

Annual Report 2019



“Key priority of my Kühne Foundation is the support for training, further education as well as research and science in the area of logistics. This also includes Humanitarian Logistics and a project “Global Free Trade”. Medical research and education in the fields of allergies and heart diseases are of particular importance as well. Finally, the Kühne Foundation supports cultural projects, primarily in the music and literature areas.”

Prof. Dr. h.c. Klaus-Michael Kühne

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Preface by the Founder

Dear Friends and Project Partners of the Kühne Foundation, dear Readers

The Kühne Foundation continued to grow in 2019. Activities were significantly extended in all funding areas. More than 75 projects were processed worldwide; the funding of our charitable activities amounted to over CHF 30 million in 2019.

Our flagship in the logistics funding area, the Kühne Logistics University (KLU) founded in 2010, has made a name for itself with its research: In the “Wirtschaftswoche” 2019 ranking, the Kühne Logistics University’s business administration research puts it among the Top 20 German-speaking universities, and it is ranked second among the 200 private universities in Germany, Austria and Switzerland. We are delighted that the excellent reputation of the Kühne Logistics University enabled it to secure further publicly or privately funded research projects, including on current logistics issues. Its key competence areas Digitalisation, Sustainability and Value Creation, in combination with attractive Bachelor, Master and Doctoral programmes, attracted around 160 new students in 2019. Its Executive Education is successful as well: The part-time MBA in Leadership and Supply Chain Management for Executives started in 2019 with the largest cohort to date. The “Network Management for Logistics Processes” and “European Network Management for Logistics Processes” certificate programmes that KLU provides on behalf of the Kühne Foundation were particularly well received by the participants.

The Kühne Foundation is convinced that logistics expertise is crucial for economic development. The KLU and endowed chairs at renowned universities are supporting the qualification of an international academic logistics elite; at the same time, educational projects in developing and emerging countries were pursued, focusing on Africa. Together, we would like to help to ensure that urgently required logistics experts are available for local labour markets. Amongst others, we support universities to develop logistics and supply chain management courses at an international level.

As part of its logistics funding, the Kühne Foundation has been supporting a project “Global Free Trade” at the University of Zurich since early 2019. The aim is to provide new answers to the challenges of global trade, based on reliable information.

HELP Logistics AG, our subsidiary involved in humanitarian logistics, is experiencing steadily growing demand for consulting and training activities to improve the efficiency and effectiveness of humanitarian operations. During the reporting period, 58 projects have been implemented with international aid organisations and governments in 31 countries. A regional office for Western Africa has also been set up in Dakar.

With the Christine Kühne – Center for Allergy, Research and Education (CK-CARE), the Kühne Foundation has

been funding research and treatment of allergic diseases, since 2009. Education and trainings of doctors and specialist staff also plays an important role in ensuring that as many patients as possible are treated according to the latest standards. On the grounds of the Hochgebirgsklinik, which is owned by the Kühne Foundation, an international Medicine Campus is being developed. The opening of a new research and conference center at the beginning of September 2019 was a major infrastructure development step. The expansion of our involvement in medicine funding is important for the strategic concept of the Medicine Campus. The Kühne Foundation is donating around CHF 14 million to enable the largest research programme to date into decoding the human genome in German-speaking countries. The aim of the cooperation between my Foundation, the University Hospital Zurich (USZ) and the University Medical Center Hamburg-Eppendorf (UKE) is to gain a better understanding of the causes of cardiovascular disease. The Davos Medicine Campus will be significantly reinforced by the establishment of Cardio-CARE AG and a professorship of Biostatistics.

In terms of culture, the Kühne Foundation primarily supports music and literature. We aim to contribute to the sustained development of art and culture and support talented young concert performers, singers and writers. In 2019, we again provided support to major opera houses, concert halls and

Prof. Dr. h.c. Klaus-Michael Kühne,
President of the Board of Trustees



classic festivals in Germany, Austria and Switzerland. Since 2019, the Kühne Foundation has been one of the main sponsors of the Salzburg Festival; its long-term partnership with the Lucerne Festival has also been expanded, with the Kühne Foundation being one of this renowned festival's main sponsors as of this year. We have also been supporting the annual Harbour Front Literature Festival since 2009.

My wife and I would like to thank all those who have made a valuable contribution to the development of the Kühne Foundation, our project partners as well as our colleagues on the Board of Trustees, the management team and our staff.

With our redesigned Annual Report we would like to provide interesting insights into the diverse and demanding activities of the Kühne Foundation.

Kind regards

A handwritten signature in blue ink, consisting of a large, stylized 'K' followed by several loops and a final flourish.

Klaus-Michael Kühne
President of the Board of Trustees

Mission of the Kühne Foundation

“Entrepreneurial success should be combined with the promotion of the common good. The Kühne Foundation assumes this task also for the Kühne + Nagel Group; whose majority shareholder is the Kühne Holding AG controlled by me. With a large number of funding programmes and projects, the Kühne Foundation fulfils both its socio-political and corporate responsibilities.”

Prof. Dr. h.c. Klaus-Michael Kühne

Independence

The non-profit Kühne Foundation was established by the Kühne family in the year 1976 in Switzerland. The Board of Trustees is responsible for the execution of its duties. The Kühne Foundation should not be influenced by third parties. Its own assets form its economic base, along with the earning power and assets of the Kühne Holding AG.

Internationality

With headquarters in Switzerland, the Kühne Foundation's programmes and projects are devoted to the idea of living in a globally networked world and crossing boundaries. Almost all funding projects are therefore of an international nature.

Creative Foundation

The Kühne Foundation mainly works as an operative foundation. It pursues its goals less by promoting third parties; instead primarily initiating, steering and implementing its own projects and programmes, sometimes with partner organisations. This approach is particularly important in its two major funding areas, logistics

and medicine. The Kühne Foundation deploys lean structures to manage its projects in a creative and sustainable manner, while keeping a close eye on costs and budget

Efficiency

The Kühne Foundation strives for excellence in all its projects. It is important for it to focus on the desired outcome of its operational programmes and to work in a highly efficient manner. Among other things, this means defining targets for projects and funding lines, as well as monitoring the results and effects. This approach also serves to continuously develop the programmes and select new projects.

Priorities

The Kühne Foundation owes its financial strength to the success of one of the world's largest logistics companies, the Kühne + Nagel Group. It should never lose sight of these roots and the associated responsibility. The Foundation Charter defines a series of funding priorities that are intended to extend over a long period of time and are economically secure:

Logistics

The Kühne Foundation is convinced that logistics and logistics expertise as well as free trade support the global economic and social development.

Medicine

The Kühne Foundation is convinced that personalised medicine provides significant innovative impetus for therapy and prevention. It therefore specifically funds projects that are committed to this approach.

Culture

In particular, the Kühne Foundation funds outstanding classical music projects in collaboration with a number of European festivals, opera houses and concert halls. It also supports the Harbour Front Literature Festival in Hamburg.



Dr. Jörg Dräger

Dr. Jörg Dräger studied Physics and Economics in Hamburg and New York. After his graduation, he worked for Roland Berger Strategy Consultants in Frankfurt/Main. He returned to Hamburg as CEO of the Northern Institute of Technology. From 2001 to 2008 Dr. Dräger took office as Hamburg's (independent) Minister of Science and Research. In addition, he was a member of the Conference of Ministers of Education and Cultural Affairs and a deputy member of the German Bundestag. In 2018, he joined the Bertelsmann Foundation as a member of the Executive Board.

Dr. Jörg Wolle

Dr. Jörg Wolle holds a PhD in engineering sciences. In his roles as CEO and President, he formed and led DKSH AG from 2000 to 2017, most recently reaching net sales of CHF 11 billion and employing 35,000 staff in Asia. The company was created through the merger of three traditional Swiss trading houses in Asia. Since 2010 Dr. Wolle has been a member of the Board of Directors of Kühne + Nagel International AG, since May 2016 he has been Chairman of the Board. In addition, he is Chairman of the Board of Directors of Klingelberg AG.

Michael Behrendt

After studies in law, Michael Behrendt joined VTG Vereinigte Tanklager und Transportmittel GmbH in 1985 and became Managing Director in 1994. In 1999 he was appointed Chief Executive Officer of VTG Lehnkering AG. Michael Behrendt became Chairman of the Executive Board of Hapag-Lloyd AG in 2002; and has taken over as Chairman of the Supervisory Board of Hapag-Lloyd AG in 2014. Furthermore, he is President of the Übersee-Club e.V. in Hamburg and board member of the non-profit science organisation Stifterverband für die Deutsche Wissenschaft e.V.

Prof. Dr. h.c. Klaus-Michael Kühne (President)

Following a commercial apprenticeship and several years of thorough education, Klaus-Michael Kühne joined the family business Kühne + Nagel in the early 1960s. In 1963, he was appointed general partner, in 1966 Chairman of the Management Board. From 1975 onwards, he was Chief Executive Officer and later appointed Chairman of the Board of Directors at the company's international head office in Switzerland. Since 2011, Klaus-Michael Kühne has been Honorary Chairman of Kühne + Nagel International AG. The Kühne Holding AG, established by Klaus-

Michael Kühne in 1993, is the majority shareholder of the Kühne + Nagel Group and holds an over 30 per cent stake in Hapag-Lloyd AG, one of the worldwide leading container shipping lines. In addition, the Kühne Holding AG owns real estate and is engaged in the luxury hotel segment. Together with his parents, Klaus-Michael Kühne established the Kühne Foundation in the year 1976. The deed of the Foundation is support for training, further education, scholarships and research in the fields of transport and logistics. It is also involved in Humanitarian Logistics and supports a project "Global Free Trade" at the University of Zurich. Furthermore, the Kühne Foundation has established a Medicine Campus in Davos, Switzerland, supporting there two major research projects in the fields of allergology and cardiology, and runs the Hochgebirgsklinik. In the area of culture, the Kühne Foundation supports festivals, operas and concert halls in Europe, and the annual Harbour Front Literature Festival.

