U BREMEN

update.

University of Bremen Magazin

04

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Universität Bremen

DIGITALIZATION WITH FEELING

The corona pandemic has massively accelerated the digitalization of the University of Bremen

update.
is available online!

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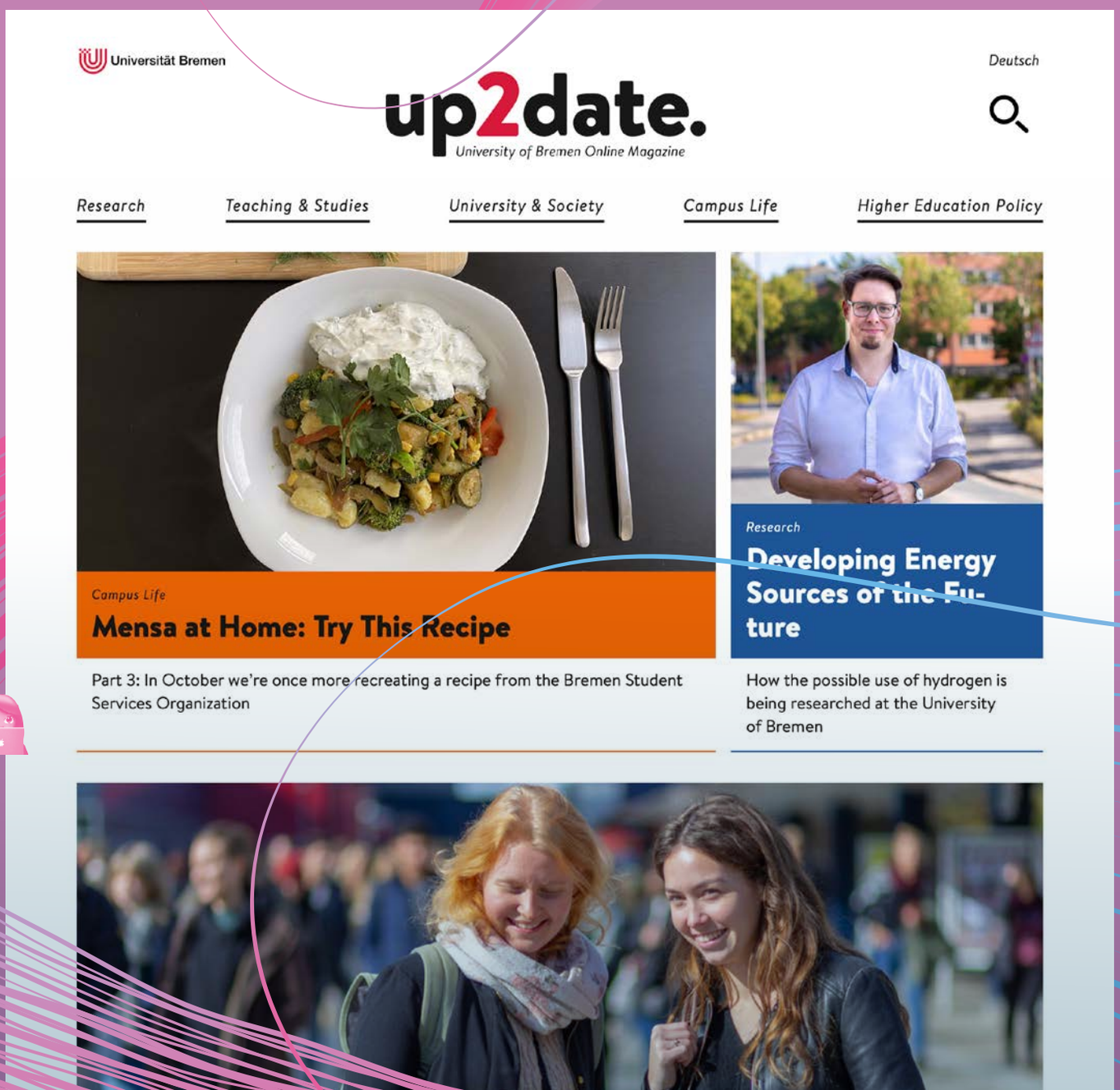

Dear readers,

Our lives are still being affected by the corona pandemic and science is especially needed to manage this crisis. The field of research and development is working tirelessly on a vaccine and nearly every level of society is influenced by the effects of the viral pandemic. The expertise of scientists from the University of Bremen is sought-after for the investigation and explanation of the effects that corona is having on different aspects of life. By means of providing founded political advice, our researchers are actively helping in ensuring that we master this challenge for our community.

The University of Bremen was, of course, also affected by the pandemic. In an extremely short space of time, all teaching had to be digitalized – face-to-face interactions were only possible again during the last weeks of the semester and were mainly restricted to examinations. In our lead story you can read about how the university is promoting "Digitalization with Feeling": It must happen quickly but still be sustainable so that as many people as possible from the university are involved in this change. This especially applies to students, but also to researchers and staff members.

"Our" virologist, Professor Andreas Dotzauer, is an example of how important scientifically founded advice can be in such times. He has been peppered with questions. In the interview with him, you can read about his experience with suddenly being a person of public interest.

But corona is not everything! You will also find several "virus-free" articles in this issue. Read about the economic research project that aims to find out which "modernization blockades" hindered the former GDR in being successful – and how those obstacles are still having an effect in East Germany today. In another text, you can find out how the sociologist Uwe Engel is researching the acceptance of artificial intelligence in society. The close cooperation with a university in Cameroon in the field of bee research also makes for an interesting read. Honey is an important commodity and the University of Bremen is supporting the training of scientists there.

More in up2date.

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We wish you enjoyable reading,
the editorial team

content

44

Photo: Kai Uwe Bohn / University of Bremen

university & society

“Sometimes Three or Four Interviews Each Day”

Virologist Andreas Dotzauer is the most sought-after expert in the university’s history

48

Photo: Matej Meza / University of Bremen

campus life

“Totally My Type of Thing”

A portrait of the room manager Heike Hemmersbach

in short

New Institute Begins Work

The new Research Institute for Social Cohesion started its work. The institute is receiving 40 million euros in funding from the Federal Ministry of Education and Research. Together with the universities in Frankfurt and Leipzig, the University of Bremen is coordinating the scientific work of the eleven participating university and research institutes. In Bremen, an interdisciplinary team will focus on the role of the middle classes.

http://unihb.eu/socialcohesion

Closing Safety Gaps in Smart Home Systems

A network led by the Center for Computing Technologies at the University of Bremen is developing new solutions to close the safety loopholes in smart home systems. The project is to identify new ways of reconciling the usage of digital technologies with data protection and privacy. Users of digital devices for the automatization of homes are often not aware of the risks that they are taking in terms of data protection and information security. The work deals with finding solutions that are easy to understand and operate.

http://unihb.eu/smarthome

"perspektive promotion" Turns 10

This year, "perspektive promotion" is celebrating its 10th birthday. The program of the Unit for Equal Opportunities includes workshops and individual consultation for female PhD students in the humanities and social sciences. The offer is now being extended to the STEM subjects. Numerous studies have shown the gender-specific discrimination of women in science, which is why the award-winning program is so important.

http://unihb.eu/perspektivepromotion

Driving Through Cities with Artificial Intelligence

Together with two other universities and the technology company Continental, the University of Bremen is carrying out research on automated vehicles. The PRORETA project deals with the recognition of complex traffic situations in city centers. The aim of the research project, which is to last until 2022, is the development of algorithms. They are to deduce correct driving decisions from the sensor data that are comparable to human decisions.

http://unihb.eu/PRORETA

Coral Death in Mexico

A team of researchers led by the University of Bremen has determined the ecological changes in the Mexican Caribbean coral reefs over the past 40 years. The results: Only few reefs are still dominated by coral. The study shows a drastic coral cover decline between the late 1970s and the beginning of the millennium. Despite the partial recovery of the reefs, the rate of macroalgae increase is going up. Important reef functions, such as coastal protection and fishing yield, can become impaired by this.

http://unihb.eu/coral

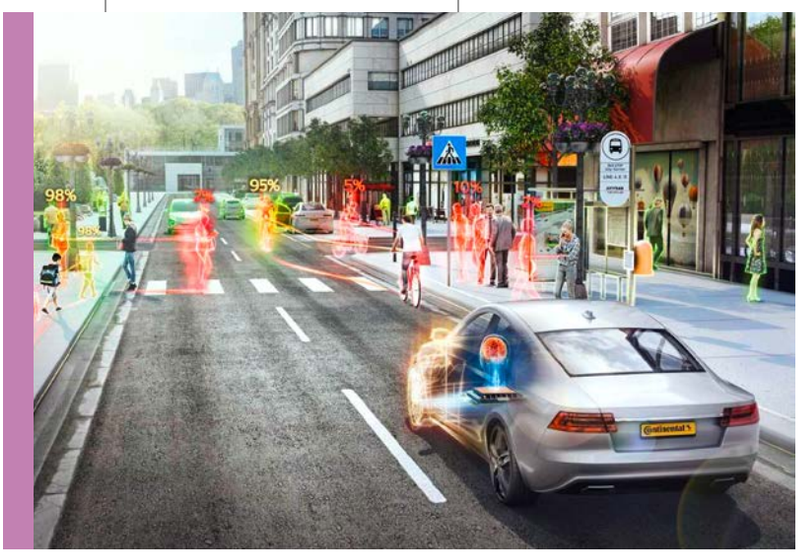
Bremen Researchers for FunKI

Research for the newest generation of mobile networks: The Department of Communication Engineering within the Faculty of Physics / Electrical Engineering of the University of Bremen is coordinating the Radio Communication with Artificial Intelligence (FunKI) project, which is being funded by the Federal Ministry of Education and Research (BMBF). The project deals with the use of artificial intelligence in the 5G and 6G networks of the future. Of the 6.5 million euros for this project, around 800,000 euros will be received in Bremen.

Family-Friendly University

The University of Bremen has once more received the "audit family-friendly university" certification for its family-friendly measures. The special feature: After a development and assessment phase lasting several years, the university may now carry the quality seal permanently. Around 3,500 staff members and almost 20,000 students can profit from the services on offer. These include consultations, childcare – also in an emergency – or family-friendly places on campus.

http://unihb.eu/familyfriendlyuni



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AI is to interpret relevant objects in city center traffic with the help of algorithms.
Photo: Continental

The “perspektive promotion” program supports female PhD students. *Photo: Matej Meza / University of Bremen*

Intelligent OT Lighting

A science and medical technology consortium is developing a technical system that automatically ensures optimum lighting in operating theaters. It compensates shadows that develop due to the surgery team moving around and can be expediently controlled using gestures and voice. The Computer Graphics & Virtual Reality Working Group at the Center for Computing Technologies (TZI) is providing software for the autonomous controlling of the lighting. “One of the challenges is optimally placing and coordinating numerous small lights that are to be implemented instead of the usual large lamps,” says Professor Gabriel Zachmann.

http://unihb.eu/OTlighting

Two Programs Chosen by DFG

The University of Bremen has been successful twice in the German Research Foundation’s (DFG) choice of new Priority Programs. The Faculty of Geosciences and the Faculty of Production Engineering have been chosen. The Priority Program “Tropical climate variability and coral reefs. A past to future perspective on current rates of change at ultra-high resolution” will be coordinated by Dr. Thomas Felis from MARUM – Center for Marine Environmental Sciences at the University of Bremen. “Creation of synergies in customized mixtures of heterogeneous powders” is the name of the second Bremen Priority Program and will be coordinated by Professor Lutz Mädler and Professor Udo Fritsching from Leibniz IWT.

http://unihb.eu/DFGprograms

Bremen News Online

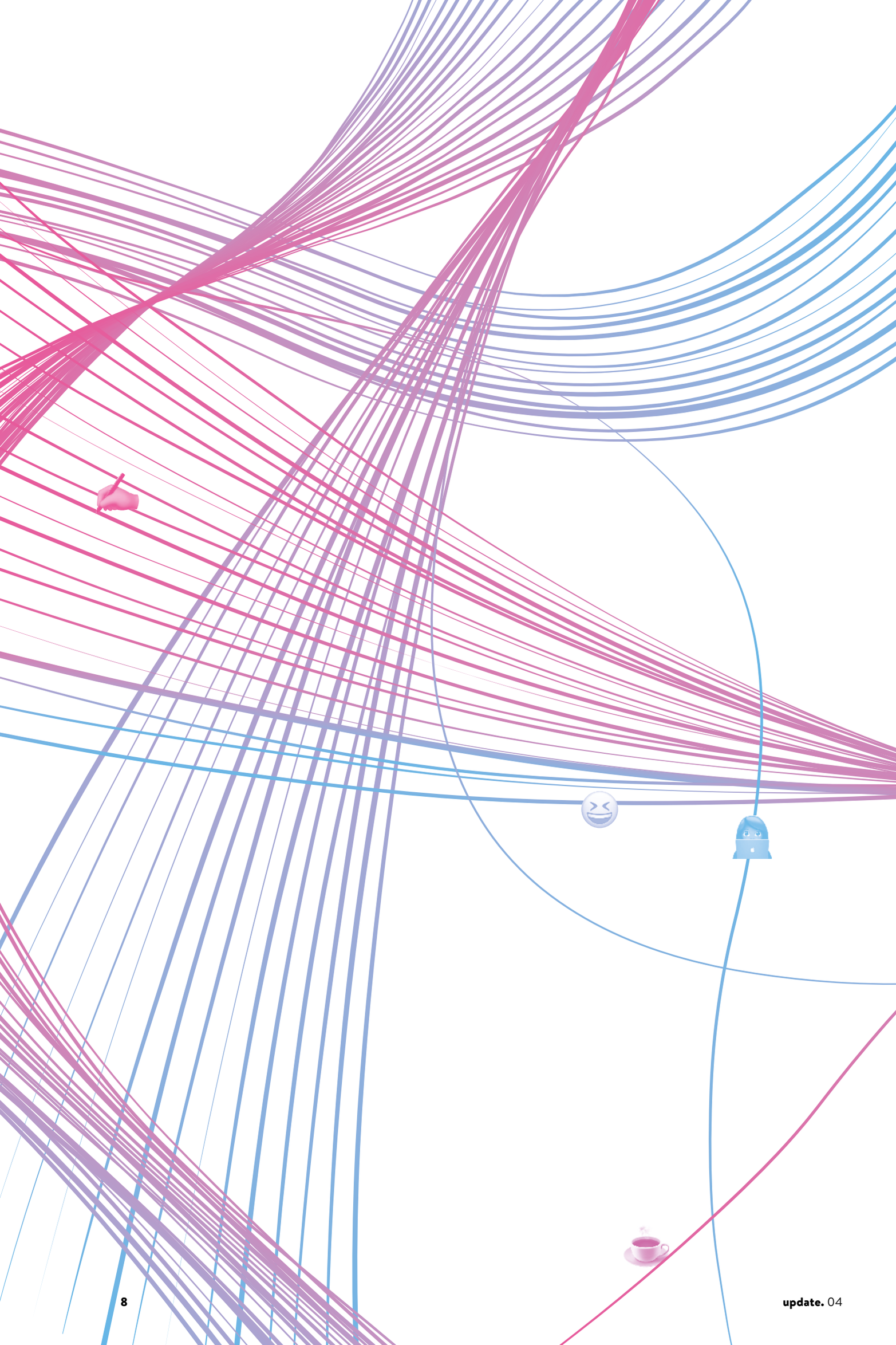
The free news app molo.news, which was developed by the Centre for Media, Communication and Information Research together with partners, is now online. The platform for all people in and around Bremen aims to promote urban communities. Users can individually create their news feed using molo.news with current news from various regional media providers, cultural institutions, associations, and district initiatives. The platform is supported by numerous local and regional media outlets in Bremen.

http://unihb.eu/molonews

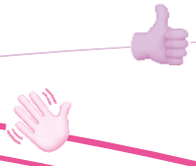
Car Handling Becomes More Intelligent

Tests at one of the largest car terminals worldwide, located in Bremerhaven, have shown that an intelligent planning and control system can improve the efficiency of car handling at ports. BIBA – Bremer Institut für Produktion und Logistik and its partners have investigated the internal processes of the car terminal in this regard. The follow-up project Isabella 2.0 is to integrate external modes of transport – trains, ships, and lorries. The total project volume is 3.6 million euros.

http://unihb.eu/carhandling



Digitalization with Feeling



Digitalization in the fields of research, teaching, and administration is an important goal for the University of Bremen – and part of the Strategy 2018–2028. The corona pandemic has massively accelerated the process

By Meike Mossig

Many people will never forget this time at the university. When the first digital semester began due to the pandemic, the University Executive Board and service offices on campus had to basically put out fires everywhere. Central infrastructure components, such as the teaching and study platform Stud. IP, were expanded in a short amount of time and further licenses for the video platforms StarLeaf and Zoom were purchased. In the end, nearly all classes and meetings at the university were **online all of a sudden**. All staff members were immensely committed to providing as many seminars and university services as possible digitally. What is now important is that the experiences of the crisis are used in order to combine the strengths of both digital and analogue offers in the future.

