

# Lightweight technology in Baden-Württemberg

Resource-efficient products, intelligent technologies, first-class research –  
Baden-Württemberg is a leading international location for lightweight technology



Baden-Württemberg

Where ideas work.

Facts and figures about Baden-Württemberg

# Outstanding innovations

## Population

10.8 million – this corresponds to  
13.2 % of the population of Germany

## Gross domestic product

477 billion euros – this corresponds to 15.2 % of Germany's GDP  
GDP per inhabitant: 43,700 euros (Germany: 37,997 euros)

## Export

Export volume: 192 billion euros  
Export volume per inhabitant:  
17,600 euros (Germany: 14,600 euros)  
Export state No. 1 in Germany

## Research & development

Research & development 2014: 4.9 % of GDP (Germany: 2.9 %)  
Patents applied for per 100,000 inhabitants: 132 (highest in Germany)  
Innovation region No. 1 in Europe

Baden-Württemberg is the 3<sup>rd</sup> largest state out of 16 in the Federal Republic of Germany;  
figures for 2016 (date: June 2017)





Top location for lightweight technology

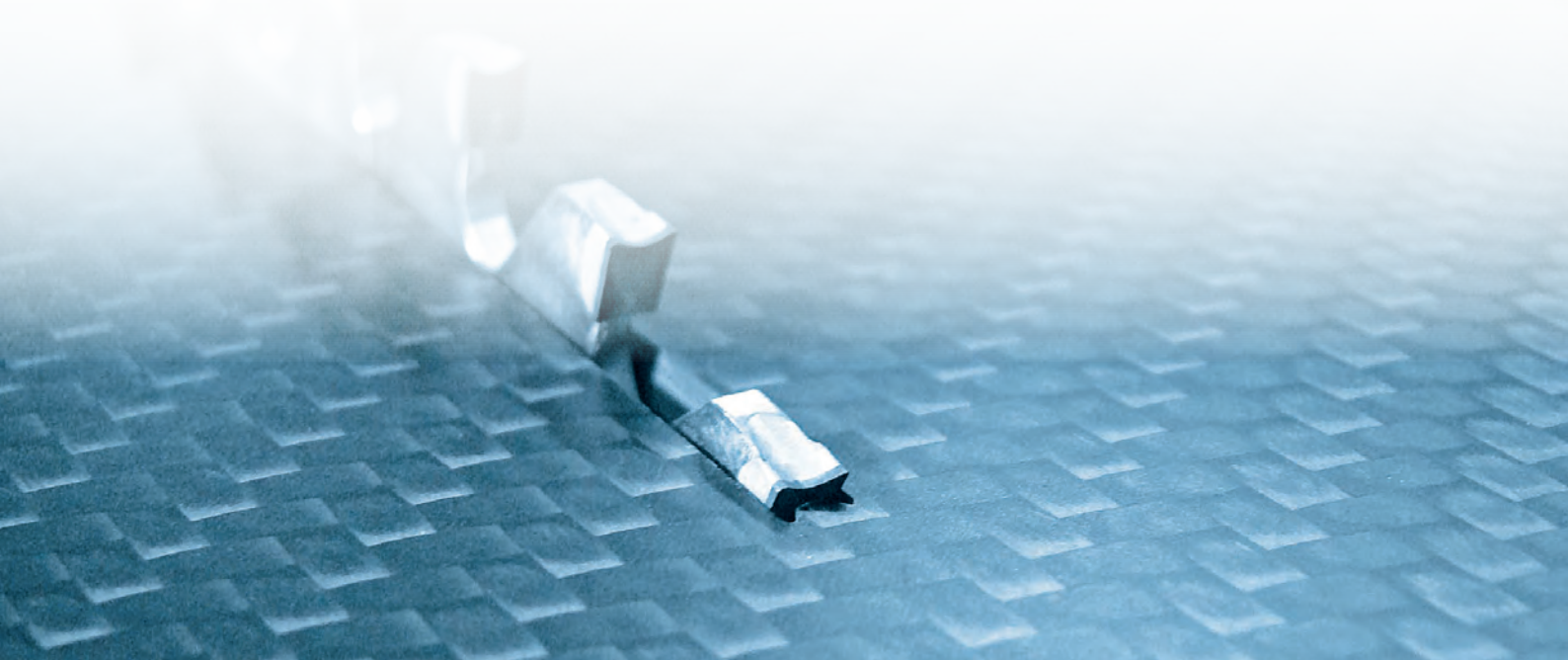
# The entire range of lightweight technology activity

