

## LogDynamics Newsletter December 2019

### Projects

#### Logistics Transfer and Innovation Culture in Bremen - Now Available Online

The logistics sector is a major contributor to Bremen's economy. It prepares itself for the future and tackles topics such as „digitalization“ and „innovations“. The majority of the players are small and medium-sized who are faced with the task of meeting these challenges. Even if potentials are known, companies cannot maintain the necessary infrastructures and the corresponding strength to exploit these potentials on their own. The BreLogIK project (Bremer Logistik Transfer- und Innovationskultur), in which BIBA and ISL are involved as a partner, is a starting point here: It develops solutions to exploit these previously unused opportunities in close cooperation between Bremen's science and logistics industry. On the new website [www.brelogik.de](http://www.brelogik.de) you can inform yourself about the project contents and our offers. In addition, you are cordially invited to become part of the project as a science ambassador.



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Photo: BreLogIK

#### Lean Innovative Connected Vessels - LINCOLN Project Completed

The LINCOLN (Lean Innovative Connected Vessels) project, in which BIBA institute participated as a partner, aimed to support the development and production of specialized vessels capable of effectively, efficiently and environmentally meeting the increased demands for maritime services by sectors such as offshore wind energy, coastal surveillance or sea rescue. On the basis of three selected application scenarios, an innovative usage data-based design model approach was developed to provide real operational data at sea for product development. Various modules were developed and integrated for this purpose, each covering different complementary domains - from virtual tank tests and new PE tools to the development of sensor boxes that can collect and process usage data.



Within the scope of this development, BIBA was significantly involved in the following modules, among others:

- The Universal Marine Gateway (UMG) was developed as a component to

#### Bremen Research Cluster for Dynamics in Logistics

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record and evaluate operational data that is generated during the test phase of ships during sea trials.

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Details: [www.lincolnproject.eu](http://www.lincolnproject.eu)  
Photo: LINCOLN Photo: pixabay

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## Fraunhofer IFAM and DFKI Open Test Center on Helgoland

The Fraunhofer IFAM and the DFKI Robotics Innovation Center will open a joint test center for maritime technologies on Helgoland. By networking their competencies in materials, electromobility and artificial intelligence, the partners want to expand their developments in the maritime field and provide a research environment for business and science alike under application-oriented environmental conditions.



In their main research areas, the Fraunhofer IFAM and the DFKI complement each other so that the objective can be to develop and test complex robot systems that act autonomously and intelligently both on and under water as well as in the air. They should be able to carry out inspection, maintenance and repair work on the high seas in order to disburden people of this dangerous work. In order to fulfil this broad range of tasks, aircraft and watercraft must be equipped with efficient electric drives, comprehensive sensor technology, sensor data acquisition and evaluation as well as corresponding algorithms for autonomous execution of complex missions.

In addition to onshore logistics, the test centre for maritime technologies also includes a test field directly in front of the island. With an area of several square kilometres and a water depth of up to 45 metres, it offers plenty of space for a wide variety of test scenarios. A marking of the area for shipping with according tons is planned for spring 2020.

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Photo: Fraunhofer IFAM

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## Extending the Useful Life of Large Industrial Equipment - LEVEL-UP Project Started

General production processes have not changed much since the Industrial Revolution. Companies buy industrial assets, place them into service based on pre-set schedules, adjust schedules based on seasonal cycles, repair assets when they fail, and replace them when they reach a certain age. This centuries-old approach is on the cusp of disruption driven by three converging trends: (i) industrial assets are getting connected, (ii) perfor-



mance and organizational data is becoming widely available, and (iii) advances in computing and storage power enable unprecedented scale at declining cost. As these trends take hold, the factory floor no longer resembles a static group of assets, but rather becomes a dynamic, complex system.

The vision of LEVEL-UP, a new project with participation of the BIBA institute, is the development of a holistic operational and refurbishment framework applicable both to new and existing manufacturing equipment to achieve dynamic utilization and maintenance with upgraded remedial actions for sustainability. The LEVEL-UP solution will be demonstrated in the operational environment of Vertical Lathes, Milling machines, Presses, woodworking, Pultrusion, Extrusion, Inspection and CNC equipment to achieve (i) increased efficiency, (ii) extended lifetime and reliability, and (iii) increased ROIC. To do so, LEVEL-UP will offer a scalable platform covering the overall lifecycle, ranging from the digital twins setup to the refurbishment and remanufacturing activities towards end of life.

