HSBI

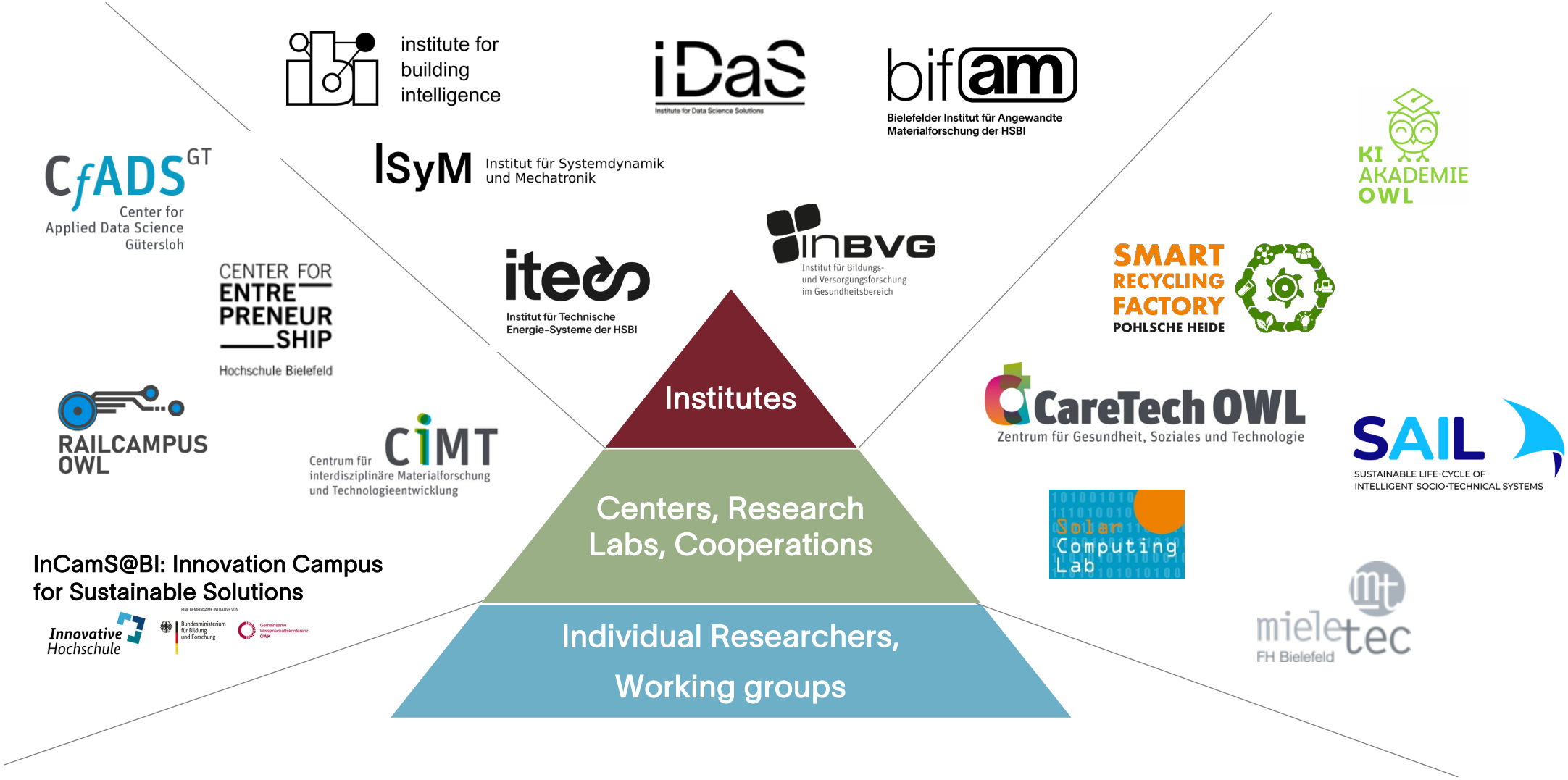
Hochschule
Bielefeld

University of
Applied Sciences
and Arts

Hochschule Bielefeld –
University of Applied Sciences and Arts (HSBI)

Research profile

RESEARCH STRUCTURES



INSTITUTE FOR EDUCATIONAL AND HEALTH SERVICE RESEARCH

ABOUT THE INSTITUTE

- Researchers from the areas Nursing science, therapy and health sciences, midwifery science as well as medicine and vocational education,
- Research and development in inter- and transdisciplinary projects in the health sector
- Accompaniment and support of practice facilities