As a leading international location for lightweight technology, Baden-Württemberg accommodates the entire value-added chain needed for intelligent lightweight technology – from research and development to design and engineering as well as manufacturing and production. The links in this chain include material suppliers, semi-finished product manufacturers, component producers and final product manufacturers, to mention just a few.

Fifty per cent of the companies in the lightweight technology network are small and medium sized enterprises (SMEs). This strong array of SMEs stands out due to its special innovative capabilities, which are fostered by

numerous scientific institutions engaged in research in lightweight technology.

In future, lightweight technology will increasingly become a nodal point for important movements of new worlds of production. An essential role in this will be played by the interplay of the digitisation of development, additive manufacturing and new production alliances, the best preconditions for which are to be found in Baden-Württemberg. Since 2011, the federal state has invested more than 50 million euros in strengthening its position as a location for lightweight technology.



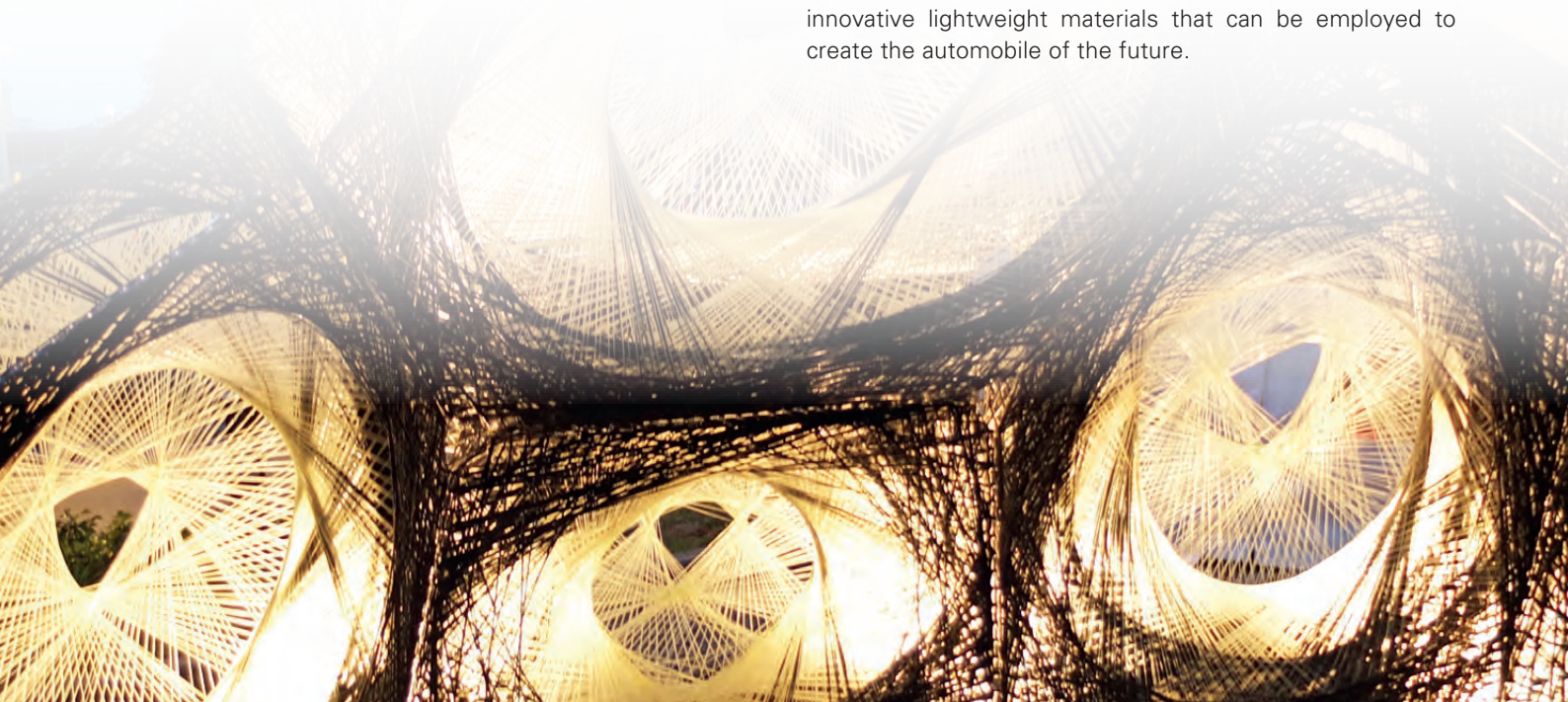
Key technology of the future