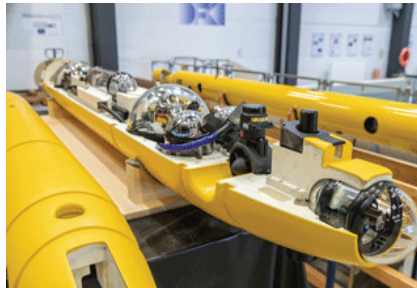
The precondition of the sketched vision is the achievement of the interoperability from the data till the service layer. BIBA will provision the semantic mediator for the lifecycle of large industrial equipment. The connections between the data aggregator with the higher ontologies and the knowledge base will be achieved through semantic models and ontologies.

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## DFKI Takes Next Step on the Search for Life on Ice Moon Europa with New Underwater Robot

When it comes searching life in our solar system, the ice moon Europa orbiting Jupiter plays an important role: Below his ice sheet with a thickness of several kilometers, a deep ocean is suspected which could offer the basis for extra-terrestrial life. The Robotics Innovation Center of the German Research Center for Artificial Intelligence (DFKI) is working on concepts for the investigation of the ocean with autonomous underwater vehicles (AUV). In a follow-up project concentrating on the safe long-term navigation of the previously built team of robots, the scientists took another step towards the real-life mission by developing a new AUV and an improved navigation.



In an average distance of 600 million kilometres, below a sheet of ice with a thickness of up to 15 kilometres, at the bottom of the roughly 100 kilometre deep ocean lying below – at this extreme place, intelligent life may be found. Searching for extra-terrestrial life, the hydrothermal vents that are suspected to be found on Europa, one of Jupiter's several moons, are of great interest. Offering heat and minerals, they may be the basis for a potentially habitable environment for small organisms – much like on the seafloor on earth. In order to investigate the ocean on Europa and the suspected vents, scientists at the Robotics Innovation Center have developed a unique navigation concept as part of the Europa-Explorer project (EurEx), which involves the deployment of fully autonomous vehicles under a closed sheet of ice.

As a follow-up to the Europa Explorer project, EurEx-SiLaNa was funded with 650 000 Euro by the DLR Project Management Agency with resources of the Federal Ministry for Economic Affairs and Energy (BMWi). The research activities of the DFKI Robotics Innovation Center are part of the EnEx initiative of the DLR, which, apart from Europa, also involves the possible investigation of Jupiter's moon Enceladus. For the future, the team around Prof. Dr. Dr. h.c. Frank Kirchner plans a follow-up project for early 2020, in which DeepLeng will

be completed and then tested under the ice sheets in Scandinavia.

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Photo: DFKI GmbH, Annemarie Popp

## TZI Researches the Use of Chatbots in the Bremen Citizen Service

In the future, artificial intelligence could help answer citizens' questions around the clock: the Senator for Finance has commissioned the Center for Computing Technologies (TZI) at the University of Bremen to research a chatbot that automatically processes text messages. The aim of the project is the development of a prototype digital assistant, which will be tested with citizens of Bremen. Last year, the chatbot technology used was already awarded the „Campus Ideas 2018“ innovation prize.



Most people now carry a telephone with them at all times, but it is rarely used for actually calling someone. But communication with short texts - also called „chat“ in dialogue form - is very popular among the younger generations in particular. Many companies and organizations therefore already use chats to communicate with customers via the Internet. The Senator for Finance goes one step further and commissions the Center for Computing Technologies (TZI) of the University of Bremen to research a so-called chatbot that uses artificial intelligence to answer questions automatically. The scientists of the University of Bremen rely on the IDA Chatbot technology, which was developed by Nina and Dirk Wenig at the TZI.

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Details: [www.idabot.net](http://www.idabot.net) (German)

Photo: GfG / Universität Bremen

### Awards

## The Berninghausen Prize 2019 Goes to Prof. Anna Förster and Prof. Sarah Lüdemann

On December 4, 2019, this year's prize for outstanding teaching (Berninghausen Prize) was awarded. Two lecturers from the University of Bremen received it in the categories „Outstanding, Innovative Course“ and „Students Award“.



