperation both with the Department of Computer Science and with regional partners in industry. The Federal Ministry of Education and Research (BMBF) supported its acquisition with close to three-quarters of a million euros.

Health was an important focus of work at the International Centre for Sustainable Development (IZNE) in 2017. As diverse as the content of the various projects is, they all share the characteristics typical of the IZNE: they are interdisciplinary, regional and international.

Social cash transfers and health insurance in Kenya und Ghana

The project "Social and Health Policies for Inclusive Growth" (SHPIG) was successfully completed in July 2017.

Economists, political scientists and ethnologists from Ghana, Kenya, the Netherlands and Germany looked at which factors influence the development and implementation of social health insurance and social cash transfers in Kenya and Ghana – positively and negatively.

The findings of H-BRS professors Katja Bender and Esther Schüring show that measures such as social health insurance and social cash transfer contribute to better nutrition and paediatric health. The example of Kenya, however, made clear that there are major differences in acceptance. Social cash transfer turned out to be much easier to implement than social health insurance. "Reforms in the health sector involve more stakeholders, and conflicts of interest are more pronounced than in the social sector", says Katja Bender. Zeitgeist plays a role, too. "Many supporters rely on rapid relief measures, such as the provision of malaria

nets or vaccines, instead of investing in the long-term development of health systems", says Bender.

 [Link
www.h-brs.de/social-and-health-policies-for-inclusive-growth](http://www.h-brs.de/social-and-health-policies-for-inclusive-growth)

Energy supply in Ghanaian hospitals

In the project "Energy Self-sufficiency for Health Facilities in Ghana" (EnerSHelf) the team led by professors Stefanie Meilinger and Katja Bender is working on improving the energy supply in the Ghanaian health sector. "The country has been suffering from an energy crisis for years. Large sections of the population do not have stable access to electricity", Katja Bender describes the situation. The effects on the health sector are devastating: vaccines become unusable without refrigeration, operations cannot be carried out due to power failure, and women have to deliver their children at night in the dark.

As in the SHPIG project, scientists determined before the start of the project which social conditions influence sustainable energy transition and which supply solutions are feasible. In contrast to other African countries such as Kenya, solar energy is not widespread in Ghana. "We've invited stakeholders from the private and public sectors to workshops and conducted interviews. We encountered a great willingness to do something about the poor energy

supply in the health sector. Hybrid solutions, in particular the combination of diesel generators and solar energy, have emerged as a practicable approach", Bender explains. This was the go-ahead to apply for further research funding from the Federal Ministry of Education and Research (BMBF).

The H-BRS scientists are now investigating how the power supply can be improved with this combined form of energy. "We need to adapt existing solutions to the specific needs of health facilities in countries like Ghana", says Meilinger. In addition, the specific power requirements of hospitals must be determined and energy production from solar cells must be made more efficient. Local weather data plays an important role in the latter. Stefanie Meilinger provides an example: "If we can predict how strongly the sun shines and when clouds form, we can optimise control of the power facilities".

Understanding health holistically

Fifteen international doctoral students from the University of Bonn, the United Nations University and H-BRS are investigating the connections between human health, animal health and environmental health. Professors Wiltrud Terlau and Katja Bender, together with Dr Martin Hamer, will supervise four doctoral students in the project "One Health" launched in 2017. An interdisciplinary team of natural scientists, social scientists, humanities scholars

and physicians compares the health systems in the Ruhr area with those in three other metropolitan regions: São Paulo (Brazil), Accra (Ghana) and Ahmedabad (India). The doctoral projects are diverse. One doctoral student is investigating the risks of extreme weather events and their effects on agriculture in urban areas around São Paulo. Another PhD student is investigating how rock meal can be used as fertiliser in agriculture to increase the nutrient content of the soil.

 [Link
www.h-brs.de/one-health-metropolregionen-ganzheitlich-begreifen](http://www.h-brs.de/one-health-metropolregionen-ganzheitlich-begreifen)



Elvis lives?

H-BRS professors research secure online identification



Researchers created a realistic-looking ID card, and security measures for video identification were tightened.

A closer look at an ID card is interesting. Depending on the angle of view and the amount of light, various holograms appear on the plastic card. Federal eagles, stars and the passport photo shine in rainbow colours. "These are security features that help people recognise whether an ID card is genuine or forged", explains Professor Rainer Herpers from the Institute of Visual Computing (IVC) at Hochschule Bonn-Rhein-Sieg – University of Applied Sciences. In a project commissioned by the Federal Office for Information Security (BSI), Rainer Herpers, Professor André Hinkenjann and two IVC research assistants examined the ID card.

The security features of identity documents play an increasingly important role in everyday online life, when opening a bank account, for instance. In a video chat, customers must hold their ID card up to the camera of their computer or smartphone to identify themselves. The team led by the two scientists has developed a method that digitally manipulates the video sequence recorded by the camera before

the images are forwarded. "We held a self-made ID card in front of the camera and put the holograms and security features over it in post-processing", explains Herpers. "However, post-processing must be completed very quickly – in real time – so that the chat partner does not notice anything." This procedure also made it possible to create a realistic-looking ID card with the data of Elvis Presley. The manipulation succeeded so well that even the employees of the BSI found it difficult to distinguish the fake ID cards from the real ones.

Image manipulation is made more difficult

The research results carry consequences: the Federal Financial Supervisory Authority (BaFin) has tightened security measures for video identification procedures in order to make image manipulation more difficult. "During the recording, you have to hold an additional object in front of your ID card, such as your finger", says Herpers. The idea behind this is that the finger covers part of the badge, making it difficult to add an artificially created hologram afterwards. It may then appear on the fingertip, and the tampering would become visible. However, there were other loopholes, and research to improve security continued accordingly, notes Rainer Herpers.

Sightseeing tour with AR glasses

The Institute of Visual Computing (IVC) is working on multisensory information transmission – with support from the DFG

In the near future, tourists will be able to enjoy a sightseeing tour simply by putting on a pair of Augmented Reality glasses (AR glasses). Dr Ernst Kruijff and his team at the IVC are working on a project funded by the German Research Foundation (DFG).

In this project, IVC researchers are adding an eye-tracking system to conventional smart glasses. "We mount two small cameras below the AR-glasses, and these record the eye movements of the user. This tells us where the wearer of the glasses is looking, and relevant information can be placed there", explains Ernst Kruijff. In practice, this means that people wearing AR glasses are shown the names of individual buildings during a city tour. Software recognises when the wearer's gaze lingers longer on a specific building. "The wearer then receives additional information, such as the opening hours of a museum or the menu of a restaurant", says Kruijff. A big challenge at the moment is the very small field of view offered by AR glasses. If too much information is displayed, human perception is quickly overwhelmed. Besides, you only see what is directly in front of you, not what is left and right. Dr Ernst Kruijff's team is therefore working on translating the information into tangible and audible stimuli.

How many stimuli can a person process simultaneously?

For this purpose, the user wears a headband with vibration motors under the smart glasses. "If the user looks at a museum, for example, a tingling on the left side indicates that there is another museum on the left outside his or her field of vision", says Kruijff. If the tourist follows the vibration stimulus and turns his or her head, the appropriate information is displayed. Contact can then also be established by means of an acoustic signal.

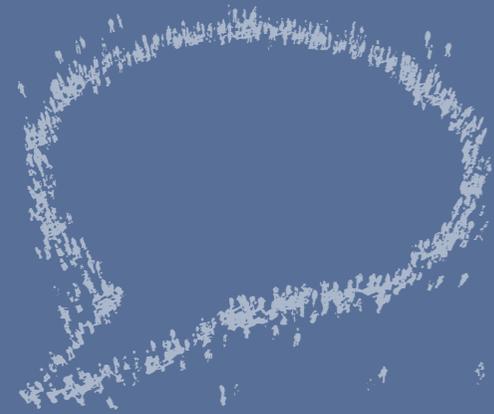
"In the long term, we want wearers of AR glasses to be addressed directly. Like this: On your left is an interesting museum", says Ernst Kruijff. But this is a dream for the future. "Imagine hearing ten voices and at the same time feeling a tingling sensation in five places – you'd be completely overwhelmed", he explains the problem. In order to find out how many different stimuli a person can process simultaneously without overload, the team has set up a model city with around 100 buildings in which the smart glasses are tested. Kruijff estimates that the glasses will be ready for use outside the laboratory in 2020.

Sightseeing alone but with expert input: In the future, AR glasses with acoustic signals will make this possible.



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language and communicating



“Communication with voice-controlled assistants such as Siri, Alexa, Cortana and the like simplifies our daily lives. I no longer need a remote control, and instead of doing lengthy research, I simply ask the question aloud in the room. I see a danger in the lack of data protection and especially in the interaction among many data strands. Whether you buy this or that book at Amazon is of little interest. But if this information is placed within the context of my last holiday, my financial conduct or my behaviour in relation to other people or computer systems, then it’s possible to find out more about people than they really want you to know.”

Prof. Dr Paul Plöger

is Vice Dean of the Department of Computer Science. As a specialist for autonomous systems, he sees advantages in communicating with machines but also dangers.



More time for the patients

Versatile transport robots relieve hospital personnel



Ropods can transport up to 200 kilograms, helping to relieve the nursing staff.

Robots that transport objects from A to B in hospitals already exist. However, they cost six-digit sums and are usually so inflexible that they can only transport a certain type of container. Scientists at H-BRS are about to change this: "We're building robots for a hospital in Frankfurt that are only half as expensive as competing models and can also be used for many different tasks", says Professor of Computer Science Erwin Prassler. Since January 2017, he has headed the EU research project "Ropod".

Up to now, the motors and gearboxes on robots have been particularly expensive. In the project, however, these would be replaced by standard components. "We use drive mechanisms from the consumer sector, wheels with integrated

hub motors, for instance, which are also used in electric scooters", explains Prassler. These "robotic pods" (Ropods) are based on two twin wheels connected by a short axis and the corresponding control electronics. Supplemented by a supporting surface, sensors and an onboard computer, it becomes a robot that can transport up to 200 kilograms. "For a wheel set with steering, we stay below 2,500 euros, which is very reasonable", says Prassler with satisfaction.

Multitalented robots

In addition, the Ropods can be used for many different applications. A shovel mechanism that can lift any kind of load can be attached to them. "The nursing staff only has to push the object into the shovel so that it can be loaded by the robot", explains the computer scientist. If an object weighs more than 200 kilograms or is too large, several Ropods are used. Another challenge faced during the daily hospital routine is the use of robots directly in the corridors of the clinic where they encounter people. "For this reason, an additional unique feature of our robots is that they yield. They avoid obstacles or can easily be pushed aside", explains Erwin Prassler.

Series production of the robots is scheduled to start by 2021 at the latest. The aim is to relieve the nursing staff of tedious and hazardous work so that they have more time available for their most important duty – the care and support of patients.

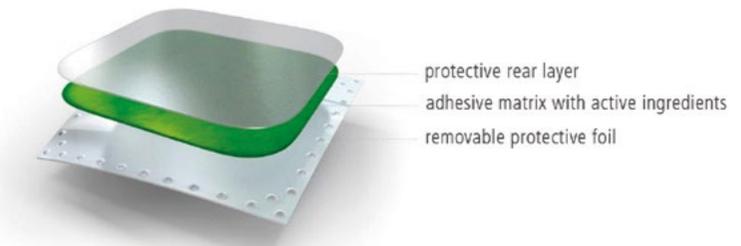
A sticky business

Scientists develop adhesive for therapy patches

Anyone who has to take medication regularly will find transdermal drug patches a practical alternative to tablets and capsules in certain cases. These patches release active ingredients continuously through the skin into the underlying tissue and the bloodstream. The big advantages over tablets are that these patches eliminate the side effect of gastrointestinal intolerance and patients no longer need to remember to swallow medicine several times per day.

In cooperation with LTS Lohmann Therapie-Systeme AG, scientists at H-BRS are working on optimising the adhesive properties of patches used for pain therapy, smoking cessation or contraception. In the BMBF-funded project MOTTSA, the team led by professors Bernhard Möglinger and Dirk Reith and young academics Dr Marco Hülsmann and Michael Meurer are investigating the three "life phases" of a patch: application to the skin, adhesion time, and removal. "The three phases are characterised by different stress rates," explains Meurer, PhD student at the Institute for Technology, Renewables and Energy-efficient Engineering. "If the patch is removed from the skin, stress rates are high, but during application or the wearing period, they are low."

Meurer is investigating the properties of the adhesive to derive the optimum mixing ratio of adhesive components for the patch. A so-called tack test is then used to check initial adhesive strength. In this test, a metal pin is pressed onto the patch for one second, pulled off again, and the force needed to pull it off is measured. "This is the exact case that occurs if you place the



patch on the skin and then want to adjust its position. If the patch is too strong or too weak, it must then be discarded", Meurer explains the experiment. Parallel to this, Hülsmann transfers the procedures to a computer model in order to simulate the behaviour of the molecules under certain influences at the molecular level.