# Lighter, less and more sustainable

Improving products and using resources efficiently at the same time is only possible with lightweight technology. As a key technology stretching across different industries, lightweight technology is thus making a lasting contribution towards the competitiveness of industry and research in the state. In German mechanical engineering, for example, lightweight technology has made it possible to lower annual CO<sub>2</sub> emissions, whereby the reduction is equivalent to the amount produced by a city with 200,000 inhabitants. Moreover, the market for lightweight products is huge. For the automotive industry alone, it is estimated that the global market potential could be as much as 100 billion euros by the year 2020.

In the southwest, industry and research possess considerable expertise in lightweight construction in the areas of production technology/automation, CAE/simulation, fibre composites lightweighting as well as metal lightweighting and plastics technology.

In addition to electro-mobility and Industry 4.0, lightweight technology is a topic that cuts right across industrial policy in Germany and especially in Baden-Württemberg, which is an industry-intensive state. For example, the ARENA2036 research campus, a showcase project located within the state, is engaged in detailed investigations into the use of innovative lightweight materials that can be employed to create the automobile of the future.





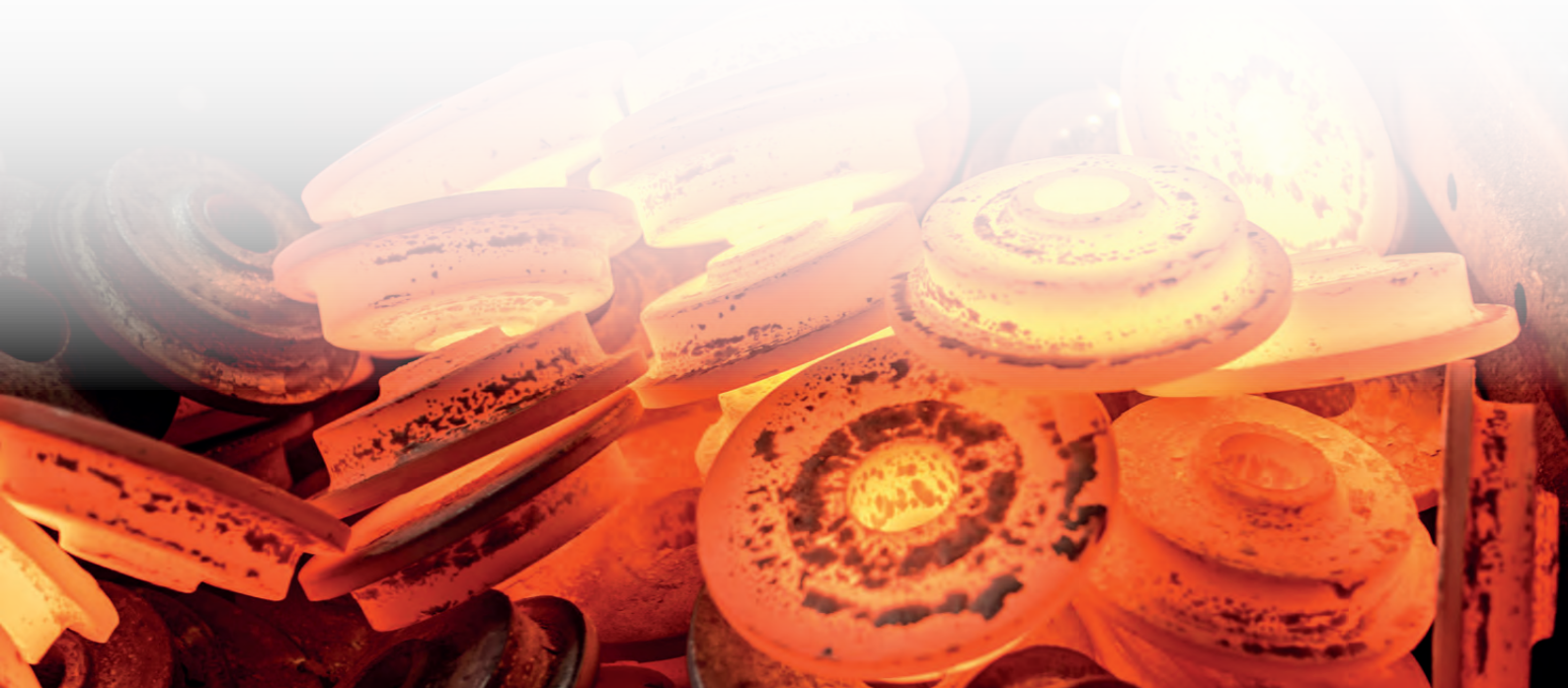
Largest lightweighting network in the world