MAIN RESEARCH AREAS

- **Educational research:**
  - Development and testing of digitally supported teaching/learning processes in school and vocational training in the health professions
  - Qualifications -and skills development
  - Development and evaluation of study and further training offers
- **Health services research:**
  - Promoting health literacy and self-management for people with disabilities, chronic illnesses, and caring relatives
  - Digitalization in Health sector/technology-supported care
  - Development, testing and evaluation of care -concepts

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INSTITUTE FOR SYSTEM DYNAMICS AND MECHATRONICS

ABOUT THE INSTITUTE

- Founded on May 1, 2013
- 8 professorial members from the Faculty of Engineering and Mathematics
- 22 Employees in 13 research projects
- Partner of CareTechOWL and RailCampusOWL

MAIN RESEARCH AREAS

- Human Mechatronics & Medical Technology
- Intelligent Systems
- Connected Mobility

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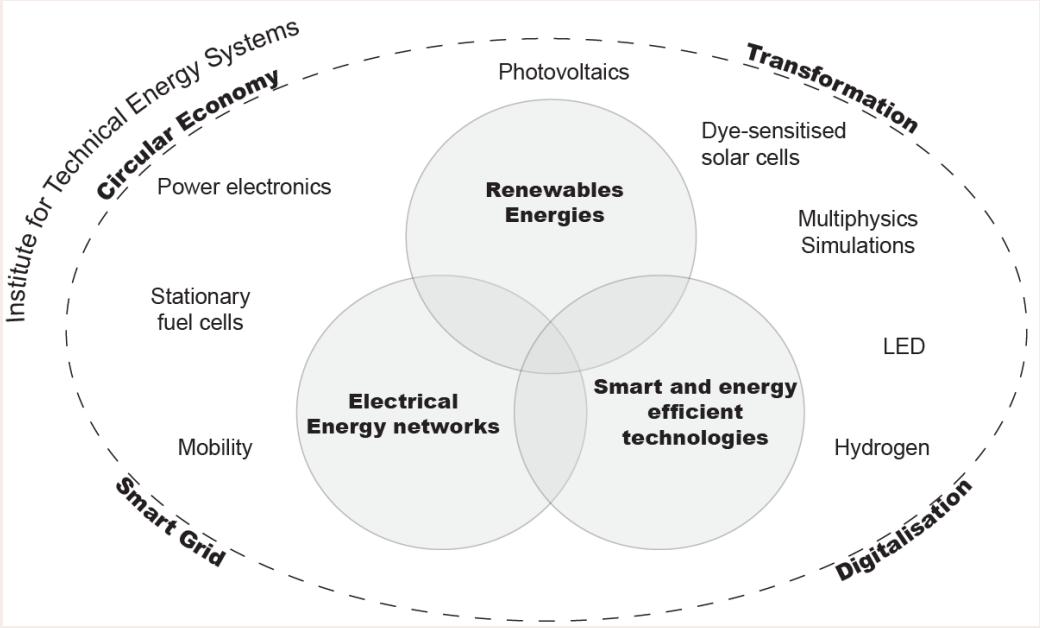
INSTITUTE FOR TECHNICAL ENERGY SYSTEMS

ABOUT THE INSTITUTE

- Design of sustainable and intelligent energy systems and their implementation in field trials
- 1,3 million Euros third-party funding income 2022
- 7 Professors
- 25 Employees

MAIN RESEARCH AREAS



Topic overview ITES

iteS
Institut für Technische Energie-Systeme der HSBI

Contact

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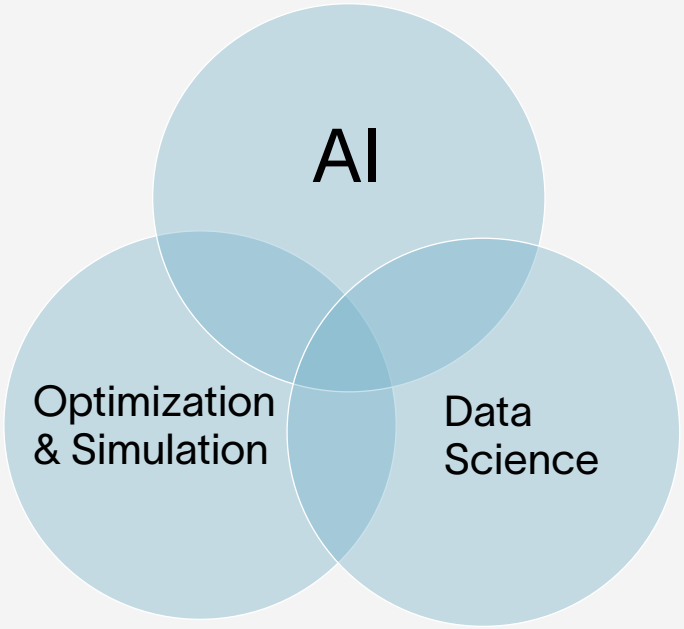
INSTITUTE FOR DATA SCIENCE SOLUTIONS

iDaS
Institute for Data Science Solutions

ABOUT THE INSTITUTE

- 20 professorships | 3 departments | 3 locations
- The aim is to pool competencies in the areas of data science, AI and optimization & simulation
- Focus domains: sustainability, economy & production, services, health



MAIN RESEARCH AREAS

- DataScience - Analysis, prediction, anomaly detection, ...
- AI - Language processing, image understanding, ...
- Optimization & Simulation - Process optimization, modeling & simulation, ...