The adhesive strength of patches is currently being tested on steel. "This is necessary because it's a defined surface", says Meurer. The problem: just because a plaster sticks well to steel, does not mean that it will behave the same way on skin. Thus, another goal of the scientists is to develop and use artificial skin substrates for use in the measurement process.

Jan Koepf works as a research assistant in the research project MOTTSA. Using a rheometer, he checks the adhesive properties of active ingredient patches.





Commitment for Africa

Business Management Professor Margit Ernenputsch investigates the efficiency of aid projects

Cost accounting and group accounting are actually the main focuses of Professor of Business Management Margit Ernenputsch. But in 2010 when she visited the Orotta birth clinic in Asmara, Eritrea for the first time at the invitation of a midwife friend, she developed a new interest: sustainability controlling. The poor care of pregnant women and newborns would not leave her head. "Women are left alone in pain during birth. Primary care for the babies is also inadequate. Many infants are not properly dressed after birth, putting them at risk of hypothermia", reports Ernenputsch. The maternity clinic delivers 10,000 babies per year – more than three times as many as the average German hospital.

All newborns should be well cared for – Professor of Business Management Margit Ernenputsch is committed to this goal and is founding a relief organisation.

Margit Ernenputsch studied economics at the Ruhr-University Bochum and received her doctorate (Dr rer. Oec.) in 1983. She then worked for 15 years as a lecturer at various institutions. In 1990, she founded her own business. Ernenputsch has been Professor in the Department of Management



Margit Ernenputsch

Sciences at Hochschule Bonn-Rhein-Sieg – University of Applied Sciences since 1998. Her courses focus on the fields of annual accounts and group accounting.

In addition to the misery in the maternity wards, the business management professor is struck by the commitment of the many volunteers. "With such dedication, the question turns to whether the aid is efficient and effective." Based on her experience in Eritrea, she also asked the German helpers in Ghana, Kenya and Uganda about their satisfaction with the organisation of the mission and the working conditions. The result: deficient infrastructure and gaps in the energy supply make humanitarian relief work difficult everywhere, and aid organisations do not always work efficiently. Ernenputsch describes an example from Uganda: "Halfway through a 50,000 euro project for prenatal care, it was discovered that women were not taking advantage of the offer because they could not let themselves be examined by men". This is a cultural taboo in Uganda. "A lot of money is wasted this way. It's absurd", says Ernenputsch shaking her head. Investment in acute care is often preferred to sensible preliminary examinations or the training of medical personnel because it is easier to justify to donors. "If you operate on a child or send medication, you can pat yourself on the back immediately."

In March 2018, the professor will return to Eritrea, this time with the aim of interviewing locals. She is also busy setting up her own relief organisation. Although she will retire in 2019, she wants to continue the evaluation and use the findings for her organisation.

Disarming safely

New detection procedure makes assessing dangers quicker and more accurate

Unattended baggage at railway stations and airports is a security risk as it may contain a bomb. In order to find out whether an object contains explosive substances and which measures are best suited to disarming it, the contents must be identified as quickly as possible. For this purpose, researchers at the Institute for Detection Technologies (IDT) at H-BRS developed an innovative solution in the LAGEF project, which was completed in 2017. "Previous technologies only display the inside of suitcases or bags or detect hazardous substances on the outside", explains project director Professor Gerhard Holl.

The new laser drilling system uses small laser sources to drill micro-holes in suspicious objects without causing them to detonate. "The laser pulses are too short and the openings too small to trigger an explosive reaction", explains Holl. Traces of the ingredients are pulled out through the micro-holes and collected on a filter for further analysis using a specially developed sampling system. After a detailed analysis, police bomb disposal units can determine the chemical composition of the substances and better assess the danger.



Made for practical use

The Federal Ministry of Education and Research (BMBF) funded LAGEF with 1.2 million euros for three years in the scope of the "Research for Civil Security" programme. "In the now completed project, we were successfully able to solve all scientific and technical challenges for future applications and realise them in a laboratory setup", says Gerhard Holl. Practical implementation is planned with industrial partners. The system is to be used on a remote-controlled robot platform to examine suspicious objects from a safe distance. LAGEF will soon be used by police bomb disposal units. A follow-up project aimed at further applications is also being planned.

 [Link
www.h-brs.de/lagef](http://www.h-brs.de/lagef)

Research Day 2017

Balancing over an abyss with Virtual Reality, test seats in a velomobile, or relaxing in a massage chair during a research break – around 20 institutes, departments and research groups of H-BRS presented themselves to the public for the third time on Research Day under the slogan "Research zum Anfassen" ("Hands-on Research"). In addition to the exhibition, H-BRS informed companies and partners about individual research projects through lectures and workshops. During the cooking show "Knowledge is Tasty" professors Johannes Mockenhaupt and Norbert Jung chatted about their favourite topic while cooking: current research issues. A ScienceSlam of young researchers concluded Research Day.

Transatlantic research cooperation

9,000 kilometres linear distance separates H-BRS from the University of California in Davis – but the two are very close in research. The Institute for Technology, Renewables and Energy-efficient Engineering (TREE) and the Department of Chemical Engineering have been working together for about five years. Their joint research focus lies in the area of force field development for molecular simulation models in materials research and biochemical systems. The collaboration was initiated by Professor Dirk Reith and his American colleague Professor Roland Faller, who previously conducted research together at the Max Planck Institute for Polymer Research in Mainz. The universities are currently exchanging doctoral candidates and visiting professors, and further exchange programmes such as a summer school are being planned.

Water on the move

Saving electricity when supplying drinking water – universities and companies develop optimisation software

Water travels a long way to flow out of the tap in a house. It is pumped from a source, such as a groundwater well, into the waterworks and from there distributed to the supply area. High pressure in the drinking water pumps and water pipes is needed to ensure that it does not just drip from the tap, and this in turn requires a lot of energy.

In view of rising energy prices, waterworks not only have the task of ensuring a supply of high-quality drinking water but also the efficient use of energy. This is where the EWave research project, funded by the Federal Ministry of Education and Research (BMBF), comes in. H-BRS is involved in EWave. Professor of Mathematics Gerd Steinebach from the Department of Electrical Engineering, Mechanical Engineering and Technical Journalism is leading a sub-project. “EWave is an energy management system in the water supply that can be used to optimise the energy costs of drinking water pumps”, Steinebach summarises the research project, which was completed in 2017.

The idea is that the pumps only generate as much pressure as is actually needed at the other end in the households. Up to now, the employees in the waterworks have switched the pumps on and off based on experience. Mathematicians and engineers from H-BRS developed a simulation program for the Rheinisch-Westfälische Wasserversorgungsgesellschaft (RWW) to calculate flow rates and water pressure in the entire supply area. With the help of this program, cooperation partners of TU Darmstadt, the University of Erlangen and Siemens AG developed optimisation software. “In this way, we can calculate pump

Excursion to the waterworks: Researchers are developing a system to reduce the energy costs of using drinking water pumps.



schedules that recommend to the waterworks employees when which pump should be switched on and off again, so that they can reduce energy consumption as much as possible and thus incur the lowest possible costs”, says Steinebach. The software calculates water consumption up to 24 hours in advance and even takes into account whether it is a working day or a weekend. Every 30 minutes, the control room in the waterworks receives suggestions such as “Switch pump 3 on at 19:00 and off again at 23:00”.

The pilot phase from January to June 2017 at RWW showed that if the operating personnel adhere to the program’s suggestions, energy savings of up to ten percent can be achieved. In this sense: water on the move – but only when necessary.

MAGAZINE

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Dr Lale Akgün has been senior researcher on the topics of ethics and responsibility at the International Centre for Sustainable Development (IZNE) of Hochschule Bonn-Rhein-Sieg – University of Applied Sciences since November 2017. Born in Istanbul in 1953, the psychological psychotherapist came to Germany at the age of nine. After her studies in Marburg and her initial years of professional work, she was active in party politics in Cologne until 1982. From 2002 to 2009, Lale Akgün was a member of the German Bundestag for the SPD. She draws the motivation for her personal and professional commitment from her social democratic principles, which she translates into practical work.

“Mentality creates words, and words shape society”

Senior researcher at Hochschule Bonn-Rhein-Sieg – University of Applied Sciences, **Dr Lale Akgün**, explains how language shapes us and our membership in a group and what role it plays in social cohesion.

What role do language and communicating play in social cohesion?

Language is one of the most important links in society. We are social beings and we have to be able to “make ourselves understood”. Everything that the mind produces is conveyed through language. How else would you communicate? In a plural society, there are a variety of native languages, but for social cohesion to function, everyone has to be fluent in the lingua franca of the respective country – in our case German.

Thoughts are free, but how free can formulations be, at universities, in politics – keyword: political correctness?

I’d like to reply to this question with a story. A sultan once had a dream that would give him no rest, so he sent for the most skilled dream reader in his country to interpret the dream.

“Oh, Your Majesty, what a terrible dream”, exclaimed the dream reader after the Sultan had recounted it to him. “You will lose all those you love and all those who love you. You will live in solitude and loneliness in your old age, and you will be known for your harsh and bitter words!” “Off with the dream reader’s head”, the Sultan shouted. “Bring me another!” The next day another dream reader sat in front of the Sultan and listened to the same dream.

“Oh, Your Majesty, what a terrible dream. If I understand it correctly, you will lose everyone you love...” “Off with his head!” the Sultan

interrupted. “Bring me another dream reader!” A third dream reader was brought before him. “Oh, Your Majesty, what a wonderful dream”, he exclaimed after listening to the Sultan’s words. “You will live to a ripe old age and being a wise Sultan matured in pain your words shall convey special wisdom.”

“Give the dream reader 100 gold coins”, the Sultan shouted.

The vizier who had witnessed the entire process, dared to contradict.

“But my Sultan”, he said, “the third dream reader said nothing different from the first two”.

“I know that”, the Sultan replied, “but he said it differently!”

Language is... how would you complete this sentence?

A mirror of the respective culture. Everything we call mentality or culture is reflected in the respective language. Bertolt Brecht is a German poet, and you can’t really translate James Joyce. I was in Dublin years ago at an event where participants read *Ulysses* in our native language

– but when we compared the translations to the original text, they were only vague reproductions that did not capture the core of this epic narrative. The core is Irish and can only be expressed in this particular English. In his book *So sprach Bellavista*, Luciano De Crescenzo writes that the Italian language has no suitable word to describe what is known as “privacy” in English, and this fact reveals a lot about Italian character. That’s probably true. Mentality creates words, and words shape society. In this context, I recommend the entertaining book by Ella Frances Sanders *Lost in Translation: Untranslatable words from around the world*.

How important is language as a factor in belonging to a group or class?

Language is a code, and groups have their own specific code. This not only serves for communication within a group, it also sets the group apart. It is arcane knowledge, if you will. You don’t have to attend the biophysicists’ conference to discover that. Even a reader of the “Frankfurter Allgemeine Zeitung” has to understand a different type of German from a reader of the “Bild-Zeitung”. Today, member-

ship in social groups is no longer indicated by brand clothing or fast cars but by language. Language draws a fine but very deep line between the classes. The cultural reproduction Pierre Bourdieu speaks of has a lot to do with language. Conversely, those who master certain linguistic codes have the chance to be accepted into social groups that are characterised by these codes.

How strongly does language determine identity?

Very strongly. Some time ago I was standing at Ebertplatz in Cologne in a car repair shop and could hear three mechanics talking, scolding and joking to each other in flawless Kölsch. Their identity as Cologne boys, but also their togetherness, was underpinned by the common language. On closer inspection, however, it turned out that these men were actually a Turk, an Italian and a Pole. The ethnic portion of their identities had long since disappeared behind their identity as Cologne boys. Would this have been possible without “uns kölsche Sproch”? I don’t think so.

Language from another star

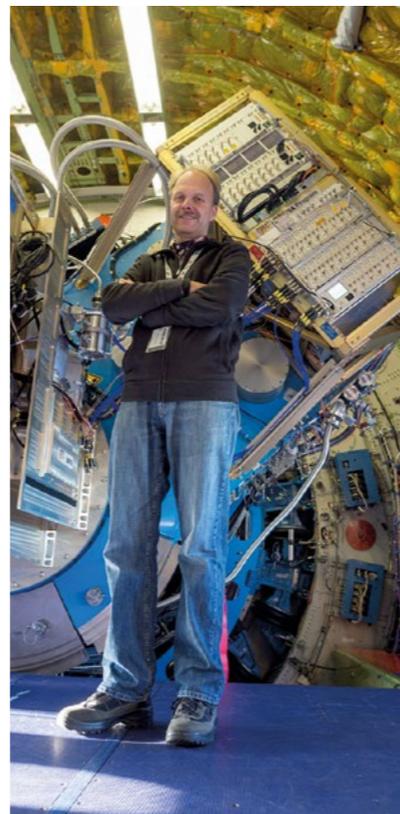
Astrophysicist Professor Bernd Klein teaches digital signal processing and radio astronomical instrumentation at H-BRS and is setting up the Department of Digital Signal Processing at the Max Planck Institute for Radio Astronomy. Communicating with the stars is part of his daily life.

