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Hochschule Neu-Ulm
University of Applied Sciences

STATUS REPORT

Africa Institute

2019

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OUR FOCUS: AFRICA

The Africa Institute was founded in 2013 by Prof. Dr. Rainer Burk in order to bundle the activities of the Neu-Ulm University of Applied Sciences in the areas of research, teaching, learning, innovation and transfer on the African continent and to make the administration of third-party funded projects more efficient. The Africa Institute works across faculties. The projects focus on the development and implementation of practice-oriented and interdisciplinary projects with African partners in the fields of health care, entrepreneurship, logistics and resource management as well as the commercialization of research.

Prof. Dr. Thomas Bayer has been head of the Africa Institute since January 2019.

In 2019 the following topics played a central role:

- The model of universities of applied sciences in Kenya: the establishment of a University of Applied Sciences according to the German model in Kenya is currently faltering for political reasons, but still has a high priority in Kenya
- Establishment of an online study course on "Health Data Analytics" in South Africa
- Activities related to Entrepreneurship at the Kenyatta University in Kenya
- Construction of a supply chain management game for teaching the "Big Data in Logistics" course in South Africa with the help of exchange students and guest lecturers
- Business models for off-grid solar plants for decentralized electrification in Namibia

The staff of the Africa Institute has grown through the recruitment of new professors (Prof. Dr. Jens-Uwe Pätzmann and Prof. Dr. Stefan Distel), who have become involved, as well as an administrative assistant (Vanessa Miller) and a research assistant (Inken Hoeck).

In addition, the Africa Institute is going public with new transfer formats to make the experience gained in Africa available to regional companies. In January 2019, an Africa Day for Companies was held for the first time, which is to be repeated annually. Furthermore, since October 2019, current measures and relevant thematic contributions can be found on the LinkedIn profile [hnu-africa-institute](#).

The present report provides an insight into the topics that moved the Africa Institute in 2019 and will be published annually.

[Eine deutschsprachige Version des Berichtes ist auf Anfrage erhältlich.](#)

THE AFRICA INSTITUTE

The following chapter serves to give an introductory insight into the objectives of the Africa Institute, its members and the relevant domestic and international cooperation partners in 2019.

OBJECTIVES

The Africa Institute focuses on the implementation of transfer projects in the field of applied teaching and research in African countries and thus makes a measurable contribution to the internationalisation goals of HNU. Through the implementation of a total of 14 projects¹ (Status: 31.12.2019), the HNU has established itself over the past years as an experienced partner for development work and achieves a significant contribution to the promotion of development. Within this framework, an efficient and active network of partners in the international context has been expanded and established. Now, this network serves as a basis for future cooperations and further common projects, of which the implementation will be manifested as a major goal in the coming year. In this context, the continuous expansion of partner companies and partner organisations will also be pursued in 2020. Therefore, for example, the Africa Day 2020 was held at the end of January, which produced new valuable contacts.

The projects with African partners also provide the opportunity to integrate country-specific topics and practical experience into teaching at HNU, in order to create an awareness among HNU students of the opportunities and possibilities of cooperation with partners on this continent and to facilitate intercultural learning. Activities in this field will also be continued next year, so that in the long term a greater interest of the students can be achieved.

MEMBERS OF THE INSTITUTE

Professor Dr. Thomas Bayer



Professor Dr. Bayer, who has headed the Africa Institute since 2019, is Vice President for Internationalization and Transfer at HNU, and has been a member of the Africa Institute since 2014.

Currently, he is primarily responsible for the Applied Entrepreneurship Academy project, which is carried out in cooperation with the Kenyatta University (KU) and its Chandaria Business Innovation & Incubation Centre (Chandaria BIIC) in Nairobi, Kenya. The aim is to improve the education of entrepreneurs at KU and to increase the number and quality of innovative start-ups founded by KU graduates.

At the HNU Prof. Dr. Bayer offers the following courses:

- Innovation Thinking & Entrepreneurial Mindset - English
- Processoriented Organization - English
- Project Work / Concept Seminar Organizational Development - English
- Organizational Behaviour – English
- Organisation
- Management Science
- Service Management
- Marketing - English
- International Project Management - English
- International Management – English

¹ Thereof 5 in 2019

Professor Dr. Elmar Steurer



Professor Dr. Steurer is a member of the Africa Institute in addition to his work as Dean of the Faculty of Economics at HNU.

Professor Dr. Steurer's extensive knowledge of the energy sector as a result of his previous employment with RWE AG deserves a special mention. Accordingly, he is responsible for the project Pathway to Renewable OffGrid Community Energy for Development (PROCEED) on the part of HNU, in cooperation with the Technical University of Ingolstadt, the University of Bayreuth and IBC Solar as well as other local partners. The goal is to research the application of decentralised, solar-powered electricity grids, so-called mini-grids, in Namibia.

Professor Dr. Olaf Jacob



Professor Dr. Jacob is the Vice President for Research and Digitization and Head of the Competence Center Data Science & Business Analytics. Since 2013 he has been a member of the Africa Institute.

In addition to the project UAS, which aims to inform and qualify Kenyan university professors and young scientists about the teaching modalities at universities for applied sciences, Professor Dr. Jacob is responsible for the project PAGEL with South Africa. The focus is on designing an online master's degree course in health data analytics, as well as to train graduates in the field of data analysis. Health Data Analytics is the follow-up project to Professor Jacob's master's degree in Health Information Management, which was taught in Germany, South Africa, Kenya and Tanzania. At the HNU Prof. Dr. Jacob offers the following courses:

- ERP Systems
- Seminar Information Management
- Introduction into data processing

Professor Dr. Bernard Wagemann



Professor Dr. Wagemann has been Professor Emeritus at HNU since 2014 and is a member of the Africa Institute since his retirement.