One year after the award for Professor Rolf Drechsler, another LogDynamics member was awarded in this category: the computer scientist Professor Anna Förster was reawarded for her outstanding innovative course with didactically meaningful use of digital media. Anna Förster receives the award for the course „Fundamentals of Computer Science for Electrical Engineers“. The jury was convinced that both the content and the teaching methods were constructed following very modern teaching strategies. Anna Förster changed her teaching to „inverted classroom“. The term refers to a teaching method in which the learning content is first developed by the learners and then applied in the classroom. This concept is very well received by students. They appreciate the possibility to work on the subject matter independently of time and place.

A further innovative format used by Prof. Förster at the end of each teaching unit is



the so-called „Hackathon“. The word, composed of „hacker“ and „marathon“, refers to an event in which software and hardware developers come together, work on a specific topic and develop ideas together. This has enabled students to actively expand their knowledge on a regular basis. The format inspired the students. The jury praises the fact that the different programming languages are learned in a goal-oriented way. Anna Förster also used the Arduino microcontroller, a physical computing platform consisting of software and hardware, to make programming more practice-oriented and appealing.

Sarah Lüdemann from the Institute for Cultural Studies, Film Studies and Art Education receives the student prize for her event „Art Mediation between Research and Action“.

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Photo: Michael Ihle/ University of Bremen

## Commended Paper Award for BIBA at IFAC MIM 2019

BIBA scientists were awarded the Commended Paper Award at this year's IFAC MIM. Abderrahim Ait Alla, Markus Kreutz, Daniel Rippel, Michael Lütjen and Michael Freitag were able to prevail against the competition with their paper „Simulation-Based Analysis of the Interaction of a Physical and a Digital Twin in a Cyber-Physical Production System“. The award-winning article deals with the question of how the synchronization between a digital twin and its physical counterpart can be optimized with regard to the required number of sensors. In this context, an approach was developed in which a digital model is first created from the physical original in order to optimize the synchronization points using a software-in-the-loop approach.



The ninth international IFAC Conference on Manufacturing Modeling, Management, and Control (IFAC MIM 2019) was held in Berlin from August 28 to 30, 2019. With 750 participants, 540 presentations and 19 parallel sessions, it was the largest IFAC MIM conference to date. BIBA took part in the conference with three papers on indoor localization, offshore logistics and digital twins.

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Photo: HWR Berlin/Oana Popa-Costea

## Internationalization ▲

### LogDynamics Welcomes the Ethiopian Ambassador

The new Ambassador of the Federal Democratic Republic of Ethiopia in Berlin, Mulu Solomon Bezuneh, visited Bremen for the first time. In this context, she also took the time to visit LogDynamics and the International Graduate School for Dynamics in Logistics (IGS) on November 26, 2019. The IGS has attracted the Ambassador's attention, as it has supported more than 20 PhD. students from Ethiopia in a variety of scientific and organizational ways in recent years. The first doctoral candidate was Fasika Bete Georgise. He received his PhD. degree in production engineering from the University of Bremen in 2015 and has been teaching at his home university Hawassa ever since. Currently, two Ethiopian doctoral students with a



so-called sandwich scholarship are at the IGS. They spend three half-years each of their scientific research at the University of Bremen but receive their doctorate at their home university. With the support of IGS, the largest group of 18 Ethiopian lecturers to date spent three months abroad at BIBA - Bremer Institut für Produktion und Logistik GmbH, a partner in *LogDynamics*. In a project of the Texas Tech University, USA, together with the Bremen-based company INROS LACKNER SE, they were given access to scientific resources and practical experience.

All these doctoral candidates were already lecturers at their home universities. Aim of their stays abroad was and is bringing the education and research of Ethiopian universities to an international level and to learn from best practices. The Ethiopian government has launched various measures and funding instruments for this purpose. Some of them are being implemented with German support, e.g., by the German Society for International Cooperation (GIZ) GmbH and the German Academic Exchange Service (DAAD).