Karl Gernandt

Karl Gernandt started his career with Deutsche Bank after graduating with an MBA in business administration at the University of St. Gallen. He moved on to A.T. Kearney, focusing on strategic financial services projects, then to



From left to right:

Dr. Jörg Dräger, Dr. Jörg Wolle, Michael Behrendt,
Prof. Dr. h.c. Klaus-Michael Kühne, Karl Gernandt,
Christine Kühne, Dr. Wolfgang Peiner, Dr. Thomas Staehelin,
Prof. Dr. Lino Guzzella, Prof. Dr. Gregor Zünd

Alsen AG und Holcim, most recently as CEO of the Region Western Europe. From 2011 to 2016 Karl Gernandt was Chairman of the Board of Directors at Kühne + Nagel International AG, and has been Vice Chairman since 2016. He is Executive Chairman of the Kühne Holding AG and Deputy Chairman of the Supervisory Board of Hapag-Lloyd AG as well as a member of the Supervisory Board of SIGNA Prime Selection AG.

Christine Kühne

Christine Kühne is married to Klaus-Michael Kühne. On her initiative, the Christine Kühne – Center for Allergy Research and Educations was founded in 2009 in order to make a lasting impact on research into allergies. Christine Kühne is the patron of the “Hamburger Tüddelband” award for the best children’s and youth book author, presented annually during the Harbour Front Literature Festival. For the Mecklenburg-Vorpommern Festival and the Kühne Foundation she presented the “Christine Kühne Prize” for the best young singers in years 2016 and 2018.

Dr. Wolfgang Peiner

Following the completion of an apprenticeship at Kühne + Nagel Hamburg, Dr. Wolfgang Peiner studied business administration in Hamburg and Kansas/

USA. Thereafter he worked as tax consultant and auditor at Arthur Andersen & Co., the Werner Otto Group and as Director, later on as Chief Executive, of the Gothaer Group. During those times, Dr. Peiner was a member of the Board of Directors of the Treuhandanstalt and its successor organisation BvS, Kühne + Nagel International AG as well as a member of the Supervisory Board of Deutsche Lufthansa AG and Friends Provident. From 2001 to 2006 Dr. Peiner was Senator of Finance of the Hamburg state government, at the same time, he was Federal Treasurer of the CDU party. In the years 2010 and 2011, he was founding president of the Kühne Logistics University. Since 2008, Dr. Peiner has been a member of the Board of Directors of Kühne Holding AG.

Dr. Thomas Staehelin (Vice President)

Dr. Thomas Staehelin holds a PhD in law and has been a partner of Fromer Advokatur und Notariat based in Basel since 1981. His expertise includes international mandates, corporate law, mergers and acquisitions, tax law, contract and commercial law as well as banking and stock market law. Dr. Staehelin is a member and/or President of the Board of Directors of several Swiss and international companies.

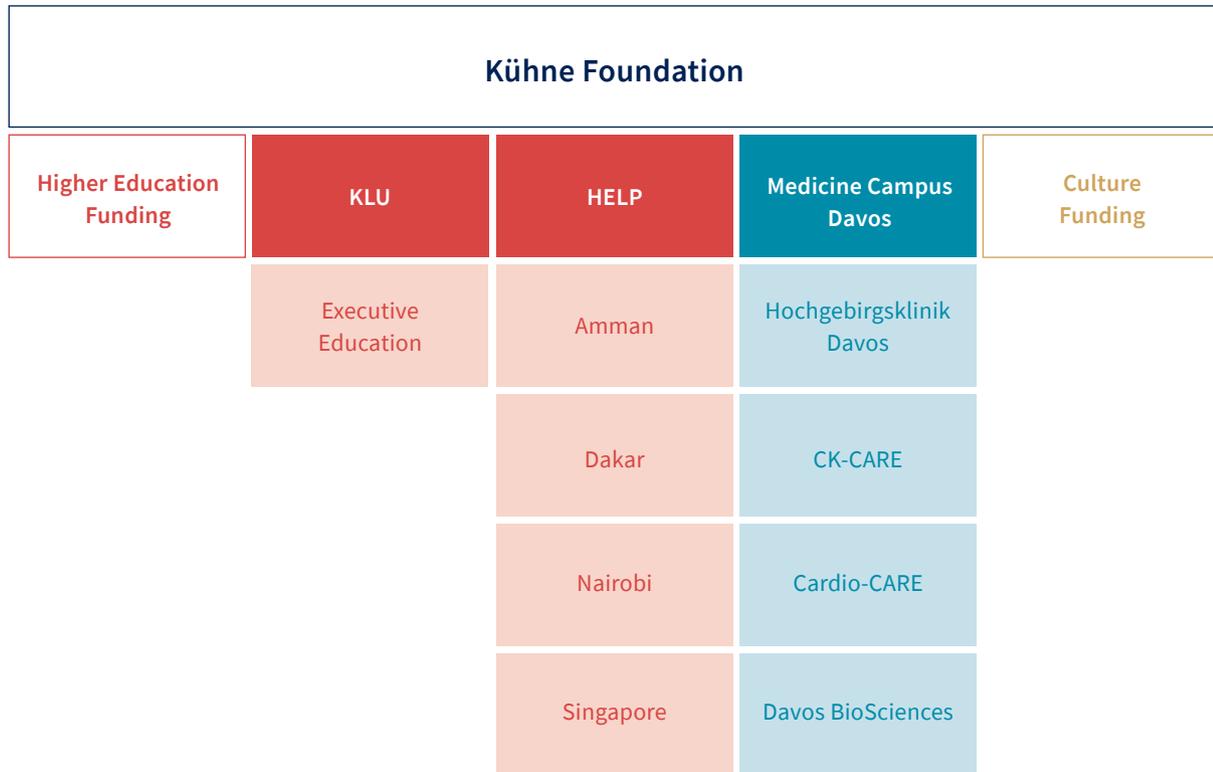
Prof. Dr. Lino Guzzella

Dr. Lino Guzzella has been full Professor at the Department for Mechanical and Process Engineering at ETH Zurich since 1999. After working in the field of industrial research (Sulzer and Hilti) he became Assistant Professor at ETH Zurich. Between 2012 and 2014 Prof. Guzzella was the Rector of ETH Zurich and from 2015 to 2018 its President. He is a fellow of IEEE and IFAC and a member of the Swiss Academy of Engineering (SATW). He is also active as a member of the Board of Directors of German and Swiss industrial companies and a consultant in the area of start-ups and innovation.

Prof. Dr. Gregor Zünd

Prof. Dr. Gregor Zünd has been CEO and President of the Hospital Executive Board of the Zurich University Hospital since 2016. Before his appointment, he was Director of Research and Education and in this function already a member of the Executive Board of the Zurich University Hospital and Managing Director of the Centre for Clinical Research. Prof. Zünd is a specialist in cardiac and thoracic heart surgery. He completed further trainings at the Zurich University Hospital. In addition, he spent several years at the Texas Medical Center in Houston and at the Harvard Medical School in Boston. Prof. Zünd is member of the Medical Faculty at the University of Zürich.

Organigram



The Kühne Foundation considers itself as an operative foundation and primarily implements its own projects. Therefore, it has founded a number of subsidiaries. These are presented in coloured boxes in the organigram above.