Due to his research focus is on risk management in the management of mini-grids, Professor Dr. Wagemann is an important member of the PROCEED project team. In addition, he delivers lectures on questions of African development and the economic and geopolitical consequences of the extensive Chinese involvement in Africa. Detailed information on this can be found in the section "Congress Visits and Presentations 2019" on page 26.

Since his retirement Prof. Dr. Wagemann has been offering the following trainings for student entrepreneurs and university lecturers in Neu-Ulm and Nairobi:

- Design Thinking
- Lean Start-up
- How to start implementing 'Applied Education' & 'Applied Research'

Professor Dr. Carsten Prenzler

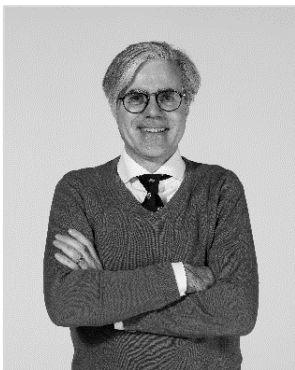


Professor Dr. Prenzler is Professor of Business Administration with a focus on industrial management at HNU and member of the Africa Institute.

At the HNU Prof. Dr. Prenzler offers the following courses:

- Cost and Performance Accounting (BW, WIL)
- Controlling (WIL)
- Seminar International Production and Logistics (WIL)

Professor Dr. Jens U. Pätzmann



Professor Dr. Pätzmann heads the Competence Centre Marketing & Branding at HNU and has been a member of the Africa Institute since January 2019.

At the Africa Institute he has been involved in the following topics and projects: PROCEED, presentation of the project to official bodies in Windhoek, Namibia; AEA, conducting the workshop "Branding and Market Research Techniques for Start-ups, Kenyatta University, Nairobi; taking over several modules at the workshop "Incubator Management" for colleagues of Kenyatta University, in Neu-Ulm; application for external funding (DAAD) for the development of a "Masters in Sustainability and Entrepreneurship", together with the Strathmore University, Nairobi (rejected), current: Application for external funding (Erasmus+) "Strategic partnership programme" with two European, one Israeli and one African university.

At the HNU Prof. Dr. Pätzmann offers the following courses:

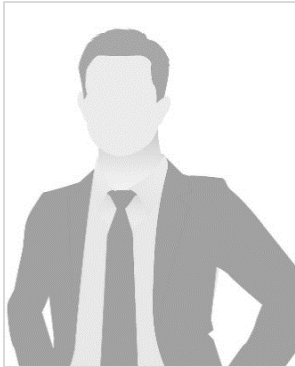
In the Bachelor of Business Administration (B.A.), focus on "Marketing, Branding & Strategy":

- Strategic Brand Management and Brand Instruments
- Creative Idea Generation and Innovation Management
- Conception Seminar: Strategy and Implementation of Brand Concepts
- Marketing Seminar: Special Aspects of Brand Management

In the Master of Advanced Management (M. Sc.) and International Corporate Communication and Media Management Programmes (M.A.), all courses are taught in English:

- Strategic Brand Management and Branding Techniques
- Branding Case Studies
- Branding Seminar
- Conceptual Seminar

Professor Dr. Tobias Engel



Professor Dr. Engel is Professor of Supply Chain Management and a member of the Africa Institute.

Together with Prof. Dr. Dany Meyer and Prof. Dr. Jörg-Oliver Vogt, Prof. Dr. Engel is responsible for the practical implementation of the Big Data in Logistics project, which is being carried out with the University of Western Cape in Cape Town. There, a new master's program has been developed which addresses current developments in the areas of Big Data, data science and predictive analytics for logistics- and supply chain management and equips students with the skills to create and implement analytical applications to solve logistical problems.

At the HNU Prof. Dr. Engel offers the following courses:

Bachelor:

- Basics of Production and Logistics
- Supply Chain Management
- Information Management
- Consulting
- Performance Management

Master:

- Strategic Management
- Corporate Performance Management

Seminars:

- Business Information Technology
- Value of IS for Business Models in a digitized World
- Mobility, Services, and Applications
- ERP Simulation

David Manetsgruber



David Manetsgruber has been working as a research associate in the field of decentralized rural electrification (mini-grids) at HNU since March 2014 and has also been a member of the Africa Institute since then.

Due to his extensive knowledge in the field of rural electrification, Mr. Manetsgruber plays an important role in the PROCEED project.

Inken Hoeck



Inken Hoeck has been working as a research assistant at HNU since November 2019 and is thus the youngest member of the Africa Institute.

Ms Hoeck supported the professors in 2019 with the preparation of new project proposals and will take over the role of Mr Manetsgruber in the PROCEED project from May 2020.

Ronald Robertson



Ronald Robertson is a research associate at the Centre for Digitization and has been a member of the Africa Institute since 2015.

Mr Robertson supports Professor Dr. Jacob in the implementation of the UAS Kenya project and the PAGEL Health Data Analytics project with the University of the Western Cape in South Africa. Due to his long experience with previous projects in the field of health management and e-learning under the direction of Prof. Dr. Rainer Burk and his work at the Centre for Digitization of the HNU, Mr Robertson is an expert for projects involving e-learning elements.

Sylvia Göbel



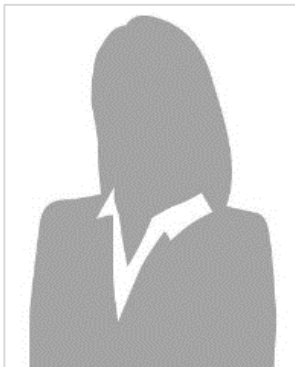
Sylvia Göbel has been a member of the Africa Institute since 2013. She is responsible for the financial planning, the coordination of external funding and for the reporting to the donors, especially the DAAD.