↓ No doubt: The direct communication and discussions in face-to-face classes cannot be replaced. The photos were taken before the pandemic. *Photo: Michael Ihle / University of Bremen*

↑ "I find digital courses very useful, but one needs to take a close look at where they fit." Bachelor's student Louis Kniefs.
Photo: Matej Meza / University of Bremen

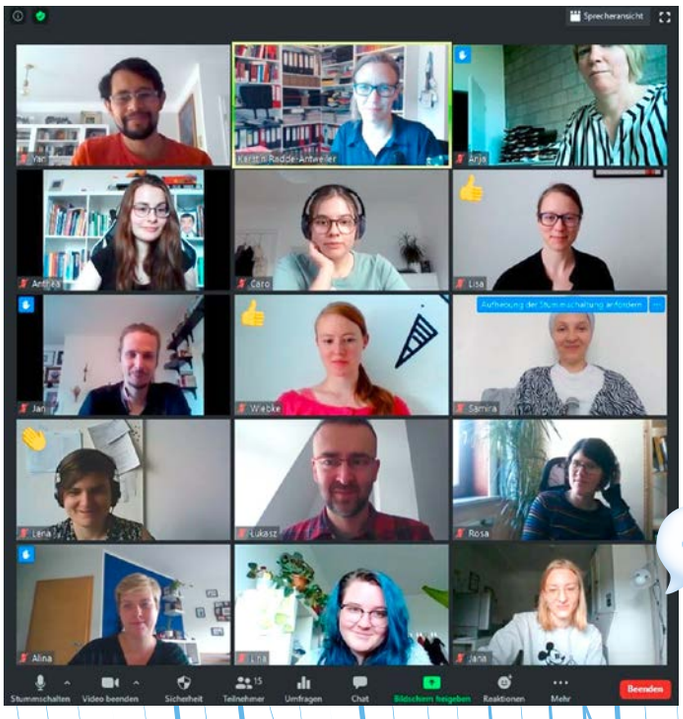
↑ Knowledge transfer via video instead of in a lecture hall: Student Louis Kniefs (photo on the left) worked as a tutor as part of Professor Anna Förster's (top) digital format.
Screenshot: oblik

● Each summer semester, the Information Day for Prospective Students (isi) is held at the University of Bremen. The day is an opportunity to talk to students and teaching staff on campus and thrives on personal communication. When it became clear that isi would not be able to take place face-to-face due to the corona crisis, the Central Student Advisory Service and teaching staff organized an alternative event: Virtual Information Week for Prospective Students (VIsi). The premiere was successful: Around 2,000 prospective students gathered information on study programs in roughly 120 online events over several weeks. The feedback was so positive that there is now the idea of holding the VIsi again in 2021. "And then combined with face-to-face events, if they are possible again," says Stephan Determann, head of the Central Student Advisory Service. There were fewer participants than at the isi, "but that was not a bad thing," he explains, "as those who took part were truly interested." Many of them are still in contact with the university. Moreover, people who live further away were reached. They were able to simply join in online and did not have to travel. Usually, it is mainly interested persons from the region that attend the isi. The immense effort was worth it.

Student Opinions Required

And how important is meeting face-to-face at the beginning of a degree? "Especially in this phase, I find face-to-face classes extremely important in order to better get to know one another," says the bachelor's student Louis Kniefs. "Otherwise, a large proportion of the degree quality gets lost." If you know the people, then digital teaching offers can be used well. "And I find them to be very useful," emphasizes the 24-year-old student of Electrical Engineering and Information Technology. Kniefs worked as a digital tutor for the computer science professor Anna Förster. The Inverted Classroom Concept communicates factual knowledge via video and said knowledge is deepened in tutorials that are offered in an analogue setting. Thus, the format replaces traditional lectures in lecture halls. Does the aspect of social contact not suffer in this way – for example, by not drinking a coffee together after class? "People meet elsewhere and then can watch the digital classes together and talk about them," says Kniefs. For example, in learning spaces such as those offered by the State and University Library Bremen (SuUB) and several university buildings. Generally, Kniefs wishes for digitalization with feeling. "One needs to take a close look at where it fits".

His opinion is also in demand in the university administration. Kniefs belongs to a group of students from several faculties that regularly speaks with the Administrative Unit for Teaching and Studies and also the Chief Digital Officer (CDO), Andreas Breiter. The latter coordinates the multifaceted digitalization processes at the university together with the Director of Finance and Administration, the Vice President Academic, and the ser-



Professor Kerstin Radde-Antweiler (center, top row) during a Zoom meeting with students.
Screenshot: Paul Niklas Antweiler

vice offices on campus. “The discussions in the student group that span across disciplines are very interesting,” says Kniefs. You can find out how other disciplines think and learn from one another. The students are taken seriously by the administration. “The student opinions and ideas are important to us,” says Franziska Richter from the Administrative Unit for Teaching and Studies, which is supervising the students. Their opinions really helped in the past summer when decisions needed to be made rapidly in order to support digital learning and teaching. “The situation in the summer was naturally challenging for everyone,” according to Kniefs. “But such an emergency situation accelerates digitalization.”

The Summer Semester: Many Thrown In at the Deep End

“I truly hope that we will continue to use many digital tools at the university after corona,” says Professor Kerstin Radde-Antweiler. Many technical instruments that the university has provided simplify the communication with the students for the religious studies scholar. “Communication tools, such as Rocket.Chat and digital office hours are good when the students have a long commute to university, for example, or work alongside their studies,” she says. So-called blended learning is a good chance for the scholar to combine digital and analogue teaching. The concept comprises interchanging between face-to-face courses, self-learning phases, and direct communication with lecturers and students. Factual knowledge can be passed on via explanatory videos or podcasts in seminar courses. She has created many of these since the start of the pandemic. “I will continue to use them.” Then there is more time to discuss the material during the face-to-face sessions. “We cannot and do not want to replace such direct communication with digital formats,” she explains. Radde-Antweiler believes personal scientific discourse to be essential in promoting the critical thinking skills of students. The scholar hopes that the general opinion of digital teaching becomes more open at the university. “Of course, many of us were under a lot of strain at the beginning of the digital

Creating Digital Transformation

In its Strategy 2018 – 2028, the University of Bremen sets itself the goal of actively bringing about digital transformation in all of its fields of action. In order to do this, the university is building secure information and communication infrastructures. Research data is being safeguarded and being made openly accessible. Digital information systems are being expanded to support the administrative and management processes and to improve their quality. The university sees digitalization as an enabler of organizational change, with IT services forming a strategic dimension of the university's development.

https://www.uni-bremen.de/en/university/profile/strategy-2018-2028/objective-9-shaping-digitalisation

"I hope that digital and face-to-face teaching are no longer thought of as opposites in the long-term, but rather that we can develop a good combination of digital teaching tools and analogue teaching."

Professor Kerstin Radde-Antweiler, University of Bremen

semester and were exhausted at the end of the semester." Those who had little experience with digital teaching were basically thrown in at the deep end. "I hope that digital and face-to-face teaching are no longer thought of as opposites in the long-term but rather that we can develop a good combination of digital teaching tools and analogue teaching."

The Vice President Academic, Professor Thomas Hoffmeister, underscores this: "Together, we want to get the most out of the advantages yielded by the combining of analogue and digitally-based teaching and learning formats in the long-term." This may help in improving teaching and making it more student-focused.

The topic of digitalization plays an important role in **research**: Scientists collect immense **masses of data** that are usual very complex and comprehensive. **Archiving** said data and making it accessible for other researchers is of great significance. **Digitalization** makes this possible.

Leading in the Digitalization of Research Data

The University of Bremen was very forward-thinking around 30 years ago: As early as in the 1990s, the university created its first digital archive for research data

By Meike Mossig

Two examples: In 1988, the first social sciences Collaborative Research Center (CRC) "Status Passages and Risks in the Life Course" was established at the University of Bremen. In the 1990s, those involved started to construct a digital archive. "For that reason, the CRC was an important point of reference for my research work," says Professor Betina Hollstein, who was at the Freie Universität Berlin at the time. In 2014, she was appointed at the University of Bremen. Today, Hollstein is responsible for the creation of the Qualiservice digital research data center at SOCIUM – Research Center on Inequality and Social Policy at the University of Bremen. As a "living archive", Qualiservice supports scientists in documenting their work within projects. The aim is to make the research data from the projects available to other colleagues. An especially interesting aspect is that it will be possible in the future to investigate and compare social research topics over long periods. Qualitative research material provided by Qualiservice includes interviews or observations for example. This may be in writing as a protocol or transcript but also possible in the form of an audio, image, or video file. The research data center is unique in Germany and is to become one of the central points of contact for all researchers in the country for qualitative research data. Qualiservice works closely with the State and University Library Bremen (SuUB) and the internationally renowned information system PANGAEA. "The University of Bremen was very forward-thinking and us researchers are greatly profiting from that today," says Hollstein appreciatively.

PANGAEA – Data Publisher for Earth and Environmental Science – was also developed in the 1990s by researchers at the Alfred Wegener institute, Helmholtz Centre for Polar and Marine Research (AWI). It is still being operated together with MARUM – Center for Marine Environmental Sciences at the

University of Bremen. PANGAEA is one of the worldwide leading institutes for the archiving and publication of earth and environmental science data. Additionally, it is a certified World Data Center that has collected data from thousands of scientific projects. “At the current point in time, it is possible to find and download nearly 400,000 datasets on the website and use them for further work. And PANGAEA’s tasks are not only restricted to the safeguarding of data,” says the managing director, Dr. Michael Diepenbroek. Under his lead, PANGAEA has significantly furthered the development of research data infrastructures in the past 25 years. There is currently a generational change taking place at PANGAEA, as Diepenbrock will retire at the end of 2020. Professor Frank Oliver Glöckner is his successor. He recently received the appointment as head of PANGAEA at the University of Bremen and AWI. “I am grateful that Michael Diepenbrock will continue to enrich the team with his creative ideas for further development on national and international levels,” says Glöckner.

Bremen scientists with their expertise on research databases are sought-after in Germany. MARUM will be taking on an important role in the establishment of the National Research Data Infrastructure (NFDI), which will form the foundation for the management of research data in Germany. The aim of the infrastructure is to systematically manage scientific and research data, provide long-term data storage and accessibility, and network the data internationally. The network consists of specialized interconnected points – the individual consortia. Coordination of the NFDI4BioDiversity consortium is managed by MARUM, with Professor Glöckner as spokesperson and Diepenbroek as co-spokesperson. However, there is more than “only” the diversity of species behind biodiversity. Biodiversity also includes genetic diversity, functional diversity, and the interactions and diversity of entire ecosystems. “In times when millions of species are threatened with extinction, the access to comprehensive, quality-assured research data is decisive for the pending decisions in politics and society,” says Glöckner. “Together with the three other successful consortia Bremen is involved in, in health, engineering, and social sciences, Bremen is on the path to becoming a national and international competence center in the field of research data management. ●

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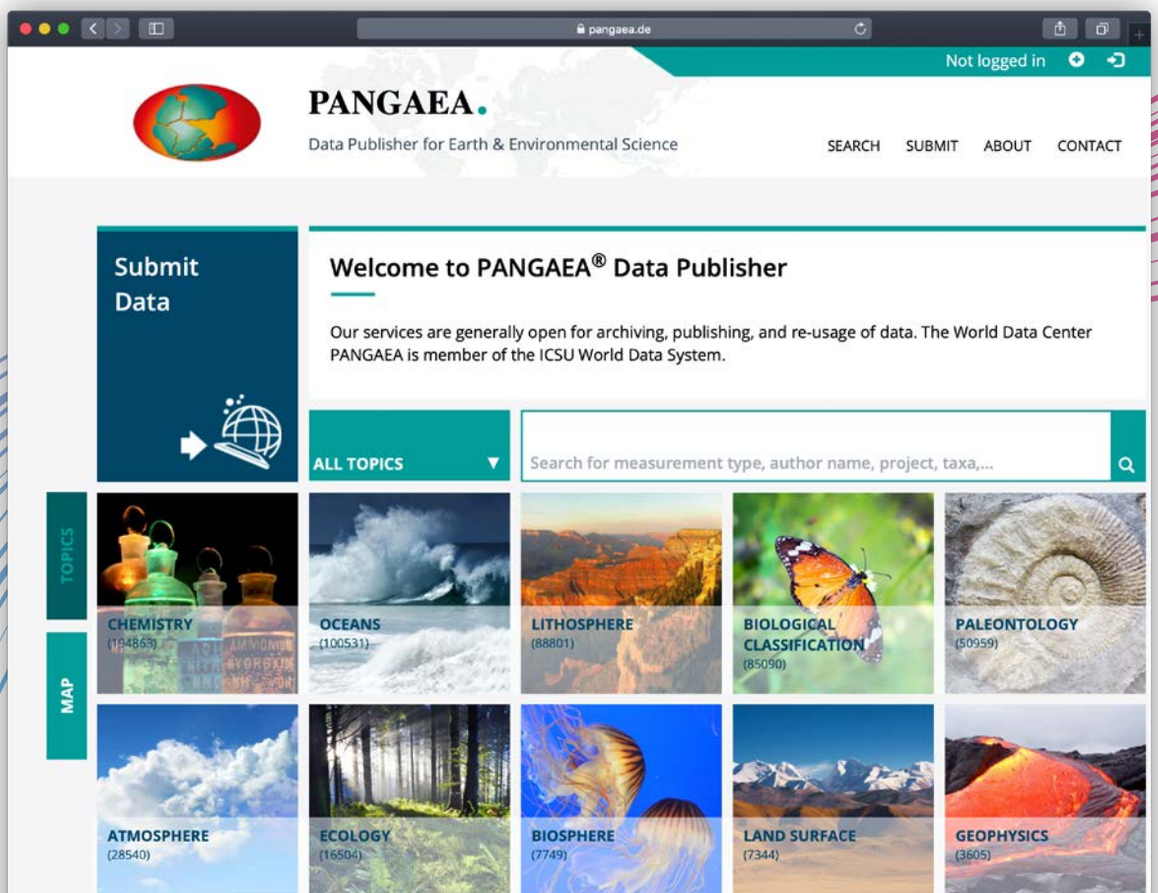
The long-term managing director of PANGAEA, Dr. Michael Diepenbrock (left), and his successor Professor Frank Oliver Glöckner.
Photo: Private



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Via the PANGAEA website, it is possible to find and download nearly 400,000 datasets and use them for further research.
Screenshot: PANGAEA

Professor Gudrun Oevel is the Chief Information Officer at Paderborn University and is a sought-after expert across the country in all matters pertaining to the digitalization of universities. She advised the University of Bremen in this capacity. In February 2020, Oevel was involved in the peer-to-peer consultation by "Hochschulforum Digitalisierung" (HFD). The process enables universities to receive expert support for creating and sustainably anchoring their digitalization strategies in studies and teaching. The University of Bremen successfully applied for the peer-to-peer consultation. In the interview, Oevel tells us how to captivate those involved, which strengths the University of Bremen has, and what she says to teaching staff who fear that digitalization will suppress face-to-face teaching.