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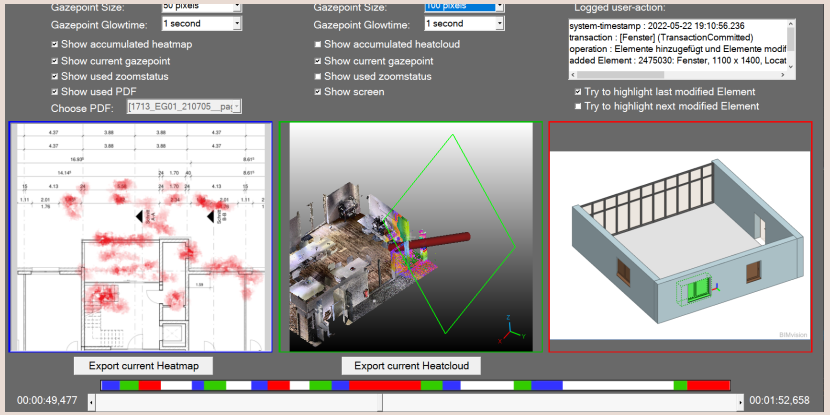
ABOUT THE INSTITUTE

Research and development at the interface of technology, construction, and society

Building Intelligence stands for holistic technological solutions that make buildings and industrial facilities smarter, more efficient, and more sustainable.



MAIN RESEARCH AREAS

- Modern, networked building management systems
- Intelligent energy and comfort solutions
- Forward-looking smart home technologies
- Resource-saving materials and construction methods

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institute for building intelligence

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BIELEFELD INSTITUTE FOR APPLIED MATERIALS RESEARCH

bifam
Bielefelder Institut für Angewandte Materialforschung der HSBI

ABOUT THE INSTITUTE

- 7 professors from 2 departments
- Combining different disciplines enables a holistic research methodology along the scientific value chain
- Innovative and sustainable solutions for social and industrial challenges

MAIN RESEARCH AREAS

- Thermal energy systems & sensor technology
- Formulation technology
- Thin-film technology
- Plastics technology
- Lightweight and composite materials
- Materials testing and development
- Modeling & simulation

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CARE TECH OWL

Center for Health, Social Affairs and Technology

ABOUT US

- Interdisciplinary research association of four faculties: Health, Social Sciences, Engineering and Mathematics and the Bielefeld School of Business
- 33 professors as full members, 5 spokespersons
- Associated members: 14 postdocs from the project „TransCareTech – Transformation in Care and Technology“ and 22 postdocs of the HSBI programme Career@BI
- Multiple research projects, e.g. TransCareTech (2021-2025), HIS4DiaPedes (2022–2025), SAIL (2022-2026), BRAVO (since 2023, with Bethel)

RESEARCH FOCUS

- Transdisciplinary and participatory approach for the collaborative research and development of technological and social innovations
- Real world laboratories, CareTech HUBs
- Upskilling of the expertise of junior research staff at our university

Examples for some of our recent research and developments projects (photos: CareTech OWL, except middle below: created in the nightcafe with Juggernaut XL v5)

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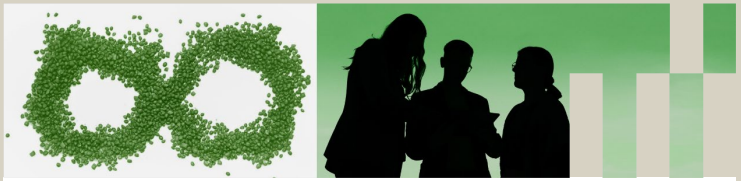
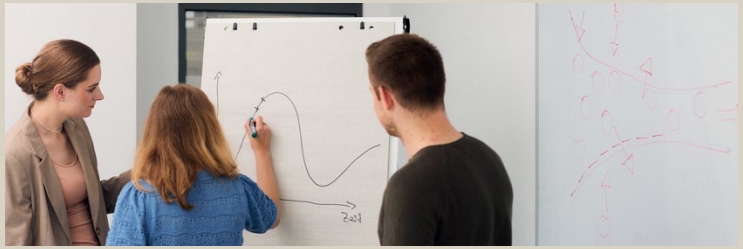
InCams@BI: Innovation Campus for Sustainable Solutions