Funding Volume



13%

Funding Area
Humanitarian Logistics

11%

Funding Area
Culture

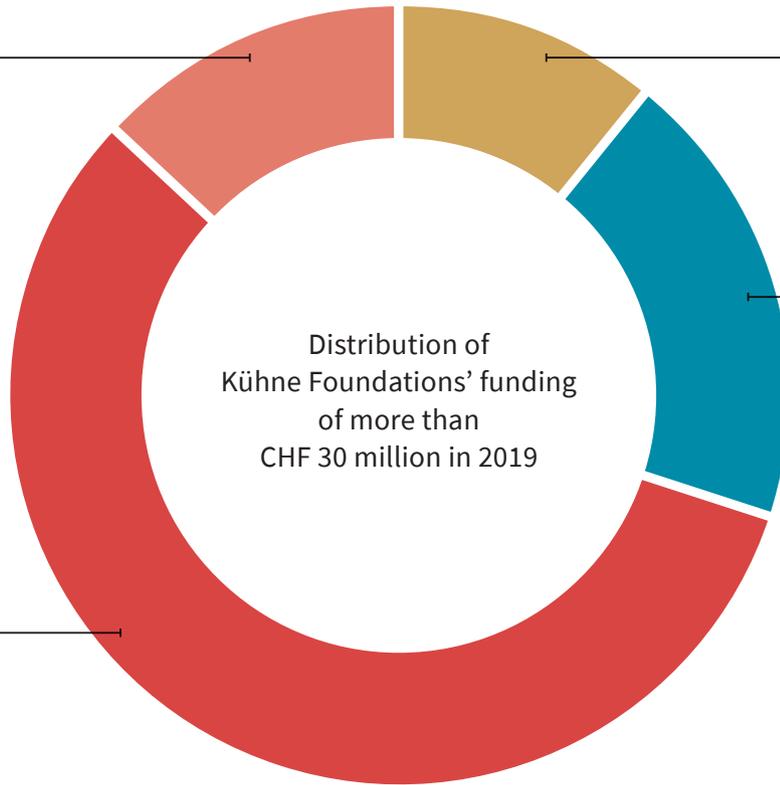
19%

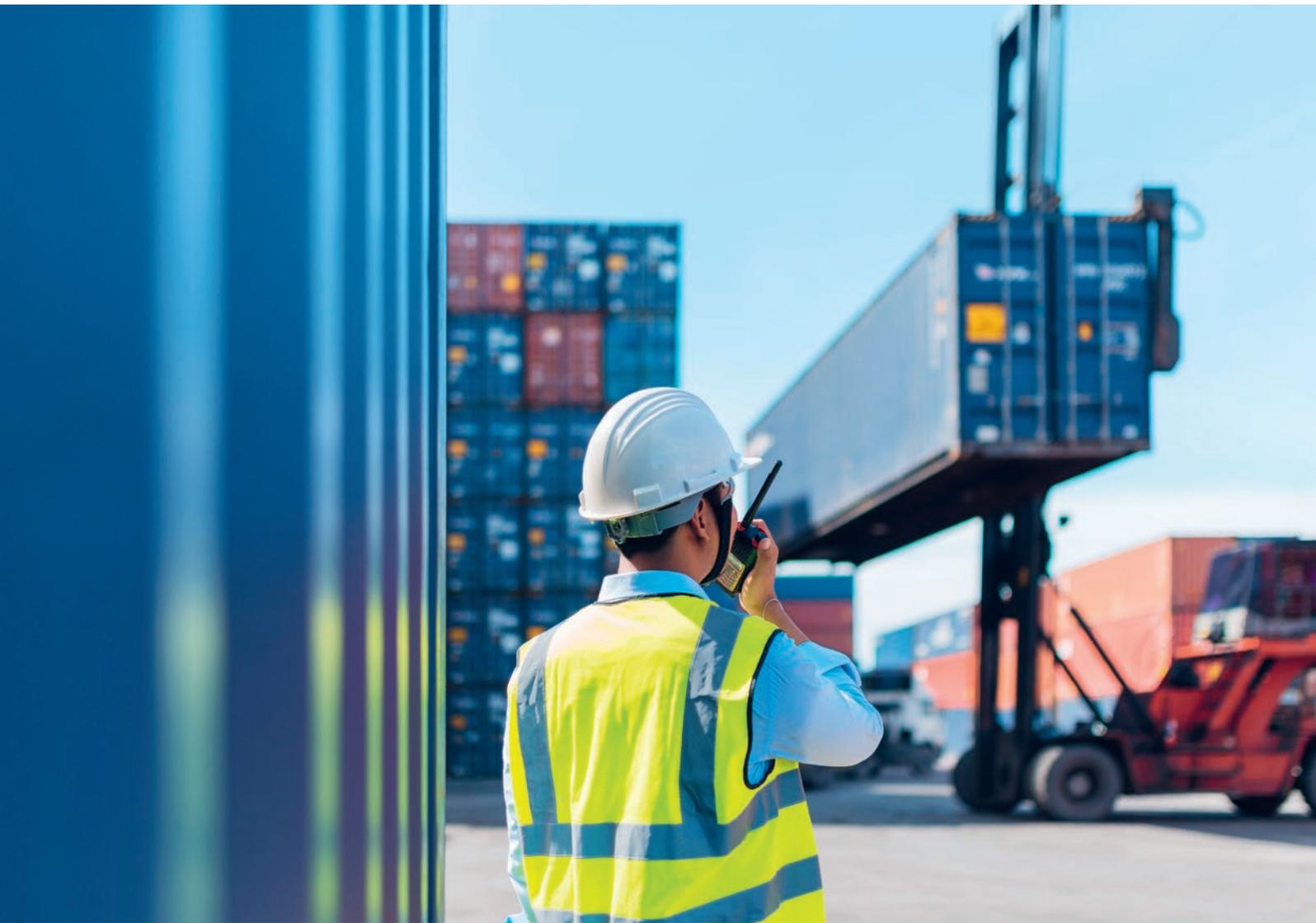
Funding Area
Medicine

Distribution of
Kühne Foundations' funding
of more than
CHF 30 million in 2019

57%

Funding Area
Logistics





Logistics

Logistics forms the backbone of the modern economy and lays the foundation for international trade and exchange. The Kühne Foundation links research institutions working on new developments, and supports training and further education for managers who take on new challenges. Furthermore, the Kühne Foundation is involved in the field of humanitarian logistics and supports with its subsidiary, HELP Logistics AG, humanitarian organisations in the implementation of efficient humanitarian responses. The Kühne Foundation's Education Programme contributes to the extension of logistics competence in emerging countries.

Teaching

Greetings and farewells are closely interlinked in the academic calendar. Around 160 new students have been welcomed and about 100 graduates presented with their degrees; including the first cohort of the TriContinent MSc in Global Supply Chain Management.

Following the global digitalisation trend, KLU has created the technical prerequisites for eLearning. So lectures can now be broadcast live or recorded in advance. In this way, for Executive Education it will open up new segments of the education market.



Kühne Logistics University (KLU)

Kühne Logistics University (KLU) is an internationally renowned, private faculty with the right to confer PhD degrees and proven practical expertise. In terms of research and teaching, digital transformation, sustainability and innovative value creation are the key competence areas in the disciplines of transport, global logistics and supply chain management. One Bachelor and three Master courses, a structured Doctoral programme and a part-time MBA provide excellent study conditions and perspectives for 400 students from 60 nations. An international team of 24 professors conduct teaching in English at KLU's modern campus in Hamburg HafenCity. Management seminars for specialists and executives complete the syllabus.

Examples of Key Performance Indicators	2018	2019
<i>PhDs</i>	2	3
<i>Master's graduates</i>	58	81
<i>Bachelor's graduates</i>	18	21
<i>Executive Education Days</i>	199	174
<i>Third-party funding in million Euro (approx.)</i>	1.5	1.5

Research

KLU's research performance puts it among the Top 20 German-speaking universities in the business administration arena, according to the "Wirtschaftswoche" 2019 ranking. Furthermore, KLU is ranked second among the 200 private universities in Germany, Austria and Switzerland. In terms of research output per professor, it occupies first place among all private universities and seventh in the overall ranking.

In addition to the 17 research projects already ongoing, scientists have also undertaken eight publicly or privately funded projects, including on sustainable logistics topics such as the circular economy (EU), wind-assisted ship propulsion (EU), transparent and safe food logistics (Federal Ministry of Education

and Research) and innovative port technologies (Federal Ministry of Transport and Digital Infrastructure). Added to this are projects on blockchain technology in the supply chain (EU), artificial intelligence (industry), global multi-business supply chain management (industry) and algorithms in financial advice (DFG, Deutsche Forschungsgemeinschaft).

Internationalisation

KLU maintains close contacts throughout the world by means of conferences, joint research projects, international students and teaching staff.

A highlight of 2019 was the visit from the President of Costa Rica, who presented their innovative decarbonisation plan. Links to Latin America were also strengthened, with a visit from the Colombian Ambassador, for example. Eastern Europe and Central Asia were represented at the Ambassador Day by leading diplomats of two important world regions and 15 countries. The university's internationalisation strategy was intensified during 2019, allowing it to develop new academic and industrial contacts for research, teaching and Executive Education.



Visit of the President of Costa Rica, Carlos Alvarado Quesada



Highlights 2019

Executive Education: A network for life

The part-time MBA in Leadership and Supply Chain Management for executives started in 2019 with the largest cohort to date. Prof. Rod Franklin, Academic Director: “The cohort’s list of sending companies reads like a who’s who of logistics.” Since 2019, KLU Executive Education has also been offering the “Network Management for Logistics Processes” (NetLoP) and “European Network Management for Logistics Processes” (ENLoP) certificate programmes on behalf of the Kühne Foundation. The formula is two programmes, 12 cities – a network for life.

“NetLoP is a practice based think-tank for executives providing a platform for networking. I would definitely attend again.”

S. Zech, Head of Site Logistics Ingelheim,
Boehringer Ingelheim Pharma

“ENLoP is very well oriented to give us the right tools to face the new challenges: globalisation, digitalisation, logistics and industry 4.0.”

G. Schumacher, Head of Logistics Finance,
BSH Electroménager

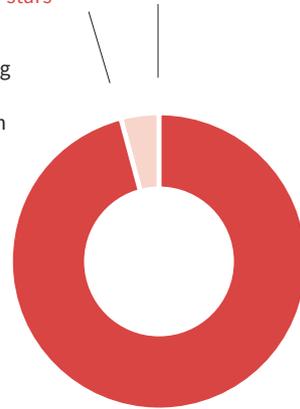


“KLU trains the logistics executives of tomorrow and our aim is to provide every student with individual support.”

Prof. Dr. Thomas Strothotte, KLU President (on the right),
at the award ceremony in Washington D.C.