"The Aim Is to Continually Improve Over Time"

The digitalization of a university is complex. Of that Professor Gudrun Oevel is aware. She advised the University of Bremen

Interview by Meike Mossig

Ms. Oevel, the universities saw a massive push in digitalization due to the corona pandemic. This especially applies to the digital infrastructure, which had to be expanded at a hurried pace so that the summer semester could take place online. That, however, is only the technical side. What else is needed for successful digital transformation at a university?

Gudrun Oevel: It requires people who are dedicated to the transformation. It does not just happen on its own or thanks to technology. Such a transformation opens up opportunities. The people involved use it to create good lessons, for alternative ways of learning, or to face challenges, such as the pandemic, in a different way.

How long does such a digitalization process roughly take?
The process never stops but is rather based around iterative – thus repeated – loops. The aim is to continually improve over time. As technology also plays a role, it is even more challenging. Generally speaking, technology usually changes much quicker than organizations, such as universities, are able to implement them fully and are able to adapt.

Thanks to your consulting function with "Hochschulforum Digitalisierung," you have gained an insight into several universities. How is the University of Bremen doing in comparison to others?
In the peer-to-peer consultation process, we took a long and hard look at teaching and studies and their management as well as the necessary requirements and competences – for example, the rooms, examinations, and courses. What was impressive was experiencing the "Bremen spirit" there – to feel how many people are thinking in depth and constructively and noticing their will to build something. That is something that not all universities have. But also the participative approach won me over – thus, the idea of involving as many agents as broadly as possible. These are definitely the strengths of the University of Bremen. Many steps have already been taken.

Some teaching staff are critical of digitalization. They fear that it could suppress face-to-face teaching in the long-term. What do you say to them?
In my opinion, we have seen what being more digital can do during this pandemic: other topics, other media, tools, alternative formats, more flexibility in terms of time and place, generally a different type of diversity. But we all miss personal contact and the social space for creativity, spontaneity, and intense communication. I believe that a presence-based university will consciously concentrate on face-to-face teaching but will continue to promote the positive digital experiences, as these also have their advantages.

How can we connect digital and presence-based teaching with each other in a good way? Are you able to state a specific example?
I find Flipped Classroom concepts wonderful, for example. This means that preparation is usually done autonomously and digitally at home and the material is then examined and discussed in more depth in a face-to-face setting. Digital simulation surroundings are also great, for example experiments or exercise classes. Students cannot break anything but rather approach certain things in an investigative manner. Or a virtual office hour during the lecture-free period, so you do not have to travel to the university just for that. Our students and staff also greatly appreciate digital test and feedback systems so that they can judge what knowledge has already been acquired.

"We need people who continually push the process forward on every level."

Professor Gudrun Oevel, Paderborn University

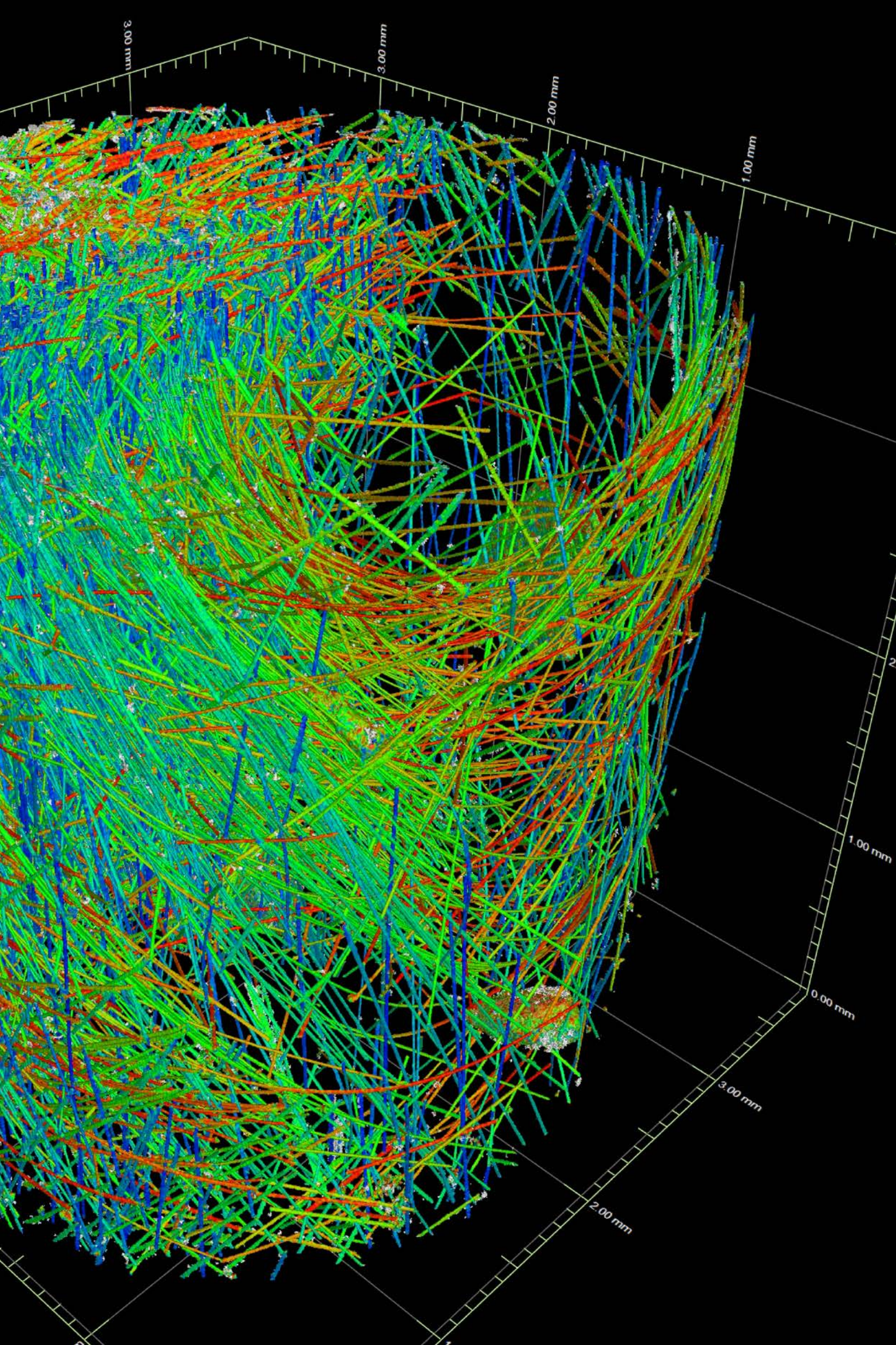
A university is a very complex system in terms of research, teaching, and administration. The heterogeneity of the agents is immense. How can you captivate all of those involved and tend to the needs of the individual areas?
That is an extremely important point that you have mentioned. In my experience – and we carried out an exciting research project on this – it is important that a strategic framework, thus important cornerstones, are agreed upon within the university as a whole. Then, people should be provided with creative room and resources so that as many people as possible, especially also students, can collaboratively shape that framework according to their subject-specific needs.
It is also important to give people opportunities to talk about their experiences, for example at a day of teaching or digitally, so they can combine the individual parts that worked well. We also need people who continually push the process forward on every level.

Let us talk about data protection in university administration: Some processes are legally not allowed to be carried out digitally to ensure the protection of personal data. Due to this, some of the processes are quite complex. How should one deal with this when digitalization in administration is to be developed?
I believe the protection of personal data and the right to self-determination with regard to data to be valuable assets. Sometimes, however, the legal provisions stand in the way.
I am of the opinion that we have to always earnestly strive for good solutions and really put the effort in. I am convinced that an open, transparent, but also appreciative discourse on facts is the only possible way. Sometimes taking a look at other universities can also help. Maybe some of them have already found good solutions that are adaptable. ●

←

A rather unusual photo: Professor Gudrun Oevel is juggling with Rubik's Cubes. You have to keep many balls – or in this case Rubik's Cubes – in the air during a digitalization process.
Photo: Adelheid Rutenburges / Paderborn University

https://hochschulforumdigitalisierung.de/de/peer-peer-strategieberatung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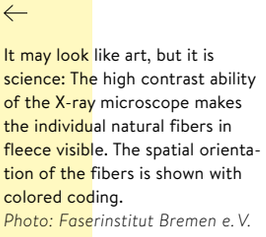
It is a piece of equipment that the MAPEX Center for Materials and Processes at the University of Bremen is very proud of: the **ZEISS Xradia 520 Versa**. What may mean nothing to laypersons, makes the jaws of specialists drop, as this device is an X-ray microscope of the newest generation, with which it is possible to observe minute dimensions. It has even been made more powerful in Bremen by means of diverse additions. In the field of new material development, the microscope is opening entirely new opportunities for the material sciences in the hanseatic city.



It may look like art, but it is science: The high contrast ability of the X-ray microscope makes the individual natural fibers in fleece visible. The spatial orientation of the fibers is shown with colored coding.
Photo: Faserinstitut Bremen e. V.

A Deep Look Inside

The material research carried out in and by the university is done with a high-resolution X-ray microscope of the most recent generation

By Kai Uwe Bohn

● Dr. Wolf-Achim Kahl is impressed. After several years' work with a computer tomograph in the Faculty of Geosciences, he has been the responsible laboratory manager for the 3D X-ray microscope of the MAPEX research network for several months now. A large device that the University of Bremen acquired as part of a German Research Foundation (DFG) initiative at the beginning of 2017 and which now offers entirely new opportunities for the investigation of the internal structures of all types of materials. "We can take a non-destructive look into ceramics, fiber composite materials, metal or biological materials, and much more, and that at a magnitude of less than a thousandth of a millimeter," says Kahl.

The insights with the XRM – the abbreviation of "X-ray microscope" – are even more detailed, more specific, more conclusive. "It is a dream for material scientists because you get results that are clearly more precise, and you can carry out research on far more detailed issues," according to Kahl.

The Highly Resilient Legs of the Grasshopper

What is relatively new for Wolf-Achim Kahl, is something that the physicist Oliver Focke from Faserinstitut Bremen e.V. (FIBRE) has experienced repeatedly: The amazement surrounding the capabilities of new large devices. Focke has been setting up the XRM for operation since 2017 and has carried out varying types of measurements. "One of the first projects came from the field of bionics. Together with the B-I-C – Biomimetics-Innovation-Centre at Bremen University of Applied Sciences, we examined the exoskeletons of

The 3D X-ray microscope ZEISS Xradia 520 Versa at the MAPEX Core Facility. *Photo: Matej Meza / University of Bremen*

> *"When I was looking at the most internal structures of a starfish, it suddenly reminded me of ceramic structures."*
>
> *Oliver Focke, Faserinstitut Bremen e.V.*

insects." Oliver Focke clearly remembers the X-ray of grasshopper legs. "The legs are very delicate but can withstand great amounts of strain in nature – several times their own-body weight," explains Focke. The grasshopper legs are currently being examined for their adaptability with regard to mechanical strain whilst exposed to acceleration due to gravity in the DFG project "Effect of mechanical stress on insect exoskeletons." "It is about recording possible differences in the structure and geometry of the legs as well as possible. We want to know what makes them so resilient and flexible but so light at the same time. Nature is often a model for technological developments."

That is also shown by example of fiber composite materials, one of the most significant developments of the past decades. They belong to the group of materials that are often examined with the X-ray microscope in Bremen. The connection between light but extremely robust synthetic fibers and the fillers and adhesive materials in-between has created materials that have made many current applications possible. Light, hard, stiff: Fiber reinforced synthetic materials have taken over from light metals such as aluminum and are used today in many industries – for example air and space travel, the automobile industry and rail transport, wind power plants, but also in niche sectors. One needs to take a deep look inside in order to develop the best materials for varying applications: How do the fibers lie, where are tears, pores, or soiling, where is something not sticking quite right? "We take a look at everything that our colleagues produce," smirks Oliver Focke. "We create thousands of cross sections that then allow for a 3D view when put together."

Testing without Destroying

A very important aspect of the work with the X-ray microscope is the nondestructive testing, NDT in short. "That is often very important to material scientists. If, for example, there is a tear in a material, you can now have a good look with the XRM – the tear surroundings, the structures,

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Two men – one machine: Dr. Wolf-Achim Kahl (MAPEX Core Facility, left) and Oliver Focke (Faserinstitut Bremen e.V.) are specialists for the 3D X-ray microscope ZEISS Xradia 520 Versa.
Photos: Matej Meza / University of Bremen

the areas where adhesive maybe did not hold, and much more," explains Wolf-Achim Kahl. That was not possible in the past: "One had to often cut out the damaged area or expose it to assess it microscopically. But in turn, said cuts led to a change in the actual damaged area and influenced it." Non-destructive testing is a highly interesting research topic as the industry dreams of mass production without any interruptions. "Of course, they would find it great if quality supervision could take place directly in production," knows Focke. Therefore, the integration of measuring methods in production processes is often a topic addressed by the MAPEX network.

With the high-definition microscope in Bremen it is basically possible to test all materials – even the surroundings of plant roots in ground substrate – and to make them visible without destruction. "Biologists are interested in how different microbes settle around a plant root, for example," stated Wolf-Achim Kahl. Together with the German Maritime Museum in Bremerhaven, an entirely different object was also assessed: a clockwork-operated toy submarine from 1915. "The researchers wanted to take a look inside – obviously without destroying it – and find out how exactly the clockwork is constructed and how it works," says Oliver Focke. He had another moment of enlightenment when he viewed a starfish from the North Sea with the X-ray microscope and was able to look at the impressive details: "It suddenly reminded me of ceramic structures and there were actually astonishing similarities. The solutions that nature has are always amazing."

How Do Raindrops Affect Wind Turbines?

Together with the Bremen Institute for Metrology, Automation and Quality Science (BIMAQ) and the Fraunhofer Institute for Manufacturing Technology and Advanced Materials (IFAM), the most recent research focused on which effect raindrops, sand, and ice have on the front edges of wind turbine rotor blades. Wait a second: Simple raindrops have an effect on modern wind turbines? "People underestimate it. The ends of the wind turbines are extremely quick. Those who have ever stuck their face out of a moving car when it is raining, know how much power raindrops have," according to Oliver Focke. High-performance materials are expensive and must therefore be created in such a way that they keep for the longest time possible – the research, which is also carried out by the MAPEX network, helps to achieve this.

The X-ray microscope should not be seen in an isolated manner, but rather together with other high-performing analysis devices within the research network. "Many researchers do not even know what great devices and possibilities we have on campus. I am so pleased each time when I can connect people and contribute a little to the success of the work. I have often experienced that an inquiry for one individual measurement has ended in there being a new joint research project," says Dr. Hanna Lührs, MAPEX's scientific manager. Good examples of this are the above-mentioned cooperations with the fields of bionics and the German Maritime Museum. "In the past years, we have repeatedly managed to acquire new DFG funding for new large devices thanks to joint efforts. Alongside the X-ray microscope, our researchers will be able to use a state-of-the-art facility for 3D laser deposition welding and the newest generation of transmission electron microscope in the future."

The goal is to create a nationally significant large devices center for material analytics. With the MAPEX Core Facility for Materials Analytics project, the DFG is supporting the University of Bremen on this path for the next five years. ●

Further Information:

www.uni-bremen.de/mapex
www.uni-bremen.de/mapex-cf

The industry is creative, and the slot machines are becoming more and more sophisticated.
Photo: powersky / AdobeStock

Gambling – as innocent as the term may sound at first, the consequences can be devastating when the temptation to gamble turns into an addiction. Whether it is in a casino, in an amusement arcade, or on the internet at home: When the search for a kick gets out of hand, your entire existence might be at risk. It cannot exactly be said how many people are considered as having a gambling addiction. The Federal Centre for Health Education estimates that around 430,00 people in Germany are affected by gambling-related problems.

The Gambling Game

Psychologists at the University of Bremen are researching gambling addiction

By Christina Selzer

● The Bremen gambling researcher Tobias Hayer carried out work on the phenomenon of why people become addicted to gambling. Hayer, who has a doctorate in psychology, reports that it is especially male youths that are at risk of addiction. Why them? "Younger people are generally more prepared to take risks than older people. They are more attracted by new stimuli and tend to test their boundaries. They also often lack the competence to handle money sensibly." Tobias Hayer has focused on various risk groups in his studies. He also found out that many of those affected are active in sports clubs or have a migrant background. "Obviously, not everyone becomes addicted," underscores Hayer. "But the games are created in such a way that they aim to captivate the players and can trigger an addiction in the long term."