Do you communicate with people and stars differently?

Spoken human speech works acoustically. Information is transmitted by the slightest pressure fluctuations in the air. Our ear recognises, by the different pitches and the volume, who is speaking and whether that person is close or further away from us. Stars communicate via electromagnetic radio signals, and we astronomers analyse the frequency. By understanding the language of the stars, we can draw conclusions about how old and heavy a star is and use this information to recognise which star is emitting signals.

Does each star have its own language?

In a way, yes. Depending on the size and composition of the star, the radio signal has different frequency components. If we compare the measured frequency with the resting frequency of the star, we can even determine if and how fast the star is moving. This so-called Doppler effect is also familiar from everyday life. A car that is moving toward us sounds different from one that is moving away. In this respect, we recognise the stars by their frequency language and receive a lot of information about them.



Helpers on four wheels

Telepresence robots, such as Double and AMY, will support the care of people with dementia in the future. Researchers headed by Helma M. Bleses [Fulda University of Applied Sciences] and Erwin Prassler [Hochschule Bonn-Rhein-Sieg - University of Applied Sciences] are investigating the possibilities. They develop the robots and test their use with patients at home. This robotic assistance is particularly important in rural areas, where fewer and fewer caregivers are facing a steadily growing number of people in need of care. The Federal Ministry of Education and Research [BMBF] is funding the RoboLand project with around 800,000 euros.

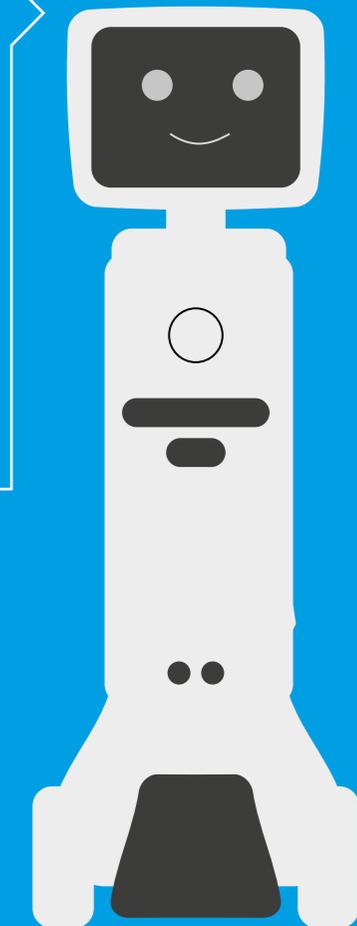
Good morning! I'm Double!

I support people in need of care or suffering from dementia by assisting in their daily life. Via the iPad attached to the top of my rod, these people can hold a video conversation with their loved ones and continue to participate in the lives of their family members and friends from the comfort of their own home. I'm also a big help to the nursing staff. They can control me from a distance and check via webcam to make sure that everything is okay. A built-in microphone allows patients to request help and nursing staff to provide support instructions.

Hello! My name is AMY!

Like Double, I help people communicate through video telephony via my built-in screen. But I can do a lot more, such as play music and answer questions. When I speak, I not only move my mouth but also blink my eyes and move my head and trunk. This body language makes communicating with me even easier and more pleasant. Thanks to my many sensors, I can follow people independently. I don't need remote control, so I'm always close to the patient.

 [Link
www.h-brs.de/roboLand](http://www.h-brs.de/roboLand)



Dialogue on diversity

Talks for more tolerance and cohesion

At H-BRS, men and women from a variety of nations and religions meet: people with and without disabilities, from academic and working-class families, young and slightly older, people with different sexual orientations. One of the goals of the workshop day "Between Guiding Culture and Multi-Culture: On what Kind of Campus do We Want to Live?" was to make people aware of this diversity and promote tolerance as part of the initiative "Respect! Time for Diversity, Time for Sustainability". Students, professors and other university staff discussed values, religion, sexism and other forms of discrimination at the university in an atmosphere of trust.



"An event like Diversity Day reminds us how important it is to treat each other with respect. I'm glad that the university is very tolerant. The diversity of religion and nationality enriches daily student life."

Enes Dogan,
AStA Chair

"Our university is diverse – a quick glance into our lecture halls or around the campus is enough to see this. 'It's good that way', we say. Sometimes, however, we're approached with concerns and worries and hear of situations in which heterogeneity, otherness or strangeness have given rise to misunderstandings and anger. We took up such concerns at the workshop. Becoming acquainted and communicating is the best measure against alienation and insecurity!"

Prof. Dr Annette Menke,
Commissioner for Diversity

"Diversity exists on campus – it's enriching, exhausting and constantly challenging everyone's habits. Hochschule Bonn-Rhein-Sieg – University of Applied Sciences addresses this task creatively and self-confidently. The discussions are serious, respectful, and do not cover issues up with political correctness. Good teaching and excellent research are only possible through diversity."

Dr Isabell Lisberg-Haag,
Diversity Auditor of Stifterverband



Alumni Webtalks

Alumni keep in touch with their alma mater via career chat



Even after graduation, many alumni remain in close contact with H-BRS. This is easier than ever in Webtalk where alumni can tune in via chat and participate in a video discussion. The new online format offers a discussion forum for and with alumni on the subject of "leadership and communication". Graduates Andreas Hahn and Markus Steffens, who are working in management positions and teaching at H-BRS, launched the platform in May 2017. They were supported by Eva Mahler-Behr, who teaches personal development topics at H-BRS as a Lecturer with Special Responsibilities.

Sub-topics of the three alumni Webtalks in 2017 were "Self-Management", "Lateral Leadership" and "Changing Perspectives". More than 90 alumni, and current students too, took part in the web conferences and actively participated in the discussion. "These Webtalks help us reach the alumni", says alumni coordinator Barbara Wieners-Horst. "Our graduates don't expect a 'light lecture' on topics they've already covered during their studies. But the topic of 'leadership and communication' is something that is relevant to many in their careers."



Link
www.h-brs.de/alumni-webtalks-2017-fuehrung

Alumni Webtalks on the H-BRS YouTube channel
www.youtube.com/user/hbonnrheinsieg

live

Growing together



"Cohesion, language and communicating" are the principles for successful cooperation in companies as well as

in universities. Only through defining common goals, intensive exchange and discussion can a university continue to develop successfully. This applies to H-BRS as a whole, in its various divisions and specialised areas, and in the administration.

The new buildings on the Sankt Augustin and Rheinbach campuses are an extremely visible example of successful cooperation. They were built under the university's own supervision ("Bauherreigenschaft") and opened for operation last autumn. Thanks to the successful work of all those involved, the next step in the university's growth, supplemented by leasing at both locations, was realised within both the projected costs and timeframe. This is the cornerstone for the university's further development, for the Centre for Applied Research in particular, but also for the university's range of activities within the Innovation Campus.

But inside the buildings too, constant development of administration and support for teaching and research is taking place. Thanks to the new spatial possibilities, the Student Service at the Rheinbach Campus will be further expanded to offer students even more intensive support during their studies.

By bundling the central IT in the Institute for IT Services, the cornerstone for successful further development of the university's IT infrastructure was laid. The task in the coming years will also be to harness the full potential of digitalisation for administration and university development. Examples include the introduction of a campus management system and the planned implementation of the e-file. In these projects, too, a participatory process guarantees successful implementation.

Barbara Schubert,
Vice Chancellor

ALUMNUS OF THE YEAR

Reach for the stars

Alumnus Achim Rehahn and his company are market leaders for weather-resistant illuminated objects



Achim Rehahn already knew during his business administration studies at H-BRS that he wanted to be his own boss someday. But he did not want to take this step without any work experience and started his professional career at the Tchibo retail group. When the company dismissed all sales managers under 30 years of age in 2007/2008, he ventured into self-employment with 100,000 euros start-up capital. Rehahn established a company for decoration articles under the name "8 Seasons design". He benefited from the contacts of his parents, who as florist wholesalers had been dealing with traders in Asia. From that point on, Rehahn imported decorative articles for garden centres.

Obstacles at the start

But success evaded him, and the start-up capital shrank quickly. By chance Rehahn discovered a little decorative, shining tree in Asia, which inspired him and gave him the brilliant idea that saved his business: high-quality, weatherproof illuminated objects for the German market. He patented the first light, in the form of a star, as a European and American design and tested the product at a trade fair. "We generated 99 per cent of our trade fair turnover with the illuminated stars, everything else was left in the dust", recalls Rehahn. The business manager re-launched, but then a new problem arose with the lighting. He was worried about the low quality of Asian goods. "But the

books were full of orders and the goods had to be delivered", says the founder. During this time he worked 19 hours a day, right through a bout of influenza, and ended up in intensive care. "I was almost dead, and my wife was trying to keep the company afloat while caring for our newborn daughter in her arms." As he was on the verge of giving up, a German company was found that could produce higher quality illuminated stars for him.

"And then business skyrocketed", recounts Rehahn. His company 8 Seasons design is now the market leader in Germany. Spheres, rabbits and many other motifs have joined the illuminated stars. In addition to product development, the founder is now investing in companies himself, giving lectures and, in 2018, taking up a teaching position at his alma mater, to which he feels very close. "I benefited greatly from the practical seminars, both as an employee and as an entrepreneur."

Founder and investor Achim Rehahn advises students not to become self-employed immediately after graduation but to gain experience in a company first.

Journalists meet prospective journalists

Students and refugees deepen intercultural competence and media knowledge

They are photographers, journalists or radio presenters from Syria, Afghanistan or Lebanon and have fled to Germany because they could no longer live and work in safety in their home countries. A unique encounter project brought together eleven journalists from war and crisis regions with 14 students, from the degree courses Technical Journalism/PR and Technology and Innovation Communications at Hochschule Bonn-Rhein-Sieg – University of Applied Sciences, in a workshop.

In small, mixed groups, they worked on topics of concern to the refugees. To this end, the course participants interviewed each other, researched and wrote contributions. Andreas Viehof, project manager and research associate in the Department of Electrical Engineering, Mechanical Engineering and Technical Journalism, describes the range of topics: "The focus was on the living conditions of refugees in Germany and the opportunities and challenges they face, but also on journalism in Germany in comparison to other countries". The texts are published on their own special website.

"It was important for us to give journalists from Syria, Afghanistan and Lebanon theoretical insight into the German media landscape", said Viehof. Communication expert Professor Michael Krzeminski gave several lectures on this topic. In addition, all participants deepened their intercultural skills at the weekly meetings. The students benefited from the experiences of the refugees. They learned a lot about the situation in their home countries and the challenges faced by them in their new home, Germany. "We have shown how we can contribute to



integration through simple means and big commitment", says Viehof. Due to the positive response of all participants, the workshop has already been offered again.

Fellow journalists: The mutual interviews create trust and understanding.



Texts and backgrounds

www.h-brs.de/de/imea/news/workshop-fuer-gefuechtete-medienschaffende

Sustainably built – more space for teaching and research

Finished! Just over one and a half years after construction began, the new buildings in Sankt Augustin and Rheinbach are open for use. Now sufficient space is available to accommodate the enormously increased number of students (9,000) and employees (around 1,000). "This structural development reflects the dynamics of change in science, the economy and the labour market. Adapting to this is part of the university's development strategy", says University President Professor Hartmut Ihne.



With a view of the lake: The new building at the Rheinbach Campus houses state-of-the-art research laboratories for the Department of Natural Sciences as well as seminar rooms for the Department of Management Sciences. The Centre for Applied Research (ZAF), the Equal Opportunities Office, Facility Management and the AnNa Student Council are also located here.

For the construction of the new spaces for teaching and research – a total of around 5,600 square metres – H-BRS invested 36 million euros. This sum includes 24 million euros in funding from the Federal State of North Rhine-Westphalia (NRW). In Sankt Augustin alone, construction cost 15 million euros, in Rheinbach 11 million. Collections were also expanded: renovation provided the University and District Library with more space.



Bright and lineal: In Sankt Augustin, part of the Department of Management Sciences and the Centre for Applied Research (ZAF) have moved into the new building. In addition, the central service facilities of Human Resources, Finance and Facility Management are now located in the new premises.





H-BRS student awarded Prize for Civil Courage

"When I came to Germany from Afghanistan seven years ago, the city of Bonn helped me a lot. Now I want to give something back", says H-BRS student Safi Khaliqi. He is one of three winners of the Youth Prize for Civil Courage awarded by the Federal City of Bonn for commitment to refugees. The prize was conferred for the first time in 2017. Safi Khaliqi has served as the contact person for underage Afghan refugees for two years, works as a translator for the Evangelical Information Centre and organises sporting activities: the technical journalism student founded the FC Jawanan Bonn football club, in which refugees play football together with Germans.