4.8 out of 5 stars

Prize for
outstanding
student
satisfaction



Global Student Satisfaction Award

Awards: Prize for outstanding student satisfaction

In a ranking of 2,000 universities, released by *Studyportals.com*, KLU has won the Global Student Satisfaction Award in the category “Best Quality of Student Life”. The university achieved 4.8 out of 5 stars. President Prof. Thomas Strothotte accepted the award in Washington D.C. (USA). “We particularly appreciate this award, because it is based on the views of students,” says Prof. Strothotte. “KLU trains the logistics executives of tomorrow and our aim is to provide every student with individual support. This award demonstrates that we are heading in the right direction.”



Keynote speaker Prof. Dr. Barbara Lenz, a leading German mobility research expert and head of the Institute of Transport Research at the German Aerospace Center

Doors wide open: Future lab mobility forum

What will keep the city of tomorrow on the move? Urban mobility and the supply of goods are the subject of the new public event series from KLU and “Deutsche Verkehrs-Zeitung”. In the future lab mobility forum, experts and innovators from science, business, politics and administration talk about the challenges facing major cities as a result of urbanisation, densification and climate change. New intelligent concepts for infrastructure, environmental protection and quality of life are discussed – the series therefore provides a preview of the World Congress for Intelligent Transport Systems (ITS) 2021. Hamburg will then showcase future urban solutions.

CSGL symposium: The future of arctic shipping

International experts agree that shipping through the Arctic Ocean is a real option for reducing future transit times and costs. This was evident at the Hapag-Lloyd Center for Shipping and Global Logistics (CSGL) symposium at KLU. “A set of adequate laws and standards are needed to organise this new and growing traffic,” says Dr. Katharina Renken, Senior Researcher at CSGL, summarising the ensuing challenges. “The Arctic is inhospitable, difficult and above all should be protected: “The overall society goal must be to limit the impact on this fragile ecosystem.”



“The overall society goal must be to limit the impact on this fragile ecosystem.”

Dr. Katharina Renken,
Senior Researcher at the CSGL

Endowed Chairs

The Kühne Foundation has been funding logistics chairs and educational institutions for over 25 years. The main objective is to strengthen and draw attention to logistics as a scientific discipline, while ensuring that logistics specialists gain the highest level of qualification in order to be able to hold management roles within companies – up to top-level.

TU Berlin

TU Berlin is a traditional, globally acclaimed university in the German capital. With around 35,000 students and approx. 350 professors, TU Berlin is one of Germany's largest universities.

Logistics is in great demand as a bachelor's and master's subject, as well as a technical specialism for various fields of study, especially business engineering. Every year, approx. 200 students from TU Berlin and international study programmes are taught holistic logistics during the winter and summer semesters as part of a course comprising more than 30 semester periods per week. The Kühne Foundation has been funding the Competence Centre International Logistics Networks for many years. In agreement with the Foundation, the Centre shifted the focus of its international activities to Africa in 2019 (see also page 31).

Competence Centre International Logistics Networks at the Logistics Department of TU Berlin

New Silk Road: Challenges for international logistics networks

China's New Silk Road project entitled, "One belt, one road", is currently the world's largest infrastructure initiative with far-reaching consequences for international logistics networks.

In September 2019, the Competence Centre International Logistics Networks at TU Berlin organised a workshop with 16 representatives from industry and services, to discuss current challenges, development scenarios, and their impact on logistics.





From a European industry perspective, experts consider rail traffic capacity bottlenecks to be one of the biggest challenges of the initiative, as well as highly volatile rail transport prices. Not only physical infrastructure expansion, but also the development of innovative, digital approaches to more efficient capacity utilisation are considered as possible solution strategies.

It is assumed that Eastern and Northern Europe's industrial production will continue to move eastwards within the next ten years, due to the Silk Road initiative, and that Southern European sea ports will provide stronger competition to Northern European sea ports for goods to and from China.

Examples of Key Performance Indicators

Competence Centre, TU Berlin	2018	2019
<i>Industry workshops</i>	4	5
<i>Presentations</i>	8	7
<i>Students</i>	300	300
<i>Degree theses</i>	18	15



WHU – Otto Beisheim School of Management

WHU – Otto Beisheim School of Management is a privately financed business school with an international focus and university status. Founded in 1984, the institution is one of Europe's most renowned business schools, and enjoys an exceptional international reputation.

The Kühne Foundation has been funding the Kühne Institute for Logistics Management for over 25 years. Today, the two Professors, Stefan Spinler and Carl M. Wallenburg, teach there.

“Frischepost” – A successful start-up with a logistics focus

A digital farm shop, where you can order regional food online, is the core idea of the “Frischepost” start-up founded by WHU graduates, Eva Neugebauer and Juliane Willing, which successfully supplies its customers in and around Hamburg.

The two business women developed their entrepreneurial spirit and ideas for the company while their master's degree programme at WHU. Eva Neugebauer's master's dissertation, supervised by Prof. Wallenburg at the Kühne Institute for Logistics Management, for example, carefully examined the last mile and the question of make or buy. She determined which concepts are best suited to supplying customers and which tasks a business should best carry out itself. The online shop not only offers untreated full-cream milk from Marschlande,

field-fresh vegetables and meat from just outside the city boundary, but something for every taste. The shop's website includes detailed profiles of the respective producers.

Initially, produce was only delivered once a week. Now, the company has enjoyed such strong growth that it delivers every day – either by subscription or individually. Its customer base not only includes families, but also nurseries, firms and restaurants.

While many start-ups aim to achieve rapid returns, “Frischepost” focuses on sustainability – also in regard to its around 60 employees. Its operating radius has so far been limited to the Hamburg area, but the two entrepreneurs now want to expand into other regions such as the Cologne and Rhine-Main areas.



The two entrepreneurs

Eva Neugebauer’s master’s dissertation, supervised by Prof. Wallenburg at the Kühne Institute for Logistics Management, for example, carefully examined the last mile and the question of make or buy.

Examples of Key Performance Indicators

Kühne Institut, WHU	2018	2019
<i>Students</i>	350	370
<i>MBA graduates</i>	18	20
<i>Master's theses</i>	9	10
<i>EMBA graduates</i>	50	70
<i>Publications</i>	7	14
<i>Third-party funding in million Euro (approx.)</i>	1.5	0.3



**Chair of Logistics at
the School of Management
at Universidad de los Andes,
Bogotá**

Examples of Key
Performance Indicators
Logistics Chair,
Universidad de los Andes

	2018	2019
<i>Students</i>	120	180
<i>Workshops</i>	5	3
<i>Degree theses</i>	3	7
<i>Presentations</i>	5	7
<i>Third-party project funding in Euro (K) approx.</i>	65	130

**School of Management der
Universidad de los Andes, Bogotá**

Universidad de los Andes was founded on 16 November 1948 by a group of young people led by Mario Laserna Pinzón and was the first private, secular and independent university in Colombia.

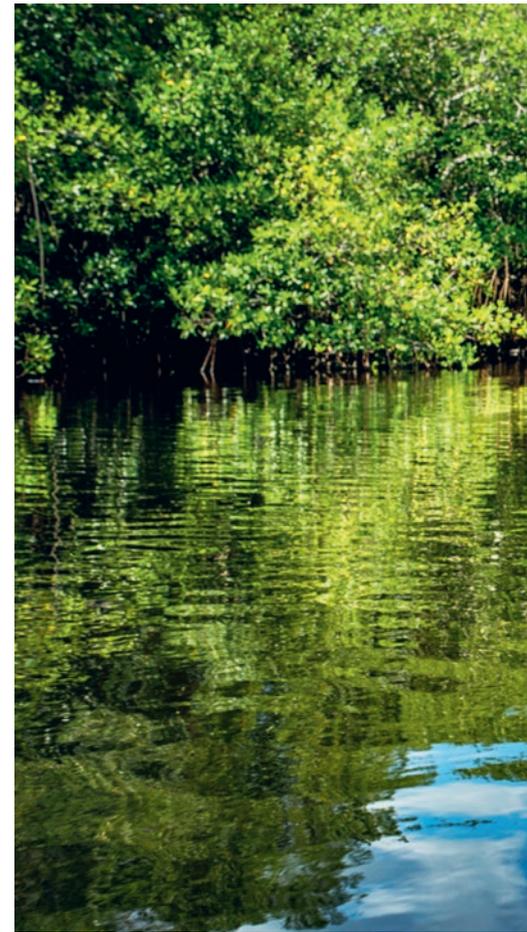
The School of Management at Universidad de los Andes was established in 1972 with the aim of educating future leaders to contribute to the innovative and sustainable development of private companies and public organisations in Colombia and Latin America.

The faculty's excellence and high quality standards are reflected, among other things, by its so-called *Triple Crown* accreditation (with the Business School awards, EQUIS, AACSB and AMBA). The Kühne Foundation has been funding the Chair of Logistics led by Prof. Gordon Wilmsmeier since 2017.

**eMobility in Nariño – collecting mud
cockles using eCanoes**

The Nariño region is one of the poorest areas in Colombia. No agricultural activity can take place in its mangrove swamps, so men's work and earnings are limited to catching fish and prawns. For women, collecting piangua mud cockles can provide a little extra income. The immediate vicinity has already been harvested and the women have to travel to more remote areas. As a result, motorboats are used instead of traditional canoes – with negative consequences for the environment, mankind and animals.

A joint project between Universidad de los Andes, Bogotá, HTW Berlin, Fundación Calidris, the Colombian Fisheries Authority, Torqeedo GmbH, Starnberg, and the WWF is analysing the value chains of traditional fishing clusters. The focus is on promoting sustainable



Research project in the mangrove forests

development, taking account of ecological, economic, political and social factors.