During her visit, the Ambassador gained her impression of the existing infrastructure, the *LogDynamics* Lab. She also took the opportunity to discuss the experiences and any necessary changes with professors, the IGS coordinator, and the two Ethiopian doctoral students. The Ambassador's visit was initiated and coordinated with the participating institutions by a former BIBA employee, Tesfaye Balcha. He is currently actively involved in the Ethiopian and Friends of Ethiopia community in Bremen.

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## A Vivid Coming and Going in the IGS

On 5 November, the annual Interdisciplinary Research Colloquium of the IGS took place on a small scale. Ten doctoral candidates presented the current state of their research and discussed it with professors of *LogDynamics*. There were classical poster presentations, as well as the live demo of a deep learning system and the opportunity to play a serious game. The



fact that the event had a slightly smaller number of participants than in the previous years is a success story: This year, the IGS recorded the highest number of graduates ever since its foundation. Eleven completed doctoral degrees for candidates from all four participating faculties of the University of Bremen!

But the places at the IGS will not remain empty for long! IGS alumni, who are in the meantime professors at their home universities, are now sending their doctoral candidates to Bremen. Satie Takeda, for example, comes from UFSC, Florianópolis, Brazil, and is a student of Enzo Frazzon, the second graduate of IGS. She is spending eight-month research stay at BIBA at IGS. The same applies to two Ethiopian researchers who spend three six-month stays each in Bremen as external doctoral candidates on a so-called sandwich grant from the Ethiopian EECBP Home Grown Ph. Scholarship Programme. All three will earn their degrees at their home universities.

Raúl Castillo arrived in Bremen at the beginning of October. He comes from Arturo Prat University in Iquique, Chile, and is now the third scientist at this university whose doctoral interest corresponds to the research area of *LogDynamics*. This is not surprising, as his boss there was already a doctoral candidate at IGS. Raul receives a BECAS PhD scholarship. The National Commission for Scientific and Technological Research of the Republic of Chile (CONICYT) promotes such qualification measures to improve the spectrum and quality of education and research as well as global competitiveness.

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### Prof. Dr. Galf-Peter Calliess: LogDynamics Welcomes a New Member and a New Faculty

In November, Prof. Dr. Galf-Peter Calliess joined LogDynamics research cluster as a member. Galf-Peter Calliess is Professor of Civil Law and International Business Law at the University of Bremen and Dean of the Faculty of Law. By joining, LogDynamics has gained a fifth faculty: Law. With this new competence, extremely relevant legal aspects of technological action in logistics can be taken into account. For example, the question of how the law changes through technical solutions and digitalization can be investigated. Prof. Calliess deals exactly with these questions and founded the Institute for Commercial Law. The focus on maritime trade law and logistics fits perfectly into the research activities of LogDynamics. In addition, Prof. Calliess is already working together with Prof. Hans-Dietrich Haasis, supervising an IGS doctoral candidate.



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Photo: Universität Bremen

### Prof. Dr. Aseem Kinra, Professor for Global Supply Chain Management Joins LogDynamics

Prof. Kinra received his bachelor at the Delhi University followed by a master's degree in business administration. He went on to accomplish a M.Sc. in Economics and Business Administration, followed by a PhD in Supply Chain Management and academic training at the Copenhagen Business School. He worked as an Assistant and later as an Associate professor at the Copenhagen Business School, where he also led the Graduate Diploma program in Supply Chain Management.



Prof. Kinra's research spans global supply chain management with a focus on value, barriers and complexity in cross-border value chains, especially in relation to logistics and transportation systems. Moreover, he researches the applicability and adoption of various information and transportation technologies in this context, both within private and public-sector management. His work has been a recipient of numerous Emerald and LogDynamics research awards, the prestigious Hedorf Foundation grants, and he has previously held a Mitsui fellowship within transportation and trade. He is also the founding member of the WCTRS Special Interest Group (SIG) E1 on Transport Systems Analysis and Economic Evaluation.

Prof. Kinra has been appointed professor for Global Supply Chain Management at the University of Bremen since May 2019. He joined the LogDynamics research cluster as a member in November 2019.