Winner of the innovation competition with EPICSAVE

In 2017, the EPICSAVE project was among the 100 prize winners in the innovation competition "A Place of Excellence in the Land of Ideas". The scientists headed by project director Professor Jonas Schild developed a new training approach for future paramedics. Using VR glasses, future emergency responders immerse themselves in a virtual environment in which they are confronted with virtual patients. This approach allows even comparatively rare emergency situations, such as anaphylactic shock in children, to be components of practical training.

H-BRS hosts German University Championship in Road Running

On your marks, get set, go – about 60 students from 17 universities ran in the German University Championship in September. The road race covered 10 kilometres in Siegburg. H-BRS hosted this competition for the first time. Runners came from all over Germany, from the Humboldt-Universität Berlin, the University of Würzburg, the TU Dortmund and the RWTH Aachen to name just a few. With ten registered runners, H-BRS was the most strongly represented university behind KIT Karlsruhe. Doctoral student Martin Schenk, the fastest H-BRS runner, placed 28th. First place went to the student Jannik Arbogast from KIT Karlsruhe.

For 20 years the ball has been rolling

The football tournament of the Department of Management Sciences boosts team spirit

On a Thursday toward the end of the summer semester, students and lecturers of the Department of Management Sciences turn into football players. This has been a tradition for 20 years. Professor Dirk Schreiber has been participating enthusiastically for a long time. "We lost bitterly the first few years", he admits. "The ravages of time have left their mark on us professors, while year after year the students remain constantly young." With this factor in mind, only half of the field is played on the pitch of the local football club ASV Sankt Augustin. "If we don't have to run quite as much, our inferiority isn't quite as noticeable", Schreiber laughs.

A year of fame and glory

But then something happened that Dirk Schreiber had no longer dared to hope for: a draw in 2016 and a 1-0 victory against the students in Anniversary Year 2017. Schreiber believes he knows why. "In recent years, we've recruited many research assistants in best football age", he smiles. In addition to fame and glory, the winning team basks in victory for an entire year and can tease their opponents. "Carefully though. We know that our opponents may take their revenge after the next tournament", says Schreiber.

Fair play and team spirit – on the pitch and in the department

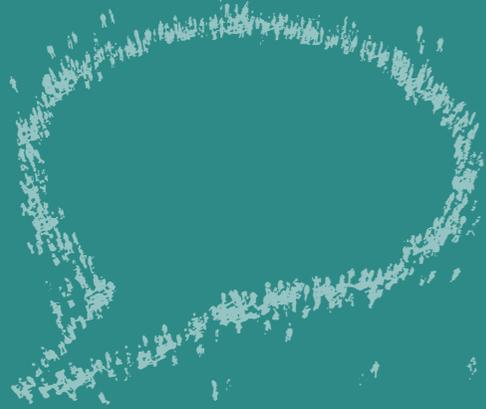
This match between students and professors is not just about victory or defeat. "None of us plays football regularly", says Janny Saraceno, Vice Chair of the Student Council for the Department of Management Sciences. "The focus is on fun and relaxed contact between students and profs." Dirk Schreiber agrees with her. He appreciates sitting together with sausages, Kölsch beer and cola after the game. "This tradition makes the atmosphere in our department even better than it already is." Team captain Professor Norbert Seeger likes to draw an analogy between departmental organisation and football: "Nothing in either field works without fair play and team spirit".



A strong team on the pitch and in the lecture hall: Football bonds in the Department of Management Sciences

cohesion

language and communicating



“When I was ten years old, my family moved to Norway. Since I attended a German school, I never really learned Norwegian well. I had many German and English-speaking friends but few Norwegian friends because I couldn’t speak their language. I realised very early on that I’m not really present in a country and culture if I don’t speak the language.

I’d like to share this experience with the students at H-BRS. Sufficient language skills are necessary for surviving in everyday university life and qualifying for the labour market. Most importantly, they help to cope with a new environment and participate in social life – be it a semester abroad in Spain, China, Ghana or while studying in Germany.”

Jeannette Bergmann

is Head of the HBR-S Language Centre. She believes that language skills and intercultural competence are prerequisites for equitable communication and social participation.



One world – many languages

Kinderuni Rhein-Sieg has been inspiring schoolchildren for 5 years

“One world - many languages” was the motto of the Rhein-Sieg Children’s University 2017/2018. For five years now the format has been inspiring eight to twelve-year-olds with exciting lectures and hands-on activities, often from surprising perspectives. In 2017, for example, the series of events focused on more than national languages. The children explored forensics as the language of crime or tried to communicate through dance. In addition, the lecturers shared “How humans learn language” and “How we speak and think in different languages”. The children were amazed at how different language and communication can be in other cultures – that Hebrew is written and read from right to left, for instance, or how shaking the head can express agreement in other cultures.

“It’s a successful mixture”, says Caroline Pesch, Event Manager and Coordinator of the Children’s University at H-BRS. “We combine our focus on science and economics with the variety of topics from our cooperation partners, the Philosophical-Theological College SVD Sankt Augustin and the Alanus University of Arts and Social Sciences in Alfter.”



Curiosity and hands-on experience – two important ingredients for success at the Rhein-Sieg Children’s University

Fun with science

In 2013, the Children’s University at H-BRS opened with a lecture by Professor Reiner Clement, initiator of the Children’s University and former Vice President for Regional Development, Transfer and Innovation, on the question “Can you buy happiness?” Since this first lecture, interest among children and parents has grown steadily. Now, around 500 children take part in workshops and lectures each year – more are on the waiting list. The number of participants at H-BRS is generally limited so that the children can work and experiment hands-on. “Otherwise, an interactive workshop, such as teaching the children to write Chinese characters, would be difficult to supervise”, says Pesch.

Fun with science is a top priority for everyone involved – including professors and research assistants at H-BRS. The voluntary commitment of the lecturers makes the events possible, and the Children’s University is a wonderful experience for everyone involved. Caroline Pesch explains, “Children are less inhibited and aren’t afraid to ask questions or contribute their knowledge – a great experience for the teachers as well. We look forward to the next five years”.

 [Link
www.kinderuni-rhein-sieg.de](http://www.kinderuni-rhein-sieg.de)

10 Years BRS Motorsport

“It’s basically a second full-time job alongside your studies”, says Gülsen Güldal. The technical journalism student is one of around 80 students on the BRS motorsport team who construct racing cars for Formula Student Electric in their spare time. About ten students founded the club in 2007. Combustion engines were replaced in 2013 with electric drive, which fits in with the university’s focus on sustainability. The team celebrated its most successful season to date in 2016: the third electric racing car carried the team to 8th place in the world rankings. In 2017, the students developed a four-wheel drive racing car to take curves faster. The new racing season can begin.

 [Link
www.brsmotorsport.de](http://www.brsmotorsport.de)



Career Path Professorship

The NRW state programme “Karrierewege FH-Professur” supports qualified young academics on their way to a professorship at a university of applied sciences. The aim is to gain the career experience outside the university that is required for this professorship. Dr Jan Kleinert and Dr Johannes Steinhaus from the TREE Institute are participating in the state programme. One holds half a position at the German Aerospace Center (DLR), the other at the mechanical and plant engineering company Rupf Industries. There, during the three-year funding phase, the prospective professors are acquiring the necessary experience in the industry.

First Ethical Research Conference

Students and scientists discuss technical autonomy



“Good or bad? Technical Autonomy in Discourse”: this hot topic brought 250 scientists, entrepreneurs and students to the international and interdisciplinary Ethical Research Conference at Hochschule Bonn-Rhein-Sieg – University of Applied Sciences. “The conference was a first for the Institute for Technology, Renewables and Energy-efficient Engineering – TREE”, reports journalism professor Katharina Seuser, who restructured the lecture series on technology and environmental ethics into a conference. Seventy students from the seminar “Technology and Environmental Ethics” were actively involved. They provided support for the conference from applications to documentation and evaluation.

Research and discourse

At the opening of the conference, scientists discussed autonomous driving systems and who is responsible in the event of an accident. Does the government have to decide, are the programmers responsible, or does the user also carry some responsibility? Even if this question could not be answered clearly, it does show how important the discussion surrounding this issue is. “Raising awareness among the engineers and scientists involved about the repercussions of their actions helps”, says Professor Dirk Reith,

founding director of TREE. Agreement was reached that autonomous driving can help to prevent accidents, as most car accidents are due to human error. The problem with autonomous systems is the need for analysis of continually incoming data in a very short time; this is crucial for safe driving. The first part of the conference concluded that further interdisciplinary research and public discourse were needed. Dirk Reith is positive overall: “The feedback shows that we’re still at the beginning of development in terms of autonomy and its acceptance, but that we’ve struck a chord with this topic. I’m very glad that TREE included a megatrend of the future in its research portfolio at such an early stage”.

Other topics at the Ethical Research Conference included technology for nature, the connection between high-tech and big data, and technological research and development.



Link
www.technikjournal.de/category/tree-forschungskonferenz

collaborate

Communicating regionally and internationally



We encounter collaboration and teamwork time and again, be it professionally, at university or privately. One of H-BRS’s

main areas of collaboration is regional internationality. The project “STARK - Career in Germany”, which was launched in 2017, aims to inspire international students and migrants to work for small and medium-sized enterprises in the region and to prepare them for the job market. These “hidden champions” among employers have a great need for junior staff with international experience – an advantage that students are usually unaware of.

A change of perspective and taking other positions and stories into consideration are necessary prerequisites for successful collaboration. This was demonstrated at the journalist workshop “Migrate Your Mind - Tell your Story!”, where students in the degree programmes Technical Journalism and Technology and Innovation Communications conducted interviews, wrote and produced articles together with refugee journalists.

Collaboration also means finding new and innovative ways to achieve success and gain new insights. With its participation in the Digital Hub Region Bonn AG and a seat on the Supervisory Board, H-BRS secures its access to the digital start-up scene and enables students and researchers to exchange ideas with hands-on entrepreneurs.

Last but not least, funding facilitates the realisation of cooperation projects and paves the way for change. This is what the “Partnership for Applied Sciences” (PASS) project, funded by the DAAD, is about. As a university of applied sciences with a strong practical orientation, H-BRS makes a good impression. The aim of the project is to strengthen the practical orientation of teaching and research as well as the administration at Ghanaian partner universities in order to increase the success of students and graduates in the labour market and create new employment opportunities. This project also shows the great importance of cooperation with developing countries at H-BRS and helps to increase the focus on Africa as a priority continent for strategic cooperation.

Prof. Dr Jürgen Bode

Vice President for International Affairs and Diversity

Experts for the Bonn/Rhein-Sieg region

Project STARK prepares students for the German labour market

More than 1,400 foreign citizens are currently studying at Hochschule Bonn-Rhein-Sieg – University of Applied Sciences. In times when skilled employees are scarce, this represents a great potential for the Bonn/Rhein-Sieg region. However, foreign students and graduates are often unaware that they can score points with very specific skills that their fellow German students may lack when applying for an internship or a job. “Knowledge of foreign languages and a different way of thinking based on their respective cultures make foreign graduates an asset to companies”, says Dr Agnes Derjanecz from the Centre for Science and Technology Transfer (ZWT). She leads the STARK (“STRONG”) project, which launched in 2017 and is aimed at HBR-S students with foreign passports. The project provides personalised counselling and coaching in order to develop individual strengths for future applications. STARK was founded by the Vice President for International Affairs and Diversity, Professor Jürgen Bode.

“Not only do I check the application portfolio, I also support career decisions”, explains counsellor Derjanecz, “such as whether an unsure graduate should pursue a doctorate or apply for a position in business”. In addition, there are workshops in which participants learn more about the rules of the German labour market and how to present themselves successfully. STARK also relies on the buddy principle – students of Business Psychology, led by Professor Patrizia Ianiro-Dahm, coach foreign students during the career entry process.

STARX
KARRIERE FÜR INTERNATIONALS

“Knowledge of foreign languages and a different way of thinking based on their respective cultures make foreign students an asset to companies.”

Dr Agnes Derjanecz,
STARX Project Director



Companies are in demand

In order to increase the chances for success of foreign graduates’ applications, H-BRS brings regional companies on board. They can get actively involved – with a stand at the international job fair planned at H-BRS, by offering internships or providing lectures and training. Through STARK, H-BRS is also contributing to the economic competitiveness of the region by establishing a network of actors from administration, business and civil society. “Together we want to ensure that foreign experts find attractive jobs here after completing their studies at H-BRS”, says Derjanecz.