Vanessa Miller



Vanessa Miller has joined the team of the Africa Institute in May 2019. Ms Miller organises events and is the contact person for African guests. She also supports the professors in submitting new applications, acts as an interface to other administrative departments and takes care of public relations.

Katharina Nagel



Katharina Nagel is studying business administration in the sixth semester at the HNU. She has been working as a student assistant for the Africa Institute since March 2019 and she supports the projects in all areas.

COOPERATION PARTNERS IN AFRICA

| COUNTRY | NAME | WEBSITE | PROJECT ACTIVITIES |
|--------------|--|---|--|
| Ethiopia | Arba Minch University | https://www.amu.edu.et | Applied Entrepreneurship Education Programme |
| Kenya | Kenya Methodist University | https://kemu.ac.ke/ | PAGEL Health Data Analytics project, formerly HIM Master's degree |
| Kenya | Kenyatta University | http://www.ku.ac.ke | Applied Entrepreneurship Academy project |
| Kenya | Moi University | https://campusnairobi.mu.ac.ke/ | UAS Kenya |
| Kenya | Strathmore University | https://www.strathmore.edu | DAAD specialist partnership application, CBBL project until 2018 |
| Kenya | University of Eldoret | https://www.uoeld.ac.ke | |
| Namibia | Namibia University of Science & Technology | https://www.nust.na | |
| Senegal | SL Green Energy | http://sl-greenenergy.com/ | Joint proposal STAIRE |
| South Africa | University of the Western Cape | https://www.uwc.ac.za | PAGEL Health Data Analytics project, Big Data in Logistics project, formerly HIM Master's degree |
| Tanzania | Muhimbili University of Health and Allied Sciences | https://www.muhas.ac.tz | PAGEL Health Data Analytics project, formerly HIM Master's degree |
| Tanzania | Mzumbe University | https://site.mzumbe.ac.tz | |
| Tunisia | ENSIT University of Tunis | http://www.ensit.tn/ | Guest lectureship |

COOPERATION PARTNERS IN GERMANY

| LOCATION | NAME | WEBSITE | PROJECT ACTIVITIES |
|------------------------|---------------------------------|---|---|
| Bayreuth | University Bayreuth | https://www.uni-bayreuth.de/de/index.html | PROCEED, BRIAS network |
| Dettingen an der Iller | Raach Solar | https://www.raachsolar.com/ | Applied Entrepreneurship Academy – Renewable Energies |
| Ingolstadt | Technical University Ingolstadt | https://www.thi.de | UAS Kenia, PROCEED, |

| | | | |
|----------------------|---|---|---|
| | | | BRIAS network |
| Kirchheim unter Teck | AMK Arnold Müller GmbH & Co. KG | https://amk-group.com/de | Big Data in Logistics |
| Memmingen | Phaesun GmbH | http://www.phaesun.com | Applied Entrepreneurship Education Programme, lecturer Africa Day 2020 |
| Nürnberg | Bayern Innovativ GmbH | http://bayern-innovativ.de | Cooperation partner Africa Day 2020 |
| Paderborn | Energie Konzepte Schiffer GmbH & Co. KG | https://www.energiekonzepte-gmbh.de/ | Joint proposal STAIRE |
| Ulm | Universitätsklinik Ulm, Comprehensive Cancer Center Ulm | https://www.uniklinik-ulm.de/comprehensive-cancer-center-ulm-cccu.html | PAGEL Health Data Analytics |

RESEARCH / TRANSFER

In the following chapter, the project proposals submitted in 2019 are briefly listed, as well as the current research projects and their respective measures. Finally, a table will show which final theses were written by which students on Africa-related topics in 2019.

SUBMITTED PROJECT PROPOSALS

| RELEASE | TITLE | COOPERATION PARTNERS | PLANNED ACTIVITIES | RESPONSIBILITY |
|--|--|--|---|----------------|
| January 2019 (initial application) July 2019 (second application) | E-Mobility in Western Kenya | Siemens Foundation | - Collection of data for the use of electrically powered vehicles in Western Kenya (Mbita) - Development of productive use business models | T. Bayer |
| June 2019 | DAAD Application for specialist partnerships | Strathmore University, Strathmore Energy Research Centre (SERC) | - Master in Renewable Energies and Entrepreneurship - Subject-related partnerships with Universities in developing countries from 2020 | J.Pätzmann |
| June 2019 | Resilience and strengthening of structures for sustainable energy supply in African cities and conurbations (AfResi-Energy + Governance) | University Kehl (Applicant) ISM Dortmund | | E. Steurer |
| September 2019 | EXCEED - Higher Education Excellence in Development Cooperation | Moi University, Kenya Technical University of Mombasa, Kenya Technical University of Kenya, Kenya Busitema University, Uganda Mzumbe University, Tanzania Addis Ababa Science and Technology University, Ethiopia | Development of an African DIZ (Centre for Didactics and Commercialization of Research in East Africa - CeDCoR) | O. Jacob |
| November 2019 | ASA Continuation Project "Solar Technology in Kenya" | Mango Solar Strathmore University | | E. Steurer |
| December 2019 | DAAD Practice Partnerships | Gaston Berger University, Saint Louis, Senegal | - Establishment of a practice-oriented study programme | E. Steurer |

| | | | | |
|--|--|--|----------------------|--|
| | STAIRE – Strengthening Aquaculture Industry through Renewable Energy | Energie Konzepte Schiffer GmbH SL Green Energy, Senegal | - Knowledge transfer | |
|--|--|--|----------------------|--|