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## Further Support for LogDynamics from the Jacobs University: Prof. Dr. Hendro Wicaksono

Hendro Wicaksono received his Bachelor in Computer Science from Bandung Institute of Technology Indonesia. He continued his master degree in Information and Communication Engineering at the University of Karlsruhe with a scholarship from German Academic Exchange Service (DAAD) and finished in 2006. After working several years as an IT consultant in Germany, he returned to research and worked as a researcher at the FZI Forschungszentrum Informatik Karlsruhe. Then, he moved to the Institut für Informationsmanagement in Ingenieurwesen (IMI) at the Karlsruhe Institute of Technology in 2013 to work as research coordinator and received his doctoral degree in 2016 with the dissertation topic in data management and artificial intelligence method for energy management in production.



In 2018 he was appointed as Professor in Industrial Engineering at Jacobs University Bremen. His research focuses on intelligent data management for industry 4.0 applications. It includes holistic data management from semantic data integration, linked data, machine learning, semantic enrichment of geometry data, to data-driven optimization, and their applications in production, logistics, and smart cities. Prof. Wicaksono joined the LogDynamics research cluster in November 2019.

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### Events

## Training „Technologies of Logistics“

Date: **January 29, 2020**

Venue: Bremen

As part of the „Technologies of Logistics“ training course, you will learn about the possibilities and potential of current developments for your company in our practical learning factory. You will actively deal with mobile technologies and products and learn how to efficiently plan and control logistics processes and technical systems. Last but not least, we look at adaptive systems for a changing environment and consider together which possibilities the presented technologies and solutions bring with them for your company.



By participating in the training course you will

- be supported in determining the potential of CPS in your company
- get to know concrete operating conditions as well as the advantages and disadvantages of decentralised and central control systems for your logistics tasks
- learn about the basic characteristics of the technologies taught and the possibilities for your application
- learn about the potential and limits for self-control of logistics processes and for the convergence of material and information flows.

The training is aimed at specialists and managers (technicians, engineers) with a focus on logistics. It is helpful if you have basic knowledge of logistics, its tasks and processes.



The training will be held in German.

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## Doctoral Workshop: Ensuring Practical Relevance and Scientific Contribution for Good Logistics Research

Date: **February 10 - 11, 2020**

Venue: Bremen

The goal of the LogDynamics Doctoral Workshop is to forge a seed of young researchers from different disciplines, who share the interest in mechanisms for coordination of logistics processes as well as in the cooperation and competitiveness in supply chains. Therefore, the Doctoral Workshop is organized as satellite event of the LDIC 2020 and will take place in the two days leading up to the conference. It will offer one day with a focus on scientific contribution, including presentations and discussions with scholars in the field, including topics related to research design, methodological paradigms and methods, and knowledge production. The workshop takes into account the persistent need for enhancing the social and economic impact of research, and will specifically focus on problem-oriented research and address the effects of important trends such as digitalization on research practices. It will also include one day on the contemporary needs of enterprises and how to ensure practical relevance of projects. In addition, the combination with the 7th International Conference on Dynamics in Logistics (LDIC) will give the participants the opportunity to meet experts from different related fields.



Applications are possible by January 5, 2020.

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Details: [www.doctoral-workshop.logdynamics.de](http://www.doctoral-workshop.logdynamics.de)

Photo: Prof. Dr. Jürgen Pannek

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## 7th International Conference on Dynamics in Logistics - LDIC 2020

Date: **February 12 - 14, 2020**

Venue: Bremen

Transporting goods in a smart way from A to B - that was yesterday's logistics. Today's logistics offers methods that make it possible to react quickly and flexible to dynamic technical and socio-economic developments. Particular attention should be paid to the modelling, planning and control of processes, supply chain management, maritime logistics and innovative technologies and robot applications for cyber-physical production and logistics systems. These diverse aspects will be presented and discussed at the seventh International Conference on Dynamics in Logistics (LDIC 2020). The conference will take place at BIBA from February 12th to 14th, 2020. The conference series is organized by the LogDynamics research cluster of the University of Bremen.



## Industry Meets Science - Digital Meets Real

Date: **March 18, 2020**

Venue: Bremen

Digitalization is changing our world. What exactly does this mean for product development? What impact will the robot that works with humans have on the workplace of the future? How can new business models be developed to create a digital product? In keynote speeches and in a „market of possibilities“ we give answers! The event is organized by the Bremen Chamber of Commerce in cooperation with the Mittelstand 4.0-Kompetenzzentrum Bremen and the BIBA - Bremer Institut für Produktion und Logistik GmbH.