Innovative Hochschule

- Funding for HSBI and Bielefeld University as part of the national initiative „Innovative Hochschule“* by the Federal Ministry of Education and Research (BMBF) and the state of NRW
- Links the current needs of the regional economy with the long-standing joint expertise of the HSBI and the Bielefeld University in the fields of materials research, technology development and Circular Economy.
- January 2023 – December 2027 (8.8 million € - 20 staff positions)
- Experts in plastics technology, engineering, physics, chemistry, business law, business psychology, and innovation management develop project outlines—together with and for companies and society.





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*“Excellence Initiative“ for transfer-oriented small universities (both types)

https://www.hsbi.de/incamsbi

RAIL CAMPUS OWL

- Sustainable joint commitment of Campus OWL universities in teaching, research, and transfer
- Students and young people at Rail Campus OWL
- Research cooperation in North Rhine-Westphalia
- Expansion of a strong cooperation network Rail Campus OWL
- Partners of the entire “rail innovation chain” with a presence at Rail Campus OWL

RAILCAMPUS OWL

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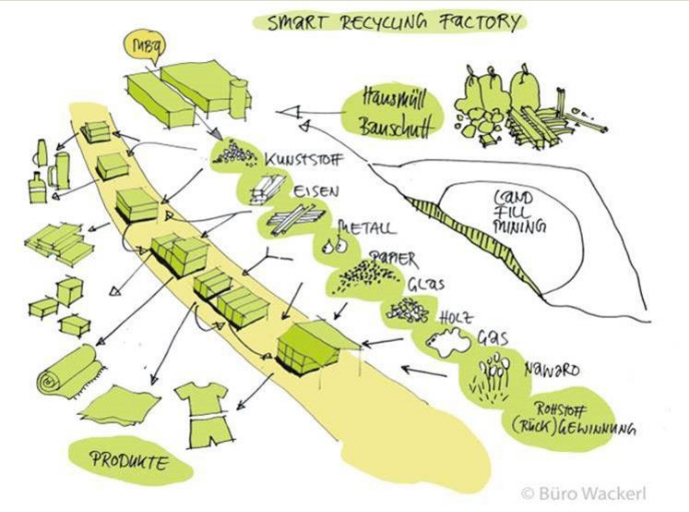
https://railcampus-owl.de/

SMART RECYCLING FACTORY

Developing the landfill site into the resource center of the future



- Research infrastructure project with three sub-projects (structural and spatial infrastructure, digital infrastructure, accompanying research during construction)
- DATI Innovation Sprint: TRACES (development of an AI-based detection method for classifying organic waste in composting plants to objectively estimate the proportion of contaminants in organic waste)
- Numerous other research ideas, some already in the form of project outlines, some in the preliminary stages

Strategic Concept of SMART RECYCLING FACTORY

Smart Sorting → Smart Processing → Smart Manufacturing → Smart (temporary) storage

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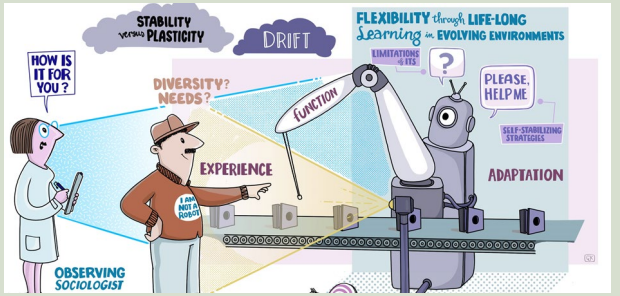
https://smart-recycling-factory.com/

AI IN SOCIO-TECHNICAL CONTEXTS



SAIL: Sustainable Life-Cycle of intelligent Socio-technical Systems

- Development of sustainable AI systems across the entire life cycle – from basic research to real-world applications.
- Combination of interdisciplinary research (including humanities and social sciences) with practical applications in Industry 4.0 and intelligent healthcare.

SAIL
SUSTAINABLE LIFE-CYCLE OF INTELLIGENT SOCIO-TECHNICAL SYSTEMS

AI-Academy OWL – Explain – Research – Communicate – develop

- Understanding the risks and opportunities of AI
- Developing targeted AI solutions
- Progress through interdisciplinary collaboration
- Innovation for AI security and inclusive AI processes

KI AKADEMIE OWL

HS'BI TH OWL UNIVERSITÄT BIELEFELD UNIVERSITÄT PADERBORN

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