CURRENT PROJECTS

- Applied Entrepreneurship Academy (AEA), 2017 - 2020, Kenya, BMZ / DAAD
- East Africa Network of Excellence for Universities of Applied Sciences / UAS Kenya, 2017 - 2019, Kenya, AA / DAAD
- PAGEL Health Data Analytics, 2019 - 2022, South Africa, Kenya, Tanzania, BMZ / DAAD
- Big Data in Logistics, 2017 - 2020, South Africa, BMZ / DAAD
- Pathway to Renewable Off-Grid Community Energy for Development (PROCEED), 2019 - 2022, Namibia, BMBF / Projektträger Jülich
- ASA Project, 04/2019 – 10/2019, Strathmore University Nairobi, Startup mango solar

APPLIED ENTREPRENEURSHIP ACADEMY PROJECT (DAAD)

In cooperation with the Chandaria Business Innovation & Incubation Centre (Chandaria BIIC) of the Kenyatta University (KU) in Nairobi, Kenya, the HNU Africa Institute is running a project to improve the education of entrepreneurs at KU and to increase the number and quality of innovative start-ups founded by KU graduates. The 4-year project (2017-2020) is funded by the German Academic Exchange Service (DAAD) with funds from the German Federal Ministry for Economic Cooperation and Development (BMZ). The industrial partners of the project are Booth Extrusions Ltd. in Kenya - a company of the Chandaria Industries Group - and Raach Solar in Germany.

The project will enable young entrepreneurs to develop sustainable business concepts around their innovative ideas by equipping them with the necessary innovative thinking and business techniques. Furthermore, the project promotes the anchoring of entrepreneurial thinking and practical orientation in the regular curricula by training a significant number of KU lecturers in these fields who act as multipliers within their faculties.

Every project year, a 10-day excursion to Nairobi with HNU business students takes place in September. The HNU students meet with KU entrepreneurs and take on the role of business coaches to improve and sharpen the business ideas and business models of the entrepreneurs. They thus practice consulting and acquire intercultural skills.

MEASURES 2019:

- Training of young entrepreneurs from Kenyatta University in "Branding and Research Techniques", Nairobi, 2-3 May 2019 - J.Pätzmann
- Train-the-trainer Supervision, event "Entrepreneurial Mindset & Innovation" for lecturers at Kenyatta University, 6-7 May 2019, Nairobi - T.Bayer
- "Design Thinking and Lean Startup" event for young entrepreneurs at Kenyatta. 06.05-07.05.2019 - B.Wagemann
- Supervision Train-the-Trainer event on "Design Thinking and Lean Startup" for lecturers at Kenyatta University. 08.05. to 10.05.2019 - B.Wagemann
- "Entrepreneurial Mindset & Innovation" event for young entrepreneurs at Kenyatta University, May 8-10, 2019, Nairobi - T.Bayer

- "Logistics & Distribution" event for young entrepreneurs from Kenyatta University in the Applied Entrepreneurship Academy project, 22-24 July 2019, Nairobi - S.Distel
- "Leading Customer Dialogues" event for young entrepreneurs of Kenyatta University and HNU excursion participants, 17.9.2019, Nairobi - T.Bayer
- "Commercialization of Research" workshop for lecturers at Kenyatta University, November 26, 2019, Nairobi - T.Bayer
- University Industry Conference, 28.11.2019, Nairobi
- **"Incubator Management" 5-day workshop for delegation from Kenyatta University, Neu-Ulm, 9-13.12.19 - T.Bayer, J.Pätzmann, B.Wagemann**

The workshop was aimed at employees and mentors of the Chandaria Business Innovation and Incubation Centre at Kenyatta University. It was facilitated by professors from HNU and focused on four key areas: Management and operational practices, incubator funding, mentoring programmes in incubators and funding sources for incubators. The workshop highlighted the typical problems and challenges of early stage entrepreneurs and what an incubator should offer to start-ups.

The workshop began by highlighting key management and operational practices and processes, including defining the incubator vision, mission statements, strategies and objectives, stakeholder management, processes and guidelines for selecting ideas, contracts, development milestones, as well as exit of start-ups, monitoring and impact assessment, financing incubators and mentoring start-ups. Each of the topics was worked on in group sessions, with a mandate to understand CBIC operational practices in order to identify gaps and areas for improvement.

The workshop was concluded by visits to three institutions working with business start-ups and the KMU in Bavaria: German Entrepreneurship Center GmbH in Munich, Bayern Innovativ and Zolhoff Tech Hub in Nürnberg.

UAS PROJECT, KENYA (DAAD)

The project UAS Kenya aims to inform interested Kenyan university teachers and young scientists about the teaching modalities at a University of Applied Sciences (UAS) and to qualify them accordingly. The qualification goals should include both business administration and technical engineering contents. For this purpose, the University of Applied Sciences Neu-Ulm (HNU) and the Ingolstadt University of Technology (THI) combine their expertise in the fields of business administration and engineering sciences/technology and cover the specific characteristics of both disciplines in the qualification measures.

The project is divided into three phases: Initiation, qualification and transfer. The initiation phase lasted from December 2017 to June 2018 and ended with the selection of 17 professors from a total of seven Kenyan universities. They took part in a total of three qualification workshops at HNU and THI between October and December 2018. In the project year 2019 (project end October 2019) the acquired competences were disseminated through transfer workshops, administrative staff were involved and an internet presence (<https://www.uas-excellence.de/>) was developed as a platform for networking and exchange.