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Photo: Jan Meier, BVL

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## 5th International Conference on System-Integrated Intelligence: Intelligent, Flexible and Connected Systems in Products and Production

Date: **June 3 - 5, 2020**

Venue: Bremen

The International Conference on System-Integrated Intelligence is a cooperative event between the Universities of Bremen, Hanover and Paderborn. The fifth edition will take place from June 3 to 5, 2020 in Bremen, LogDynamics is one of the co-organisers. SysInt deals with the integration of new intelligent functionalities into materials, components, systems and products. The conference offers a platform for science and industry and focuses on six main topics:



- Intelligent Systems: Enabling Technologies and Artificial Intelligence
- The Future of Manufacturing: Cyber-Physical Production and Logistic Systems
- Pervasive and Ubiquitous Computing
- Structural Health Monitoring
- Systems Engineering
- Soft Robotics and Human-Machine-Interaction

The deadline for submitting abstracts has been extended until December 16, 2019.

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Details: [www.sysint-conference.org/callforpapers.html](http://www.sysint-conference.org/callforpapers.html)

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## German Logistics Congress: LogDynamics Welcomes Prominent Guests

The research cluster LogDynamics was again represented with a booth at the German Logistics Congress this year. Especially the demonstrator for the use

of low-cost sensor technology in port loading was attracting the interest of the visitors. The Bremen Deputy Minister for Science and Ports Tim Cordßen was also enthusiastic about these and other innovative logistics solutions. Together with State Councilor Cordßen, BHV President Dr.-Ing. Patric Drewes and BHV Managing Director Christoph Bruns were guests at LogDynamics stand.



The German Logistics Congress is one of Europe's most important events for logistics and supply chain management. In 2019 more than 3000 participants and 200 exhibitors were present.

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## 1 Year „The Digital Now“: Future Was Bright at the Major Convention on Digitalization

On September 26, 2019, around 120 guests, exhibitors and speakers celebrated the first anniversary of the „The Digital Now“ series of events. At the big digitalization convention at the Flydeck in the Ecos Office Center on the Teerhof they looked back on the past year, but above all forward to the future: artificial intelligence, augmented reality, 3D printing, gamification - in workshops and in the exhibition there was not only information on these topics, but the guests were also able to try them out for themselves.



In her welcoming address, Kristina Vogt, Senator for Economics, Labour and Europe, made it clear that technologies such as artificial intelligence are of course used intensively by the world's big Amazons and Googles - but that medium-sized, small and micro enterprises also need access to these technologies if they are to survive in 10 or 15 years' time. The three workshops discussed which business models are ready for the digital world, how Augmented Reality works and what opportunities Gamification can bring to companies. In the exhibition, Materialise used models to show how 3D printing works, among other things. Two keynote lectures dealt with the „Paradox Artificial Intelligence - Opportunities and Limits of a Digital Society“.

„The Digital Now - Exciting Practical Examples“ is a series of events organised by bremen digitalmedia and the Mittelstand 4.0-Kompetenzzentrum Bremen, in which BIBA and ISL are involved. The series is intended to invite small and medium-sized enterprises in particular to deal with various topics of the digitalization process and to further their education in dialogue with experts from the field.

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Photo: Mittelstand 4.0-Kompetenzzentrum Bremen / bremen digitalmedia

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## The ISL at the Maritime Week 2019

On the weekend of September 21st - 22nd, 2019, the popular event format of the Research Mile was once again offered as part of the twelfth Maritime Week. For the interested public, various scientific institutions from Bremen provided an insight into their work on these days, which could be experienced first-hand through exciting exhibits.

In the area of the Bürgermeister-Smidt-Brücke, the Institute of Shipping Economics and Logistics (ISL) showed interesting facts from the maritime industry for young and old scientists. As a special highlight, the ISL's straddle-carrier simulator invited visitors to drive across the terminal in Bremerhaven from the perspective of a container crane driver.



The van carriers or straddle carriers are used in the port to move containers quickly and effectively from one location to another. The crane truck drives on high stilts so that it can drive over a truck or railway wagon and picks up the container from above. The models currently used in the port can stack containers „four high“, meaning in four layers on top of each other, which is almost 10 metres.