Research with Practical Aspects

The Gambling Addiction Working Group also encompasses the Bremen Specialist Office for Gambling Addiction ("Bremer Fachstelle Glückspielsucht"), which in turn is made up of two parts. Psychologists carry out research at the University of Bremen campus. The information center in the city center is not only a place of contact for those affected and their relatives but also offers further training for certain target groups. This makes the office an important link between addiction support and addiction research. For example, the research projects deal with the issues of who is particularly at risk, which gambling games have the potential to be particularly addictive, and what happens in the brain whilst "playing". "Our aims are beyond mere science," explains Hayer, who also advises the government on various national boards. "We carry out research with practical aspects and want to also contribute the answers to what needs to happen based on our findings."

The Bremen Specialist Office for Gambling Addiction carries out experiments, implements qualitative research approaches, and works on large


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↑ Tobias Hayer works on the phenomenon of why people become addicted to gambling. *Photo: Matej Meza / University of Bremen*

↑ The Bremen researchers also advise the government. *Photo: Matej Meza / University of Bremen*

quantitative datasets. Test purchases with students in amusement arcades are also carried out in order to assess to what extent youth and player protection works in reality. The specialists in the information office work closely together with those suffering with addiction, who talk a great deal about their motivation and the negative consequences during conversations. That is also important data for research.

Gambling Myths

It is a well-known myth that you can control how an arcade machine game ends by pressing the buttons in certain ways and that you can beat the machine by doing this in the long run. Machine games or roulette are based entirely on random factors. However, it is exactly such myths that captivate players. They put euro after euro into the flashing machines and convince themselves that it will surely work the next time.

Professor Gerhard Meyer is Tobias Hayer's PhD supervisor. He has been the head of the Bremen Specialist Office for Gambling Addiction for 12 years and was one of the first experts to warn of the of the risk of addiction to gambling machines in the 1980s. The professor of psychology at the University of Bremen realized the addiction potential at an early point in time. "Over time, the machines became more ingeniously equipped. We ascertained that they triggered addiction-like phenomena, in some cases also due to the bypassing of laws. Despite the limit on prizes being legally 2 euros per game, you can now win up to 4,500 euros thanks to a system where money is transferred into points and back." Gerhard Meyer knows that elements, which actively involve the player, are fitted: "The machines have stop buttons. That gives you the feeling that you can influence the course of the game if you just pick the right moment." A deceitful illusion. This, in turn, activates the gratification system in your brain. It wants more.

More Sophisticated Slot Machines

The Bremen research team also tries out gambling and, for example, takes a look at new types of machines. "I have to understand how it works," explains Tobias Hayer. "When I go to an amusement arcade, I want to get a feeling for which gaming temptations the slot machines and the atmosphere exude, so that I know which type of personality might be attracted."

The industry is creative, and the slot machines are becoming more and more sophisticated. Everything revolves around manipulating the player. There are even computer programs with which it is possible to play on up to 20 pay lines. The machine rings and flashes for every small win. That makes it so fascinating that you do not notice that you are actually losing money. "You are happy about a win amounting to

"In our opinion, the scientific findings warrant generally noticeable interference of the state when it comes to the regulation of online gambling."

Tobias Hayer

> *"It is a well-known myth that you can control how an arcade machine game ends by pressing the buttons in certain ways."*
>
> *Professor Gerhard Meyer*

1.50 euros but what has actually happened? You've paid 10 cents for each of the 20 pay lines and have thus wagered 2 euros. That is a net loss of 50 cents. But you perceive it as a win because the machine shows you it is a win and underscores the amount. A player once summed it up nicely: 'You win your wallet empty'."

Online Gambling Is Particularly Dangerous

Online gambling was up until recently illegal, with the exception of in Schleswig-Holstein. The federal German states decided that it will be legal nationwide from July 2021 onwards. Those in favor hope that the market no longer develops in the dark but rather under the watchful eye of the government. However, the comfortable method of access from your sofa at home makes online gambling particularly dangerous. The addiction potential is high, warns Tobias Hayer. "The game is always available, and you play anonymously, without social control possibilities, without cash. If you are in an arcade, you have to open your wallet and take money out. When it is empty you have to get up and get more. If you play online, you can simply use your credit card the whole time and you don't notice how much you're actually wagering and how much you have already lost."

A literature analysis on the special risks of online gambling, which Hayer published together with the Gambling Addiction Working Group and ISD in Hamburg, also shows this. A higher risk potential was determined in 48 of 63 studies. In conclusion, Tobias Hayer wants there to be stricter regulations. "In our opinion, the scientific findings warrant generally noticeable interference of the state when it comes to the regulation of online gambling, which may even include the prohibition of some game segments, for example online casino games."

Study in Hessen: Players Volunteer to Be Banned

Gerhard Meyer and Tobias Hayer carried out another study on behalf of the Ministry for Social Affairs in Hessen. In 2014, Hessen was the first German state to introduce bans in amusement arcades. This means that those addicted to gambling can apply to be banned from all arcades in the state. "We ascertained that many of the affected actually made use of the opportunity," states Gerhard Meyer. However, one thing was also alarming: Despite the circumstance that the staff are obliged to intervene if there is a suspicion of a gambling addiction, this was hardly ever done in the cases investigated. "The conflict of interest is obvious. 60 to 80 percent of the profit comes from addicted persons. The arcade owners therefore have no interest in stopping an addicted person from playing."

To What Extent Are Older People at Risk?

The working group's next project is about to begin and will deal with gambling addiction in older people. Due to the demographic change, addiction phenomena in older age is a big topic. One must say, however, that alcohol and medication have always stood in the foreground. The study, which is being funded by the Federal Ministry of Health, is to find out if the older generation can also be counted as part of the risk group for gambling. ●

↓ Professor Gerhard Meyer was one of the first experts to warn of the of the risk of addiction to gambling machines.
Photo: Matej Meza / University of Bremen


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In fall 2020, the German reunification will have been 30 years ago. Since then, the cliché that a capable, capitalist economy took on a broken and bankrupt socialist system in 1990 has solidified. A myth. There were certainly sectors in which the GDR was economically successful. There was also internationally renowned know-how available in science and technology. What hindered the GDR were "modernization obstacles." Despite founded knowledge, new ideas and developments were not able to be implemented. Where these blockades were located, which consequences they had in the transition into the Federal Republic, and how economic-political decisions from the past decades have left their mark on East Germany until today – all of that is the focus of a research network led by Professor **Jutta Günther** from the Faculty of Business Studies & Economics at the University of Bremen.

Bad Conditions for Good Ideas

A research project focusing on obstacles in the way of modernization in the GDR'S economic and scientific sectors wishes to close gaps in knowledge

By Kai Uwe Bohn

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The chemical industry – in this case a location in Leuna – was very important to the GDR. Despite the fact that the facilities were run down at the end, many locations remained after "die Wende" and were renovated. They are competitive today and provide important jobs.
Photo: Bundesarchiv B 145 Bild-F089027-0026 [M]

● The premature judgment stubbornly remains: The economy of the GDR was ailing and hardly able to compete. Performance in economic and technological sectors was below average. It was no wonder then that everything "went downhill" in the end. The awful condition of East German companies and inadequate endowments of the individual sectors played a part in the collapse of the system. "That is not

↑ Two members of the large team: The habilitation candidate Ann Hipp (left) and Professor Jutta Günther coordinate the economic research project Obstacles to Modernization in the Economy and Science of the GDR (Mod-Block-DDR). *Photo: Matej Meza / University of Bremen*

entirely wrong but far too general," says Professor Jutta Günther. Since December 2018, the economist from the University of Bremen has been the head of the interdisciplinary and interregional research project Obstacles to Modernization in the Economy and Science of the GDR (Mod-Block-DDR). As one of a total of 14 projects being funded by the Federal Ministry of Education and Research it is to close gaps in knowledge of the GDR.

"Everything is bad, everything is old, nothing works": Those who think of the GDR's economy like that are making it easy for themselves. "Our research approach holds a much more differentiated view," says Jutta Günther. "With which technological starting capital did the GDR enter into reunification? Which important economic-political decisions were made after 'die Wende' during the quick transition to a privatized economy? What effect do these decisions have today on the East German economy and its structures?" Those are the central questions that are driving ten researchers in Bremen. They are each working in Jutta Günther's working group Innovation Economics or at the Research Centre for East European Studies at the university. Other project members come from universities and research institutes in Berlin, Halle, Jena, and Frankfurt/Oder.

Plans That Had Nothing to Do with Reality

The "primacy of production" ruled in the GDR's economy: The central planning set immovable production goals that were to be fulfilled – or even better be exceeded. "The planning had little to do with the reality there, which is why they had to fail in the end," says the habilitation candidate Ann Hipp from the University of Bremen, who is working intensely on the project. "On the other hand, the scientific system in the GDR was of a high standard in the natural science and technical fields. In said areas but also in many companies there were well trained women and men. However, their knowledge was not able to be turned into innovative products because the materials for the realization

There are only a few locations in East Germany where industrial research and development are important or where strategic development is initiated.

↓ The pride of the GDR: The petrochemical conglomerate Schwedt.
Photo: laufer / AdobeStock

↓ A great deal of know-how and well-trained specialists could be found and still can be in the Central German chemical triangle around Halle/Saale, Merseburg, and Bitterfeld. The locations remained, and investments were made for their modernization.
Photo: mmmx / AdobeStock

↑ The creation of the economic upswing in the East ("Aufschwung Ost") was a political decision. In the years after "die Wende," an extremely significant agenda was set for the further economic development of the East German regions.
Photo: Bundesarchiv B 145 Bild-00003561

"During the privatization of the GDR companies, a significant economic agenda was set, the effects of which are still tangible today."

Professor Jutta Günther

were missing." Despite there being a structure and technology policy in the GDR, despite certain sectors being expediently strengthened again and again: In the end there was a lack of sufficient material and a higher performing infrastructure. The people had no incentives to work more than average, according to Hipp: "There was praise and certificates for researchers and workers. But that was it."

Dilapidated chemical conglomerates, moon landscapes in the lignite mining regions, outdated machines, substandard cars such as Trabant and Wartburg – these pictures have anchored themselves in our minds. "Yet the technological knowledge and competencies – the so-called human capital – was actually available," says Jutta Günther. "There are several examples of successful technologies and development from the GDR that have managed to hold their ground with marketable products in capitalism – in optics, in microelectronics, cooling technology, or acoustics, to just name a few" (see box "Start in Socialism, Active in Capitalism" on page 32).

300,000 Patents Recorded in Database

The modernization obstacles in the GDR were system-based. An example from research and development: "More people worked there than in West Germany and they were very successful," states Ann Hipp. "The total number of patents was very high – around 300,000. Together with our partners from Jena we have recorded all of the GDR patents in a database." But also scientists had to fight against extreme restrictions. They were unable to really communicate with each other, had insufficient information, and too few international contacts. "Many had no chance to improve products because they always had to act within rules." Much differently to the West, where inventions usually pay off financially and lead to new businesses being established that stem from universities for example, there were no such incentive systems in the GDR.

However, the project members are not primarily working on the history of the economy but are rather looking at the further development alongside the foundations. "We want to better explain the present by having a better understanding of the past," says Jutta Günther. "Do the long-term effects of socialism and the transformation into capitalism influence the structural weaknesses of the new states of Germany today?"

Privatization Was "a Chaotic Time"

The motto "privatize quickly, redevelop decisively, shut down cautiously" applied in the "Treuhand" – the German Trust Agency. Privatization with Treuhand took until 1994. During this time, an extremely significant agenda was set for the further economic development of the East German regions. "That was a chaotic time. The companies were not able to suddenly switch to a market economy," according to the professor. For many years, the government had a controlling hand – in some cases it is still happening today. "The privatization was also a political process. There were no free market forces at work. A great deal was destroyed during

Start in Socialism, Active in Capitalism: Where GDR Technologies Still Celebrate Success

Optical Technologies: High-quality optic from Jena was already known in the 19th century. After the Second World War, high-quality, first-class optical products – often for the arms industry, but also camera objectives or astronomical products – were produced by the Publicly Owned Enterprise (VEB) Carl Zeiss Jena. Top performance in research repeatedly led to internationally renowned developments. After "die Wende", a part of the VEB merged with Carl Zeiss Oberkochen in West Germany, another part remained active in Jena under the name Jenaoptik.

Microelectronics: The Publicly Owned Enterprise (VEB) conglomerate Robotron held a high status in the GDR as a computer manufacturer and was greatly supported. Electronic data processing equipment, small computers, microcomputers, personal computers, process computers, control computers, but also office machines were produced. During some periods, memory chips were produced in the GDR. However, they were not able to hold their own in terms of international pricing competition. The conglomerate was liquidated after the reunification. However, the knowledge and skills of the people in this field formed a significant basis for the creation of a cluster within the memory chip industry around Dresden, also known as Silicone Saxony. The research in this field is still very strong in and around Dresden.

Cooling Technology: Leading technology in cooling and refrigeration engineering came and still comes from Berlin, where the Publicly Owned Enterprise (VEB) Kältetechnik continually developed new technology during the GDR times. For example, freezing technology was provided by the VEB for the entire fleet of Russian fishing vessels. The company managed to stay on the market after "die Wende" and is now known as Grasso GmbH. The industrial refrigeration technology expert is still implementing refrigeration machines developed in the GDR in a modern form in supermarkets, storage facilities, air conditioning units, and in the fishing industry across the world.

Sound Technology: In 1972, the Publicly Owned Enterprise Musikelektronik Geithaim was founded. It was a company that significantly profited from the groundbreaking ideas of the inventor Joachim Kiesler. He pushed loudspeaker technology forward and developed high-end electronic components such as microphone amplifiers, mixing amplifiers, and power amplifiers but also electronic concert and church organs. Today, the broadcasting studio monitor RL900 is not only in use in broadcasting houses but also in the Gewandhaus concert hall in Leipzig, the Semperoper opera house in Dresden, and the Konzerthaus concert hall in Berlin – and much like many other products it receives only the highest praise. As Musikelectronic Geithaim GmbH, the company now supplies many channels and studios across the world and has a market share of 80 percent in the broadcasting and television sector.

↓ The future of microelectronics: A large cluster of the memory chip industry – so-called Silicone Saxony – was created around Dresden after "die Wende".
Photo: I'm Thongchai / AdobeStock

The open-cast lignite mine in Lausitz was one of the industrial cores that remained. It is only because of the current energy revolution that this branch of the industry will shut down.
Photo: Cezanne-Fotografie / AdobeStock

the transitional period, until the government stood up for the preservation of several industrial locations. The directions set back then are in some cases still having an effect today."

East Germany's economic structures were recharacterized after "die Wende." An example with location politics: Despite dilapidated facilities, it was decided to conserve the Central German chemical triangle around Halle/Saale, Merseburg, and Bitterfeld. "Of course, this was also done to secure jobs," states Ann Hipp. "Basically, nearly everything had to be redeveloped. In the end, it was, however, the right decision. This location is very competitive today. It all happened back then under the heading of conservation of industrial cores." The preservation of the microelectronic competence area around Dresden, where "Silicon Saxony" is now an important location in the chip industry, is a further example.

No Big Companies, Rather "Extended Workbenches"

But there is also the other side: 30 years after the reunification, the structures in East Germany are still generally weak. "The industrial basis is structured in small parts. There are no large companies like in the West, where VW, Daimler, or Siemens employ thousands of people in one company and at one location," says Ann Hipp. "Many large companies are simply extended workbenches in the former GDR, for example the Porsche factory in Leipzig. There are only few locations where both strategic research and developments take place. In East Germany, we have a very different company and industry structure today." "Grown entrepreneurship," thus creative and brave company establishments or positive developments, as one knows them from the family-run economic history of Baden Württemberg for example, is underrepresented in many East German regions.