 [Link
www.h-brs.de/en/STARX_English](http://www.h-brs.de/en/STARX_English)

Better career prospects for Ghanaian students

University cooperation PASS

“Renewable energies and tourism can shape Ghana’s future”, says Sonja Keller. She heads the university partnership “Partnership for Applied Sciences – PASS” at H-BRS under the responsibility of Professor Jürgen Bode, Vice President for International Affairs and Diversity. PASS aims at improving the employment opportunities of graduates of the technical universities in Cape Coast and Kumasi.

Under the leadership of H-BRS and with the participation of the TH Cologne, a Bachelor’s programme in Renewable Energies and Sustainable Engineering is being developed at the Kumasi Technical University. At Cape Coast Technical University, a new Bachelor’s programme in Tourism is in planning. To this end, an existing certificate programme will be expanded and converted through the help of tourism experts from the IUBH University of Applied Sciences Bad Honnef among other institutions.

PASS is funded for four years by the German Academic Exchange Service (DAAD) with resources from the programme “NRW-Partnerships for the Promotion of Technical Universities in Ghana”. The Ghanaian government plans to restructure the country’s technical schools along the lines of German universities of applied sciences. “Our project supports this process”, says Keller.

Test cases anchor the new structures

Since the official launch in summer 2017, the partners have been developing the curricula and organising workshops on higher education strategy and entrepreneurship in order to strengthen practical relevance and entrepreneurship



at the universities. In each test project, application-oriented teaching is being tested throughout the university. As part of the testing at Cape Coast Technical University, an ecologically sustainable guesthouse is to be built – planned, constructed and operated by the university and the students. “Tourism students are involved in the business plan and engineers will help with the construction”, says the project director. In addition, company partners are involved to strengthen the regional business network of the university. Once the eco-guesthouse is completed, students in marketing, as managers and as tailors or hairdressers will be able to offer their services to the guests. “They’ll have the chance to learn about business during their studies.” In a similar vein, a Green Campus will be set up at Kumasi Technical University to introduce students to environmentally-friendly management and renewable energies.

 [Link
www.h-brs.de/en/izne/partnership-applied-sciences-pass](http://www.h-brs.de/en/izne/partnership-applied-sciences-pass)

Planning the new Bachelor’s programmes in Renewable Energies and Tourism: Representatives of Kumasi and Cape Coast Technical Universities, H-BRS Bonn Rhein-Sieg – University of Applied Sciences, and TH Cologne.

Making IT secure

H-BRS and Fraunhofer offer professionals excellent further education



An encrypted connection is cracked or a web server is broken into. This is a sad everyday experience for many companies. In order to learn how such attacks can be prevented, the Cyber Security Learning Lab was established at Hochschule Bonn-Rhein-Sieg – University of Applied Sciences in 2017. The university operates it together with the Fraunhofer Institute for Communication, Information Processing and Ergonomics (FKIE). The learning

lab offers modules for working professionals on various topics involving IT security. It is aimed at company network administrators or developers of secure software and hardware, among others. “We want to bring the awareness of high level IT security as well as the necessary competencies to SMEs”, explains Professor Karl Jonas, director of the H-BRS learning lab.

Part of the Fraunhofer Academy

Through the Cyber Security Learning Lab, the university is a partner of the Fraunhofer Academy, the further education institution of the Fraunhofer Society. In six learning labs throughout Germany, a university of applied sciences and a Fraunhofer institute each offer further education together. “We cooperate with the FKIE because it conducts research on the same topics and is also located in our vicinity”, says Jonas. But it is not just the connection to FKIE that is of

advantage to H-BRS. “We establish contacts to companies from which new projects can emerge. The Fraunhofer Academy also provides us with additional funding to develop professional seminars that are always up to date.” The partners specialise in high security and emergency response. The programme includes modules on the basics of IT security and biometric security, all organised and taught by employees of H-BRS and the FKIE.

Highly demanding standards and content, up-to-date topics and practical work characterise the further education. “Many further education courses in the field of IT security exist. We set ourselves apart from the competition in terms of quality. The positive feedback from the participants confirms that we’ve succeeded”, says Karl Jonas. The contents of the modules are drawn from the university’s own research findings. “In the future we’d like to conduct research together with the FKIE and bring our joint know-how to the learning lab”. A move to the newly established Centre for Applied Research (ZAF) at the H-BRS Sankt Augustin Campus is planned for 2018.

 **Link**
www.h-brs.de/pressemitteilung/hochsicherheit-und-emergency-response

 **More about FKIE**
www.fkie.fraunhofer.de/en.html

Opening of the Cyber Security Learning Lab: Prof. Dr Georg Rosenfeld, Executive Vice President of Technology Marketing and Business Models at Fraunhofer; Prof. Dr Hartmut Ihne, President of H-BRS; Dr Doris Schnabel, Ministry of Innovation, Science and Research NRW; Thomas Rachel, Parliamentary State Secretary to the BMBF; Prof. Dr Peter Martini, Director of the Fraunhofer FKIE Institute (from left to right)

Combining German and science

Eastern Europeans come to H-BRS via the Goethe-Institut

They are enthusiastic about STEM and have good German language skills – the graduates of the Goethe-Institut’s programme “Studienbrücke Deutschland” (“Study Bridges to Germany”) come from Russia, Ukraine, Kazakhstan and Georgia. They can apply for a place at seven German universities. H-BRS participates through a Bachelor’s degree programme in Chemistry with Materials Science.

“We cooperate with the Goethe-Institut because it brings us into contact with talented young people from Eastern Europe who are enthusiastic about studying science in Germany”, explains chemistry professor Steffen Witzleben. Through the programme “Studienbrücke Deutschland”, ninth-graders in the above-mentioned countries not only learn German, but also continue their education in a STEM subject and are prepared for a possible degree course in Germany.

H-BRS prevails over other universities

The seven German universities introduced themselves personally to the scholarship holders at information events organised by the Goethe-Institut in Moscow, Kiev, Tbilisi and Astana. In addition to H-BRS, the TU Dortmund and the Ruhr University Bochum are among the partners of the programme. H-BRS left a lasting impression on Mikhail Rybkin. “I was attracted to the idea of studying at a smaller institution, and I was not disappointed – the courses are personal, the lecturers have a lot of time for supervision, and they answer all questions”, says the Muscovite.



In winter semester 2017, Rybkin began studying chemistry at the Rheinbach Campus and speaks enthusiastically of his experience. “The lectures are fun. I learn a lot and I enjoy working in the ultra-modern laboratories.” Integration outside the university was also smooth. “I even found a part-time job in a restaurant, so I can live here without the financial support of my parents”, says the student. Steffen Witzleben hopes that many graduates of the “Studienbrücke Deutschland” programme will follow in Rybkin’s footsteps in the next few years. “We can offer ten places per year in our degree programme.”

Mikhail Rybkin from Moscow speaks enthusiastically about studying chemistry at H-BRS: “I love working in the ultra-modern laboratories”.

cohesion

language and communicating



"It's good that "my" Chinese students will have already learned German by the time they arrive. During the first phase of their studies in China they take intensive German language courses. This makes communication with them much easier for us. When the students arrive in Germany, many things are very foreign to them – the people, the culture, the food. They can cope better with the transition if they understand what's being said. It's helpful that the lecturers in the Department of Management Sciences speak particularly slowly and clearly. Chinese students are thus able to follow the seminars well.

Study buddies help them become accustomed to everyday life. These are German students who undertake activities with their fellow students from abroad in their free time. The bonding works well. Sometimes true friendships grow, sometimes even more. Last year a German-Chinese couple resulted."

Karsten Heinrich

is a research assistant in the Department of Management Sciences in Rheinbach and supervises about 25 Chinese students each year in the cooperation programme of the degree course in Business Management.





United for global sustainability

As one of five players in the Bonn Region of Science, H-BRS established the “Bonn Alliance for Sustainability Research” at the World Climate Conference 2017 under the leadership of the University of Bonn and together with the Institute for Environment and Human Security of the United Nations University, the Bonn International Center for Conversion and the German Development Institute. H-BRS aims to use synergies in research to contribute to achieving the global Sustainable Development Goals (SDGs).

Sylvie Hambloch-Gesinn new Chair of the University Council

“On the University Council, I’d like to contribute to ensuring the long-term quality of the teaching and research on offer. H-BRS should look to the future with the goal ‘simply the best’”, says Sylvie Hambloch-Gesinn. The lawyer has been Chair of HBR-S University Council since September 2017.

For more about the new university council see p. 65

Rainer Herpers as visiting professor in Canada

Virtual entities that depart from expected behaviour depending on the situation – this is what Professor Rainer Herpers is working on at the Institute of Visual Computing. These cognitive agents improve serious game scenarios in Virtual Reality environments. In 2017, the director of the institute shared his knowledge as visiting professor at the University of New Brunswick in Canada. Together with his colleagues from the fields of gaming technology, modelling and human-machine interaction, he developed strategies on how virtual entities can be better used in simulations.

Modern and independent

H-BRS supports the use of open-source software in the Arab world

Open-source has long since established itself at H-BRS – the programs are often free of charge and the code is visible to everyone so that security gaps and errors are quickly recognised and eliminated within the programming community. The Department of Computer Science also supports the establishment of open-source at other universities, with a focus on the Arab region. The OSSCOM and OPEN projects modernise learning methods and technologies at universities in Jordan, Lebanon and Morocco without making them dependent on large IT companies.

“Corporations like Microsoft are also checking user licenses in these countries. These licenses are basically unaffordable for students”, explains project director Professor Rainer Herpers. “Open-source software is also attractive for the local economy.”

From 2014 to 2017, H-BRS supported the establishment of Technology Centres at the German Jordanian University, Lebanese University and Notre Dame University in Lebanon through the OSSCOM project. European partners were Brunel University in West London and the Spanish University of Castilla-La Mancha, as well as several IT companies. “We trained the staff in workshops and developed a plan for TC, which went online in 2017 at the three sites”, says Herpers. OSSCOM was funded by the European Tempus IV programme. The TCs are private cloud servers, on which primarily open-source software is installed so that university members and the general public can access it. Another product of successful and sustainable cooperation: in Lebanon, the non-profit organisation FROSCOM, founded by the OSSCOM project partners, is committed to the use of free and open-source software.

OPEN brings Moroccans to Sankt Augustin

H-BRS pursues a different approach with the DAAD-funded exchange project OPEN. In training courses in Morocco and Sankt Augustin, Moroccan students, doctoral candidates, university lecturers and other staff continued their education in open-source tools and programming languages or learned how to handle open-source tools professionally during an exchange semester or a research stay at H-BRS. The successful project was extended for 2018.

Personal contacts are of particular benefit to H-BRS. “Projects like this open the door to new research ideas and projects for us. Our students also benefit. OSSCOM has initiated two joint research projects, for instance, which are now being carried out by doctoral students at H-BRS”, says Rainer Herpers.

 [Link
www.osscom.org](http://www.osscom.org)



IT training in Sankt Augustin on open-source tools and programming languages

Digital Hub Bonn: H-BRS professor on Supervisory Board

The Digital Hub Bonn is helping to shape the digital future of the region, and H-BRS is involved. Right from the start, the university has supported the establishment of the start-up smiths at the Bonner Bogen. Officially opened in 2017, young entrepreneurs will develop their digital business ideas through co-working and networking with regional businesses. Professor Klaus Deimel, Director of the Centre for Entrepreneurship, Innovation and SMEs (CENTIM) represents the university as a member of the Supervisory Board.

 [Link
www.digitalhub.de](http://www.digitalhub.de)

In the company of excellent universities

The Federal Ministry of Education and Research (BMBF) honours H-BRS as an “Innovative University”

“Innovation Mall” is the keyword in the “Campus to World” concept with which H-BRS was able to excel in the federal state funding initiative “Innovative University”. This makes it one of only three state institutions of higher education in NRW to have been conferred the title since mid-2017, 29 nationwide. The Innovation Mall is a virtual and real marketplace, which H-BRS uses to open up to its environment. It reacts to the needs of the regional economy and society and develops joint solutions.

“With this award, we belong among the group of excellent institutes of higher education that take the so-called third mission seriously, that is work specifically in society beyond teaching and research”, says Dr Udo Scheuer, director of the funded project and the Centre for Science and Technology Transfer (ZWT). Over the next five years, H-BRS will receive around nine million euros from the BMBF to advance not only technological topics such as security research and visual computing, but also sustainability, scientific ethics and regional impact. “Now we can strategically expand the transfer structures and implement plans for which we previously lacked the funds.”

Boost interaction with business and society

Six sub-projects of “Campus to World” launch in 2018, two more will be added in 2019. The sub-projects are diverse. The Centre for Ethics and Responsibility offers space to reflect on the social responsibility of science; a biometrics lab and a visualisation showroom will drive technological transfer forward, especially in big-data visualisation and the defence against cybercrime. In addition, H-BRS devotes itself to regional problems through municipal innovation partnerships and involves citizens in scientific issues with the Citizen Lab. The ZWT, which will develop into a centre for transfer and research management, is the hub of all activities. Several departments of the university worked together effectively to fill the majority of the 17 new positions on time. This also shows how central “Campus to World” is for H-BRS. According to Udo Scheuer, “The university will become more open and transparent and interact with business and society to a greater extent than ever before”.