MEASURES 2019:

- **Transfer Workshop 1 & Staff Mobility in Neu-Ulm: 8.04. - 12.04.19 - O. Jacob, B. Wagemann**
From 07. to 14.04.2019 the group of 17 participating Kenyan university teachers travelled to HNU for the first transfer workshop. The participants presented which activities they had carried out since the last workshop in their respective institutions to implement the approaches "Application-oriented teaching", "Application-oriented research" and "Knowledge and technology transfer". In addition, the participants worked together to identify the challenges they face at institutional and individual level and possible solutions to these challenges. The experience reports were published on the website www.uas-excellence.de.

Parallel to Transfer Workshop I, four administrative staff members from Kenyan universities were on an exchange at HNU. The programme for the administrative staff consisted of a visit to the HNU departments "Library," "Finance," "International Office," and "Digital Teaching and Learning." The participants were assigned to the departments according to their function at their own university and were thus able to gain impressions of the processes in the respective departments. The exchange was evaluated as very positive by both sides. In addition, the administrative staff took part in selected events of Transfer Workshop 1 and were thus integrated into the ongoing program for university teachers.

- **Transfer-Workshop 2 in Nairobi: 09.07. - 11.07.19 - O. Jacob**

The aim of the second transfer workshop was to communicate the results to relevant stakeholders of the project. In this workshop from 09.07. to 11.07.2019 in Nairobi, presentations were prepared by the participants of each university and presented to the universities' management. In addition, the State Secretary of the Kenyan Ministry of Vocational and Technical Education (TVET), Dr. Kevit Desai, presented the current measures and initiatives for the implementation of the UAS principles. The third day was followed by presentations from industry representatives. Catherine Mukoko, Manager of the Manufacturing Academy of the Kenya Association of Manufacturers (KAM), and Henning Post, Head of the Training Department at the Kronos AG in Kenya, gave impulses for improving cooperation between universities and companies.

- **Final workshop in Nairobi: 24.11. - 25.11.19 - O. Jacob**

In the last workshop from 24.10. to 25.10.2019 in Nairobi, the use of the project website after the end of the project and the associated structuring and presentation of the contents were discussed. In addition, the participants from the universities presented the current status of the implementation of the UAS principles at their university. The German Embassy invited Ursula Koos, head of the cultural department, and Margaret Kirai, deputy head of the DAAD Regional Office for Africa. Subsequently, the University of Applied Sciences Neu-Ulm presented its application for the follow-up project "Centre of Didactics and Commercialization of Research in East Africa (CeDCoR)" and the University of Applied Sciences Ingolstadt presented its application for the follow-up project "Network Development and Qualification Measures based on the Model of the German Universities of Applied Sciences in Kenya 2019-2020".

PAGEL HEALTH DATA ANALYTICS PROJECT, SOUTH AFRICA (DAAD)

This follow-up project of the Master of Health Information Management is based on two pillars.

1. Structural and topic-specific further development of the existing Master's programme in Health Information Management (HIM): Further development of the existing programme into an online Master's programme in Health Data Analysis. In order to reduce travel costs and the number of days of absence from the student's workplace, the type of implementation will be changed to online e-learning. The new online curriculum will also be revised in line with the 4th Industrial Revolution (4IR) to include Big Data, Analytics and Artificial Intelligence. Health is one of the main applications of Big Data and Analytics, and the expectations for better diagnosis, monitoring and therapy for patients are enormous. The intended academic outcome is to develop the existing MHIM degree into an online course in health data analysis at the University of the Western Cape (UWC) and its partner universities Kenya Methodist University (KeMU) and Muhimbili University of Health and Allied Sciences (MUHAS). The development outcome is based on capacity building that prepares graduates for a career in health analysis.
2. Further training of MHIM graduates in the field of data analysis: A further goal is the introduction of qualification measures in health data analytics for MHIM alumni and health care professionals through winter/summer schools. Since 2013, 59 participants have graduated from MHIM or will graduate in the near future. As the MHIM curriculum has not covered data analytics in detail, there is a great need for alumni to learn more about the possibilities of health data analytics. The planned winter/summer schools are intended to equip alumni and students of other health study programmes with these skills. The academic result is to bring MHIM graduates up to date in the sense of lifelong learning and with

qualification measures in health data analytics. The development outcome is capacity building in health organizations in sub-Saharan Africa by updating their skills and knowledge.

MEASURES 2019:

- **Kick-off Workshop in Neu-Ulm: 18.03. – 22.03.19 – O. Jacob**

At the kick-off workshop in March 2019 the project partners from South Africa, Kenya and Tanzania met at the University of Applied Sciences Neu-Ulm to concretise the project planning. A first curriculum was developed, which was later presented to the company representatives at the Industry Workshop. In the Industry Workshop that followed, the project team met with representatives of the companies SAP, Böhlinger-Ingelheim, GE Healthcare and the RKU Klinikum in order to exchange information about current topics in the field of Big Data and Analytics for companies in the health sector. Here, the curriculum was also discussed and supplemented by topics that are important from a company's point of view for preparing course graduates for the job market.

- **Curriculum Design Workshop in Cape Town: 01.07. - 05.07.19 - O. Jacob**

The aim of this workshop was to finalize the curriculum and subsequently prepare the module descriptions. For this purpose, the project team met at UWC and interdisciplinary groups with representatives of each partner university in South Africa, Kenya, Tanzania and Germany were formed to concretise the content of the individual modules listed in the curriculum. For this purpose, basic considerations have already been made regarding the later transfer of the contents into an e-learning format. Contacts with local clinics in Cape Town have been initiated in order to win potential partners for future practice projects.