With their knowledge, the project members are to take part in current debates. "At the moment, there are intense discussions on whether we should support East Germany more – or if all support should be possibly stopped," according to Jutta Günther. "We want to contribute: How and where can innovation be further supported, where does investment play a role?" However, not only the "inner-German viewpoint" counts. At the same time, the situations in Poland and the Czech Republic are being investigated at the Research Centre for East European Studies in order to sharpen our perception of the East. ●

Further Information:

Mod-Block DDR *(project page)*
https://www.uni-bremen.de/en/obstacles-to-modernization-in-the-economy-and-science-of-the-gdr-mod-block-ddr

(BMBF – German press release on the strengthening of GDR research)
https://www.bmbf.de/de/wissensluecken-ueber-die-ddr-schliessen-6346.html

An interdisciplinary project group from the Social Science Methods Centre at the University of Bremen has investigated how **artificial intelligence** will change our lives in the future using a representative survey. One result: Many people are skeptical of the use of robots and AI in their personal surroundings. How should research and development react to that?

Hand in hand: That is how robots and humans will work together in the future. However, the technology must first be accepted by society.
Photo: quinlity / Adobe Stock

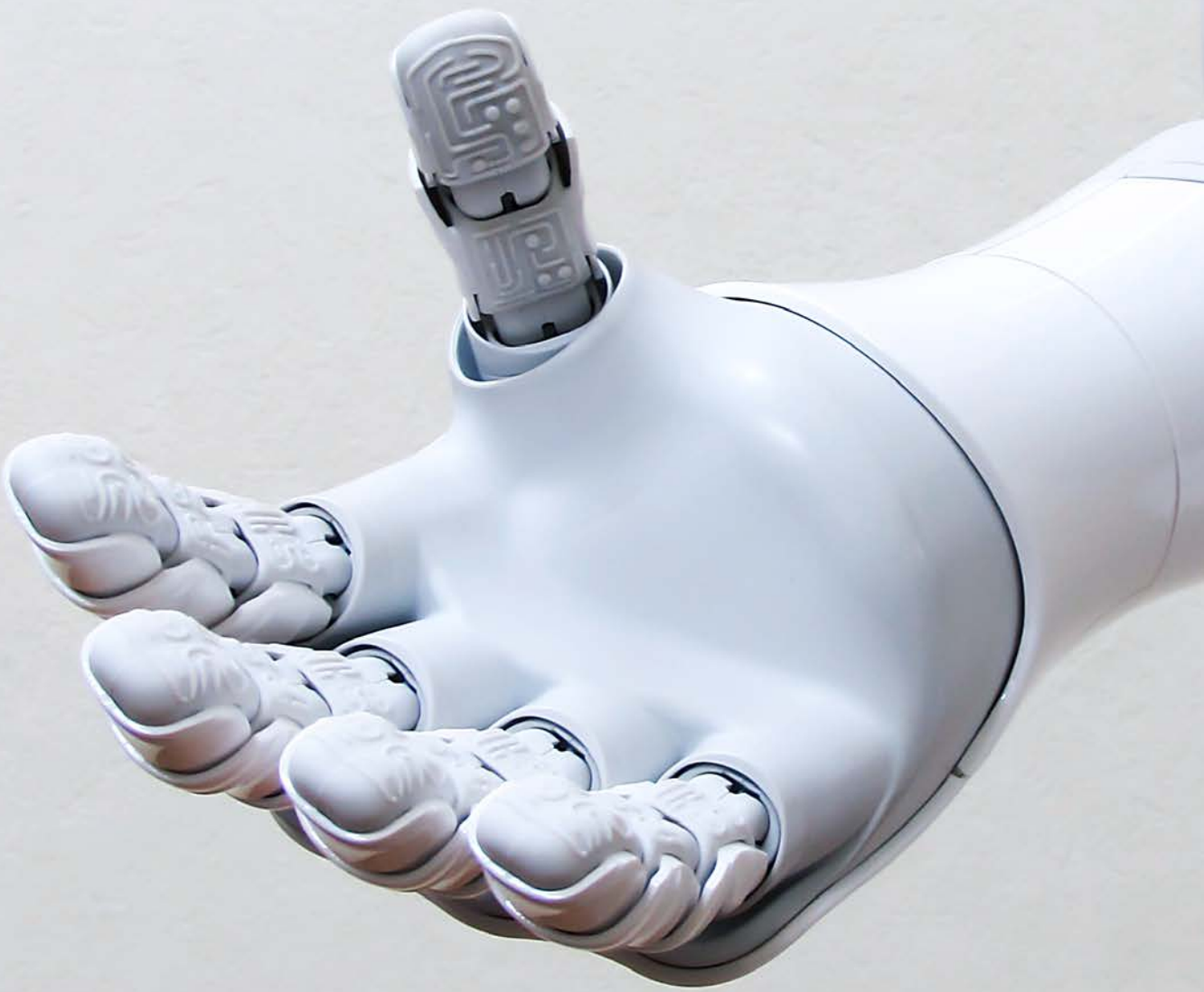
“What Use Is the Best Robot If No One Wants It?”

Sociologist Uwe Engel on society’s acceptance of artificial intelligence

By Sarah Batelka

● Whilst I write this text from my office at home, Dusty – our robot vacuum cleaner – whirrs quietly across the living room floor and hoovers up dust, crumbs, and other dirt. It methodically covers the whole room. Entirely automatically. Service robots or virtual language assistants are already finding a place in homes and gardens. But Dusty and friends are just the beginning.

Whether it is in a care home, an office, supermarket, or at the university: Robots and artificial intelligence (AI) are increasingly becoming a part of our daily life. They will soon be able to care for aged and fragile people, employ new colleagues, stock shelves, or teach school pupils or students.



"Artificial intelligence is seen as a technology of the future," says Professor Uwe Engel, head of the Social Science Methods Centre at the University of Bremen since its foundation in 2007 until 2020. "It will enter into our society." Together with his team, he is investigating how artificial intelligence will change our lives. In order to do this, he carried out a representative survey of 216 Bremen citizens. One central question was to clarify which social and ethical acceptance of AI and robots there is in varying areas of life.

Three Out of Four People Have a Positive Image of Robots

"Generally, three out of four people have a positive image of robots," explains the sociologist, "and less than ten percent doubt that robots are good and necessary for society. However, most of the survey participants are skeptical of robots in domestic settings, in care homes, or in educational and service sectors." Instead, those people rather see robots being used in logistics, industry, space, and marine research.

Engel states that people become warier of robots and AI, the closer they are in contact with them. According to the research, this correlation can be seen in the field of "care" in the survey. "Over half of the participants expect that humans and robots will share the care of patients in care homes in the future." When asked for their opinion on this, 37 percent find the use of care robots to be "not so good" and 23 percent "not good at all." If in doubt, the participants would rather accept assistant robots for themselves than for their relatives. "However," emphasizes the sociologist, "when those who took part in the survey are actually personally affected by the subject of "care" and it thus becomes a relevant problem, the rate of acceptance of robot assistance decreases from around a third to a quarter and below."

Sociologist Uwe Engel
Photo: Matej Meza / University of Bremen

Lack of Trust in Ethical Principles of Robots

One explanation: Communication plays an important role in day-to-day life. The results of the survey show that the prevailing opinion is that interhuman communication cannot be replaced by communication between humans and machines "regardless of how intelligent the machines are."

More important than people's fear of unsafe, error-prone technology are their doubts that certain ethical or normative standards are adhered to. Engel: "This became especially clear with regard to the 'staff selection' aspect. The idea behind it is that the initial screening of suitable emplo-

About the Survey

The Social Science Methods Centre at the University of Bremen carried out two surveys under the title A Look into the Future – How Artificial Intelligence (AI) Will Change our Lives ("Blick in die Zukunft – Wie künstliche Intelligenz (KI) das Leben verändern wird"). 297 people from the scientific and political sectors in Bremen and a representative sample of 216 residents of the Bremen region answered questions concerning varying future scenarios involving AI and robots. Scientists from the fields of robotics, cognitive sciences, computer science, law, economics, and social sciences were involved in the survey.

Further Information:

http://www.methodenzentrum-bremen.de/index.php?lang=en

yees should function automatically in the future." The survey revealed the following: As soon as there were doubts that AI can effectively protect you against discrimination, the survey participants preferred humans to continue to make decisions pertaining to staff.

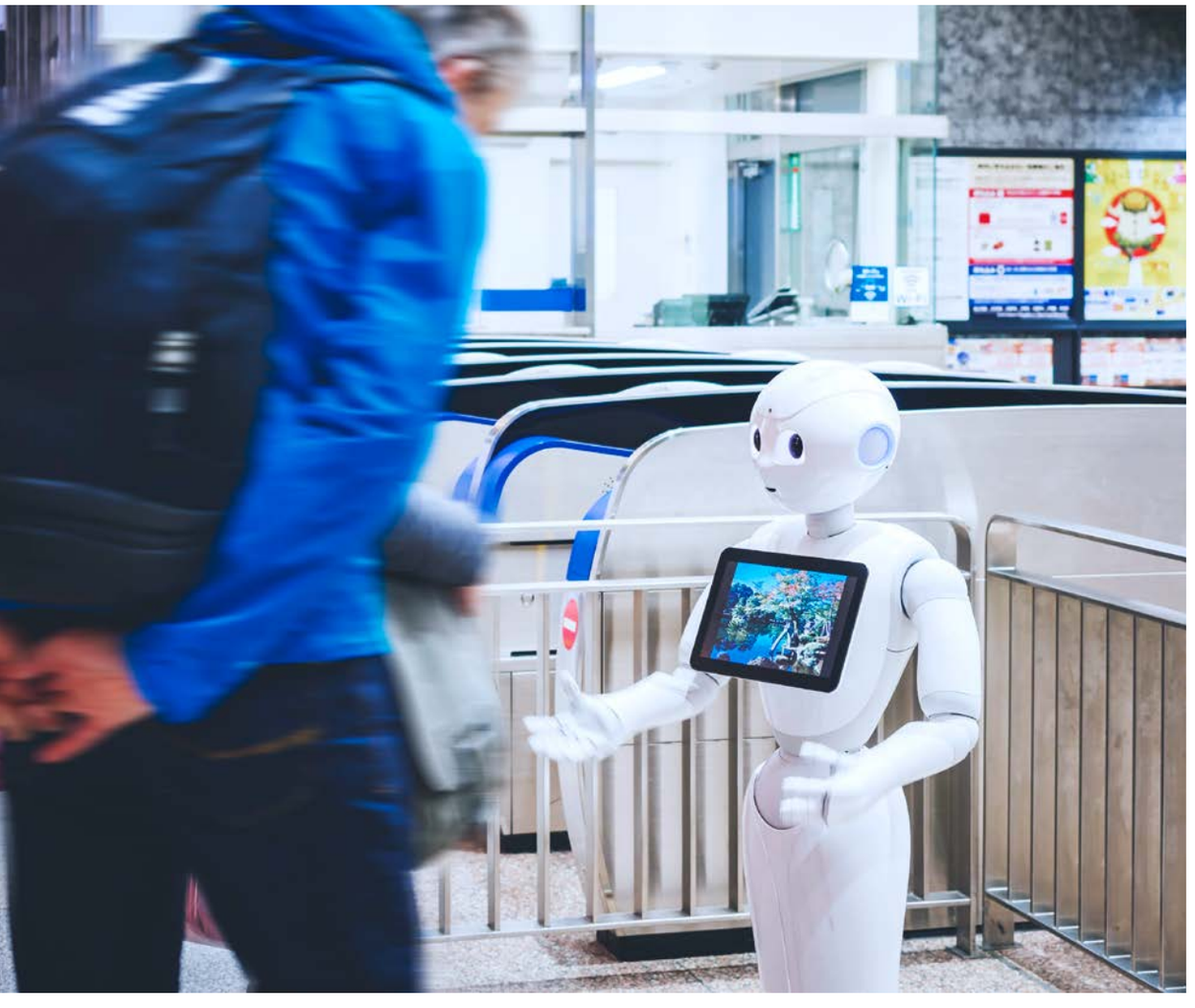
Key Words: Transparency and Education

The scientist was not surprised by the results. "We asked questions that relate to the year 2030. Thus, there cannot yet be any experience values." He believes the results would be different if people had already had close contact with machines such as care robots. "The coming years will focus on the development of robots to be used in domestic settings and they will be extraordinarily important for acceptance."

The question of acceptance of these new technologies is the central point for Professor Engel. "There is no doubt that AI and robots will be developed. This causes there to be pressure that these technologies are also accepted by society. What use is the best robot if no one wants it?" The matter of ethical and social acceptance should be of a "very high priority" for developers, he underscores. Engel asks that the public be greatly included in the research and development and also the discourse. "Those are the most reliable means to ensure that the technology will be accepted in the long-term."

Education is a further key word alongside transparency in order to increase the acceptance of robots and AI in home environments. "What we see regularly is that AI is currently a black box for many people – they are not exactly sure what it is." Engel would welcome a training initiative for the general public in Germany. "We must explain what is behind the term AI and which intentions the algorithms have."

In my home there is a loud beeping: Dusty is finished and has returned to its station to recharge its batteries. I still have to empty the compartment with the collected dirt later though. It cannot do that on its own just yet. ●



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A type of robot that is already being used in countries such as Japan and the USA: Pepper
Photo: VTT Studio / Adobe Stock

In the field of bee research, there has been an intense cooperation between the University of Bremen and the University of Ngaoundéré in the north of Cameroon for more than 20 years. Several early-career researchers have come from the West African country to complete a PhD in the hanseatic city. Many students have spent a part of their degree at one of the two partner universities. One of them is the scientist **Dr. Mazi Sanda**.

The Cameroonian bee researcher Mazi Sander with his former PhD dissertation supervisor Dorothea Brückner on the University of Bremen campus.
Photo: Mazi Sanda

"Honey Is an Important Commodity in Cameroon"

A close partnership between researchers in Bremen and Cameroon is to raise awareness for bees

By Meike Mossig

In Cameroon, the beekeepers often fill their honey into plastic bottles that they recycle in this way. Several honey types are dark in color.
Photo: Martin Gruber

In the West African country, keeping bees, collecting honey from wild bee colonies, and selling honey are an important source of income. "Nearly everyone who owns a piece of land has beehives," says Sanda. Collecting wild honey is popular with shepherds when they travel with their livestock. It is especially the honey from the northern region of Adamawa (Adamaoua), which sometimes has an impressive dark tone, that is sold across the country and is transported and sold in neighboring countries.

"Bees Were Just Insects to Me at the Beginning"

Sanda studied biology at the University of Ngaoundéré in Cameroon. "Bees were just insects to me at the beginning of my degree," he remembers whilst laughing. A course on them amazed him so much that he wanted to know more about

Two men collect honey from bees that live in an underground hollow.
Photo: Martin Gruber

Beehives are artfully crafted by hand in Cameroon. The photo shows a Cameroonian beekeeper. It is the cover photo of the book by Martin Gruber and Mazi Sanda.
Photo: Martin Gruber

these animals. Thanks to a scholarship from the University of Bremen, Sanda came to Germany and met the international bee research community at conferences. “This communication was a key moment for me,” he looks back. “All of a sudden, I was able to personally speak to researchers whose scientific articles I had only read by that point.”

Close Contact to Former Doctoral Dissertation Supervisor

The biologist completed his PhD at the University of Ngaoundéré and the University of Bremen in the field of bee research and has maintained close contact to the hanseatic city since then, for example to his former dissertation supervisor Dr. Dorothea Brückner. The biologist advocated for the cooperation with Cameroon in the 1990s. That is how a research center for bee studies was also set up at the University of Ngaoundéré. “The international approach of comparative bee research motivated several biology students to study the ecology of the tropical country Cameroon and its bee species,” says the scientist.

Transfer into Society

Sanda carried out an interesting research project on bee-keeping in Cameroon with the Bremen anthropologist Dr. Martin Gruber. They accompanied and talked to people who keep bees, collect wild bee honey, or trade honey over the course of several years. Sanda and Gruber compiled their results and experiences in a book, which Dorothea Brückner published at a German publishing house. The English-language publication presents impressive photos of the day-to-day life of the people who fund their income in varying ways with honey. The book also deals with the dangers posed to the insects: It is not only pesticides used in agriculture that put the bees in Cameroon at risk. Especially the clearing of trees endangers their nesting places. Charcoal production leads to a significant increase in timber clearing. Sanda hopes that the publication will increase awareness of bees in his home country. “It is the first bee-ecology book of its type,” he says. A documentary called Gbaya: Beekeeping and Honey Hunting by Gruber and Brückner shows the research work. The transfer into society is of great significant for all of the involved researchers. “Honey is an important commodity in Cameroon, but many people do not know a great deal about bees – about how to keep them in a manner appropriate to the species, which role they play in our country, and how they can be protected,” reports Sanda.