 [Link
www.h-brs.de/en/ctw](http://www.h-brs.de/en/ctw)

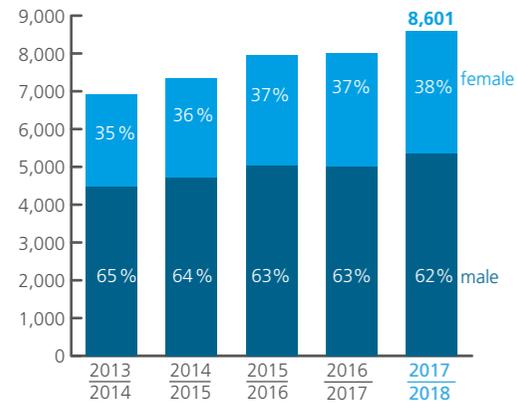
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Facts and figures

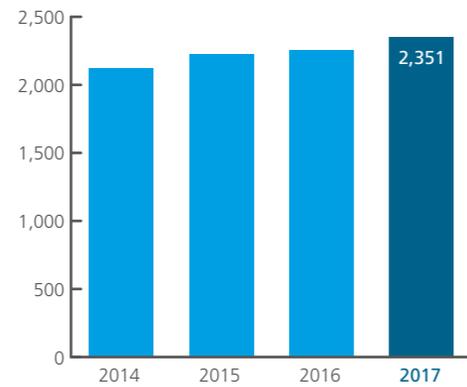
Number of students

Winter Semester 2017/18



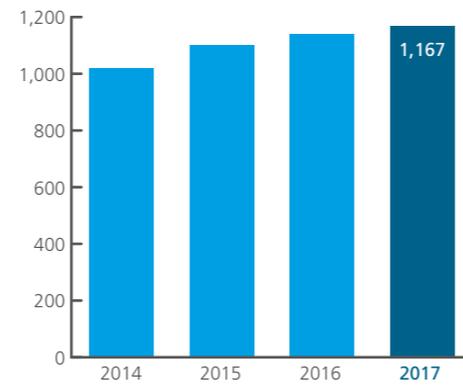
First-semester students

to Academic Year 2016/17



Graduates

to Academic Year 2016/17



Degree courses at H-BRS

Bachelor's programmes

- Applied Biology
- Business Management
- Business Information Systems
- Business Psychology
- Chemistry with Materials Science
- Computer Science
- Electrical Engineering (+cooperative study)
- Forensic Sciences
- International Business
- Mechanical Engineering (+cooperative study)
- Social Security Management – Accident Insurance
- Sustainable Engineering (+cooperative study)
- Sustainable Social Policy
- Technical Journalism/PR
- Visual Technical Communication

Master's programmes

- Analysis and Design of Social Protection Systems
- Analytic Chemistry and Quality Assurance
- Autonomous Systems
- Biomedical Sciences
- Business Psychology
- Computer Science
- Electrical Engineering
- Innovation and Information Management
- International Media Studies
- Management Accounting and Management Control
- Marketing
- Materials Science and Sustainability Methods
- Mechanical Engineering
- CSR & NGO Management
- Technology and Innovation Communications
- Visual Computing and Games Technology

Doctorates

PhD programme at the H-BRS Graduate Institute:
• 81 doctoral candidates

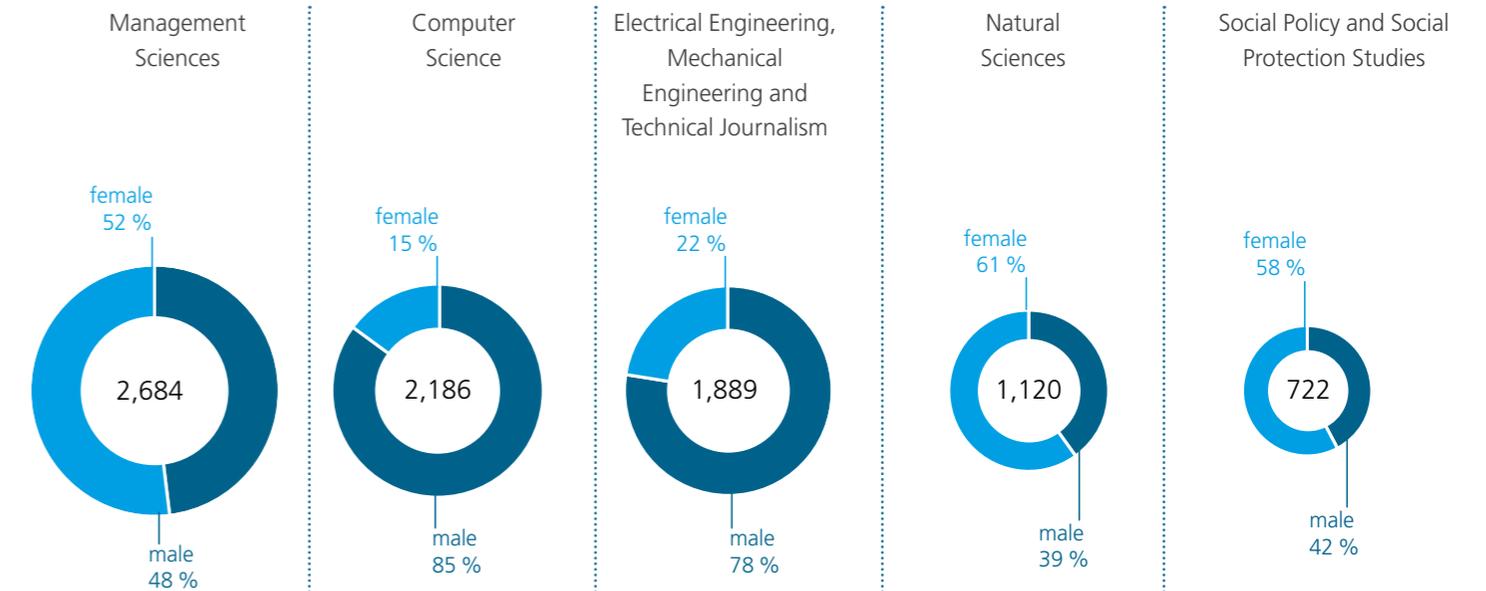
Doctorates awarded 2017

- Thorsten Merten
- Timo Bartkewitz
- Nico Hochgeschwender
- Andreas Krämer
- Kostyantyn Konstantynovsky

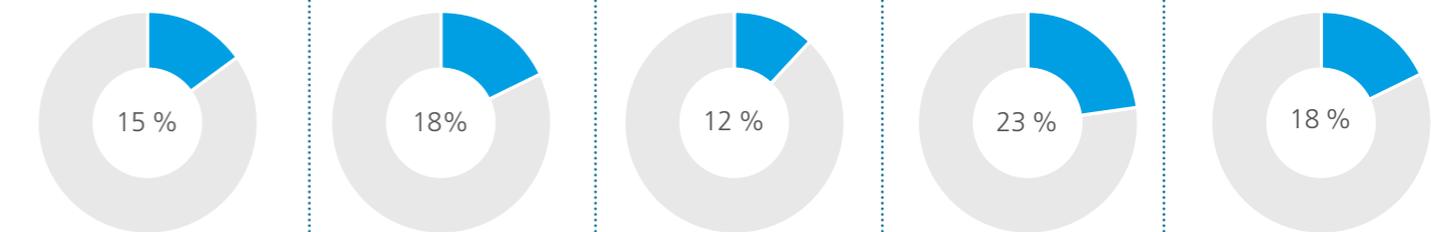
All numbers, status 31/12/2017

Students Winter Semester 2017/18

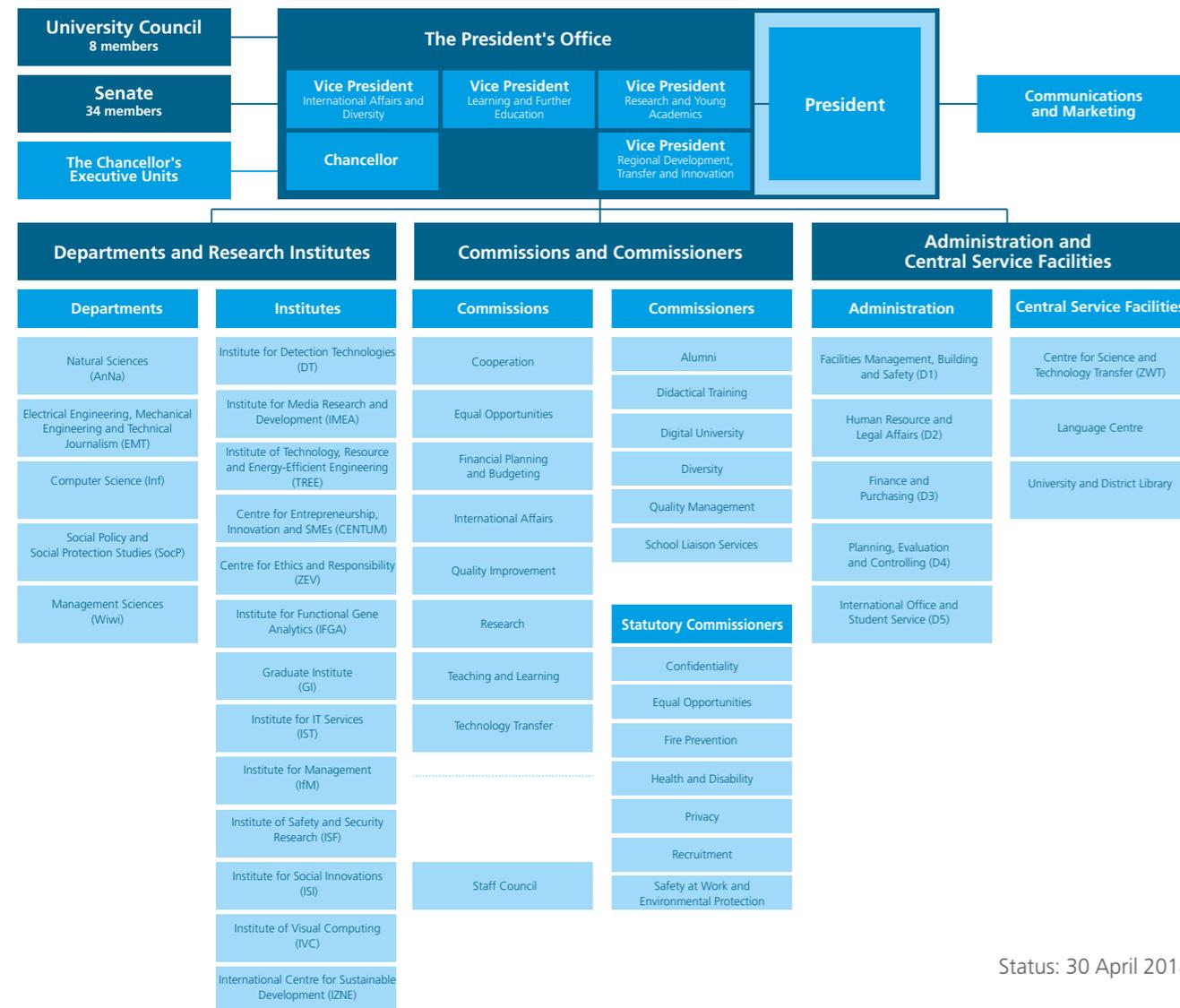
Students by department and gender



Percentage of international students by department



Organisational structure of the university



Status: 30 April 2018

Student Body

Student Parliament (StuPa), General Students' Committee (AStA), Departmental Student Councils (& their Executive Committees)



The University Council

In September 2017, the newly-composed University Council commenced duties for H-BRS. It is made up of four external members and four members of the university. The University Council is responsible for all strategic matters relating to the university. It advises the President's Office and monitors the way business is conducted. Furthermore, it appoints the President of Hochschule Bonn-Rhein-Sieg – University of Applied Sciences and acts as a supervisory body. The eight members of the University Council are:

- **Sylvie Hambloch-Gesinn**, Solicitor (Chair)
- **Prof. Dr Jakob Rhyner**, Vice Rector in Europe of the United Nations University (UNU) and Director of the Institute for Environment and Human Security (UNU-EHS) (Vice Chair)
- **Prof. Dr Simone Bürsner**, Hochschule Bonn-Rhein-Sieg
- **Prof. Dr Klaus Deimel**, Hochschule Bonn-Rhein-Sieg
- **Prof. Dr Karin Hummel**, Hochschule Bonn-Rhein-Sieg
- **Prof. Dr Peter Kaul**, Hochschule Bonn-Rhein-Sieg
- **Dr Andrea Niehaus**, Director of the Deutsches Museum Bonn
- **Rainer Otto**, Kfm. Managing Director WIRTGEN GROUP Holding GmbH

State Secretary Ministry Innovation, Science and Research Annette Storsberg (3rd from right) and University President Prof. Dr Hartmut Ihne (right) with the University Council, left to right: Prof. Dr Simone Bürsner, Rainer Otto, Prof. Dr Jakob Rhyner, Sylvie Hambloch-Gesinn, Prof. Dr Karin Hummel, Dr Andrea Niehaus, Prof. Dr Peter Kaul, Prof. Dr Klaus Deimel.