Since February 2019, a sub-project has been underway to implement nautical eMobility solutions that are intended to help reduce dependency on fossil fuels in Santa Barbara Iscuande, Nariño, on Colombia's Pacific coast.

During a test phase, the canoes of 25 cockle collectors were fitted with electric motors. After ten months, the results show that the use of the eBoats deployed in the project extends far beyond collecting cockles: new technology is leading to new forms of mobility for women. The eCanoes are used 31 per cent for productive work, with 69 per cent of their use being divided between religious, social and other activities

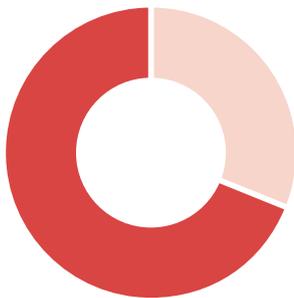


(e.g. shopping), among other things. The data collected also shows that the women covered approx. 780 km between 18 different locations using the eCanoes during the test phase.

Test phase eMobility in Nariño

On the one hand, this technological change is bringing about a significant reduction in mobility costs, as the batteries are charged using a public solar energy system. On the other hand, emissions are considerably reduced.

69%
Religious, social and other activities



31%
Productive work



Above: Traditional fishing with electronic outboard motor;
below: Collecting cockles in the Mangroves

**Chair of Logistics
Management at
Tongji University,
Shanghai**

Examples of Key

Performance Indicators

CDHK Chair, Tongji University

2018

2019

Students

212

210

Published working papers

2

2

Master's theses

2

–

Workshops

3

1

**Exporting German cars
to China by rail**

The relocation of production facilities and the emergence of new mega-cities in central China are changing rail transport between China and Europe. Since the launch of the *China – Europe Railway Express* in 2011, freight trains have been connecting 59 cities in China with 50 cities in 15 European countries. A total of 14,000 trains per year travel between China and Europe, especially Germany. Rail transport offers the German car industry a good opportunity to transport vehicles and supplier parts, which make ideal rail freight, to Chinese cities. However, there are many operational and bureaucratic problems that prevent

companies from fully exploiting this potential.

In November 2019, Chendu local council, which operates the majority of rail traffic between China and Europe, and a group of managers of German automotive companies launched the Chinese-German Logistics Forum 2019. Together with the head of the endowed chair, Prof. Sidong Zhang, solutions are being developed for exporting German vehicles using China-Europe rail services. The aim is to export 100,000 cars manufactured in Germany by rail to central China in three years.

Tongji University, Shanghai

Tongji University is one of the oldest and most prestigious higher education institutions in the People's Republic of China. It was founded by German doctors in 1907.

The Chinesisch-Deutsche Hochschulkolleg (CDHK) was established in 1998 and is a joint institution of the German Academic Exchange Service (DAAD) and Tongji University, offering master's programmes in electrical engineering, mechanical engineering, automotive engineering, economics and commercial law.

Since 2008, the Kühne Foundation has been funding the Chair of Logistics Management under the leadership of Prof. Sidong Zhang at CDHK.





DAV graduates in Bremen

Opportunities in times of skill shortages

The shortage of qualified staff – from drivers to executives – is one of the biggest challenges facing logistics and could evolve to a serious problem for the industry without counter-measures.

With more than three million employees, the German logistics industry belongs to the economic heavyweights with complex and above all exciting tasks.

But often, logistics is lagging behind when competing with trade and industry to recruit new staff. Working hours, income levels and the general image of logistics contribute to this, as do

pent-up demand concerning applicant management and continuous qualification programmes. Staff and jobseekers are frequently intimidated by digitalisation, changing processes and accelerating procedures.

It is not only companies facing change and transformation and having to position themselves in an appropriately forward-looking manner, but also employees. Consistent, well-planned training and further education as well as intensive trainee development, such as that offered by the DAV, create opportunities and improve the competitive position of logistics on the labour market.

Examples of Key Performance Indicators DAV Bremen

	2018	2019
<i>Programme participants</i>	252	272
<i>Lecturers from the industry</i>	38	41
<i>Employment rate in % (3 months after graduation)</i>	98	98
<i>Case studies for companies</i>	11	16

DAV, Bremen

The German Academy of Foreign Trade and Transport (DAV) has been running successful development courses for junior logistics managers for over 50 years. It is part of the BVL Campus in Bremen.

The training courses are consistently geared towards practical relevance and the application of the methodological knowledge acquired. In addition to academics, business executives deliver lectures and seminars. Teaching content is regularly reviewed with companies in the sector and graduates working in management roles.

The Kühne Foundation has been helping the DAV to support junior logistics specialists for many years.

HELP – Humanitarian Logistics

Logistics competence: Key factor for the effectiveness of humanitarian aid

In 2014, HELP Logistics AG registered as a non-profit organisation in Schindellegi, Switzerland. It now employs 16 dedicated full-time experts in logistics and supply chain management and has regional offices in Singapore, Amman, Nairobi and Dakar. HELP advises and trains international aid organisations and governments to strengthen their logistics competence and increase the effectiveness and efficiency of humanitarian operations.



HELP 2019: Highlights from five priority areas:

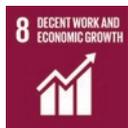
Preventing disasters makes emergency aid faster and more cost-efficient

Cooperating with the International Committee of the Red Cross and the Philippine Red Cross, HELP developed an innovative approach that optimises the efficiency of supply chain investments before a disaster occurs. It used a dynamic simulation model to analyse different investment strategies to understand their potential to cut costs and save time during disaster relief missions. The findings of the analysis laid the foundation for a comprehensive investment and action plan. HELP is now actively supporting the implementation phase. For instance, the Philippine Red Cross invested in new information systems, staff training, market studies and



Support for the United Nations Sustainable Development Goals

HELP builds strategic partnerships and engages in knowledge transfer in the field of logistics and supply chain management to support various organisations, especially in achieving the United Nations Sustainable Development Goals listed on the left.





Warehouse management training at the UNHRD regional depot in Malaysia

Examples of Key Performance Indicators

HELP	2018	2019
<i>Supported humanitarian organisations:</i>	31	32
<i>Countries approx.</i>	30	31
<i>Consulting projects:</i>	36	69
<i>Trainings (participants):</i>	1,329	920

framework agreements with suppliers. The outcome has been positive: The government and local aid organisations are now in a position to provide enhanced emergency assistance in the event of small and medium-sized disasters affecting the population, without major international support.

Stable supply chains to counteract natural disasters and epidemics

Many countries in East Africa are repeatedly hit by natural disasters such as droughts, storms and floods, as well as epidemics like Ebola, plague and cholera. In Ethiopia, Kenya, Madagascar, Mozambique, Uganda and Zimbabwe, HELP cooperates with UNICEF, the World Food Programme and the Inter-

national Committee of the Red Cross with the aim of improving the countries' resilience to destructive natural events or epidemics. The most probable crisis scenarios were defined for these countries, and an analysis was performed to determine the resilience of their supply chains, in particular the local infrastructure and available transport capacities. In the case of Uganda, this also involved determining the effects of possible refugee movements from the Democratic Republic of Congo due to a larger Ebola outbreak. The findings indicate that the current supply chain capacities are sufficiently robust to accommodate and care for around 120,000 refugees.



Frontline Humanitarian Logistics Training at the 7. Africa Logistics Conference



Innovative training game

The logistics sector needs young talent

HELP provides training and seminars for students, academics and professionals in 15 countries spread over three continents. Bringing together a variety of cultures, languages and education levels demands innovative and interactive learning methods. HELP's Supply Chain Simulator meets these requirements. The three-day course familiarises participants with the key logistics processes and practical scenarios for ensuring an efficient flow of information, funds and goods.

Many of the countries in which HELP carries out its projects are at the lower

end of the global Corruption Perceptions Index – with consequences for supply networks in each country. HELP has developed various learning approaches to address this sensitive issue. They include group sessions to enable training participants to recognise critical situations and develop solutions. Aid organisations and governments are still lacking senior staff with in-depth experience of the logistics sector. The Executive Supply Chain Management (ESM) training, developed by the Kühne Logistics University and HELP, aims to build the necessary competencies.

“The projects with HELP Logistics uniquely reflect our vision for strategic partnerships with the private sector. Our cooperation with HELP gives us fresh, evidence-based insights that assist us in improving the effectiveness and efficiency of logistics processes.”

Jagan Chapagain, International Federation
of Red Cross and Red Crescent Societies (IFRC)

Unstable supply chains for food security in many countries

Many small farmers in Africa face difficulties accessing markets and consumers due to erratic transport networks, inadequate storage facilities and insufficient exchange of information. HELP is working with the International Fund for Agricultural Development (IFAD) to alleviate these problems in East Africa. In addition to long-term infrastructure projects and the creation of legislation, the establishment of platforms for the rapid exchange of information and the regulation of harvest shortages and surpluses is one of the central approaches here. During 2019, HELP continued its work on school feeding programmes in Asia, which are viewed as important building blocks in the continued development of countries like Nepal and Timor-Leste. There is a risk of poor nutrition caused by supply failures if these programmes do not integrate logistics practices. For example in Timor-Leste, students did not receive meals 30 per cent of school days. HELP supports the World Food Programme and the individual national governments in the development of logistics concepts that ensure a reliable supply of food to schoolchildren.