Simulators and digitalization are topics that have long been of concern not only to ports and the maritime industry. Therefore, the ISL booth in cooperation with the Mittelstand 4.0 Kompetenzzentrum Bremen was addressed to all those who wanted to inform themselves about digitalization.

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Photo: CityInitiative Bremen

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## German Academy of Foreign Trade and Transport visits LogDynamics Lab

Under the motto „Digital meets Real“, students of the German Academy of Foreign Trade and Transport (DAV) in Bremen visited the LogDynamics Lab on August 22nd, 2019. The host - Lab Managing Director Dr.-Ing. Matthias Burwinkel gave the visitors an insight into production and logistics research at LogDynamics. A guided tour of the hall offered a hands-on



view of the technology, including the following topics: Industry 4.0, sensors in logistics, human-robot collaboration, predictive maintenance and digitisation in training and further education. Examples of areas of application for the demonstrators presented were wind energy, port handling, transport and production logistics.

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## Calls for Papers

### Call for Papers S-BPM One 2020: The Digital Workplace – Nucleus of Transformation

According to Gartner, competitive advantage for 30% of organizations will come from the workforce's ability to creatively exploit emerging technologies such as Deep Learning and IoT applications. Hence, the average work day is becoming filled with interactive technologies that are transforming how work gets done. Business processes – including production and logistics processes – are keys as their representation provide the baseline of operating these technologies and thus (implementation-independent) context for exploring and embodying upcoming developments such as Internet of Behavior.



The 12th International S-BPM ONE Conference 2020 at BIBA in Bremen,



Germany has its focus on how organizations can help their stakeholders becoming more engaged in driving competitive advantage framed by or based on process technologies. The following topics are of particular interest:

- Portfolio development through digital processes as services
- Cloud-based decentralization of organizations
- Autonomous digital workplace design
- Self-sovereign identity development
- Patterns of workforce engagement
- Growing of digital dexterous culture
- Business value generation through process digitalization
- Data-driven process transformation
- Process-sensitive data transformation
- Use of mobile technologies and smart products in logistic networks
- Dynamic smart contracting and tokenization
- Explainable process designs
- Sensor-based sense-making
- Contextual integration of things into business processes
- Process-empowered business analytics

Important Dates:

- Due date for paper submission: February 1, 2020
- Notification of acceptance: March 1, 2020
- Camera-ready version of accepted papers: April 1, 2020
- Conference S-BPM ONE 2020: July 8-10, 2020

Contact: Prof. Dr. Hans-Jörg Kreowski [kreo@informatik.uni-bremen.de](mailto:kreo@informatik.uni-bremen.de)

Details: [www.s-bpm-one.org](http://www.s-bpm-one.org)

## Publications

### Research Report 2018/19 – International Graduate School for Dynamics in Logistics + Bremen Logistics Transfer and Innovation Culture

Logistics has had a significant impact on the development of the world as it is today. It has driven and continues to inspire social, economic, and technological change. In addition, logistics also plays an important role in the economic and scientific location of Bremen. Research and education are fundamental to further expanding Bremen's success story. For almost 25 years, an interdisciplinary team from various departments of the University of Bremen and local institutions has been researching the logistics of tomorrow and beyond in the Bremen Research Cluster for Dynamics in Logistics (LogDynamics). Regarding the strategies of the Bremen University and the federal state of Bremen, the research alliance covers the challenges of the future for Bremen and transfer its science consequently into society.



In the future, digitalization and artificial intelligence will reshape logistics substantially. People will become more and more the focus of attention and increasingly demand individualized logistics solutions. Besides, the climate and energy will be increasingly influential. The diversity-oriented International Graduate School for Dynamics in Logistics (IGS) of LogDynamics deals precisely with these topics and prepares doctoral candidates for the upcoming changes. The transfer of academic findings from science to society, business, politics, culture, and vice versa is another leading task of the future. Since 2018 the project BreLogIK (Bremen Logistics Transfer and Innovation Culture)

is emphasizing this topic by cooperating with several local players beyond LogDynamics. The initiative focuses on reducing barriers within the cooperation of academia and industry to create a new type of infrastructures for innovation in logistics.