Prizes and awards 2017

DAAD Prize (German Academic Exchange Service)

- Adi Danieli, Bachelor's programme Applied Biology

DAAD Scholarship "Research in Science and Engineering Programme" (RISE)

- Adithya Kannan, Sarah Webster, Michael Larkins, all Department of Natural Sciences (AnNa)

NRW Scholarship Programme Middle East (Israel, Palestine, Jordan)

- Meytal Borg, Shefa Aljabali, Sherin Sha'aban, all Department of Natural Sciences (AnNa)

Prize for Responsibility and Sustainable Development 2017 from the International Centre for Sustainable Development (IZNE)

- Abla Alzagameem, Dissertation in the Department of Natural Sciences (AnNa), Magdalena Wiemeler, Bachelor's programme Business Psychology, Fabian Schultz, Bachelor's programme Business Management

IHK Award, Best of 2017

- Annika Last, Biology Lab Assistant

AFCEA Student Award

- 2nd Platz for Alexander Hagg, Department Computer Science, and Olaf Lambert, Department Electrical Engineering, Mechanical Engineering, Technical Journalism (EMT)

Advancement Award from H-BRS Donors

- Lisa Stahl, Management Sciences
- Shu Wang, Management Sciences
- Rebecca Komp, Management Sciences
- Miriam Pelster, Management Sciences
- Jennifer Bach, Management Sciences
- Lisa Halm, Management Sciences
- Ahmad Drak, Computer Science
- Dirk Rusche, Computer Science
- Alexander Kirfel, Computer Science
- Simon Weßel, Electrical Engineering, Mechanical Engineering, Technical Journalism
- Matthias Fischer, Electrical Engineering, Mechanical Engineering, Technical Journalism
- Deliah Johanna Michely, Electrical Engineering, Mechanical Engineering, Technical Journalism
- Estefanía Oliva Romero Sosa, Electrical Engineering, Mechanical Engineering, Technical Journalism
- Philipp Constantin Gillemot, Natural Sciences
- Katrin Schelski, Natural Sciences
- Lukas Klein, Natural Sciences
- Thomas Havelt, Natural Sciences
- Therese Langfermann, Social Policy and Social Protection Studies

Butcher Prize 2017 at the SciCADE Conference

- Tim Jax, Department of Electrical Engineering, Mechanical Engineering, Technical Journalism (EMT)

Silvia Coradeschi RoboCup Award

- Padmaja Kulkarni, Department of Computer Science

Conferral of the
Advancement
Award from H-BRS
Donors for 2017

**European Robotics League Award 2017**

- 1st Place RoboCup team b-it bots in the category Navigation Functionality with their "@ Work-Team": Prof. Dr Paul Plöger and Prof. Gerhard K. Kraetzschmar, the team leaders Deebul Nair and Santosh Thoduka.

Prize of Department Day Computer Science 2017

- Frank Heimerzheim for the Best Bachelor's Thesis

Best Poster Award "Resource Knowledge: Tapping Unused Potentials" in Bochum

- 1st Place Dirk Grommes, Department of Electrical Engineering, Mechanical Engineering, Technical Journalism
- 2nd Place Martin Schenk, Department of Electrical Engineering, Mechanical Engineering, Technical Journalism

Best Paper Award at the IEEE International Conference on Multimedia and Expo 2017 in Hong Kong

- Jens Maiero, Dr Ernst Kruijff, Prof. Dr André Hinkenjann, all Department of Computer Science

Best Paper Award (Complex Systems) at the Genetic and Evolutionary Computation Conference (GECCO) 2017

- Adam Gaier, Department of Computer Science

Multidisciplinary Analysis and Optimization (MDO) Student Paper Competition at the AIAA Aviation Forum 2017 in Atlanta, 1st Place

- Adam Gaier, Department of Computer Science

Staff announcements 2017

New Appointments

- **Prof. Dr Martin Sieber**
Department of Natural Sciences,
Professorship of Biology, especially clinical research
- **Prof. Dr Remi Maier-Rigaud**
Department of Social Policy and Social Protection Studies
Professorship of Social Policy
- **Prof. Dr Sandra Rohleder**
Department of Management Sciences
Professorship of Private Law and Economic Law
- **Prof. Dr Patrizia Maria Ianiro-Dahm**
Department of Management Sciences
Professorship of Business Psychology, especially occupational, organisational and health psychology

Honorary Professorships

- **Sebastian Chmel**
Honorary Professor in the Department of Natural Sciences
- **Michaela Schmitz**
Honorary Professor in the Department of Natural Sciences
- **Michael Bäcker**
Honorary Professor in the Department of Natural Sciences

Congratulations

- **Prof. Dr Katja Bender**
Department of Management Sciences will become Vice President of the European Association for Development Research and Training Institutes (EADI). In her new role, she will establish an international task force for dialogue between research and practice.
- **Prof. Dr Winfried Polte**
Honorary Professor of International Relations and Global Economy will become President of CARE Germany-Luxembourg

25th Anniversary

- **James Chamberlain**
- **Karsten Heinrich**
- **Sigrid McCaskill**
- **Kerstin Wilhelm**
- **Wolfgang Heiden**
- **Erika Leischner**
- **Edwin Toepler**
- **Elke Kitzelmann**

Retirement

- **Prof. Dr Michael Krzeminski**
Department of Electrical Engineering, Mechanical Engineering and Technical Journalism
- **Prof. Dr Irene Fahrenhorst**
Department of Management Sciences
- **Johannes Wilms**
(will continue to work after retirement)
- **Wolfgang Koch**
(will continue to work after retirement)

Employees (number) as of 31/12/2017

| | 2015 | 2016 | 2017 |
|---|------------|------------|-------------|
| Professors | 150 | 150 | 151 |
| <i>of these Substitute Professors</i> | 6 | 6 | 5 |
| <i>of these Endowed and Third-Party Funded Professors</i> | 16 | 19 | 18 |
| Honorary Professors | 29 | 31 | 35 |
| Lecturers with Special Responsibilities | 32 | 31 | 43 |
| Research Assistants | 224 | 231 | 264 |
| Employees in Technology and Administration | 185 | 197 | 207 |
| Apprentices | 14 | 13 | 14 |
| Number Lecturers | 317 | 316 | 337 |
| TOTAL | 951 | 969 | 1051 |

Employees (Full-Time Equivalent) as of 31/12/2017

| | 2015 | 2016 | 2017 |
|---|---------------|---------------|---------------|
| Professors | 139.89 | 138.42 | 142.58 |
| <i>of these Substitute Professors</i> | 3.72 | 3.72 | 3.64 |
| <i>of these Endowed and Third-Party Funded Professors</i> | 13.33 | 14.44 | 14.12 |
| Honorary Professors | 2.11 | 2.33 | 3.89 |
| Lecturers with Special Responsibilities | 30.57 | 30.75 | 33.59 |
| Research Assistants | 166.79 | 175.13 | 200.03 |
| Employees in Technology and Administration | 144.83 | 154.09 | 169.42 |
| Apprentices | 15.00 | 14.00 | 14.00 |
| TOTAL | 499.19 | 514.73 | 563.51 |

Third-Party Funded Staff (Full-Time Equivalent) as of 31/12/2017

| | 2015 | 2016 | 2017 |
|--------------------|--------------|--------------|--------------|
| Departments | 67.97 | 63.77 | 65.43 |
| Administration | 6.53 | 5.01 | 5.11 |
| Central Facilities | 19.68 | 24.79 | 27.54 |
| Other | 0.50 | 0.50 | 0.50 |
| TOTAL | 94.68 | 94.06 | 98.58 |

Partner universities around the world

WiWi Management Sciences
Inf Computer Science
EMT Electrical Engineering, Mechanical Engineering and Technical Journalism
AnNa Natural Sciences
SozP Social Policy and Social Protection Studies

Fü Cross-Departmental Partner Universities
 Double Degree

 **Current information**
www.h-brs.de/files/partnerhochschulen_dtsch.pdf

| Country | Partner University | Department |
|-----------|--|---|
| Argentina | National University of San Luis | EMT |
| | National Technological University, Buenos Aires | EMT |
| Australia | Murdoch University in Perth | Fü |
| | Victoria University in Melbourne | Fü |
| | University of Sunshine Coast in Queensland | WiWi  |
| | Griffith School of Engineering in the Science, Environment, Engineering & Technology Group | EMT |
| | Queensland University of Technology Business School | Fü  |
| Austria | FHWien University of Applied Sciences for Management & Communication | Fü |
| Bulgaria | University of Economics in Varna | WiWi |
| Canada | York University in Toronto | Inf  |
| | Dalhousie University in Halifax | Inf |
| | University of New Brunswick | Fü  |
| | Pacific Coast University for Work Place Sciences in Port Alberni | SozP |
| Croatia | University of Dubrovnik | Inf |
| | University of Split | WiWi |

| Country | Partner University | Department |
|----------------|--|--|
| Czech Republic | Tomas Bata University | Fü |
| Finland | Helsinki Metropolia University of Applied Sciences in Espoo, Institute of Technology | Inf |
| France | University of Poitiers | WiWi |
| | Paris Descartes University | WiWi |
| | Paris XII Val de Marne University | AnNa  |
| | University of Bordeaux | AnNa |
| | The Limoges Computer Sciences Engineering School | Inf |
| Ghana | University of Cape Coast | WiWi |
| India | Mudra Institute of Communication (MICA) Ahmedabad in Gujarat | EMT |
| Indonesia | Universitas Atma Jaya Yogyakarta in Yogyakarta | EMT |
| Ireland | Institute of Technology Tralee (ITT) | WiWi |
| | Dublin Business School | WiWi  |
| Italy | University of Palermo | AnNa  |
| | University of Insubria in Varese | AnNa  |
| | University of Siena | WiWi |
| | Sapienza University of Rome | Inf |

cohesion

study

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collaborate

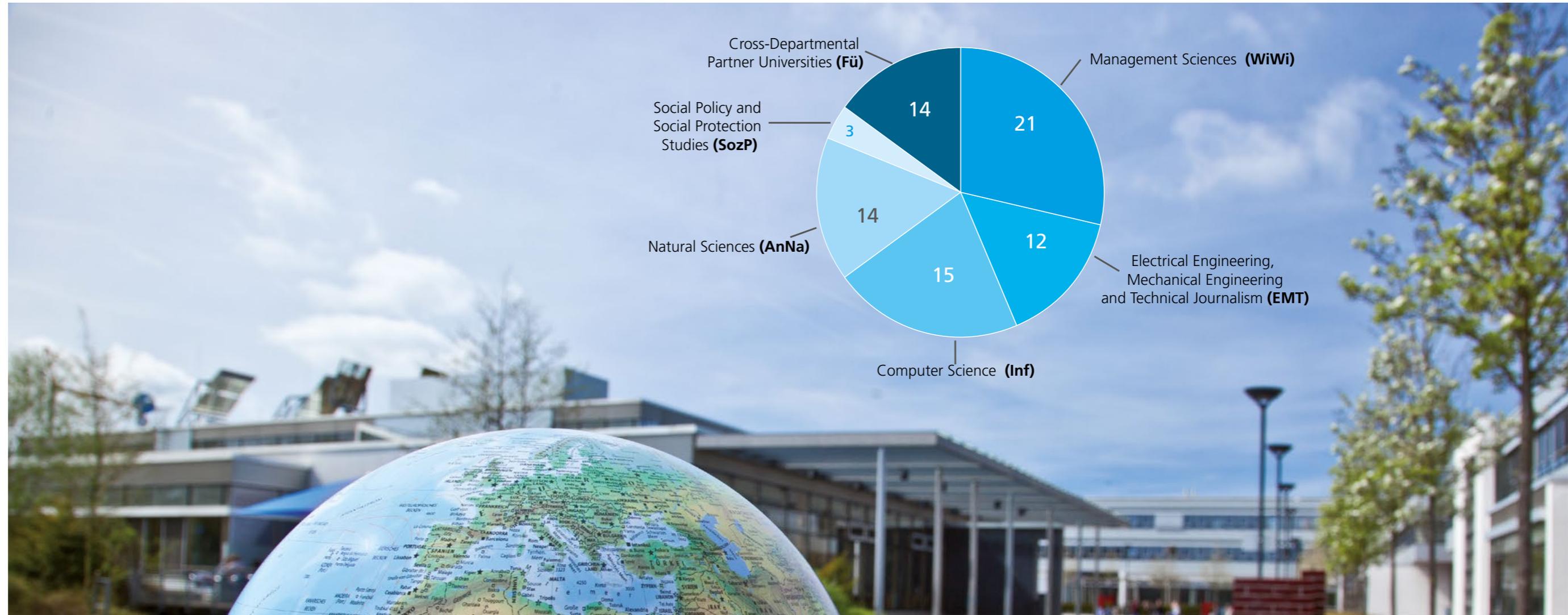
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| Country | Partner University | Department |
|----------------------------|--|--|
| Japan | Kagawa University in Takamatsu | Fü |
| | Nagaoka University of Technology | Inf |
| Jordan | Deutsch-Jordanische Hochschule/ German-Jordanian University (GJU) | WiWi |
| Kenya | University of Nairobi | |
| Latvia | Riga Technical University | WiWi |
| Montenegro | University of Montenegro in Podgorica | Inf |
| Nepal | Kathmandu University | SozP |
| Netherlands | HAN University of Applied Sciences | AnNa  |
| | Amsterdam University of Applied Sciences | Inf |
| | Van Hall Larenstein University of Applied Sciences in Leeuwarden | AnNa |
| | Radboud University Nijmegen | AnNa |
| | Zuyd University of Applied Sciences | WiWi |
| Norway | Norwegian University of Science and Technology (NTNU) in Trondheim | Fü |
| People's Republic of China | Nantong University in der Provinz Jiangsu | Fü |
| | Hunan University in Changsha | WiWi |
| | Sichuan Agricultural University in Ya'an | |
| | International Business School Beijing | WiWi |
| Poland | Jagiellonian University in Krakau | AnNa |
| | Warsaw University of Technology | WiWi |
| Republic of Korea | Kyungpook National University in Daegu | Fü |