Supply Chain managers of International Red Cross and UN Global Logistics Cluster in Sudan

Inadequate medical care networks place human lives at risk in crisis and developing countries

Several studies by HELP in 2017 and 2018 indicate that the lack of logistics expertise in medical supply networks is one of the main reasons for current inefficiencies leading to unavailability of medicines. Poor planning and incorrect handling of medicines during transport and storage regularly create bottlenecks in the treatment of patients. HELP is seeking to remedy this situation with its highly practical, five-day pharmaceutical and medical supply chain management course for employees of health ministries, aid organisations and logistics service providers. In total, more than 120 people in Malaysia, Jordan, Malawi, Nigeria and South Sudan received training in 2019. HELP also developed a university curriculum for postgraduate students, which was offered for the first time at the Myanmar University of Medicine in March 2020.



Focus on Africa

In 2019, the Kühne Foundation concentrated its activities outside of Europe primarily on Africa. Amongst others, HELP Logistics AG opened a new regional office in Senegal's capital Dakar to improve support for West African countries. In agreement with the Kühne Foundation, the Competence Centre for International Logistics Networks funded at TU Berlin has focused its activities more strongly on Ethiopia. In addition, the Kühne Foundation has developed a higher education support programme for African countries.

Academic programmes, cooperation with universities

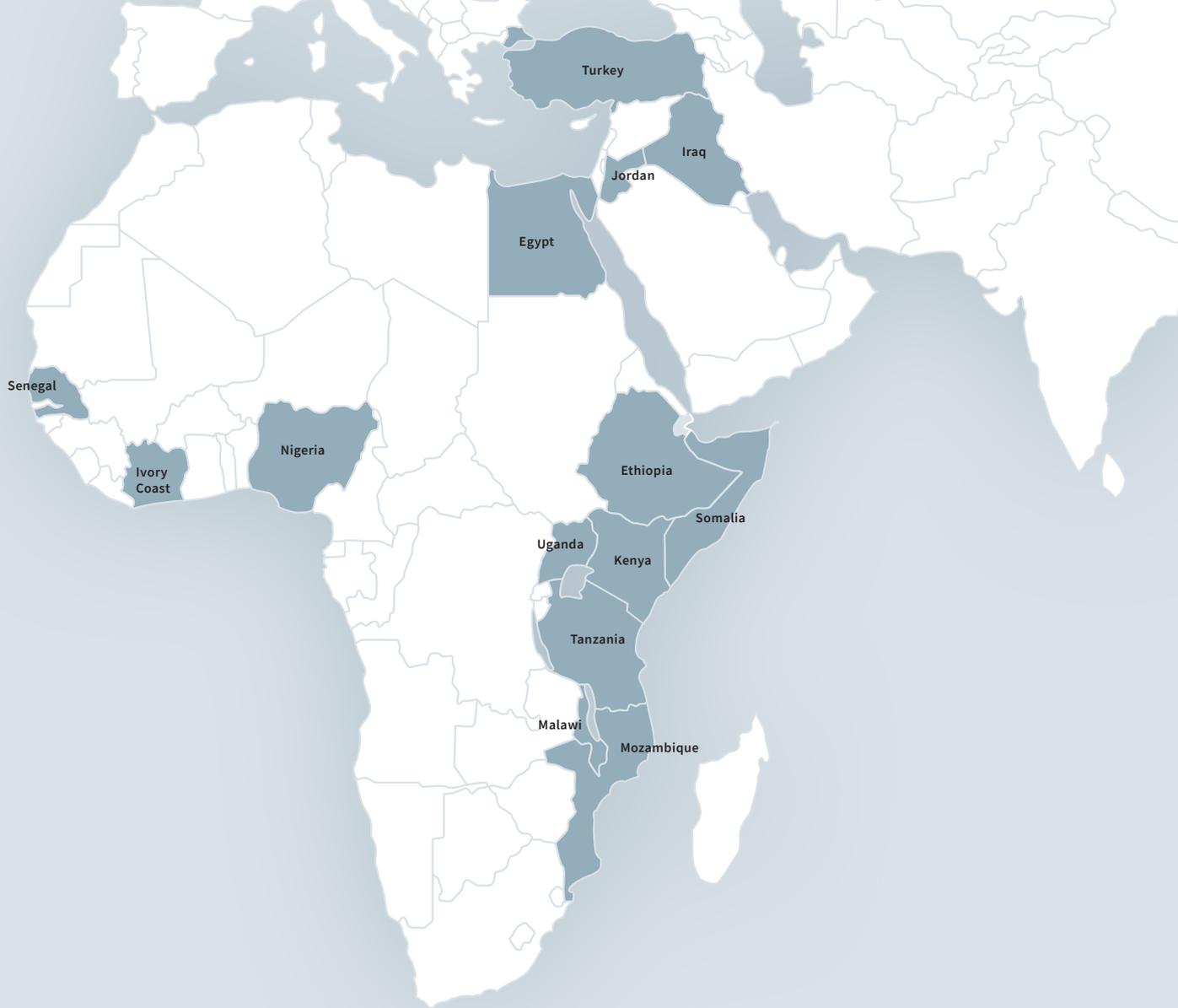
There have been positive changes in a number of African countries over recent years. Rising economic performance, declining child mortality rates, improved health care and a strong demand for education are indicative of this change. Insufficient logistics, however, often slow down the economic development. The Kühne Foundation's higher education support programme has encountered high demand for logistics courses offering bachelor and master qualifications, as well as for the establishment of corresponding faculties and professorships. At present, 12 universities were supported to provide more than 20 academic programmes in

several African countries. Five new and revised curricula were implemented in 2019, and over 150 students are currently enrolled. In addition, 14 doctoral students embarked on their academic careers with research studies on local and logistically relevant topics. Close coordination with international academics from the Kühne Foundation network enables high standards, not only in teaching but also in research. Closer links between universities and local organisations in smaller research projects, and the large number of graduates with permanent employment contracts, already demonstrate the success of the higher education support programme in the field of logistics and supply chain management.

“The Kühne Foundation gave me the chance to experience a modern academic programme in the new BSc in Logistics at Mekelle University. Today, a scholarship from the Kühne Foundation is enabling me to complete a master's in Europe. The Foundation's support for higher education is unique in regard to its quality, scope and sustainability and enables graduates to prepare well for the logistics challenges in Africa in line with international standards.”



Mrs Birknesh Fikadu (BSc 2019, Mekelle University, Ethiopia)



Cooperation with the Bill & Melinda Gates Foundation

Stronger together: The Kühne Foundation and the Bill & Melinda Gates Foundation (BMGF) have been working together in Africa's education sector since late 2017. BMGF frequently encounters logistics challenges in its health projects. It is therefore seeking to help build expertise for logistics and supply chain management in the health sector. Through this partnership, the Kühne Foundation's higher education support programme was transferred from Ethiopia to other African countries and now includes close cooperation with local and regional NGOs and other non-profit organisations. The joint funding focus in 2019 was on Ethiopia

and Nigeria, where academic programmes in health supply chain management were designed or revised at three universities in total. Aside from teaching the theoretical bases, the programmes use internships lasting several weeks and excursions to logistics facilities within the regional health sector to provide practical training as well.

Competence Centre at TU Berlin is active in Ethiopia

The Kühne Foundation has supported the Competence Centre for International Logistics Networks for over ten years. In view of its focus on Africa, the Kühne Foundation asked Prof. Frank Straube's team to concentrate the international activities more strongly

on Africa and on Ethiopia in particular. Since then, the Competence Centre has cooperated with the German development agency, the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ), to organise first conferences on transport logistics. It is also committed to strengthening the logistics courses by enabling closer cooperation between the industrial and higher education sectors. Furthermore, there are plans to initiate inter-industry collaboration for the development of practical, locally applicable logistics concepts. The first case studies were already undertaken and integrated into the curricula. The Competence Center is also supporting to establish additional logistics research projects with Ethiopian universities.

Kühne Center for Sustainable Globalisation, University of Zurich

Within the framework of its logistics funding, the Kühne Foundation supports a research programme on the themes of global free trade and sustainable globalisation with the “Kühne Center for Sustainable Globalisation”.

The Kühne Foundation professorship of International Trade forms the core of the center at the Department of Economics at the University of Zurich. Its objective is to provide scientifically based information on the processes and effects of economic globalisation to decision makers and the public, and to present new answers to the current challenges in global trade.

Professor Ralph Ossa, one of the leading experts in trade policy, directs the center. His research covers a broad spectrum of themes with focus on the economics of trade wars and free trade treaties. Professor Ossa collaborates closely with the Kühne Logistics University in Hamburg, Germany.

Academic guest at the Kühne Center

The Kühne Center was able to attract a renowned visiting professor in the person of Emily Blanchard at the time of its inception. She teaches at the Tuck School of Business at Dartmouth College and is a research associate at the Center for Economic Policy Research (CEPR). Her research lies at the interface between international economics and public policy. Emily Blanchard analyses how foreign investment and global value added chains alter the role of trade agreements in the 21st Century and how globalisation and education influence political and economic outcomes within and between countries.

“Kühne Center Impact Series”

The Kühne Center wishes to establish itself as a visionary in the questions of

economic globalisation by conducting relevant research and making its findings available to a broad public. Knowledge gleaned from research is presented in the “Kühne Center Impact Series”. The first two editions have already been published:

Emily J. Blanchard
„Trade Wars in der Global Value Chain Era“ (2020).