- **Winter School „Health Data Analytics“ in Neu-Ulm: 04. – 09.11.19 – O. Jacob**

The Winter School was jointly organized by the four universities of the consortium and took place at the University of Applied Sciences Neu-Ulm. It was aimed at alumni of the joint master's course "Health Information Management," who were trained in current developments in the field of Health Data Analytics.

PROGRAM:

- Health 4.0 (Prof. Osden Jokonya)
- Access Afya – innovative health services in informal settlements (Melissa Menke)
- Hands-on group work (problem statements from the participants' workplaces)
- Health Data Management (Dr. James Njenga)
- Data Mining & Analytics (Daniel Muendo)
- Use Cases & Introduction to Data Analysis Tools (Daniel Muendo, Prof. Osden Jokonya)
- Care Cloud System – digital solutions for patient management (Jeton Iseni, Regina Repp)
- Comprehensive Cancer Center Ulm (Dr. Peter Kuhn)

BIG DATA IN LOGISTICS PROJECT, SOUTH AFRICA (DAAD)

The University of Applied Sciences Neu-Ulm and the University of the Western Cape in Cape Town, South Africa are developing a new master's degree course at UWC in the project "Big Data in Logistics." The course of studies is intended to pick up on current developments in the areas of Big Data, Data Science and Predictive Analytics for Logistics and Supply Chain Management and to equip students with the skills to create and implement analytical applications to solve logistical problems. Logistics for South Africa and especially Cape Town is of great importance due to its port and international airport. This has led UWC to recognize the importance of logistics

and to meet the high demand for skilled workers in this field. As UWC has not had an academic program in this field until now, this project is of high strategic importance.

MEASURES 2019:

- Joint Lectures and Seminars: February / March; Prof. Engel, Prof. Vogt, Prof. Meyer
- Summer School in Neu-Ulm: 6.05. - 17.05.19: Industry 4.0 Supply Chain Hackathon
- <http://i4sc-hackathon.net/>
- Students stay at HNU: September to December 2019, 3 Master / PhD students of UWC, development of a supply chain management game
- Guest lectureships at HNU: Prof. Bagula (15.10. - 05.11.2019), Dr. Njenga (04.11. - 09.11.2019)

THE PROCEED PROJECT, NAMIBIA (BMBF)

Pathway to Renewable Off-Grid Community Energy for Development (PROCEED):

In large parts of Namibia, connecting rural households to the national grid is neither technically nor economically feasible. The lack of access to electricity prevents technological and economic development, particularly in rural areas. Despite good availability, renewable energies have so far been little used. In cooperation with the Technical University of Ingolstadt, the University of Bayreuth and IBC Solar as well as Namibian partners, HNU is researching the application of decentralized power grids, so-called mini-grids, which are restricted to smaller areas. Decentralized models for the energy infrastructure are to be developed that meet the respective local electricity demand, use current technical possibilities, and are accepted by the rural population. The island networks should be economically viable and easy to maintain. In the work package "Mini-Grid Economics" HNU contributes its business expertise and investigates the question of a cost-covering tariff and payment system for island grids, based on suitable business models for the commercial use of the electricity generated.

MEASURES 2019:

- Project meeting 1 in Namibia. Meeting with local partners as well as Project Management Agency Jülich in Windhoek, visit of the mini-grids in Tsumkwe and Gam. Participants of the HNU: Manuel Gollmann, Prof. Dr. Bernard Wagemann:

From 12.07. - 19.07.2019, Mr. Manuel Gollmann and Prof. Dr. Wagemann undertook a first project trip for HNU together with representatives of the other project partners to two mini-grids, which are the focus of the investigations, located in the sparsely populated north-east of Namibia. The two villages and the mini-grids there were inspected. In detailed group and individual discussions with representatives of the operating company CENORED, important data as well as temporal and technical developments and existing problems and projects were recorded. During the evening meetings, the results of the individual meetings were exchanged, discussed and documented.

After the one-day return journey to Windhoek, a kick-off meeting took place at Hanns-Seidel-Foundation on the following day, July 18, 2019. The invited representatives of important institutions of the electricity industry and the responsible authorities were presented the project goals, the project organization, already elaborated first inspection results, resulting further questions as well as the structure of the project planning in terms of time.

- o „The research approach for PROCEED Working Package 4: Sustainability.“ Presentation during Project Kick-Off Workshop, 18.07.2019 in Windhoek, Namibia – B.Wagemann.
- o „Key findings of the week & work plan Working Package 2: Mini-Grid Economics.“ Presentation during Project Kick-off Workshop, 18.07.2019 in Windhoek, Namibia – M.Gollmann.

ASA PROJECT

"Productive use of solar home systems in three different regions in Kenya" - This is the title of the ASA university cooperation project, which was carried out in the context of the ASA scholarship of Engagement Global with the student scholarship holder Anna Malmendier, in cooperation with Strathmore University Nairobi and the start-

up company mango solar. The project lasted from April to October 2019. The first half took place in Neu-Ulm at HNU, and the second half took place in Nairobi at Strathmore University.

The aim of the study was to gain insight into the effectiveness of so-called "Solar Home Systems (SHS)" in selected rural areas of Kenya in the context of local business models and to provide recommendations for the development of future business models. In a first step, a qualitative analysis of the extent to which existing SHS customers use their system to generate additional income through so-called "productive use cases" was to be conducted. In a second step, these business opportunities should be quantified, and future potential should be identified. Methodologically, eleven expert interviews were initially conducted in order to optimize the semi-structured interview guidelines that had been set up previously. These were used for the subsequent field research with 75 SHS users in three different regions of Kenya (Kisumu, Mwea, Nakuru).