Beekeeping with Varying Interests

His Bremen colleague Martin Gruber does not only focus on Cameroon in the frame of his bee research. “I am interested in the diverse relationships between humans and bees in Cameroon, Germany, and Japan,” he explains. For several years, there has been increasing interest in beekeeping in all three countries. “It is apparent that beekeeping is mainly seen as an important source of income in Cameroon. In Germany and Japan, many new beekeepers keep bees as part of an alternative lifestyle or because they want to be close to nature,” accor-

ding to the anthropologist. There is a trend for beekeeping practices that are similar to traditional beekeeping practices in Cameroon.

Great Interest in Sensor Technology in Bremen

It is with great interest that his colleague Sanda from Cameroon keeps up to date with bee research in Bremen where beehives can be monitored using sensor technology. The sensors are installed in the housing. With their help, it is possible, for example, to measure the quantity of honey or the temperature without opening the hive each time. “One avoids exposing the animals to unnecessary stress with this technique,” explains Thomas Kluß from the Cognitive Neuroinformatics working group at the University of Bremen. He is an enthusiastic beekeeper himself and has been working together with beekeepers from Bremen and across regions as part of the so-called Citizen-Science Project for a long time. The Bee Observer project provides valuable information on the well-being of bee colonies in their hives. This information is of interest across the world. Kluß supplies beekeepers with the sensor technology to allow them to monitor their hives. In return, the hives provide data that enables him to research bee mortality.

Corona Halts Research Trip to Cameroon

The computer scientist is also interested in bee research in Cameroon. Kluß and his Bremen colleague Diren Senger actually wanted to travel to the Adamawa region this year to speak to Sanda and the Cameroonian researchers and students from the University of Ngaoundéré. But their plans have initially been put on hold due to the corona crisis. “Even when a great deal is possible via digital communication, we regret that this trip cannot take place,” says Kluß. “I was especially looking forward to the joint hive work there. Direct communication with beekeepers is always a great experience.” ●

↑ Mazi Sanda (right) and Dr. Martin Gruber accompanied and spoke to people who keep bees, collect wild bee honey, or trade honey over the course of several years. This resulted in a book and a documentary. *Photo: Martin Gruber*

Further Information:

For those who are interested in Honey Hunting and Beekeeping in Adamaoua (Cameroon): It was published by Rüdiger Köppe Verlag Cologne in 2019.
Link to the Book:
https://www.koeppe.de/titel_honey-hunting-and-beekeeping-in-adamaoua-cameroon

Here you can watch the related documentary:
https://vimeo.com/ethnofilm/gbaya

← The Bremen researchers Thorsten Kluß and Diren Senger next to the beehives at the University of Bremen. These hives are monitored with sensor technology. *Photo: Cedric Kränzle*

It was all meant to be different. **Five students** from the Faculty of Human and Health Sciences created scientifically-based concepts for occupational health management. They were intended to be implemented as practical projects in companies in the Technology Park. Then the corona crisis came and put an end to it all. Or did it?

Living, Eating, Drinking, and Communicating More Healthily

How a student project is strengthening the resilience of people working from home

By Karla Götz

● Afia Nsiah, one of the participating students, is doing her master's degree in Health Promotion and Prevention. She decided on a digital version of her Resilience Basics at short notice. Each week, Afia Nsiah published two of her carefully designed posters on a health board on the intranet of the company MeVis Medical Solutions AG and received much positive feedback. "I had strong partners in the human resources management of the company and the Techniker Krankenkasse health insurance company," she says.

Protective Shield for Inner Strength

The interested users of the health board learned that resilience is a protective shield for human inner strength. The student sheds light on many aspects that support resilience: heartfelt laughter, patient listening, empathy for others, even media fasting. Afia Nsiah called her project Spring Brain and created a total of 30 posters on four topics. Alongside resilience, she also focused on Neuro Nutrition – nutrition that is good for the brain. Quali Train – sport exercises that strengthen the body – and Lunch Walk – walking on unknown paths – were also included. "We received a great deal of positive feedback and inquiries," underscores the personnel officer from MeVis Medical Solutions, Hatice Yildiz, who supervised the project. The company, located on Caroline-Herschel-Straße in the Technology Park, has 150 staff members and develops software for image processing in the field of medicine. Therefore, staff spend a lot of time in front of their computers. "80 percent of our staff are still working from home," she states.

The 27-year-old student's health board was initially intended to be accompanied by practical aspects, such as cognitive training and psychomotor exercises. A course on

↑ Afia Nsiah is doing her master's degree in Health Promotion and Prevention and won over the teams from MeVis Medical Solutions with her concept. *Photo: Matej Meza / University of Bremen*

"The feedback we're receiving from colleagues is very positive."

Sibel Heckmann, human resources manager at MeVis Medical Solutions AG

biofeedback, where physical signals are measured, is also part of the concept. It just was not possible due to corona. The human resources management hopes that the outstanding concept can be implemented in full at a later point in time.

New Involvement

Twice a week for a month, the staff at MeVis Medical Solutions AG clicked on the tips from the student. The human resources manager Sibel Heckmann confirms: "The feedback we're receiving from colleagues is very positive." She certifies the University of Bremen student's "great involvement and completely new ideas." One of the things the IT specialists can now find on the health board is delicious recipes, for example for whole grain pasta with green asparagus and pine nuts. Of course, the recipe has been scientifically calculated by the master's student Afia Nsiah, who has worked out that vitamin B is important for memory and quick thinking and that the asparagus contains zinc, potassium, and iron. Another health board tip – as an idea for the break – is to take a 30-minute walk along the Jan Reiners walking path, exactly 1.9 km.

"99.9 percent of our staff work in an office," says Sibel Heckmann. "It is very important to us to find ways to motivate our colleagues to live, eat, and drink more healthily." Water dispensers have been placed on each floor, workshops have been held, company fitness programs offered. "We used to hand out biscuits each day and our staff were happy enough. But it was not healthy. We have replaced the biscuits with fresh fruit," she explains. The complete package is made up of nutrition and sports – Afia Nsiah suggests bouldering among other things – and the human resources manager confirms that it is received well. "Our brand as an employer also profits, both internally and externally."

Really Got Stuck In

The 27-year-old student of health sciences at the University of Bremen is pleased that her project has caught on so well. "She really got stuck in," recognizes Silvia Kaiser, a consultant for prevention and health promotion at the Techniker Krankenkasse health insurance company. That all of this could be realized despite the corona crisis makes all involved parties proud. ●

Expertise, advice, service: Being available with support for a wide range of people is part of day-to-day business for researchers and teaching staff at the University of Bremen. However, since the university's establishment in 1971, no one has received quite as many inquiries from the media and the public as the virologist Professor **Andreas Dotzauer**. His answers to the numerous questions surrounding corona were and still are in demand.

"Sometimes Three or Four Interviews Each Day"

Good advice during the corona crisis: In the close to 50-year history of the University of Bremen, no expert has given as many interviews in such a short space of time as the virologist Professor Andreas Dotzauer

Interview by Kai Uwe Bohn

Mr. Dotzauer, for you it seemed to go from 0 to 100 in only a few days in March 2020. How many inquiries have you had to answer as a virus expert since March 2020 – it's now the middle of July – and how many interviews have you given?

Andreas Dotzauer: I am not sure. I didn't count. At the peak, when the crisis really got going, I was giving at least one interview per day. Sometimes, it was three or four each day. I have surely reached a three-figure amount.

What was the strain like? Did you sometimes ask yourself when it will finally all be over?

No, it didn't go that far. I tried to control it all a little by being primarily available for the media in Bremen, Bremerhaven, and the region. I often declined inquiries from editorial teams from further afield. Outside of the actual interview there is a great deal of work to do as many journalists send me their questions. If you then have to answer them in writing, you think about what you actually write in great detail. And after telephone interviews, I asked that I was allowed to look at the text again. I wanted to make sure that I was cited correctly. All of that is time consuming.

What was your experience with the media like – good and bad?

I had no bad experiences really– rather experiences in general. For example, one of the things that I learned is that recordings are generally cut afterwards, and statements are therefore shortened. I had to make sure that some things were not taken out of context. What also happened was that sentences that I said to a media outlet here in the region, for example, were used, without my knowledge and in a different context, by another editor somewhere entirely different. You lose control of your own statements. I also made sure to only answer questions on virology and to not say anything about the economic or societal effects of the crisis.

At the beginning of the crisis, virologists and epidemiologists were in high demand but were then questioned and in some cases even treated with

↑ Protective suit, gloves, air gate: Professor Andreas Dotzauer at a special working space in the Laboratory for Virus Research. The expert has been in high demand by the media.
Photo: Kai Uwe Bohn / University of Bremen

hostility. Some of your colleagues also ended up disagreeing and publicly argued in the media …

What the public did not understand is that everyone initially assesses the available data for him or herself. That can lead to differing observations. Additionally, virology and epidemiology are two different disciplines that carry differing points of view. However, the divergences were not that big in terms of the subject matter in my opinion. They only differed greatly when they were asked to look into a crystal ball – into the future – or when it was about the effects of the crisis on the economy and society. Obviously, there are a wide range of assessments. That is why I consciously chose to not answer such questions.

Your research focuses on hepatitis viruses. Have you been able to even concentrate on your own work?

Yes, it has been possible. But with the corona crisis, we virologists have a live occurrence that could never be replicated in a laboratory. That we are mainly dealing with that, are following the current happenings, are communicating with each other, and are investigating the data at the moment, is only natural. At present, the corona virus takes center stage in our interests.

What were your courses like in the summer semester? Was corona also a topic that was in focus? The students must have surely peppered you with questions.

As in other disciplines, our teaching was also carried out solely digitally with Zoom classes and much more. Our laboratory course hours always take place at the end of the semester so that we were then able to carry these out under adherence to the required protective measures at the university. It is obvious that corona was spoken about a great deal in the digital classes.

And finally, a question on the topic itself: When do you estimate that this whole thing will be over?

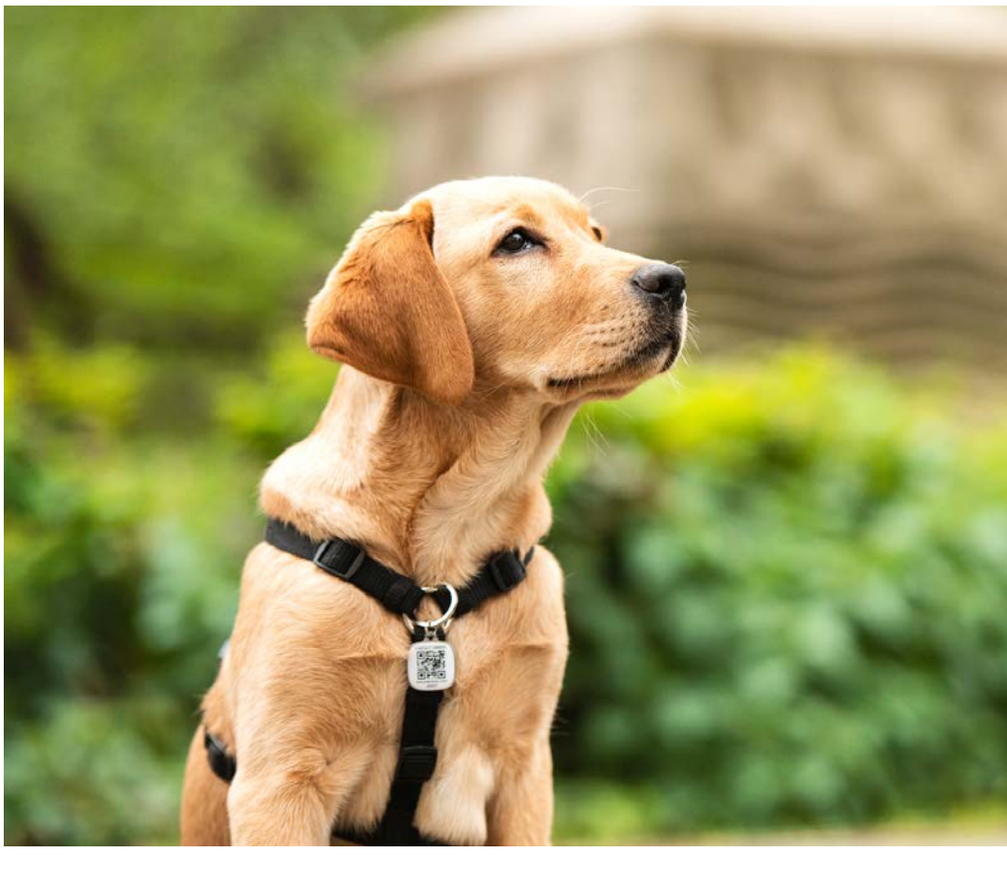
I do not know. The discussions surrounding easing of regulations go back and forth but future events cannot be foreseen. Many people talk of the second wave but in my opinion, we're still in the first one. There are many regional hotspots at the moment, but if measures, such as masks and distancing alone will have effective consequences in the long-term cannot be said now. At least they efficiently reduce the risk of infection. We are also unable to say whether the virus will mutate – which viruses generally always do – and if that will be a positive or a negative mutation. Or what will happen in flu season. I've got the feeling that it will still continue for some time. ●

Damn! Your keys are gone. Maybe they fell out of your coat pocket when you were riding your bike, maybe someone secretly took them out of your trouser pocket along with your phone at a festival, maybe you accidentally left them somewhere. What one person loses, is usually found by another. To date, it has not been possible for both parties to find each other in a straightforward manner. But now it is – thanks to Patavinus. It is under that name that the Bremen university graduate **Marc Gerken** and his friends saved the day for losers.

Salvation for Losers

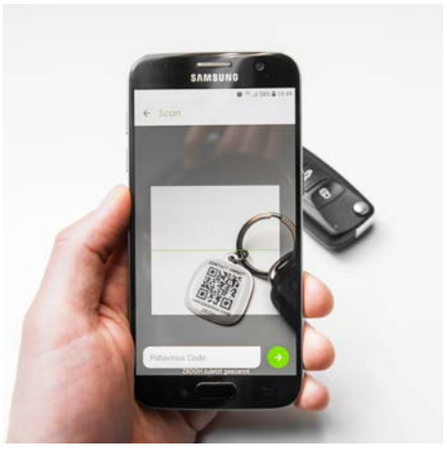
QR codes, app, and website: One university graduate and his friends have turned a unique idea into a business

By Kai Uwe Bohn



→

Your dog is lost? Hopefully he is wearing his Patavinus tag. There are good chances then that owners are contacted within minutes. *Photo: Patavinus*



↑ The salvation for "losers": Simply scan the Patavinus code and then contact is made to the owner
Photo: Patavinus

↑ University graduate with a brilliant idea: Computer scientist Marc Gerken and two of his friends founded the Patavinus start-up.
Photo: Patavinus

● Losing things is easy. Getting them back is far more difficult. "Keys, for example, are usually handed in where they were found – in the pub or a café in some cases. Or the finder takes them to the police. But some people do not even want to do that," says Marc Gerken. It's a long journey until the items have found their way back to their owner: Searches via lost and found offices, websites, even putting up signs, or newspaper advertisements are intended to bring back keys, cellphones, and other items. The chances of success, however, are dubious.

This also happened to Moritz Armbrust. He was out with Marc Gerken in the Viertel district and lost his keys. What seemed annoying back then is now his fortune, as this led to Patavinus being borne – a lost and found application, including key tags and stickers for lost items. The question that Armbrust and Gerken asked themselves back then: "Why can someone who finds the keys not contact me directly?"