Kühne Center Impact Series. No. 01/20

Michael Blanga-Gubbay
„EU Trade Agreements: Past, present, and future developments“ (2020).

Kühne Center Impact Series. No. 02/20



Professor Ralph Ossa, Head of the Kühne Center



Emily Blanchard, visiting professor from Tuck School of Business at Dartmouth College



Medicine

For more than ten years, the Kühne Foundation has been supporting a pioneering programme of allergy research and therapy. In Davos, a Medicine Campus has been established where, in addition to running the Hochgebirgsklinik, in future the Foundation also plans to focus on researching heart disease. The Kühne Foundation's programmes support the significant trend towards personalised medicine, which enables the medical characteristics and needs of the individual patient to be addressed with ever-greater precision.



Christine and Klaus-Michael Kühne

Opening of the new campus building in Davos Wolfgang – Honorary citizenship for Christine and Klaus-Michael Kühne

In the presence of numerous guests from politics and industry, representatives of local and regional authorities, as well as of universities and hospitals, the new campus building in Davos Wolfgang was officially opened on 6 September 2019. Serving as a research and conference center, it is a key component in the development of an international Medicine Campus for therapy, research, education and training in the fields of allergy and, from 2020, cardiology as well. With the construction of this globally unique campus, the Kühne Foundation is strengthening the reputation of Davos as a healthcare resort. The Christine Kühne – Center for

Allergy Research and Education (CK-CARE), Davos BioSciences AG, the Hochgebirgsklinik Davos (HGK), the Swiss Institute for Allergy and Asthma Research (SIAF) and Cardio-CARE AG have pooled their competencies in the fields of research and education to create synergies for high-quality patient care.

At the opening ceremony, Christine and Klaus-Michael Kühne were awarded honorary citizenship of the municipality of Davos. In this way, the civic community of Davos honoured the couple for its strong commitment and support to the health resort of Davos.



CK-CARE database and biobank promote new discoveries

Databases and biobanks provide the methodological bases for the better understanding of several complex diseases, which in the case of CK-CARE particularly applies to neurodermatitis. The essential difference between the CK-CARE databases and biobanks and conventional approaches is that patients are not just carefully recruited, but also a wealth of information about the patients, their symptoms and lifestyle is collected and tracked over the course of time.

Thanks to the multiplicity of information obtained (more than 1,000 data points per patient per visit), and the ongoing documentation of the patients' progress for at least five years in conjunction with the collected blood,

skin and microbiome samples, CK-CARE is in the unique position to answer many important questions about the complexity of neurodermatitis and its connection with other allergic and chronically inflammatory diseases.

After focusing on the construction and development of its database and biobank over the past few years, CK-CARE can now better analyse the data of the more than 50,000 blood and skin samples it has collected. The use of these tools has already led to the first identification of new subgroups of neurodermatitis – with the result that patients can increasingly benefit from therapy individually tailored to their disease type rather than to general needs, in the form of a more personalised, more precise medical treatment.



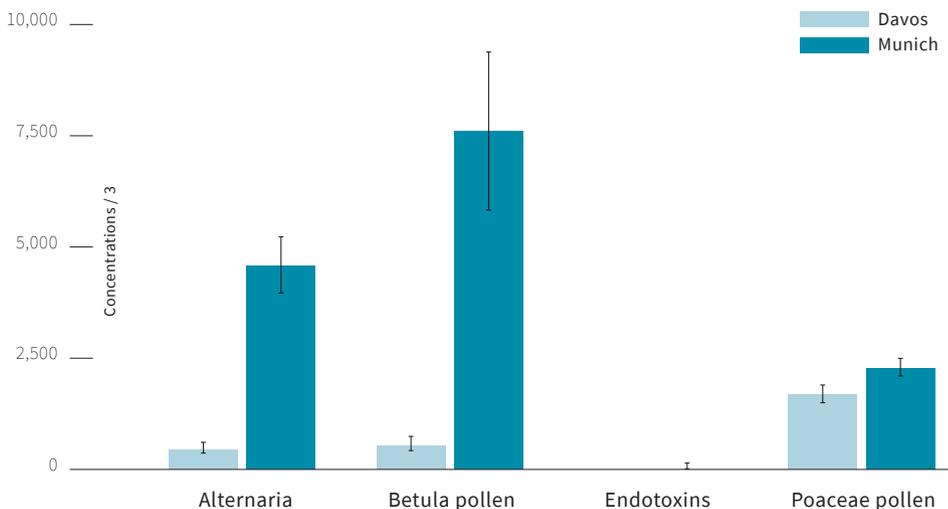
Christine Kühne – Center for Allergy Research and Education

In 2009, the Kühne Foundation established a research association for allergic diseases, the Christine Kühne – Center for Allergy Research and Education (CK-CARE) with headquarters in Davos. In the beginning, the association comprised scientists from Davos and Munich. The initiative rests on two pillars: highly specialised and closely networked research activity in the field of allergies, and education of medical specialists based on the latest findings. The establishment of CK-CARE marked the launch of one of largest private initiatives in the area of allergology in Europe. Following a successful evaluation of the services by international experts, the initiative was expanded to locations in Augsburg, Bonn and St. Gallen in 2014.

Deficits in the areas of diagnosis, treatment and rehabilitation of people with allergic disorders are being redressed through research and education, making an important contribution to patients' long-term well-being. Forming a unique alliance of international experts and locations, CK-CARE is at present focusing particularly on research into, and treatment of neurodermatitis.

Annual average concentrations of atmospheric pollen in the Davos and Munich areas

The burden of ragweed pollen and endotoxins is considerably lower in Davos than in the urban area. Birch pollen and mildew spores are also 10 times less prevalent in the air around Davos by comparison with Munich.



“Pollen taxi” for bacteria stops before reaching Davos, or the “Davos effect”

In view of almost 40 per cent of people in Europe having allergies, and 30 per cent of children suffering from neurodermatitis, prevention and medical rehabilitation are key objectives. CK-CARE is working on this at maximum intensity. Medical rehabilitation also includes finding ‘safe’ places for allergy sufferers, where they can become sustainably healthy, and thus able to return to work. Davos is one such “safe” place. It is known that bacteria and their constituent parts can cause extremely severe inflammation of the respiratory tract in asthmatics. A study initiated by CK-CARE shows that the pollen of the ragweed is principally responsible for the transport of these harmful bacteria or constituents, and becomes even more aggressive as a result. However, this is not the case in specific alpine regions, such as Davos.

The CK-CARE scientists came to a clear conclusion: the amount of endotoxin in the air only increased when the pollen concentration of the ragweed rose – independent of any climatic changes. They were also able to demonstrate that pollen functioned as a kind of taxi that transported the bacteria, along with their toxins, through the air. This makes the pollen of the ragweed by its very nature, highly allergenic – even more problematic for allergy sufferers and asthmatics.

For allergy sufferers, the so-called “Davos effect” has beneficial elements. In the alpine region of Davos and its surroundings, situated at a moderate altitude, allergic symptoms can be dramatically reduced, and therapeutic measures applied effectively. A current environmental medicine study at the Hochgebirgsklinik Davos shows that, in addition to the beneficial climatic conditions, a longer stay (14 days or more) in Davos can improve the recovery rate of

patients with acute, chronic inflammation of the respiratory tract more than anything else. This results in greater therapeutic efficacy of medication and rehabilitation measures (diet, recuperation, movement). This applies particularly to those patients whose asthma is difficult or impossible to control either by managing the symptoms through rehabilitation measures or by medication.

The development of pollen allergy is directly related to the consequences of climate change. As a consequence of higher average temperatures and longer dry periods, measurable quantities of pollen and atmospheric pollutants at higher altitudes are tending to increase. In order to continue to safeguard the therapeutic benefit of staying in an alpine environment, conservation of the alpine region is of paramount importance. This is the only way of guaranteeing safe spaces for recuperation, where the body’s regenerative powers preserve their ability to take effect.



Davos BioSciences AG (DBS)

The CK-CARE database and biobank is the core of the Kühne Foundation's scientific research. Its focus is on collecting blood and skin samples from allergy and neurodermatitis patients. The special value of these biospecimens is revealed when they are combined with the patients' so-called phenotype data and their health and clinical characteristics. Combining them in this way enables highly relevant assessments to be made, for example regarding whether certain medicines are only effective for specific groups of patients, or which types of allergic diseases occur more frequently in which subpopulations of people, and what might be responsible for this. In this regard, seeing the patients at periodic intervals is very important for the CK-CARE database and biobank, so that it is possible to gain additional knowledge from the course of the disease (and also from recovery). Building up databases and biobanks

like these is time-consuming and cost-intensive because of the stringent requirements of medical ethics, data privacy and data security. Therefore, CK-CARE does not intend to use their analytic potential just to answer their own research questions. Rather, pharmaceutical companies engaged in research can also turn to the database and biobank to answer their questions for the development of medicines and supervision of clinical trials. To form an interface between the two, Davos BioSciences AG was founded in 2019. It performs statistical analyses of the anonymised biobank data, and determines the biological parameters requested by the customer. These assessments and measurements can be carried out at the Medicine Campus Davos, so that no data or patient samples have to leave the campus site. The results help the pharmaceutical companies to develop new medicines. The income is used to support CK-CARE research.



“With the *Imaging Mass Cytometry* technology we can analyse up to 50 surface markers from cells in the tissue, by conventional methods only 4 to 5.”