| Country | Partner University | Department |
|-------------------------------|---|---|
| Russian Federation | ITMO University in St. Petersburg | EMT |
| | Moscow Technological University | Inf |
| | Moscow Institute of Electronic Technology in Zelenograd National Research University of Electronic Technology | Fü |
| | Ufa State Aviation Technical University | Inf |
| | Tomsk Polytechnic University | Inf |
| Socialist Republic of Vietnam | Vietnamese-German University in Ho Chi Minh City | Inf |
| Spain | University of Valencia | Fü |
| | Polytechnic University of Valencia | EMT |
| | Polytechnic University of Catalonia | Inf |
| | Autonomous University of Barcelona | WiWi |
| | Autonomous University of Madrid | Inf |
| | Cámarabilbao University Business School | WiWi |
| Switzerland | Zurich University of Applied Sciences (ZHAW) in Winterthur | EMT  |
| Taiwan | National Taiwan University of Science and Technology | WiWi |
| Turkey | University of Istanbul | EMT |
| | Yeditepe University in Istanbul | AnNa |
| | Yalova University | WiWi |
| Ukraine | Chernihiv National University of Technology | EMT |

| Country | Partner University | Department |
|----------------|---|------------|
| United Kingdom | Robert Gordon University in Aberdeen | AnNa |
| | University of Aberdeen in Scotland | AnNa |
| | Abertay University in Scotland | AnNa |
| | University of Dundee in Scotland | AnNa |
| | Keele University in Staffordshire | Fü |
| | Glyndŵr University in Wrexham | EMT |
| | Brunel University London PhD Programme | WiWi |
| | Regent's University London | WiWi |
| Uruguay | University of Montevideo | WiWi |
| USA | Coastal Carolina University in Conway | WiWi |
| | Pfeiffer University in Charlotte | WiWi |
| | California State University in Sacramento | Inf |
| | University of California in Riverside | Fü |
| Zambia | University of Zambia | SozP |

Number of international partnerships by department



Revenue by budgeting heading (in euros)

| | 2016 | 2017 | |
|-----------------------------------|---|----------------------|----------------------|
| State subsidies for running costs | Personnel | 18,978,400.00 | 19,534,100.00 |
| | Management | 3,055,100.00 | 3,240,600.00 |
| | Material Costs | 1,662,700.00 | 1,476,900.00 |
| | Performance-based allocation of funds | 639,300.00 | 359,900.00 |
| | Investments | 477,400.00 | 477,400.00 |
| | Consistent University Pact Funds | 0.00 | 1,447,200.00 |
| | Reduced Expenditure from Hochschulvereinbarung 2021 | 0.00 | -70,600.00 |
| | Building/Immovable Property | 6,903,800.00 | 6,903,800.00 |
| | Total | 31,716,700.00 | 33,369,300.00 |
| State allocations | Higher Education Pact II and Master | 11,575,000.00 | 1,950,000.00 |
| | Higher Education Pact III | 8,145,776.00 | 12,013,075.00 |
| | Device Programme | 98,124.00 | 0.00 |
| | Other | 175,888.92 | 531,950.37 |
| Total | 19,994,788.92 | 14,495,025.37 | |
| Quality improvement funds | 3,459,346.00 | 3,451,021.00 | |
| Third-party funds | 12,243,617.47 | 7,655,049.97 | |
| Own resources | 257,286.86 | 150,729.46 | |
| Total revenue of H-BRS | Sum of above-listed portions | 67,671,739.25 | 59,121,125.80 |

All figures for the year 2017 on pages 74 to 78 are provisional.

The figures for 2016 differ from those mentioned in the 2016 Annual Report, as they are now available on an adjusted basis.

Expenditures by type of cost (in euros)

| 2017 | State subsidies for running costs | State allocations | Quality improvement funds | Third-party funds | Total expenditures of H-BRS | |
|--|--|----------------------|---------------------------|----------------------|-----------------------------|----------------------|
| All expenditures of the budget headings split according to | Material Costs | 4,675,058.45 | 4,793,120.97 | 171,433.49 | 1,899,875.23 | 11,539,488.14 |
| | Personnel | 20,332,382.18 | 9,032,115.39 | 3,005,669.11 | 8,129,587.07 | 40,499,753.75 |
| | Investments | 3,573,303.62 | 5,272,535.44 | 106,018.96 | 287,775.97 | 9,239,633.99 |
| | Immovable Property | 0.00 | 14,973,786.27 | 0.00 | 0.00 | 14,973,786.27 |
| | Other | -1,856.22 | 5,757.08 | 0.00 | -3,900.86 | 0.00 |
| | | 28,578,888.03 | 34,077,315.15 | 3,283,121.56 | 10,313,337.41 | 76,252,662.15 |
| Investments | | | | | | |
| | | | 2015 | 2016 | 2017 | |
| | 1 st investment capital > 150 EUR and < 410 EUR | | 189,801.33 | 296,382.05 | 408,286.43 | |
| | 2 nd investment capital > 410 EUR | | 5,538,282.18 | 11,971,789.68 | 23,775,133.83 | |
| | Total | | 5,728,083.51 | 12,268,171.73 | 24,183,420.26 | |

Financial statement (in euros)

| Income | | 2015 | 2016 |
|--|--------------------------------------|----------------------|----------------------|
| 1. State allocations and subsidies | a) Basic financing | 24,304,627.00 | 24,637,100.00 |
| | b) Housing budget | 2,456,150.19 | 777,126.97 |
| | c) Special funds | 3,416,724.00 | 3,459,346.00 |
| | d) Programme / project funding | 1,182,108.16 | 1,112,310.13 |
| | | 31,359,609.35 | 29,985,883.10 |
| 2. Revenue from third-party funds of other public donors | | 5,640,363.69 | 7,745,174.16 |
| 3. Revenue from third-party funds of non-public donors | | 1,802,070.13 | 1,961,164.47 |
| 4. Increase or decrease in tangible assets | | 757,071.14 | 661,623.65 |
| 5. Other donors | a) Income from university activities | 792,524.62 | 1,380,364.17 |
| | b) Fees and sanctions, dues | 312,718.32 | 461,391.81 |
| | c) Gifts, donations, legacies | 102,776.75 | 151,401.65 |
| | d) Other income | 2,671,404.55 | 121,068.13 |
| | | 3,879,424.24 | 2,114,225.76 |
| 6. Sum of ordinary income | | 43,438,538.55 | 42,468,071.14 |

This financial statement reflects the profit and loss account of Hochschule Bonn-Rhein-Sieg – University of Applied Sciences and is based on the valuation guidelines of the Ministry of Innovation, Science and Research of the State of North-Rhine Westphalia.

Overview of total assets of H-BRS (in euros)

| | 2015 | 2016 |
|-------------------|---------------|----------------|
| Intangible assets | 725,532.25 | 601,780.17 |
| Tangible assets | 94,271,963.18 | 100,765,984.41 |
| Financial assets | 16,550.00 | 46,550.00 |

*without cash and cash equivalents

cohesion

study

research

live

collaborate

report

| Expenditures | | 2015 | 2016 |
|---|---|-----------------------|-----------------------|
| 7. Cost of materials | a) Costs for literature, teaching and learning aids, materials and goods purchased | -1,399,349.00 | -1,483,069.46 |
| | b) Costs for energy and other general and administrative expenses | -1,020,392.83 | -1,056,703.70 |
| | c) Costs for services purchased | -5,494,856.20 | -6,077,689.37 |
| | | -7,914,598.03 | -8,617,462.53 |
| 8. Personnel costs | a) Staff salaries | -18,678,033.18 | -19,810,645.06 |
| | b) Emoluments (civil servants) | -9,897,599.03 | -11,241,274.12 |
| | c) Social contributions and expenses for pensions and support | -4,631,848.29 | -4,973,757.70 |
| | d) Other personnel costs | -102,723.46 | -118,086.97 |
| | | -33,310,203.96 | -36,143,763.85 |
| 9. Depreciation | | -5,531,095.35 | -5,865,935.24 |
| 10. Other expenses | a) Costs for the use of rights and services | -872,687.00 | -927,600.97 |
| | b) Additional costs for communication, documentation, information, travel, literature, publicity | -1,659,139.71 | -1,948,947.51 |
| | c) Costs for dues and other such expenses as well as value adjustments and non-period expenses | -353,257.38 | -328,344.17 |
| | d) Costs for allocations and subsidies, investment grants and reimbursements as well as from product compensation | -574,135.80 | -672,835.45 |
| | e) Costs for other services to third parties | -1,062,287.31 | -1,218,436.20 |
| | | -4,521,507.20 | -5,096,164.30 |
| 11. Sum of ordinary expenses | | -51,277,404.54 | -55,723,325.92 |
| 12. University result | | -7,838,865.99 | -13,255,254.78 |
| 13. Other interest and similar income | | 296,567.43 | 257,286.86 |
| 14. Interest and similar costs | | -34,726.74 | -2,461.96 |
| 15. Financial result | | 261,840.69 | 254,824.90 |
| 16. Result of ordinary university activities | | -7,577,025.30 | -13,000,429.88 |
| 17. Taxes on income and net worth / refunded taxes on income and net worth | | -52,114.17 | -40,475.01 |
| 18. Other taxes | | -1,887.03 | -984.00 |
| 19. Annual financial statement | Annual net profit / loss | -7,631,026.50 | -13,041,888.89 |
| 20. Profit carryforward from the previous year | | 10,758,345.51 | -172,680.99 |
| 21. Withdrawal from resources | | 3,500,000.00 | 13,214,569.88 |
| 22. Allocation to the revenue reserves | | -6,800,000.00 | 0.00 |
| 23. Net profit / loss | | -172,680.99 | 0.00 |

Construction activities (in euros)

Smaller building activities

| Activities | 2015 | 2016 | 2017 |
|---|------------|--------|------------|
| Additional bicycle racks and e-charging station | 124,985.78 | 14,872 | 8,149.22 |
| Adaptation leasing RhB | | 18,942 | 234,901.54 |
| SSC Rheinbach | | | 60,146.07 |

Renovation activities

| Area | Location | 2015 | 2016 | 2017 | Status |
|--------------------------------|----------|------------|------------|------------|-------------|
| Upgrading WiFi and IT networks | StAVRhB | 175,555.99 | 850,211.71 | 33,916.54 | in progress |
| Glass roof renovation | StA | | 15,000 | 523,866.23 | in progress |
| Flood protection BTE | StA | | | 21,092.56 | completed |
| Bridges Ditches | StA | | | 145,899.95 | completed |

Large building activities

| Activities | 2015 | 2016 | 2017 |
|--------------------------------------|--------------|--------------|---------------|
| Expansion buildings both locations | 1,718,149.55 | 8,980,604.20 | 20,892,750.39 |
| Initial setup in expansion buildings | | | 717,123.51 |

H-BRS supervises its own construction activities ("Bauherrenschaft").



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