A case for the computer scientist Marc Gerken. The master's degree graduate from the University of Bremen and his friend immediately started to ponder this over and then began to program: "We started with a basic app and website and then "lost" simple QR codes with a plastic casing at the Breminale festival in 2018. We wanted to see if our idea worked. And it did. "Around 70 percent came back," says Gerken, who now works fulltime for an IT company in Hamburg.

Scan the QR Code and Make Contact

The idea: By scanning the code with a smartphone you open a dialogue on the website or in the app, which does not need to be installed. The finder can then directly contact the person searching for the item without any hurdles. The two of them chose the name Patavinus for the project because of Anthony of Padua (Antonius Patavinus in German), the Catholic Church's patron saint of lost things. Login data is not needed: "We only provide the platform," says Gerken, "and now obviously also the key tags or stickers with the relevant codes."

But it has been a long journey to reach this point. Two specialists from Nuremberg joined the team. They are responsible for the attractive design and carry out the public relations work. Another, more specific trial run also went really well. Finally, Patavinus UG was founded, a shop was established (https://www.home.patavinus.com/shop?lang=en), and it all began. And it is going well. The Patavinus community now has around 2,000 users and the numbers are increasing.

You are not limited to only labelling things that "traditionally" get lost with the Patavinus QR codes. The tags can also be put on pet collars, backpacks, briefcases, and much more – as can the stickers. In order to test the system or put a QR code in your travel luggage or backpack, you can even print a code for free.

Second Place in CAMPUSiDEEN Competition

The idea is a hit: In the CAMPUSiDEEN 2019 competition – a start-up competition from the entrepreneur initiative BRIDGE, in which the University of Bremen is also involved – Patavinus took the 2nd place. The Telekom program TechBoost Grow is also providing support. The program helps young companies who already have their first customers and are in a period of growth. In terms of further expansion, the Patavinus team now hopes to attract big companies who will offer their customers the tags as a service: The costs are low, and the effect and usage are high. ●

Link to the website:
www.patavinus.com

"**Hemmersbach** arrives and everyone immediately fears for their rooms." That is her image – of that the cheerful woman is sure. "I want to do right by everyone and find compromises," says the head of the Room Management working group. That is why we are not illustrating the text about this extraordinarily active boss as she originally suggested: A slice of salami between two halves of a bread roll. Squashed, pressure from both sides.

Meticulous measuring and floor plans are the most important aspects of a relocation: Heike Hemmersbach explains that there are class tables in three depths, ranging from 40 to 60 cm.
Photo: Matej Meza / University of Bremen

"Totally My Type of Thing"

A portrait of the room manager Heike Hemmersbach

By Karla Götz

When Heike Hemmersbach comes through the door, energy flows into the room. She likes to talk about her work and uses the word "totally". "Totally my type of thing", "we totally powered through, even Saturdays", "I totally threw myself into it." Sometimes, when something does not quite work out, she also says: "I am 'fix und foxi'" – meaning that she is frazzled – a play on the name of a German comic book series. But in the end, everything always works out, she is not frazzled, and she glows.

Relocations, both big and small, are the daily bread of the 56-year-old. The native of Bremen unknowingly lay the foundations for her job today whilst undertaking an apprenticeship at the shipping company Richard Boas & Co. The company is no longer around. After her vocational training, Heike Hemmersbach worked for the telecommunications center 1, continued to educate herself, became a civil servant, came to the university in 2002, was an administrative clerk in the field of cultural science, and has been the head of Room Management since 2011.

Relocations Big and Small

A few impressive numbers: The seven-person team (quote Heike Hemmersbach: "The best team in the world") supervises around 100 buildings, some of which are rented, an area of 380,000 square meters, and 12,000 offices. "I actually have everything in my head," says the relocation expert. "I know which working group sits where and who works in which office." There are big and small relocations. Small ones are five to ten staff members. Heike Hemmersbach and her team organize them with student assistants. She has employed eight of them and they carry out around 240 room moves each year. "2,000 hours," she states. New appointments and the moving together of working groups trigger small relocations. There are also big moves. "Whole floors have to be moved when renovations take place," explains Heike Hemmersbach in reference to her more recent experiences with NW1 Building and GW1 Building. Or the corona crisis: Some of the administration has moved into SFG Building, so that they can sit in a distanced manner.

MZH Building is currently on her schedule. "Several working groups need to be put elsewhere," says the woman of action. "30 offices are moving, one of which is a directing room, and another is a didactics laboratory with a window." Exact measurements will be taken beforehand and ordnance survey-like plans will be made. "Organization is totally my kind of thing," exclaims Heike Hemmersbach once again. One can see how much she is looking forward to this challenge.

> *"Whole floors have to be moved when renovations take place."*
>
> *Heike Hemmersbach*

Building abbreviations:

NW1 Building – Natural Sciences 1 Building
GW1 Building – Humanities 1 Building
SFG Building – Seminar and Research Building
MZH Building – Multifunctional Building

Brown Belt in Karate

Naturally, she cannot draw on plentiful resources. "We're trying to cut costs," says the room manager. "The offices are of course equipped in accordance with university standards." She has a few pieces of furniture tucked away for an emergency. "For when something is broken." For example, tables: A physicist may hit it with a hammer, an artist may paint the tabletop by accident. Then she exchanges it. However, her furniture storage facility in the university's central area is not big at all. "Some people imagine that we then simply buy new stuff – but it does not work like that." Heike Hemmersbach runs a financially tight and sustainable ship. As she "totally throws herself into it from morning to evening," she often returns home late. A miracle: She still has time for a life after work. The sporty 56-year-old's hobby is karate. At Grambke-Oslebshausen sports club, she is working towards her third brown belt – the last one before the black belt. "I can really turn off with martial arts," says Heike Hemmersbach. She is active on the sport club's executive board and organizes canoe trips, bowling, or excursions to the OLantis aqua fun swimming pool in Oldenburg. Her pride and joy is her 21-year-old daughter who will begin to study Mathematics and Music Studies with a teaching orientation at the University of Bremen in the coming winter semester. Instruments: violin, guitar, and piano. We nearly forget to mention that Ms. Hemmersbach also plays the piano. And she is proud of her husband: a multitalented technician, craftsman, electrician. Whether it is 3D printers or building furniture: "He can do it all, a jack of all trades," laughs Heike Hemmersbach and quietly adds: "I have a wonderful life." ●

In July of this year, the biology professor **Martin Diekmann** was really happy. During a stroll around the campus fields, he saw some ragwort. The vivid yellow composite plant has not blossomed in the university's meadows for a while now. One thing became clear – the Campus Goes Biodiverse project is bearing first fruits.

←

Yes, you can find this at the university: A false oil beetle, identifiable by its swollen thighs, sits on an oxeye daisy
Photo: Matej Meza / University of Bremen

Every Herb and Every Bug Is Important

Campus Goes Biodiverse or: Why has no one mowed the lawn?

By Karla Götz

● The core idea is to not mow ten chosen areas for some time and to then see what happens. A group of students and their professors have collaborated with the University Executive Board's Environmental Officer, Doris Sövegjarto-Wigbers. The members of the Nature Conservation Group of the University of Bremen, NUB for short, are committed to an "alternative management of green areas."

The students Hannah Callenius, Antonia Otte, and Moritz Rocho want to bring the diversity of flora into the city and, in this case, onto campus. That is the goal of a pilot project at the University of Bremen. "The intensification of agriculture leads to a decline in the biodiversity of flora and fauna through fertilization, lowering of groundwater levels, and the use of pesticides," says Hannah Callenius, who is doing a bachelor's degree in biology. Now, countermeasures are being introduced to urban areas to create a balance – such as on campus. "Less mowing yields more," she states.

Determining Plants with the Utmost Precision

Generally speaking, it is "in" at the moment to plant seeds of insect-friendly plants. Whether the BSAG is doing it on their company grounds, the BUND Friends of the Earth Germany at Bremen's anti-colonialism memorial, or private persons in their gardens and on their balconies. Many people have understood that it is about time that we pay attention to biodiver-

And there is this too: The large earth bumblebee charms the viper's bugloss. *Photo: Matej Meza / University of Bremen*

> *"We want to heighten people's awareness of biodiversity on campus."*
>
> *Biology professor Martin Diekmann*

sity. The university's Nature Conservation Group is of the same opinion and has added scientific claim. Martin Diekmann, a professor of biology, is supervising two bachelor's theses on the topic. "We are pleased that we have so many supporters at the university," he says.

His student Jannis Gercken, who studies biology and history with a teaching orientation, has already started marking an area of the meadow behind the Bremen State and University Library Storage Tower. Here, he is now going to determine each plant with the utmost precision and index it. There are the soft red fescue grasses, "Festuca rubra," murmurs the 22-year-old expert. There's more: cat's ear, bellflower, hawkweed, St. John's wort, mallow, oxeye daisy, viper's bugloss, garden vetch, yarrow, and cranesbill – far more than expected after the mowing has stopped.

In late summer, permanent magnets were placed around the square area of the lawn as markings. "Next spring, we will be able to find exactly the same area with a metal detector and then look what has changed in comparison to the previous year," explains biologist Diekmann. "We are searching for the natural potential of the flora that is growing on the ground in the areas," he adds. Unlike other urban projects, it is not about sowing additional insect-friendly plants but rather changing the management of the areas. "The loss of biodiversity is also linked to the constant mowing," underscores the scientist. The members of the Nature Conservation Group are happy that they have support from the University Executive Board.

Phase of Insect Extinction

The project is also exciting for Professor Marko Rohlfs. The zoologist is specialized in insects and explains the life cycle and how one thing depends on the other. "We are in a phase of insect extinction," he says seriously. The biomass in its diversity is the food of the insects, which in turn is the food source of the birds. Sixty percent of birds feed on the crawling and winged animals. "Large insectivores such as the European Roller have already become extinct," he says. Professor Rohlfs and his students are also curious to find out what will be crawling and buzzing in the ten unmown meadows that are only to be mowed once or twice a year. "We will regularly determine the spiders, butterflies, wasps, wild bees, and other insects."

Promoting the Project

Thorsten Kluß from the Cognitive Neuroinformatics working group, who wants to understand the death of bees, is also involved. Due to the development of large areas of land behind the Cartesium Building, his bees are facing great challenges. "They have to go somewhere else to search for food and that

Jannis Gercken analyzes the plants in an unmown meadow behind Bremen State and University Library Storage Tower.
Photo: Matej Meza / University of Bremen

uses up a lot of their energy," he says. So, these meadows are all the more welcome.

Everyone involved in the project is convinced: It must be promoted. So, if people complain: "Why is the lawn not mown?", they need to know the reason. "In order to explain to passers-by what is going on here, signs will be put up in the future. We want to heighten people's awareness of biodiversity on campus," says Professor Diekmann. Two foundations – the Berninghausen Foundation and the Wolfgang Ritter Foundation – have guaranteed their support for the student project with scientific accompaniment. The money is to be used for explanatory signs in the meadows. "We will start this year with simply informative signs and will then expand the information next year," explains Diekmann with regard to the planned public relation work. The nice feeling that comes from doing something good for biodiversity will then surely be transferred to those passing by. ●

Further Information:

https://blogs.uni-bremen.de/nubnaturschutz/

They are dedicated to biodiversity on campus (from the left): Jannis Gercken, Hannah Callenius, Martin Diekmann, Antonia Otte, Moritz Rocho, Doris Sövegjarto-Wigbers, Marko Rohlfs, and Thorsten Kluß.
Photo: Matej Meza / University of Bremen

With the support of the EU and together with nine other universities and four associated members from the higher education, non-government, and private sectors, the University of Bremen is creating one of the first European universities. The university is to be student-oriented, non-elitist, open, and inclusive. Students, university executive boards, and staff who wish to contribute to a fairer, more diverse, and more effective education system in Europe and across the world, are collaborating within YUFE. Several people are now working step-by-step on the realization of these goals. The first online courses will be available this winter semester. **Who can you turn to at the University of Bremen** if you have questions about the project and would like to get involved?

Creating a European University Together

Who are the YUFE contact persons at the University of Bremen? An overview

By Meike Mossig

The YUFE vision is to enable students to compile their class schedule from all courses that are offered at the ten YUFE universities. The goal is to attain a YUFE diploma and in the future also a European qualification. Additionally, a virtual YUFE campus will comprise all online courses of the members. The official language is English. However, YUFE students will have the opportunity to learn the language either in person or virtually. They will also have the chance to complete internships within YUFE and to do volunteer work. Academic and administrative university staff will profit from joint projects and exchange possibilities within the YUFE alliance.

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coordinates the YUFE project at the University of Bremen.
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↑ Svenja Renner
is your contact partner for questions on studying within YUFE.
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↑ Enkhsaruul Batbaatar
and her team ensure that university staff also profit from YUFE.
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↑ Charlotte Simmat
has the task of promoting the anchoring of YUFE regionally.
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↑ Nele Kuhn
is the contact person for all matters concerning inclusion and diversity within YUFE.
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YUFE

Further Information

www.yufe.eu

www.uni-bremen.de/en/cooperation/university-cooperation/international-partners/yufe-young-universities-for-the-future-of-europe

@ yufe-info@uni-bremen.de

Photos: Matej Meza / University of Bremen

↑ Lea Elena Fischer, Jana Sievers und Jessica Winter (from the left)
represent the University of Bremen in the YUFE Student Forum – the student parliament. Jessica Winter is president.
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"Taking over the helm", "to be in stormy waters", or "(not) going off course" – Examples of metaphors that describe the turbulent history of the University of Bremen? Not at all! **The university literally sailed**, especially in the 1970s and 1980s.

No Seaman's Yarn: On the High Seas with the University

Sailing trips with the *Godeke Michels* and other boats were possible in the 1970s and 1980s

By Dr. Heiko Garrelts / Archive of the University of Bremen

● What was the meaning of these activities for the university – that is one of the many questions that the new project on oral history in the university archive (BUA) has been addressing since the start of 2019. The superordinate aim is to expand on the available and comprehensive written documentation from the university's history by means of interviews with witnesses. It is also about taking a look at daily life, as well as informal happenings and events that remain undocumented to date.

Trips from Copenhagen to Edinburgh

The sailing trips are a good example for the latter. A university lecturer appointed in Bremen, who previously worked in Berlin and was an experienced sailor, got the ball rolling. Cruises on various boats had been taking place since 1975; the Godeke Michels, which was purchased in 1981/82 and used until 1985, was one of the more prominent boats. In order to enable her purchase, several lecturers "chipped in". In 1980, a 40-person group made up of lecturers and students established the Uni Bremen Sailing Society (SUB), which was planned as being alternative – as it was not only academic in form. The society is still around today. The trips ended in Copenhagen or Edinburgh.

"It was a community" – There was hardly anyone who did not put it like that during the interviews. There were in fact very differing status groups on

←

Sailing for and under the name of the university. One of the few photos of Godeke Michels. The namesake was a pirate and friend of Klaus Störtebecker
Photo: Wilhelm Grieme

board: Professors from various disciplines, service providers, as well as students (for some of the trips).

The society benefited from the fact that the university was comparatively small at the time. Grounds for such trips varied from being of a solely private nature to cruises for the faculty (Faculty 11 for Labor and Education Sciences at the time), and even trips with classes on board, which were then mainly with students from technical fields and in connection to vocational pedagogy or sport.

Straight away, several of the interviewees put this activity in the context of one-third parity, a participation mode which was directed against the traditional professor-led university. Said mode only held legal value until 1976 but lived on in the heads of some: Status boundaries were partially able to be broken down with cruises. A further motivation was to put something positive – in a pragmatic way – against the ideological disputes at the university, which were found to be extremely theoretical and abstract, and against the beginnings of hostility in the region due to the perception of it being a "commie training ground". However, this was to be done without appearing to be apolitical.

"The Uni Was a Foreign Object"

With regard to the mentioned dimension outside of the university, it must be said that local societal integration hadn't been achieved yet. There was the perception that "the uni was a foreign object." Sailing emphasized many positive accents, for example

- → the explicitly stated possibility for external persons to become part of the sailing society crew, which is still valid today;
- → the participation in the Sails regatta in 1986;
- → the contact to the education authority concerning approval for the cruises.

When Godeke Michels was moored in Vegesack port, enthusiastic passersby stated: "Oh look, that's our university!"