Dr. med. PhD Marie-Charlotte Brüggem,
Kühne Professorship for Allergology

Dr. Marie-Charlotte Brüggem, MD, PhD, Kühne Foundation Professor for Allergology, on her everyday work in Davos:

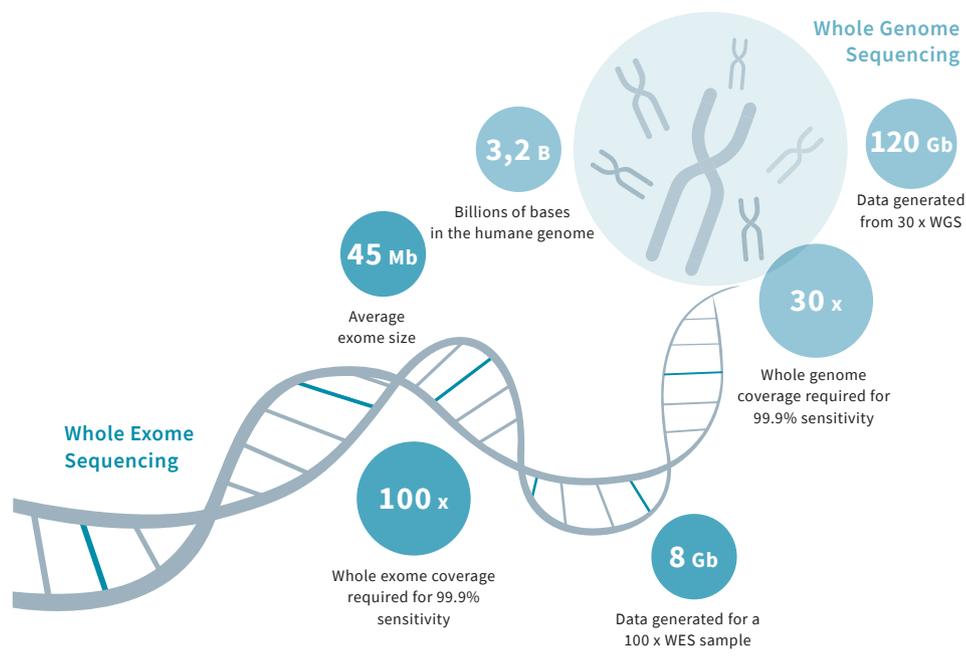
“My team and I take up relevant questions arising from our everyday clinical practice and investigate them in the laboratory. Here translational research is at the core of our activity. Thanks to the proximity of the clinic and research institute to one another, and the synergy between them, plus our close collaboration with the University Hospital Zurich, the Medicine Campus Davos offers the ideal conditions for this.

One of our key topics of interest is neurodermatitis, a skin disease that afflicts roughly 500 million people worldwide. Recent findings suggest that neurodermatitis is accompanied by an inflammatory reaction that is not just limited to the skin but systemic, and

that therefore certain patients have, for example, an increased risk of cardiovascular diseases. Our working group is researching how these pathological elements are connected.

Our most important tool for researching these connections is so-called imaging mass cytometry. This is an imaging method that we are developing at the Medicine Campus Davos – one of the few places in the world involved in this. Instead of the 4 to 5 surface markers from cells in the tissue that can be analysed by conventional methods, this technology enables us to analyse between 40 and 50. This comprehensive visualisation of immune cells and their mediators in the tissue enables us to better understand the inflammation process, which in turn will smooth the path towards more targeted therapeutic approaches.”

So called exome sequencing creates a data volume of already 8 GB per genome, whereas the whole genome sequencing of the 3.5 bn base pairs of a single genome sums up to 120 GB



Understanding heart disease better: Kühne Foundation adds innovative new cardiology project to Medicine Campus Davos research

Hereditary factors play a major role in the pathogenesis of cardiovascular diseases. Here specific gene variants can act on their own, or in collaboration with environmental factors. In recent years, technologies such as sequencing have been developed, which make it possible to scan a person's entire hereditary information with one single technology. With the aid of this whole genome sequencing, a multitude of gene variants can be identified. If a particular gene variant occurs more frequently in persons who suffer from heart disease than in healthy persons, then this gene variant is presumably responsible. A new Kühne Foundation project called "Cardio-CARE" has set itself the objective of finding several gene variants

of this kind so that each person's personal risk of heart disease can be estimated. In addition, it is hoped to find gene variants that could provide the basis for developing new medicines.

Since autumn 2019, the entire genetic information of 9,000 people involved in the so-called Hamburg City Health (HCH) study has been sequenced at the University Hospital Zurich. This is the largest study of its kind yet conducted in the German-speaking world. The data that have been generated in Zurich amount to around 2 petabytes – equivalent to the storage capacity of 2,000 large computer hard drives. This huge quantity of data is being processed using a high-power computer at Cardio-CARE in Davos, in close collaboration with the University Heart and Vascular Centre Hamburg.



Hochgebirgsklinik (HGK) Davos

The Hochgebirgsklinik Davos is a leading Swiss rehabilitation clinic specialising in allergology, dermatology, paediatrics, pneumology, psychosomatics and cardiology for children, young people and adults. With its 160 beds for adults and 30 for children and young people it is the largest rehabilitation clinic in Graubünden. A team of doctors, psychologists, therapists, care staff and medical technology assistants work hand in hand with one another to constantly improve diagnostic and therapeutic quality in the interest of patients' well-being. The combination of the medical team's expertise and the benefits of the unique Davos mountain climate ensure optimum treatment for the patients.

Important developments / successes of HGK in 2019

The Hochgebirgsklinik Davos was able to successfully continue its development in 2019. It has established itself as one of the leading rehabilitation clinics in its specialist fields. The Hochgebirgsklinik succeeded in gaining more referrals (primarily from clinics or doctors' surgeries, depending on specialism). Because of the consistently excellent quality of treatment and safety, the outstanding standard of its patient rooms and gastronomy, and not least thanks to the health-promoting surroundings of Davos, occupancy reached record new levels. The economic situation of the clinic has therefore been stabilised. At the same time, expansion is being considered, in order to create additional capacity and strengthen performance.



Two questions for Professor Hans-Werner Duchna, Hochgebirgsklinik Davos

“In 2019, medical students from Switzerland and Germany could gain theoretical knowledge together with learning practical skills more efficiently than normally, and link the two more sustainably.”

Prof. Hans-Werner Duchna,
Hochgebirgsklinik Davos

Professor Duchna, you take part in the medical education and training at the Medicine Campus. What is particularly important for you?

Thanks to the new campus building, which was officially inaugurated in September 2019, we have an improved capacity for tailoring our existing medical education according to the latest international scientific knowledge and medical teaching standards. My central concern is always guaranteeing good and safe patient care, and as part of that, we doctors must not only continuously update our own medical expertise, but also be highly motivated and competent educators. Here the focus should not be on us “teachers” but on the learners – their needs should be our main objective.

How and why is it easier to achieve this at the campus than, for example, in the medical faculty of a university?

Due to the manageable size of the Medicine Campus and the medical and educational competencies available there, we can try out innovative learning and teaching methods. We rely on interactive learning in small groups, not on lectures and ex-cathedra teaching. In the field of allergies, an online campus is being created in parallel with the physical one. In 2019, medical students from Switzerland and Germany could gain theoretical knowledge together with learning practical skills more efficiently than normally, and link the two more sustainably. They acquired their basic knowledge first using the web-based system, giving them more time and space for clinical application and discussions with a wide range of experts during their practical training. Evaluations carried out regularly have clearly shown that this learning method is considered very positive, stimulating, sustainable and motivating by both the students and the future medical specialists. We regularly take on board findings from educational research.



Culture

In the area of culture, the Kühne Foundation mainly supports music and literature. In 2019 it again sponsored numerous concerts, operas and festivals in Switzerland, Germany and Austria. Since 2019 the Kühne Foundation has been a main sponsor of the Salzburg Festival; in addition, it has extended its partnership with the Lucerne Festival, as of 2020 the Kühne Foundation belongs to the Festival's main sponsors. In the field of literature, the Kühne Foundation supports the annual Harbour Front Literature Festival in Hamburg.



Above: Mecklenburg-Vorpommern Festival: The artists of the opera gala in Wismar together with the Festival's Director, Dr. Markus Fein (on the left) and Christine and Klaus-Michael Kühne (on the right);
below: Salzburg Festival: Young Singers Project 2019



“Cultural events should appeal to as many people as possible, provide food for thought and enrich society.”

Klaus-Michael Kühne,
President of the Kühne Foundation





Left page, from top to bottom:

Zurich Opera House: Scene from the “Semele” opera;
 Music Summer at Lake Zurich: Gala concert in
 Feusisberg with members of the Opera Studio
 Komische Oper Berlin; International Music Festival
 Hamburg 2019; Harbour Front Literature Festival,
 “Hamburger Tüddelband”: Patron Christine Kühne
 together with winner of the honorary prize,
 Dr. Heinrich Hannover (left), and the winner of the
 “Tüddelband 2019” award, Andreas Steinhöfel,
 (right) and Klaus-Michael Kühne



Right page, from top to bottom:
 Lucerne Festival: Concert of the London Symphony
 Orchestra under the direction of Sir Simon Rattle;
 Festival Hall Baden-Baden: Scene from
 “Simon Boccanegra”; opera concertante;
 Hamburg Philharmonic Orchestra with
 Chief Conductor Kent Nagano



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