The result of the study was an overview of the divergent willingness to pay of the inhabitants of the regions for different, solar-supported productive use cases. This allowed conclusions to be drawn about the attractiveness and potential of certain business opportunities. In addition, the respondents' feedback to SHS was predominantly positive, but some of them expressing a need for more powerful systems. Future research priorities could focus on more representative studies and include additional digital productive use cases.

A corresponding paper written by Anna Malmendier is currently in the publication process and can be requested from Danny Friedrich (danny.friedrich@mango-solar.com).

PROMOTION OF YOUNG SCIENTISTS

| TYPE OF WORK | WRITER | SEMESTER | TOPIC | TUTOR |
|--------------------------|----------------------|-------------------------|--|------------|
| Student Research Project | Herr L. Botskor | Sommer Semester 2019 | Entrepreneurship Climate Kenya | T. Bayer |
| Master Thesis | Frau Yildirim-Konrad | Winter Semester 2018/19 | Crowdfunding comparison Kenya - Germany | T. Bayer |
| Bachelor Thesis | Frau Huber | Sommer Semester 2019 | Opportunities and barriers for European companies to invest in sub-Saharan Africa | E. Steurer |
| Bachelor Thesis | Herr Steinhauser | Sommer Semester 2019 | Sub-Saharan Africa as an investment opportunity for small and medium-sized enterprises | E. Steurer |

KNOWLEDGE MANAGEMENT

Knowledge management at the Africa Institute includes activities that are offered and carried out at HNU, such as seminars, excursions, or specially organized events, such as the Africa Day 2019. In addition, activities in associations, guest lecturers, congress visits, lectures and publications are important pillars that contribute significantly to knowledge management and transfer.

ACTIVITIES AT HNU

Activities at HNU include teaching activities as well as events organized by the Africa Institute.

TEACHING

- **Conception Seminar:** Market entry strategy for EVUM GmbH (light truck with e-drive for African markets) within the HNU Bachelor focus Marketing, Branding & Strategy, Neu-Ulm, WS 2019/20 - J.Pätzmann
- **Entrepreneurship Excursion:** 12 days for 17 WW students (MAM, WIN, BWL) of the HNU to Kenya with 2 ECTS for concept development and presentations on site at Kenyatta University, WS19/20 - T.Bayer
- **Offer & Concept Development for HNU Elective:** on product and service innovations for African markets, SS 2019 (did not take place due to insufficient number of participants, renewed offer planned in SS 2020) - T.Bayer, E.Steurer

AFRICA DAY 2019

On 9 January 2019, the Africa Day for Companies was held for the first time at the Vöhlenschloss University Centre, Illertissen. It was aimed at companies from the region that are interested in doing business in African countries. The 50 participants discussed Africa as a growth market for small and medium-sized enterprises and exchanged experiences.

PROGRAMME:

| | |
|-------------|---|
| 8:30 | Registration |
| 9:00 | Welcome Prof. Dr. Uta Feser, HNU President |
| | Africa – continent of growth in our neighbourhood Prof. Dr. Thomas Bayer, Vice President & Head of HNU Africa Institute |
| 9:20-9:40 | German Economic Relations with Africa Ulrich K. Rieger, Senior Ministerial Councillor, Bavarian State Ministry of Economic Affairs |
| 9:40-10:00 | Creating Perspectives – Economy for Development Anne Lauenroth, Senior Consultant, Federal Association of German Industry (BDI) |
| 10:00-10:20 | Focus Africa from the perspective of the Chamber of Commerce and Industry Jana Lovell, Head of International Business, IHK Schwaben |
| 10:20-10:40 | Investment support for SMEs - a new mechanism Prof. Dr. Bernard Wagemann, Africa Institute, HNU |
| 10:40-11:00 | coffee break |
| 11:00-11:20 | China in Africa Dr. Jian Zhang, Managing Director, Akacamp GmbH |

| | |
|-------------|---|
| 11:20-11:40 | Business Environment & Development in Kenya Dr Paul Sang, Dean School of Business, Kenyatta University, Nairobi, Kenya |
| 11:40-12:00 | Renewable Energy Opportunities in Kenya Anne Wambugu, Strathmore Energy Research Centre (SERC), Nairobi, Kenya |
| 12:00-12:20 | Opportunities in Africa from the perspective of a start-up Rebecca Bregant, founder, Mango solar (in foundation with EXIST support) |
| 12:20-13:00 | Panel Discussion |
| 13:00-13:15 | Next steps and completion |
| 13:15 | Networking and lunch |

FURTHER ACTIVITIES IN ASSOCIATIONS

In addition to the BRIAS network and the cooperation with ARE, the delegation trip of Prof. Dr. Wagemann to Benin and Togo in 2019 are noteworthy.

THE BRIAS NETWORK

BRIAS, short for Bavarian Research Institute of African Studies, has the objective of representing the existing scientific expertise of the participating universities with regard to politics and society. Through the targeted exchange of scientific, but also cultural and social activities, synergies can be derived in the field of African Studies. The BRIAS partner universities are the University of Applied Sciences Neu-Ulm, the Technical University Ingolstadt, the Julius-Maximilians-University Würzburg and the University of Bayreuth. Further details can be found under the following link: <https://www.brias.uni-bayreuth.de/de/index.html>.



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COOPERATION WITH ARE

The Africa Institute of the HNU is a close partner of the Alliance of Rural Electrification (ARE). The Alliance has been in existence since 2006 and is the oldest and largest association that deals with and promotes decentralized electrification. This makes the ARE a strong and important partner for the Africa Institute.