Inclusion of socially disadvantaged groups is important. This principle – which was in accordance with the university's ideals during the founding phase – can be clearly seen in the constitution of the sailing society in 1980 (Section 2). A sailing tour with the members of a city initiative for children and youths, disabled youths, or those with a criminal record was deemed a theoretically founded opportunity to promote the development of character. During this time, the approach of pedagogic-therapeutic sailing, which was significantly shaped by the Bremen psychologist Michael Stadler, was established. ●

people

Jutta Günther took on the role of Vice President Research in April. She is succeeding the computer science professor Andreas Breiter. Jutta Günther was appointed professor of economics at the University of Bremen in 2014 and is a member of the Institute for Economic Research and Policy (ierp) within the Faculty of Business Studies & Economics. She is also a faculty member of the Bremen International Graduate School of Social Sciences (BIGSSS) and co-initiator of the Bremen Research Center for Energy Systems (BEST). From

Photo: Harald Rehling / University of Bremen

2015 to 2019, Jutta Günther was the Faculty of Business Studies & Economics` internationalization officer. Since 2017, she has been a member of the go diverse project advisory board at the University of Bremen. She is also a member of various scientific advisory boards and working groups on a federal level (BMBF, BMWi, Stifterverband). Prior to her time in Bremen, Jutta Günther worked in leading scientific positions at the Leibniz Institute for Economic Research in Halle (IWH). Further stops in her academic career were Jena (habilitation), Oldenburg and Osnabrück (studies, PhD) with study and research stays in the USA, Japan, Norway, and Russia, among others.

Since April, **Andreas Breiter** has been the first Chief Digital officer (CDO) of the University of Bremen. His role involves the promotion of digitalization in teaching, research, and administration. The professor of applied computer

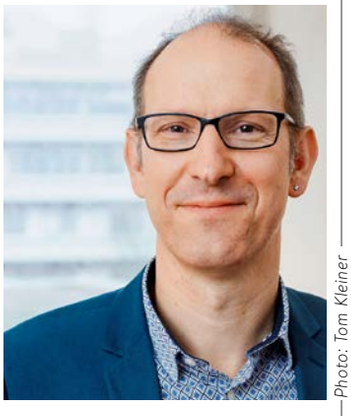

Photo: Tom Kleiner

sciences and executive director of the Institute for Information Management Bremen GmbH (ifib) advises the University Executive Board, develops strategic goals together with the board, and manages the implementation of said goals at the university. Breiter has been working on the digital transformation in educational institutes for many years. Additionally, in July, Breiter was posted by the Free Hanseatic City of Bremen as a member of the ZDF Television Board for the area of Science and Research. He took over from Heidi Schelhowe, who also comes from the Faculty of Mathematics / Computer Science at the University of Bremen and held the role for two terms. The television board represents the interests of the general public in its dealings with the ZDF. The members come from varying groups in society.

Since January, **Natascha Korff** has been a professor of inclusive education with a focus on didactics within the Faculty of Pedagogy and Educational Sciences. After her studies in teacher education and inclusive education and her PhD in inclusive education at the University of Bremen, Korff went on to spend time in Oldenburg, Hanover, and Paderborn until she returned to Bremen in 2016 as a junior professor. In her research, she focuses on developing inclusive teaching with a high standard in subject-specific didactics. She also works on the professionaliza-

Photo: Eisenstein

tion within teacher education as well as investigating school development processes as part of accompanying research on three school associations in Bremerhaven. At the University of Bremen, she has established the interdisciplinary accompaniment of students studying inclusive education in their practical semester and is also creating a subject-related partnership with the University of Namibia together with Professor Frank J. Müller. Said partnership will be supported by the German Academic Exchange Service (DAAD).

Simon Lewis took on the role of assistant professor of the cultural history of East and East-Central Europe at the Institute of European Studies, University of Bremen. He previously studied at the University of Oxford and the Polish Academy of Sciences, before completing his PhD at the University of Cambridge in 2014. He subsequently worked as a postdoctoral fellow at the universities in Oxford, Warsaw, and the Freie Universität Berlin. In 2018, he received a research

Photo: Private

scholarship from the German Research Foundation (DFG) within the Module Temporary Positions for Principal Investigators for a project at the Institut für Slavistik, University of Potsdam. His research interests include memory studies, postcolonialism, and comparative literature with a focus on the written and visual cultures of Belarus, Poland, Russia, and the Ukraine.

Since February, Professor **Lars Hornuf** has held the professorship for business administration, in particular financial services and financial technology at the Faculty of Business Studies & Economics. After completing his degree in political economy at the University of Essex, Hornuf carried out research at Ifo Institute for Economic Research and the University of Munich, where he completed a PhD in economics. Visiting scholar stays at UC Berkeley, Stanford University, Duke University, House of Finance of the Goethe-University Frankfurt, and Georgetown University followed. In 2014, he

Photo: Matej Meza / University of Bremen

was named assistant professor for economic analysis of law at the University of Trier. Since 2017, he has held a temporary professorship at the University of Bremen. He is currently an affiliated research fellow at the Max Planck Institute for Innovation and Competition, as well as an affiliate member of the CESifo Research Network. His work focusses on start-up and company financing, economic analysis of law, and experimental economic research.

Wiebke Schulz has been assistant professor of sociology of inequality and social structure analysis since March. She studied sociology in Bremen, Liverpool, and Utrecht. In 2013, she completed her PhD on the Careers of Men and Women in the 19th and 20th Centuries at the Interuniversity Center for Social Science Theory and Methodology, Utrecht University. Schulz

Photo: Matej Mezo / University of Bremen

has been a visiting scholar at the Center for Demography and Ecology (CDE), University of Wisconsin-Madison, a fellow at the Center for Interdisciplinary Research (ZIF) at Bielefeld University, as well as an academic councilor at Bielefeld University. Within her research, she works on the life chances of men and women, especially in relation to inequality in education, income, and careers.

Since April, **Andreas Rademacher** has held the position of professor of mathematical modelling and head of the Modelling and Scientific Computing Working Group at the Center for Industrial Mathematics (ZeTeM), University of Bremen. Rademacher studied mathematics at the University of Dortmund. His diploma thesis received one of the main prizes at the German Mathematical Society's Student Conference in 2005. He completed his PhD at the TU Dortmund and habilitated there in 2016. His research concentrates on adaptive finite element methods for non-smooth problems, as sometimes occur in the modelling of deephole-

Photo: Private

drilling processes. Within interdisciplinary cooperations, the developed methods are applied to the simulation and optimal controlling of comparable technical production processes.

Since June, **Alisha M.B. Heinemann** has consolidated her appointed professorship in pedagogy with a focus of educational paths and diversity. She studied pedagogy with an adult education orientation at the University of Bremen and then went on to complete her PhD on the topic of adult education in a society of migration at the University of Hamburg. As a postdoctoral researcher at the University of Vienna, she expanded her expertise on the field of German as a second/further language and the hand-

Photo: Jakob Börner

ling of multilingualism in school lessons. At Bielefeld University, she then took on an interim professorship. Alisha M.B. Heinemann's work focuses on educational processes in a migration society formed by social, cultural, gender-based, and linguistic heterogeneity. Learning spaces, interfaces between educational institutions, and transfers from schools to vocational training and careers that are influenced by heterogeneity form the core of her teaching and research.

Professor **Ingrid Darmann-Finck** from the Institute for Public Health and Nursing Research at the University of Bremen received the German Care Prize ("Deutscher Pflegepreis") for her pioneering work in the field of care pedagogy and care didactics. It is the highest national honor in this field and is awarded to persons and institutions that deserve special recognition for their influence on care and midwifery in Germany. The health scientist has

Photo: WFB / Ginter

been active – both voluntarily and as part of her job – in this area for decades. The German Nursing Council (DPR) honored her scientific work as being innovative and sustainable. New care didactical concepts have been developed and successfully established by Darmann-Finck and the other two prize winners. This work includes the creation of degree courses and research networks.

Professor **Ron Kikinis**, the former director of the Fraunhofer MEVIS Institute for Digital Medicine in Bremen, has accepted an appointment at the renowned Harvard Medical School in the USA. He will teach there as the B. Leonard Holman Endowed Professor of Radiology. The endowed professorship is one of the highest academic accolades that is awarded by the medical school. Kikinis will remain a cooperation partner for Bremen. He is coordinating the Imaging Data

Photo: Fraunhofer MEVIS

Photo: Fraunhofer MEVIS

Commons (IDC) consortium in the USA, in which the Fraunhofer MEVIS Institute is involved. The network is working on organizing the image databanks for cancer research so that they will be much more readily accessible for multicentric studies. Professor **Horst Hahn** will now lead the Fraunhofer MEVIS Institute alone. He had shared this role with Ron Kikinis for six years previously.

Two software technicians from the Center for Computing Technologies (TZI) at the University of Bremen received the Most Influential Paper Award at the SANER 2020 conference in London (Canada). Professor **Rainer Koschke** and his former PhD student Dr. **Thilo Mende** were honored for their contribution to the improvement of the evaluation of models used for the prediction of software failures. Software is often now so complex that it is impossible to find all failures

Photo: Private

Photo: Private

and fix them prior to application. Koschke and Mende have helped to make the search far more efficient. They showed new approaches for the creation and evaluation of prediction models for software failures.

Professor **Kerstin Knopf** was chosen as President Elect for the International Council for Canadian Studies (ICCS), which is located in Ottawa. From June 2021, she will lead the organization's work as president for two years. The ICCS is the umbrella organization of all national and interregional Canadian Studies societies in the world. The largest of those are the Association for Canadian Studies in the United States (ACSUS), the Indian Association for Canadian Studies (IACS), and the Association for Canadian Studies in German-Speaking Countries (GKS). Knopf holds a professorship for North-American and postcolonial literature and cultural sciences at

Photo: Private

the University of Bremen and was vice president and president of the GKS between 2015 and 2019.

The educational researcher and theater director **Jörg Holkenbrink** passed away at the age of 64 years in April. Jörg Holkenbrink was the artistic director of the Center for Performance Studies at the University of Bremen and founder of the associated "Theater der Versammlung" (Theater of Assemblage), which was one of Germany's first research stages. Holkenbrink's fields of work included performances between education, science, and art, as well as the development of research theater methods. In 1993, Holkenbrink received the Berninghausen Prize for Excellence in Teaching in the higher education sector. Jörg Holken-

Photo: University of Bremen

brink was a communicative dialogue partner, who moved between disciplines and motivated his students to find new perspectives.

In May, **Andrei Yakovlev** from the Higher School of Economics Moscow was named a Research Ambassador. In this function, he represents the University of Bremen abroad, especially in Russia and East Europe. He is a contact person for everyone who is interested in a research stay or semester abroad at the University of Bremen. Andrei Yakovlev completed a research stay at the University Bremen between 2002 and 2003, which was funded by the Alexander von Humboldt Foundation. Since then, he has regularly spent time in Bremen for research stays. He works closely together with the Faculty of Business Studies & Economics, the Faculty of Social Sciences, and the Research Centre for East

Photo: Private

European Studies. There are eleven research ambassadors that represent the University of Bremen in their home countries.

The psychology professor **Markus Janczyk** received this year's science prize for early career researchers from the Wilhelm Wundt Society. The prize is awarded for outstanding achievements in foundation research within the field of psychology. A particular focus is placed on new approaches to central research topics that are received internationally, are used for further research, or appear suitable for the long-term influencing of future research. Markus Janczyk has been researching and teaching at the newly established Department of Psychology within the Faculty of Human and Health Sciences, University of Bremen, since April 2019. There, he is head of the Research Methods and Cognitive Psychology working group. His work focusses on action control and

Photo: Private

multitasking, memory, language comprehension, as well as cognitive modelling and applied statistics.

As the head of the Qualiservice research data center, which is part of SOCIUM, Professor **Betina Hollstein** was appointed member (2020-2023) of the German Data Forum (RatSWD) by the German Federal Ministry of Education and Research. This is the first time that a data infrastructure from the field of qualitative research is repre-

Photo: University of Bremen

sented in the forum. It is also the first time that a data infrastructure from Bremen is represented. The German Data Forum advises the government and state parliaments on aspects pertaining to the expansion and improvement of research data infrastructures for empirical social, behavioral, and economical sciences.

The historian **Veronika Settele** is one of this year's winners of the German Thesis Award ("Deutscher Studienpreis") from the Körber Foundation. For her dissertation Revolution in the Stable: Agricultural Livestock Keeping in Germany, 1945-1990 ("Revolution im Stall: Landwirtschaftliche Tierhaltung in Deutschland, 1945–1990") she received one of the top two prizes in the Humanities and Cultural Sciences category. In connection to her dissertation on the history of mass livestock keeping, she received her PhD in the field of history at the Freie Universität Berlin and has been working at the History Department at the University of Bremen since April 2019. With the German Thesis Award, the Körber

Photo: David Ausserhofer / Körber-Stiftung

Foundation honors excellent dissertations with a particularly high relevance for society. The prize money, which totals 100,000 euros, is distributed between three top spots and six second places. The awarding ceremony will take place in Berlin in December 2020.

Professor **Hildegard Westphal** left her position as scientific director, and thus as part of the Leibniz Centre for Tropical Marine Research (ZMT) management board, in July. After working in the role for ten years, she is handing the scientific lead over. She is following in the footsteps of her predecessors Gotthilf Hempel and Venugopalan Ittekot, who also each led the ZMT for a decade. Hildegard Westphal will still remain at the ZMT as the head of the Geoecology and Carbonate Sedimentology research group and will carry out research and teach as professor of geology in the tropics within the Faculty of Geosciences in the frame of the cooperation professorship with

Photo: Tristan Vankann

the University of Bremen. Werner Ekau has temporarily taken on the role as scientific director until a successor has been appointed.

Christoph Kulgemeyer, who has been an adjunct lecturer at the Institute of Science Education at the University of Bremen since 2012, accepted the appointment as a W3 professor of didactics of physics at Paderborn University. He refused an appointment as a W2 professor of didactics of physics at the Otto von Guericke University Magdeburg. Some of the research fields of Christoph Kulgemeyer are the effect of

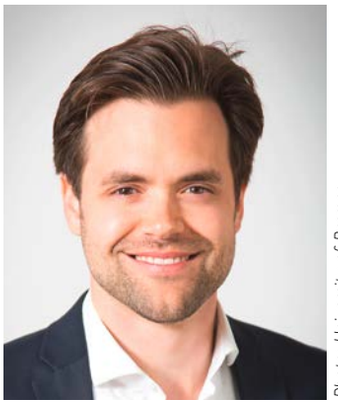

Photo: University of Bremen

explanatory videos on the learning of physics and the effect of knowledge acquired at university on the behavior of teaching staff in lessons.

Professor **Manfred Fahle** passed away at the age of 69 years in February. Fahle connected many scientific disciplines: He studied medicine, biology, and philosophy. His particular interest was the visual perception and processing in the brain. As a postdoctoral researcher at the Max Planck Institute for Biological Cybernetics, he carried out research on the structure of the cerebellum for four years. Together with the theoretical physicist Tomaso Poggio, Manfred Fahle received the Max Planck Research Award for work stemming from his time at the Massachusetts Institute of Technology. From 1999 onwards, Manfred Fahle worked at the

Photo: Harald Rehling / University of Bremen

University of Bremen. Here, he was the managing director of the Center for Cognitive Sciences (ZKW), professor of human biology, chairman of the Research Committee, and a member of the Academic Senate.

Since September, **Sebastian Fehrler** has been a professor for the field of economy of social politics at SOCIUM. The research and teaching of his working groups focuses on two areas. On the one hand, collective decision-making processes are modelled using game theory and the theoretical

Photo: Ines Njers

predictions are assessed by means of controlled laboratory experiments. On the other hand, the group develops concrete social-policy interventions in the Global South – currently for Bangladesh and Colombia – and evaluates their effectiveness using randomized field experiments. Sebastian Fehrler studied at the Freie Universität Berlin, the Humboldt-Universität zu Berlin, and the University of Nottingham. He completed his PhD at the University of Zurich. His last position was as an assistant professor at the University of Konstanz.

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www.uni-bremen.de/deutschlandstipendium

Universität Bremen

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