# 1,800 partners in industry and research

Leichtbau BW was set up by the state of Baden-Württemberg in 2013. It represents a network which includes more than 1,600 companies and over 200 research establishments and which covers all needs in the area of lightweight technology – from start-ups to large manufacturers and corporations. It is the largest lightweighting network in the world.

The relevant lightweight technology players from industry, research, politics and society are involved in all the activities of the network. Nowhere else is so much cross-sector importance attached to lightweight technology in all its facets as in Baden-Württemberg.

Apart from Leichtbau BW, in Baden-Württemberg the technology network AFBW – Allianz Faserbasierte Werkstoffe Baden-Württemberg offers a platform for fibre-based material innovations. In addition, Carbon Composites Baden-Württemberg is driving ahead the state's reputation as a location for carbon-fibre and composite technology, while the Leichtbauzentrum Baden-Württemberg is dedicated to the promotion of efficient, hybrid lightweight design and construction.



Baden-Württemberg as a science location

# Excellence in teaching and research

With more than 70 universities and over 100 non-university research institutions, Baden-Württemberg is one of the top science locations in Germany. Indeed, teaching and research in the southwest are on the very highest level. As a cross-sectional technology, lightweight technology is also profiting from this.

Numerous courses of study in the areas of automotive manufacturing, mechanical engineering, materials engineering, aerospace and building ensure a constant supply of highly qualified young engineers who wish to start careers in this field. At the Hochschule Aalen, a master's degree programme in lightweight technology is offered.

What's more, the higher-education institutions and many excellent research establishments in the state are concerned with issues such as new composite materials, weight saving or functional integration. With their basic research and development of applications, they are helping to make Baden-Württemberg a leader in innovation in this key area of technology. The intensive collaboration between industry and science as well as the smooth transfer of knowledge are important success factors for lightweight technology throughout Baden-Württemberg.



