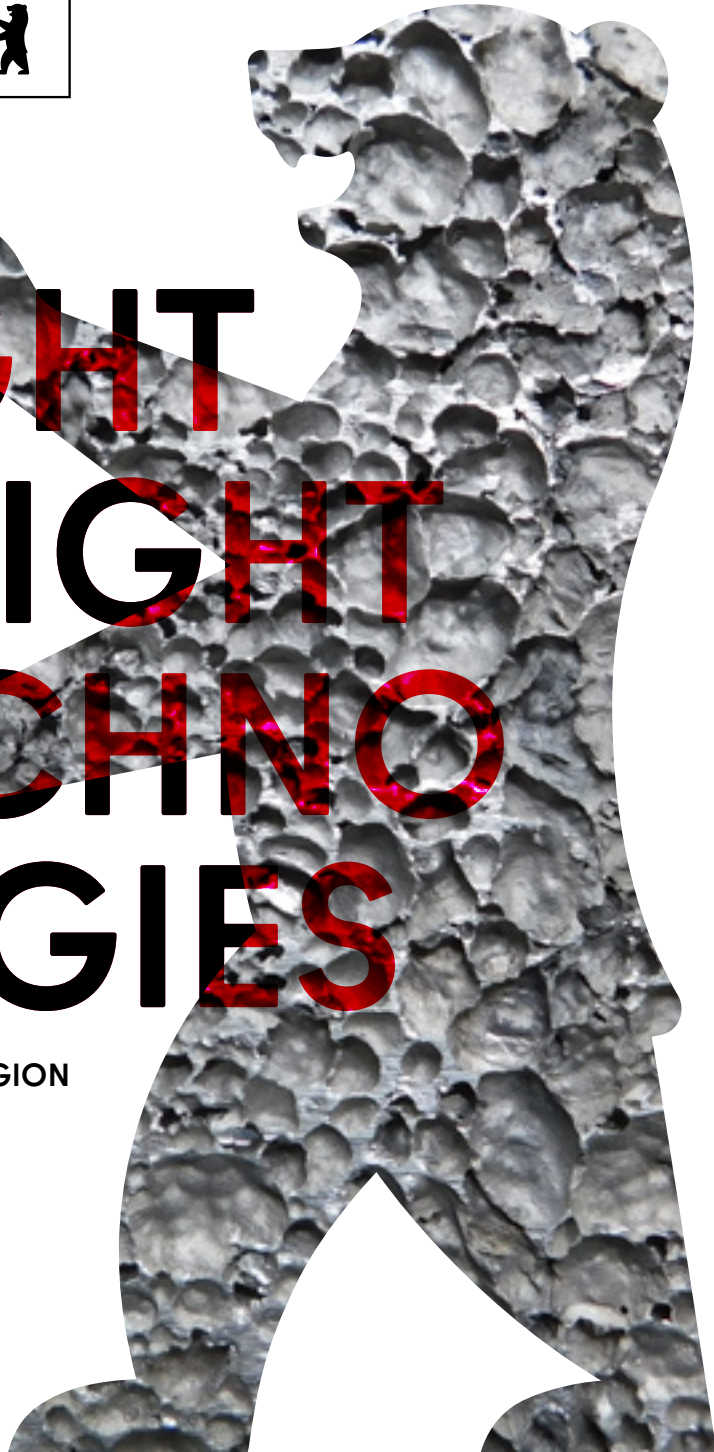


BERLIN



LIGHT WEIGHT TECHNO LOGIES

IN THE CAPITAL REGION







LIGHTWEIGHT CONSTRUCTION - KEY TECHNOLOGY FOR THE CAPITAL REGION

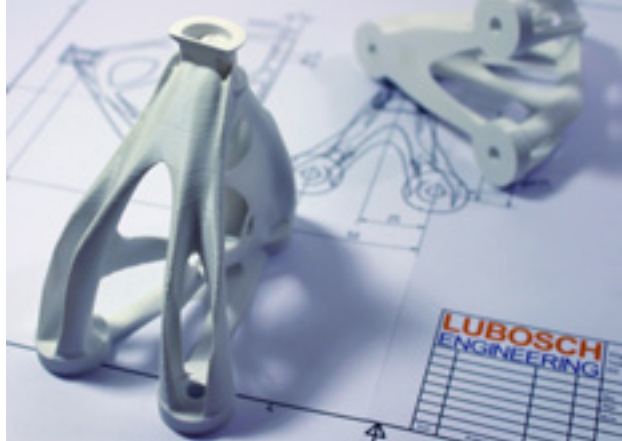
As a cross-sectional field for a wide range of industrial applications, lightweight technologies contribute to modern, efficient designs and therefore to the achievement of climate targets. As a metropolitan area, Berlin and Brandenburg offer the necessary expertise to play a significant role in the further development of this key technology thanks to the well-established research and development in materials and the strongly interconnected innovation landscape. In addition, the capital region has a large number of companies and research institutions with outstanding innovation dynamics in relevant technology fields such as additive manufacturing and digitalization.