Against this background, the new LogDynamics Research Report offers an extract from education, research and transfer for the benefit of logistics in Bremen.

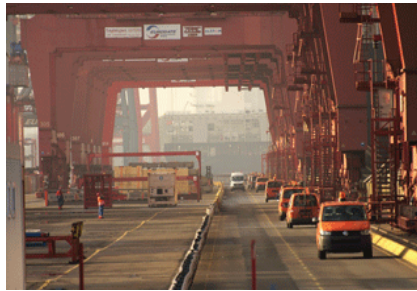
Contact: Dr.-Ing. Ingrid Rügge [rue@biba.uni-bremen.de](mailto:rue@biba.uni-bremen.de)

Details: [www.logistics-gs.uni-bremen.de/fileadmin/Upload/Research\\_Report\\_2018\\_2019.pdf](http://www.logistics-gs.uni-bremen.de/fileadmin/Upload/Research_Report_2018_2019.pdf)

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## Investigation of the Economic Significance of German Sea and Inland Ports on the Basis of their Impact on Employment

If you think about the topic, it seems logical: The jobs associated with the port-dependent economy secure purchasing power and prosperity not only at the port locations but along the entire transport and value chain throughout the country. But can the economic importance of German ports be reliably measured? How large is the employment potential of all port locations in common and which turnover of the German economy is dependent on the services at these locations? In order to get to the bottom of these and other questions, the BMVI commissioned a study as a measure of the National Port Concept which determines the economic significance on the basis of the employment effect of sea and inland ports.



ISL (project management) has successfully completed this study together with its partners Fraunhofer CML, Fraunhofer IML, Economic Trend Research ETR and Prof. Holocher und Partner. The aim of the study was to develop a methodology with which relevant data can be collected and evaluated on a uniform and recurring basis in order to follow the development of the economic importance of German ports as regularly as possible with a uniform approach in the future.

The result of the application of the presented method underlines the importance of sea and inland ports: The number of employees directly involved in transshipment in ports, the operation of ports and complementary port services in the port regions is estimated at approx. 36,100. This contrasts with 140,000 employees nationwide in the port dependent transport chain and approx. 1.35 million employees in the port dependent industry. In addition, there are indirect and induced effects which have an impact on the whole of Germany and which extend the job-securing effect of German ports and port-dependent industry to 5.6 million employees. The complete study in German language, including all figures, conclusions and recommendations for action can be downloaded free of charge.

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Download: [www.isl.org/de/studienergebnisse](http://www.isl.org/de/studienergebnisse) (available only in German)

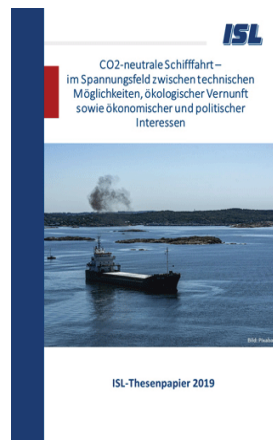
Photo: pixabay

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## Thesis Paper of the ISL on the Challenges of CO<sub>2</sub>-Neutral Shipping

What contribution can LNG make to reducing greenhouse gas emissions in shipping? What other measures are needed to achieve the vision of zero

emissions by 2050? Maritime traffic has risen steadily worldwide in recent decades. Currently, more than 90 percent of intercontinental trade takes place by sea. As a result, ocean-going ships are increasingly emitting air pollutants with effects on health, the environment and the climate. With the adoption of the Kyoto Protocol in 1997, the IMO was commissioned to initiate measures to reduce greenhouse gas emissions harmful to the global climate. Since then, a comprehensive package of measures to achieve the ambitious goals has been discussed and developed. But have these measures been implemented in the expectation of technologies and fuels to be developed in the future with sufficient ambition and at an early stage in the form of legally binding targets?



In its current paper, the ISL deals with this topic and shows how the climate targets in shipping can be achieved and where there are considerable deficits in the implementation of known measures for more energy efficiency and more climate protection. The PDF document can be downloaded (in German) free of charge and is the continuation of a series of theses written by ISL in coordination with its Scientific Advisory Board on current topics in shipping and logistics and made available to you.

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Download: [www.isl.org/de/node/562](http://www.isl.org/de/node/562) (available only in German)