Particularly noteworthy are the ARE Awards, which are presented annually for various categories (Multilateral / International Organisations, NGOs & Foundations, Private Sector in Australia, Europe & North America, Private Sector in Africa, Asia & Latin-America, Government in Africa, Asia & Latin-America, Best Off-Grid Project, Best Start-Up²). The HNU actively supports the event and, above all, helps as a "first contact" to answer the questions of the applicants and to prepare the application documents for the jury. This task was taken over by Prof. Dr. Elmar Steurer in 2019. Further information about the ARE Awards 2019 can be found here: <https://www.ru-ralelec.org/news-from-are/are-awards-2019-call-proposals-open>.

² Categories 2019

DELEGATION TRIP OF THE REGIONAL OFFICE SOUTH - GIZ TO BENIN AND TOGO

From 30.09. to 04.10.2019 Prof. Dr. Bernard Wagemann (HNU) took part in a delegation trip to Benin and to Togo financed by the Regional Office South - GIZ, and gave lectures on the experiences made so far with the mini-grids in Tsumkwe and Gam in the PROCEED project. The core of the seven-day trip was the two-day exchange of expertise with about 50 African participants each, first in Cotonou (Benin) and then in Lomé (Togo). The exchange focused on decentralised rural electrification and the development of village economic activities (Village Development).

Due to the operating time achieved by the two Namibian mini-grids, the presentations by Prof. Wagemann in this regard and in particular the current business model of the operator Central North Regional Electricity Distributor (CENORED) met with great interest. On the day after the presentations of the German and the selected African experts, workshop groups were formed to develop the consequences for further rural electrification projects. The results of the three workshop groups were afterwards presented and discussed in the plenum. In both countries, the ambitious goal is being pursued of establishing around 300 mini-grids in the next few years and, if possible, combining them with village development measures.

GUEST LECTURERS

The following tables list both the guest lecturers who have been invited to HNU as well as HNU scientists who have accepted guest lectureships at African Universities.

AT THE HNU

| SCIENTISTS | HOME UNIVERSITY | PERIOD | FACULTY / PROJECT |
|---------------------------------|--|-------------------|------------------------------------|
| Dr. Paul Sang | Kenyatta University, Kenya | 07.1.-11.01. 2019 | Faculty for Economics and Business |
| Prof. Bigokomero Antoine Bagula | University of the Western Cape, South Africa | 15.10. – 05.11.19 | Big Data in Logistics |
| Dr. James Katiku Njenga | University of the Western Cape, South Africa | 04. – 09.11.19 | Big Data in Logistics |
| Dr. Dhouka Ouel-doubey | ENSIT University of Tunis, Tunisia | June 2019 | Faculty for Economics and Business |

HNU LECTURERS IN AFRICA

| SCIENTISTS | UNIVERSITY | PERIOD | TOPIC |
|-------------------------|-------------------------------------|----------------|--|
| Prof. Dr. Elmar Steurer | Kenyatta University, Nairobi | 18.09.2019 | “Crowdfunding / Crowdinvesting“ |
| Prof. Dr. Elmar Steurer | Strathmore Business School, Nairobi | 17.-20.09.2019 | “Green Bonds as a part of Sustainable Finance“, “Crypto Currencies“, “Crowdinvesting“ und “US China Trade War: impact to Developing Countries“ |

CONFERENCE VISITS AND LECTURES 2019

| EVENT | DATE | SUBJECT | PLACE | INSTITUTE MEMBER(S) |
|--|---------------------------|---|---------------------------------|--|
| 1st Africa Day | 09.01.2019 | Concept, Orientation and Organisation | Illertissen | T.Bayer, E.Steurer, B.Wagemann, S. Göbel |
| University-Industry Conference, Kenyatta University, Nairobi | 28.11.2019 | Co-organizer and presentation about "Entrepreneurship Culture" | Nairobi | T. Bayer |
| Public lecture at the Support Symposium "Aid for Africa" | 13.03.2019 | Our commitment to Africa: Do we need new forms and ways? | Large hall of the Sparkasse Ulm | B. Wagemann |
| Public lecture in the context of a series of events of the citizen association 'Pro Neu-Ulm' | 09.04.2019 | Africa 2025: Challenge for Europe! - What will Africa be for us - continent of worries or important future partner? | Johanneshaus, Neu-Ulm | B. Wagemann |
| Lecture at the 'Model United Nations Baden-Württemberg - MUNBW' | 31.05.2019 | China's Development Strategies in Africa - Current Issues in Changing Global Power Relations | Stuttgart | B. Wagemann |
| Delegation from the Ivory Coast visits Bayer. State Chancellery | 14.06.19 | HNU activities in Africa, especially in the field of decentralized electrification | Munich | E. Steurer |
| Conferences on a delegation trip of the GIZ Regional Office South | 29.09.2019, 03.10.2019 | Business Models for Mini-Grids (First results of the PROCEED research project in Namibia on rural electrification by off-grid village power plants in north-east Namibia) | Cotonou (Benin), Lomé (Togo) | B. Wagemann |
| IEMT | 02.11.2019 | Photovoltaic Mini-Grids in Remote Rural Areas: Research on Strategies to Improve their Sustainability | HNU, Neu-Ulm | B. Wagemann |

PUBLICATIONS 2019

B. Wagemann, M. Gollmann: "Mini-Grid Economics", PROCEED: Results reports on the first field visit to Namibia.

B. Wagemann, D. Manetsgruber: "Mini-Grid Sustainability", PROCEED: Reports on the first field visit to Namibia.

B. Wagemann: "Photovoltaic Mini-Grids in Remote Rural Areas: Research on Strategies to Improve their Sustainability". – Paper for the proceedings of the "International Conference on Economics, Management and Technology" on 02.11.2019 in Neu-Ulm (IEMT 2019).

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