“At SPACE STRUCTURES, high-performance lightweight components and systems are created through the consistent use of digital design and manufacturing tools. Design-to-Value and a high level of interdisciplinarity already characterize the tasks of our engineers today. In the digital capital Berlin, we find the talent we need for tomorrow.”



Dr. Ing. Benjamin Braun
CEO, Space Structures GmbH



FROM RAW MATERIAL TO FINAL PRODUCT

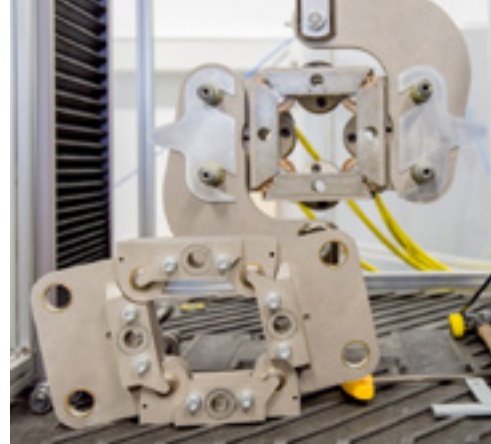
Lightweight technologies are a driving force for many industries in the capital region. Especially in the clusters Transport | Mobility | Logistics, Energy Technology and Healthcare (medical technology), this cross-sectional technology is used along the entire value chain. The potential of lightweight technologies extends from design and material selection to the finished product and recycling.

Starting with the production of raw materials such as metals and plastics, the capital region is home to international corporations such as BASF, ArcelorMittal Germany and Riva Stahl.

In the production of semi-finished products, BERNHARDT Kunststoffverarbeitung or Diehl Metal Applications, among others, develop and manufacture forms such as sheets, rods, foils or plates. In addition, Havel metal foam, whose aluminum foams and sandwiches are used in mechanical engineering, among other applications, is another company active in this stage of the value chain.

COMPANIES (selection)

ADMOS Gleitlager / also advanced lightweight constructions / Alstom / Applied Validation of NDT / APUS Group / Astro- und Feinwerktechnik Adlershof / AUCOTEAM / BASF Schwarzheide / Bendich Berlin / Berlin Heals / BERNHARDT Kunststoffverarbeitung / Brose Fahrzeugteile / CellCore / Clean Energy Global / Diehl Metal Applications / Digimind / Dr. Ing. Georg Wazau Mess- + Prüfsysteme / Dr. Mirtsch Wölbstrukturierung / Enso3D / ES-TE Folding Systems / F. LIST / Formlabs / Forster System-Montage-Technik / FTT Deutschland / GEFERTEC / Grasse Zur Ingenieurgesellschaft / H.-H. FOCKE / Häfele / Havel metal foam / HYDAC INTERNATIONAL / InnoMat / inpro / Knickmeier Stahl-Blech-Formteile / Lubosch Engineering / Merete Medical / NANOVAL / Offroad Leichtbau Manufaktur / OHST Medizintechnik / Orion Additive Manufacturing / OTIS / Ottobock / PYOT Labs / SWS / Space Structures / System 180 / TGM Lightweight Solutions / ThiM Network Factory / Think3DDD / Tiwari Scientific Instruments / TPI Composites / trinckle 3D / VELA Performance / Voith Composites / WINT Design Lab /



The mobility sector in the capital region has several well-known companies with a wide range of expertise in lightweight technologies. These include Rolls Royce with aircraft engines, Alstom with the production of rail vehicles, BMW Motorrad and Tesla with its Gigafactory. Supplier companies such as Brose Fahrzeugteile manufacture mechatronic components for the automotive industry.

Medical technology is another strongly represented industry in which lightweight processes and materials are increasingly being used. Space Structures, for example, developed lightweight aluminum prosthetic adapters in a joint project with the Paralympic Sports Club Berlin. Other key representatives include Ottobock, OHST Medizintechnik and Merete Medical.

Sustainability, climate protection and resource conservation are currently defining issues in society, politics and business. New lightweight materials and design patterns make a significant contribution to the comprehensive optimization of the entire product life cycle, including recycling. The Alba Group and TSR Recycling, as recycling raw materials companies for ferrous and non-ferrous metals, are two pioneers in the field of recycling lightweight products and materials.