Baden-Württemberg International

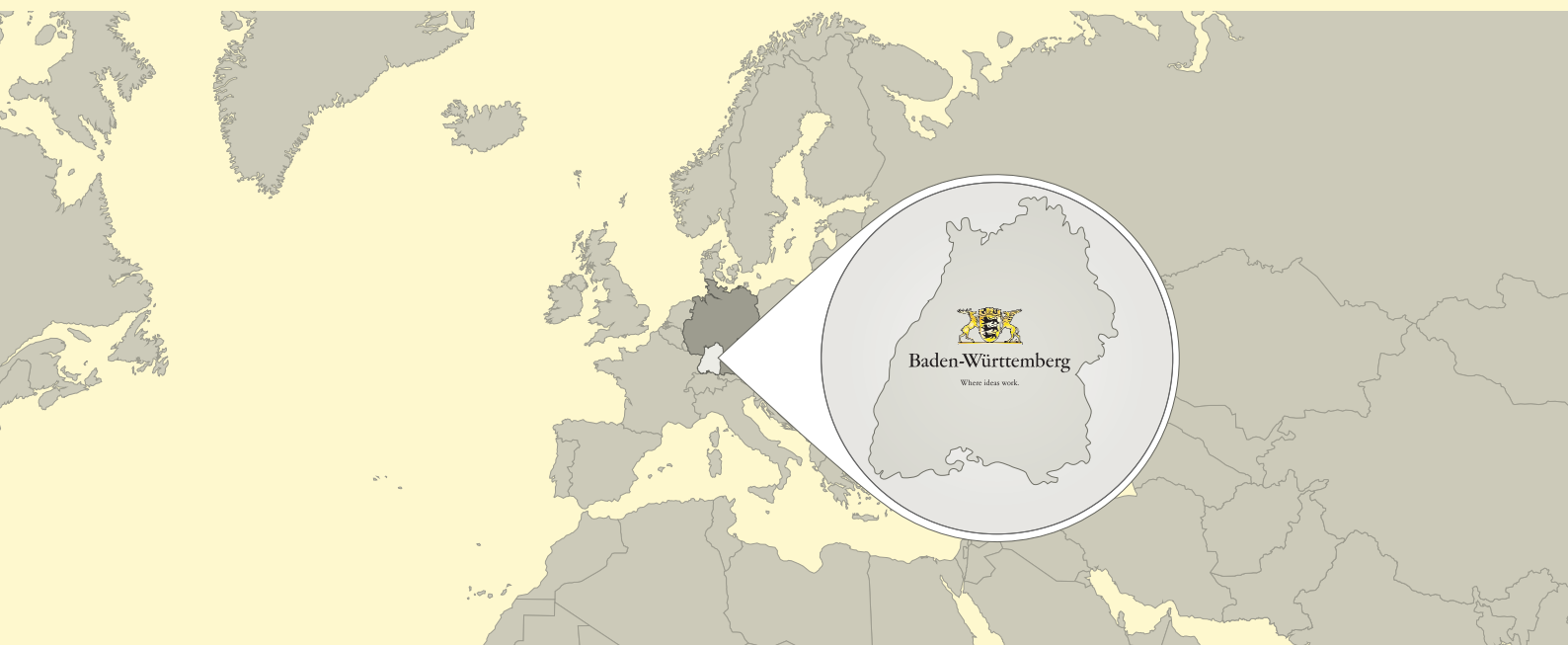
# Your partner on the way to success

Baden-Württemberg International (bw-i) is Baden-Württemberg's centre of competence for the internationalisation of business and science. We lend support to Baden-Württemberg companies, clusters, universities and research institutions as well as to regions and municipalities, in all questions relating to internationalisation. For foreign investors, we serve as our state's central point of contact.

When looking to settle in a new region, companies are confronted with diverse questions and challenges. bw-i supports them in their projects – quickly, simply and competently. We provide information on Baden-Württemberg as a location, supply details regarding the general legal situation, identify suitable partners for business and research, assist in the search for a suitable site and stand by to help you in all phases of the planned settlement process.

For more information visit [www.bw-invest.de/en](http://www.bw-invest.de/en).





Baden-Württemberg International

[www.bw-i.de/en](http://www.bw-i.de/en)



[www.leichtbau-bw.de/en](http://www.leichtbau-bw.de/en)

Published by: Baden-Württemberg International, Agency for International Economic and Scientific Cooperation

Picture credits: P. 1 © ILEK, P. 2: © Dürr AG, P. 3: © Fraunhofer IPA, P. 4: © Leichtbau BW, P. 5: © Leichtbau BW, P. 6: © ZU/Ilja Mess,  
P. 7: © Baden-Württemberg International, P. 8: © stringerphoto, Fotolia.com

Date: July 2017