RESEARCH INSTITUTIONS (selection)

BAM Federal Institute for Materials Research and Testing / Berliner Hochschule für Technik (BHT) / Brandenburg University of Technology Cottbus-Senftenberg / Eberswalde University for Sustainable Development / Fraunhofer IAP / Fraunhofer IPK / Fraunhofer IZM / German Aerospace Center (DLR) / GFAI - Society for the Advancement of Applied Computer Science / Hochschule für Technik und Wirtschaft Berlin / Humboldt-Universität / Institut für Forschung und Entwicklung von Sportgeräten (FES) / IMU-Institut Berlin / Institut für Forschung und Entwicklung von Sportgeräten (FES) / Technical University of Applied Sciences Wildau / Technische Hochschule Brandenburg / Technische Universität Berlin / University of Applied Sciences Potsdam / University of Potsdam / Weißensee Kunsthochschule Berlin

ASSOCIATIONS & NETWORKS (selection)

Composites Germany / Composites United / Innovation Network for Advanced Materials / KuVBB - Netzwerk für Kunststoffe - Chemie - Biopolymere / Mobility goes Additive (MGA) / Netzwerk Leichtbau Metall Brandenburg / The Lightweighting Initiative / Verband der Automobilindustrie

SCIENCE AND RESEARCH AS THE MOTOR FOR INNOVATIONS



“At the TU Berlin, lightweight technology is understood as a design principle for functional and/or economic reasons and is applied far beyond aerospace technology in all innovative areas such as wind power, vehicle construction and medical technology.”



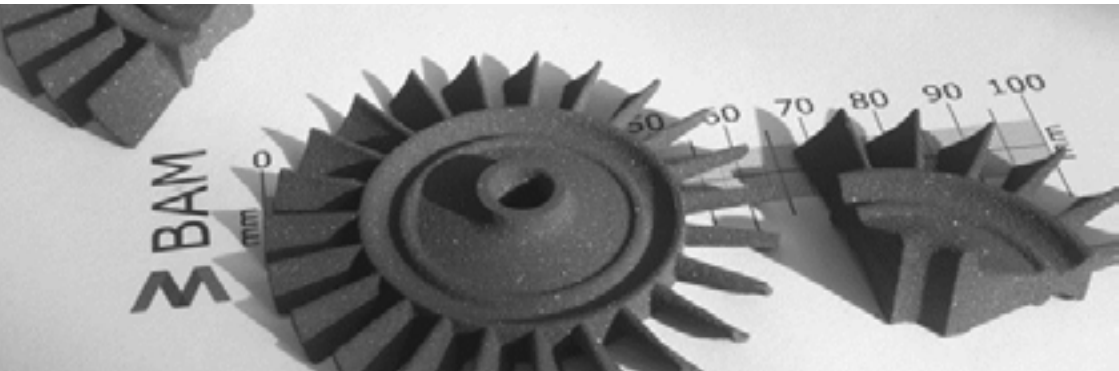
Prof. Dr. Ing. Andreas Bardenhagen

Head of the aircraft construction and lightweight construction department, Technische Universität Berlin

The multidisciplinary research at the well-known universities, colleges and scientific institutions in the capital region is an important driver for innovations in everything to do with lightweight technologies. The dominant fields are modeling and simulation, followed by design and layout.

In metals, plastics and composite materials, Berlin has excellent scientific expertise, including at the TU Berlin, HU Berlin and the Fraunhofer Institute for Production Systems and Design Technology. At the Federal Institute for Materials Research and Testing (BAM), scientists are conducting research, among other things, on the additive manufacturing of technical ceramics for mechanically stressed components in lightweight construction.

The Innovation Hub13, an association of BTU Cottbus-Senftenberg, TH Wildau and the Fraunhofer Institute for Applied Polymer Research (IAP), forms an important regional interface between science, industry and the public. Joint activities are used to promote the interdisciplinary exchange of technological understanding and solution approaches in lightweight technologies in order to jointly drive forward future-oriented development.





NETWORKS AND INITIATIVES WITH INTERNATIONAL IMPACT

Many relevant associations support cross-industry networking. Composites United (CU), one of the world's largest networks for fiber-based multi-material lightweight construction is based in Berlin. The international industry and research association primarily promotes the development of hybrid high-performance composite materials and their sustainable application. The use of synergies from regional core competencies in the field of Industry 4.0 and Artificial Intelligence enables product development, optimization of manufacturing processes and the implementation of new bio-based materials for sustainable and climate-neutral applications.

In addition, the network Leichtbau Metall Brandenburg, an open association of actors from science and industry, is active in the field of metal and hybrid lightweight technologies solutions. The focus of the network is on initiating and supporting innovative individual and joint projects for the development of new lightweight concepts, processes and products.



“Composites United e.V. was founded in 2019 and has developed into a leading global network for fiber-based hybrid lightweight design, with around 400 members from four continents. For the headquarters of the new association, only Berlin came into question. We want to contribute our expertise here and help shape and promote activities in the field of lightweight design.”



Dr. Gunnar Merz

CEO, Composites United e.V.



BERLIN



OUR AIM: YOUR SUCCESS

IN THE CAPITAL REGION



Berlin offers excellent starting conditions for growth, production, research and development. Economic policy focuses on innovation and technological performance. Our goal is to support companies and scientific institutions effectively in their settlement, growth, further development and networking.

businesslocationcenter.de/industry

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